



ROHM GROUP Short Form Catalog

About ROHM Functional Safety Brand

ComfySIL™



ROHM launched the ComfySIL™ brand for customers involved in the design of functional safety to use products that support SIL (Safety Integrity Level) in a 'Comfy' (comfortable) manner, and for social systems' greater safety, security, and convenience to which ROHM can contribute through its products. ComfySIL™ is awarded to products that conform to the ComfySIL™ concept for functional safety in the industrial equipment and automotive markets.

Please visit the ROHM's website
<https://www.rohm.com/functional-safety>

Functional Safety Product Categories and Documents

ROHM has identified three functional safety product categories. (Currently, only the automotive field is supported.)

-FS process compliant (FSp)

A product that has been developed based on an ISO 26262 design process compliant to the ASIL level.

-FS mechanism implemented (FSm)

A product that has implemented safety mechanism to meet ASIL level requirements.

-FS supportive (FSs)

A product that has been developed for automotive use and is capable of supporting safety analysis with regard to the functional safety.

List of Materials Provided

	FS process compliant (FSp)	FS mechanism implemented (FSm)	FS supportive (FSs)
IATF16949 Process Compliant	✓	✓	✓
ISO 26262 Process Compliant	✓	—	—
FMEA	✓	✓	✓
FIT	✓	✓	✓
FMEDA	✓	✓	✓ *
Safety manual	✓	✓	—

*FS supportive FMEDA does not include analysis such as hardware architecture metrics.

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-Ultra-high-speed pulse control technology Nano Pulse Control™
-Ultra-low-current technology Nano Energy™
-Extremely stable control technology Nano Cap™

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Please visit the ROHM's website
<https://www.rohm.com/support/nano>



"EMARMOUR™" is a product that combines ROHM's analog "circuit design technology" "layout technology" and "process technology" to achieve the Industry-leading of noise immunity in international noise evaluation tests.

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Please visit the ROHM's website
<https://www.rohm.com/emarmour>

Viewing the catalog

- About "ComfySIL™" compatible products

This catalog contains products that are compatible with "ComfySIL™". ComfySIL™-compliant products are indicated in the "ComfySIL™ Functional Safety Category" column with the abbreviations "FSp", "FSm", and "FSs".



FSp: FS process compliant
FSm: FS mechanism implemented
FSs: FS supportive

- **New** indicates new product.

- **☆** indicates product under development.

- **Nano** indicates the products of ROHM's innovative power supply technology.

- **MUS-IC** indicates the products of ROHM's highest peak audio IC "MUS-IC series".

- **EMARMOUR** indicates the products of ROHM's achieves the Industry-leading noise immunity.

- Click on the icon to access the product page on ROHM's website.
Please check the website for the latest updates.

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MemorySerial EEPROM 

P.9

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Automotive EEPROM

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Serial EEPROM**Standard EEPROM****I²C BUS EEPROM (2-Wire) BR24Gxxx-3 series (SCL Frequency=400kHz)**

Part No.	Package and Suffix					Density (bit)	Bit Format (word×bit)	Supply Voltage (V)	Current Consumption (Max)		Write Cycle Time (Max) (ms)	SCL Frequency (Max) (Hz)	Operating Temperature (°C)	Endurance (times)	Data Retention (years)
	SOP8	SOP-J8	TSSOP-B8	MSOP8	VSON008X2030				Operating (mA)	Standby (μA)					
BR24G01	F-3	FJ-3	FVT-3	FVM-3	NUX-3	1K	128×8	1.6 to 5.5	2	2	5	400k	-40 to +85	10 ⁶	40
BR24G02	F-3	FJ-3	FVT-3	FVM-3	NUX-3	2K	256×8	1.6 to 5.5	2	2	5	400k			
BR24G04	F-3	FJ-3	FVT-3	FVM-3	NUX-3	4K	512×8	1.6 to 5.5	2	2	5	400k			
BR24G08	F-3	FJ-3	FVT-3	FVM-3	NUX-3	8K	1K×8	1.6 to 5.5	2	2	5	400k			
BR24G16	F-3	FJ-3	FVT-3	FVM-3	NUX-3	16K	2K×8	1.6 to 5.5	2	2	5	400k			
BR24G32	F-3	FJ-3	FVT-3	FVM-3	NUX-3	32K	4K×8	1.6 to 5.5	2	2	5	400k			
BR24G64	F-3	FJ-3	FVT-3	FVM-3	NUX-3	64K	8K×8	1.6 to 5.5	2	2	5	400k			
BR24G128	F-3	FJ-3	FVT-3	FVM-3	NUX-3	128K	16K×8	1.6 to 5.5	2.5	2	5	400k			
BR24G256	F-3	FJ-3	FVT-3	—	—	256K	32K×8	1.6 to 5.5	2.5	2	5	400k			

I²C BUS EEPROM (2-Wire) BR24Gxxx-3A series (SCL Frequency=1MHz)

Part No.	Package and Suffix					Density (bit)	Bit Format (word×bit)	Supply Voltage (V)	Current Consumption (Max)		Write Cycle Time (Max) (ms)	SCL Frequency (Max) (Hz)	Operating Temperature (°C)	Endurance (times)	Data Retention (years)
	SOP8	SOP-J8	TSSOP-B8	MSOP8	VSON008X2030				Operating (mA)	Standby (μA)					
BR24G01	F-3A	FJ-3A	FVT-3A	FVM-3A	NUX-3A	1K	128×8	1.7 to 5.5	2	2	5	1M	-40 to +85	10 ⁶	40
BR24G02	F-3A	FJ-3A	FVT-3A	FVM-3A	NUX-3A	2K	256×8	1.7 to 5.5	2	2	5	1M			
BR24G04	F-3A	FJ-3A	FVT-3A	FVM-3A	NUX-3A	4K	512×8	1.7 to 5.5	2	2	5	1M			
BR24G08	F-3A	FJ-3A	FVT-3A	FVM-3A	NUX-3A	8K	1K×8	1.7 to 5.5	2	2	5	1M			
BR24G16	F-3A	FJ-3A	FVT-3A	FVM-3A	NUX-3A	16K	2K×8	1.7 to 5.5	2	2	5	1M			

I²C BUS EEPROM (2-Wire) BR24Gxxx-5x series (SCL Frequency=1MHz/Endurance=4million times)

Part No.	Package and Suffix					Density (bit)	Bit Format (word×bit)	Supply Voltage (V)	Current Consumption (Max)		Write Cycle Time (Max) (ms)	SCL Frequency (Max) (Hz)	Operating Temperature (°C)	Endurance (times)	Data Retention (years)
	SOP8	SOP-J8	TSSOP-B8	MSOP8	VSON008X2030				Operating (mA)	Standby (μA)					
BR24G32	F-5	FJ-5	FVT-5	FVM-5	NUX-5	32K	4K×8	1.6 to 5.5	2	2.5	5	1M	-40 to +85	4×10 ⁶	200
BR24G64	F-5	FJ-5	FVT-5	FVM-5	NUX-5	64K	8K×8	1.6 to 5.5	2	2.5	5	1M			
BR24G128	F-5	FJ-5	FVT-5	FVM-5	NUX-5	128K	16K×8	1.6 to 5.5	2	2.5	5	1M			
BR24G256	F-5	FJ-5	FVT-5	FVM-5	NUX-5	256K	32K×8	1.6 to 5.5	2	2.5	5	1M			
BR24G512	F-5A	FJ-5A	FVT-5A	FVM-5A	—	512K	64K×8	1.6 to 5.5	3	5	3.5	1M			
BR24G1M	F-5A	FJ-5A	FVT-5A	—	—	1M	128K×8	1.7 to 5.5	3	5	3.5	1M			

Standard EEPROM

SPI BUS EEPROM BR25Gxxx-3 series

Part No.	Package and Suffix					Density (bit)	Bit Format (word×bit)	Supply Voltage (V)	Current Consumption (Max)		Write Cycle Time (Max) (ms)	Operating Temperature (°C)	Endurance (times)	Data Retention (years)
	SOP8	SOP-J8	TSSOP-B8	MSOP8	VSON008X2030				Operating (mA)	Standby (μA)				
BR25G320	F-3	FJ-3	FVT-3	FVM-3	NUX-3	32K	4K×8	1.6 to 5.5	8	2	5	-40 to +85	10 ⁶	100
BR25G640	F-3	FJ-3	FVT-3	FVM-3	NUX-3	64K	8K×8	1.6 to 5.5	8	2	5			
BR25G128	F-3	FJ-3	FVT-3	FVM-3	NUX-3	128K	16K×8	1.6 to 5.5	8	2	5			
BR25G256	F-3	FJ-3	FVT-3	—	—	256K	32K×8	1.6 to 5.5	8	2	5			
BR25G512	F-3	FJ-3	FVT-3	—	—	512K	64K×8	1.8 to 5.5	4	1	5			
BR25G1M	F-3	FJ-3	—	—	—	1M	128K×8	1.8 to 5.5	4	1	5			

SPI BUS EEPROM BR25Gxxx5A series

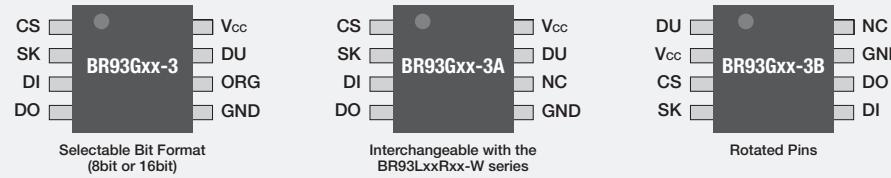
Part No.	Package and Suffix				Density (bit)	Bit Format (word×bit)	Supply Voltage (V)	Current Consumption (Max)		Write Cycle Time (Max) (ms)	Operating Temperature (°C)	Endurance (times)	Data Retention (years)
	SOP-J8	TSSOP-B8	MSOP8	VSON008X2030				Operating (mA)	Standby (μA)				
New BR25G128	FJ-5A	FVT-5A	FVM-5A	NUX-5A	128K	16K×8	1.6 to 5.5	8	2.5	3.5	-40 to +85	4×10 ⁶	200
New BR25G256	FJ-5A	FVT-5A	FVM-5A	NUX-5A	256K	32K×8	1.6 to 5.5	8	2.5	3.5			
New BR25G512	FJ-5A	FVT-5A	FVM-5A	—	512K	64K×8	1.6 to 5.5	8	5	3.5			
New BR25G1M	FJ-5A	FVT-5A	—	—	1M	128K×8	1.8 to 5.5	8	5	3.5			

Microwire BUS EEPROM (3-Wire) BR93Gxx-3/3A/3B series

Part No.	Package and Suffix					Density (bit)	Bit Format (word×bit)	Supply Voltage (V)	Current Consumption (Max)		Write Cycle Time (Max) (ms)	Operating Temperature (°C)	Endurance (times)	Data Retention (years)
	SOP8	SOP-J8	TSSOP-B8	MSOP8	VSON008X2030				Operating (mA)	Standby (μA)				
BR93G46	F-3*/ F-3A*/ F-3B*	FJ-3*/ FJ-3A*/ FJ-3B*	FVT-3*/ FVT-3A*/ FVT-3B*	FVM-3*/ FVM-3A*/ FVM-3B*	NUX-3*/ NUX-3A*/ NUX-3B*	1K	64×16 (128×8)	1.7 to 5.5	3	2	5	-40 to +85	10 ⁶	40
BR93G56	F-3*/ F-3A*/ F-3B*	FJ-3*/ FJ-3A*	FVT-3*/ FVT-3A*/ FVT-3B*	FVM-3*/ FVM-3A*/ FVM-3B*	NUX-3*/ NUX-3A*/ NUX-3B*	2K	128×16 (256×8)	1.7 to 5.5	3	2	5			
BR93G66	F-3*/ F-3A*/ F-3B*	FJ-3*/ FJ-3A*/ FJ-3B*	FVT-3*/ FVT-3A*/ FVT-3B*	FVM-3*/ FVM-3A*/ FVM-3B*	NUX-3*/ NUX-3A*/ NUX-3B*	4K	256×16 (512×8)	1.7 to 5.5	3	2	5			
BR93G76	F-3*/ F-3A*/ F-3B*	FJ-3*/ FJ-3A*	FVT-3*/ FVT-3A*	FVM-3*/ FVM-3A*/ FVM-3B*	NUX-3*/ NUX-3A*/ NUX-3B*	8K	512×16 (1K×8)	1.7 to 5.5	3	2	5			
BR93G86	F-3*/ F-3A*/ F-3B*	FJ-3*/ FJ-3A*/ FJ-3B*	FVT-3*/ FVT-3A*	FVM-3*/ FVM-3A*/ FVM-3B*	NUX-3*/ NUX-3A*/ NUX-3B*	16K	1K×16 (2K×8)	1.7 to 5.5	3	2	5			

Microwire BUS EEPROM (3-Wire) BR93Gxx-3/3A/3B series: *1 They are dual organization (by 16bit or 8bit) and it is selected the input of ORG PIN. *2 1PIN: CS PIN *3 3PIN: CS PIN

Microwire BUS Pin Assignment



WL-CSP EEPROM

Part No.	I/F	Density (bit)	Package				Pull-up Resister	Bit Format (word×bit)	Supply Voltage (V)	Current Consumption (Max)		Write Cycle Time (Max) (ms)	Operating Temperature (°C)	Data Retention (years)
			Package Name	Size (mm)	Thickness (mm) (Max)	Ball Pitch (mm)				Operating (mA)	Standby (μA)			
BU9833GUL-W	I ² C	2K	VCSP50L1	x: 1.27	y: 1.50	0.55	0.5	✓	—	256×8	1.7 to 5.5	2	2	5
BU9847GUL-W		4K	VCSP50L1	x: 1.95	y: 1.06	0.55	0.5	✓	—	512×8	1.7 to 5.5	2	2	5
BU9889GUL-W		8K	VCSP50L1	x: 1.60	y: 1.00	0.55	0.5	✓	—	1K×8	1.7 to 5.5	2	2	5
BRCB008GWZ-3		8K	UCSP30L1	x: 0.94	y: 0.94	0.33	0.4	—	—	1K×8	1.7 to 3.6	2	2	5
BRCB016GWL-3U		16K	UCSP50L1	x: 1.10	y: 1.15	0.55	0.4	✓	—	2K×8	1.7 to 3.6	2	2	5
BRCD016GWZ-3		16K	UCSP35L1	x: 1.30	y: 0.77	0.40	0.4	✓	—	2K×8	1.7 to 3.6	2	2	5
BRCG016GWZ-3		16K	UCSP30L1A	x: 0.82	y: 0.82	0.33	0.4	✓	—	2K×8	1.7 to 5.5	2	2	5
BRCF016GWZ-3		16K	UCSP30L1	x: 0.86	y: 0.84	0.35	0.4	—	—	2K×8	1.7 to 5.5	2	2	5
BRCA016GWZ-W		16K	UCSP30L1	x: 1.30	y: 0.77	0.35	0.4	—	—	2K×8	1.7 to 3.6	2	2	5
BRCB032GWZ-3		32K	UCSP30L1	x: 1.45	y: 0.77	0.33	0.4	—	—	4K×8	1.6 to 5.5	2	2	5
BRCH064GWZ-3		64K	UCSP30L1A	x: 1.50	y: 1.00	0.33	0.4	✓	—	8K×8	1.6 to 5.5	2	2	5
BRCB064GWZ-3		64K	UCSP30L1	x: 1.50	y: 1.00	0.35	0.4	—	WP	8K×8	1.6 to 5.5	3.9	2	5
BRCE064GWZ-3		64K	UCSP25L1	x: 1.50	y: 1.00	0.30	0.4	—	—	8K×8	1.6 to 5.5	2	2	5
BU9897GUL-W		128K	VCSP50L2	x: 2.44	y: 1.99	0.55	0.5	✓	—	16K×8	1.7 to 5.5	2.5	2	5
BU9832GUL-W	SPI	8K	VCSP50L2	x: 2.09	y: 1.85	0.55	0.5	✓	—	1K×8	1.8 to 5.5	3	2	5
BU9829GUL-W		16K	VCSP50L1	x: 1.74	y: 1.65	0.55	0.5	✓	—	2K×8	1.6 to 3.6	2	1	5
BR25S128GUZ-W		128K	VCSP35L2	x: 2.00	y: 2.63	0.40	0.5	✓	—	16K×8	1.7 to 5.5	2*	2	5
BU9891GUL-W	MW	4K	VCSP50L1	x: 1.60	y: 1.00	0.55	0.5	✓	—	256×16	1.7 to 5.5	3	2	5

WL-CSP EEPROM: *V_{CC}=2.5V

Plug & Play EEPROM For Memory Modules

Part No.	Package and Suffix		Bit Format (word×bit)	Supply Voltage (V)	Clock Frequency (kHz)	Write Cycle Time (ms)	Endurance (times)	Data Retention (years)	Write Protect	
	TSSOP-B8	VSON008X2030								
BR34L02	FVT-W	—	256×8	1.7 to 5.5	100*/400*	5	10 ⁶	40	Onetime ROM write protect	
BR34E02	FVT-3/FVT-W	NUX-3/NUX-W	256×8	1.7 to 5.5/ 1.7 to 3.6	400	5	10 ⁶	40	Settable write protect Onetime ROM write protect	

Plug & Play EEPROM For Memory Modules: *1 V_{CC}=1.7 to 5.5V *2 V_{CC}=2.5 to 5.5V

Plug & Play EEPROM For Display

Part No.	Package and Suffix							Function Descriptions	Bit Format (word×bit)	Supply Voltage (V)	Clock Frequency (MHz)	Write Cycle Time (ms)
	SOP8	SOP-J8	SSOP-B8	SOP14	SSOP-B14	SSOP-B16	VSON008X2030					
BR24C21	F	FJ	FV	—	—	—	—	Supports DDC1/DDC2 for displays	128×8	2.5 to 5.5	100/400	10
BU9882	—	—	—	F-W	FV-W	—	—	Dual-port type compatible with DDC2 for displays	128×8×2ch	2.5 to 5.5	100/400	10
BU9883	—	—	—	—	—	FV-W	—	2Kbit×3ch EEPROM for HDMI ports	256×8×3ch	3.0 to 5.5	400	5
BU99022	—	—	—	—	—	—	NUX-3	2Kbit×2ch type	256×8×2ch	1.7 to 5.5	400	5

Automotive EEPROM

125°C Operation I²C BUS EEPROM (2-Wire) BR24Hxx-5AC series

Part No.	Package and Suffix							Density (bit)	Bit Format (word×bit)	Supply Voltage (V)	Current Consumption (Max)	Write Cycle Time (Max) (ms)	Operating Temperature (°C)	Endurance (times)	Data Retention (years)	ComfySIL™ Functional Safety*1	Automotive Grade AEC-Q100
	SOP8	SOP-J8	TSSOP-B8	MSOP8	VSON008X2030	VSON08AX2030	Operating (mA)										
BR24H01	F-5AC	FJ-5AC	FVT-5AC	FVM-5AC	—	ANUX-5AC	1K	128×8	1.7 to 5.5	1.7	10	3.5	-40 to +125 4×10 ⁶	100	FSs	YES	
BR24H02	F-5AC	FJ-5AC	FVT-5AC	FVM-5AC	—	ANUX-5AC	2K	256×8	1.7 to 5.5	1.7	10	3.5			FSs		
BR24H04	F-5AC	FJ-5AC	FVT-5AC	FVM-5AC	—	ANUX-5AC	4K	512×8	1.7 to 5.5	1.7	10	3.5			FSs		
BR24H08	F-5AC	FJ-5AC	FVT-5AC	FVM-5AC	—	ANUX-5AC	8K	1K×8	1.7 to 5.5	1.7	10	3.5			FSs		
BR24H16	F-5AC	FJ-5AC	FVT-5AC	FVM-5AC	—	ANUX-5AC	16K	2K×8	1.7 to 5.5	1.7	10	3.5			FSs		
BR24H32	F-5AC	FJ-5AC	FVT-5AC	FVM-5AC	—	ANUX-5AC	32K	4K×8	1.7 to 5.5	1.7	10	3.5			FSs		
BR24H64	F-5AC	FJ-5AC	FVT-5AC	FVM-5AC	—	ANUX-5AC	64K	8K×8	1.7 to 5.5	1.7	10	3.5			FSs		
BR24H128	F-5AC	FJ-5AC	FVT-5AC	FVM-5AC	NUX-5AC	—	128K	16K×8	1.7 to 5.5	1.7	10	3.5			FSs		
BR24H256	F-5AC	FJ-5AC	FVT-5AC	FVM-5AC	NUX-5AC	—	256K	32K×8	1.7 to 5.5	1.7	10	3.5			FSs		
BR24H512	F-5AC	FJ-5AC	FVT-5AC	FVM-5AC	—	—	512K	64K×8	1.7 to 5.5	3	20	3.5			FSs		
BR24H1M	F-5AC	FJ-5AC	FVT-5AC	—	—	—	1M	128K×8	2.5 to 5.5	3	20	3.5			FSs		

105°C Operation I²C BUS EEPROM (2-Wire) BR24Axx-WM series

Part No.	Package and Suffix			Density (bit)	Bit Format (word×bit)	Supply Voltage (V)	Current Consumption (Max)	Write Cycle Time (Max) (ms)	Operating Temperature (°C)	Endurance (times)	Data Retention (years)	ComfySIL™ Functional Safety*1	Automotive Grade AEC-Q100
	SOP8	SOP-J8	MSOP8										
BR24A01A	F-WM	FJ-WM	—	1K	128×8	2.5 to 5.5	2	2	5	-40 to +105 10 ⁶	40	FSs	YES
BR24A02	F-WM	FJ-WM	FVM-WM	2K	256×8	2.5 to 5.5	2	2	5			FSs	
BR24A04	F-WM	FJ-WM	—	4K	512×8	2.5 to 5.5	2	2	5			FSs	
BR24A08	F-WM	FJ-WM	—	8K	1K×8	2.5 to 5.5	2	2	5			FSs	
BR24A16	F-WM	FJ-WM	—	16K	2K×8	2.5 to 5.5	2	2	5			FSs	
BR24A32	F-WM	—	—	32K	4K×8	2.5 to 5.5	3	2	5			FSs	
BR24A64	F-WM	—	—	64K	8K×8	2.5 to 5.5	3	2	5			FSs	

85°C Operation I²C BUS EEPROM (2-Wire) BR24Txx-3AM series

Part No.	Package and Suffix			Density (bit)	Bit Format (word×bit)	Supply Voltage (V)	Current Consumption (Max)	Write Cycle Time (Max) (ms)	Operating Temperature (°C)	Endurance (times)	Data Retention (years)	ComfySIL™ Functional Safety*1	Automotive Grade AEC-Q100
	SOP8	SOP-J8	TSSOP-B8										
BR24T512	F-3AM	FJ-3AM	FVT-3AM	512K	64K×8	1.7 to 5.5	4.5	3	5	-40 to +85 10 ⁶	40	FSs	YES
BR24T1M	F-3AM	FJ-3AM	—	1M	128K×8	1.7 to 5.5	4.5	3	5			FSs	

125°C Operation Microwire BUS EEPROM (3-Wire) BR93Hxx-2C series

Part No.	Package and Suffix			Density (bit)	Bit Format (word×bit)	Supply Voltage (V)	Current Consumption (Max)	Write Cycle Time (Max) (ms)	Operating Temperature (°C)	Endurance (times)	Data Retention (years)	ComfySIL™ Functional Safety*1	Automotive Grade AEC-Q100	
	SOP8	SOP-J8	TSSOP-B8											
BR93H46	RF-2C	RFJ-2C	RFVT-2C	RFVM-2C	1K	64×16	2.5 to 5.5	3	10	4	-40 to +125 10 ⁶	100	FSs	YES
BR93H56	RF-2C	RFJ-2C	RFVT-2C	RFVM-2C	2K	128×16	2.5 to 5.5	3	10	4			FSs	
BR93H66	RF-2C	RFJ-2C	RFVT-2C	RFVM-2C	4K	256×16	2.5 to 5.5	3	10	4			FSs	
BR93H76	RF-2C	RFJ-2C	RFVT-2C	RFVM-2C	8K	512×16	2.5 to 5.5	3	10	4			FSs	
BR93H86	RF-2C	RFJ-2C	RFVT-2C	RFVM-2C	16K	1K×16	2.5 to 5.5	3	10	4			FSs	

105°C Operation Microwire BUS EEPROM (3-Wire) BR93Axx-WM series

Part No.	Package and Suffix			Density (bit)	Bit Format (word×bit)	Supply Voltage (V)	Current Consumption (Max)	Write Cycle Time (Max) (ms)	Operating Temperature (°C)	Endurance (times)	Data Retention (years)	ComfySIL™ Functional Safety*1	Automotive Grade AEC-Q100	
	SOP8	SOP-J8	TSSOP-B8											
BR93A46	RF-WM	RFJ-WM	RFVT-WM	RFVM-WM	1K	64×16	2.5 to 5.5	3	2	5	-40 to +105 10 ⁶	40	FSs	YES
BR93A56	RF-WM	RFJ-WM	RFVT-WM	RFVM-WM	2K	128×16	2.5 to 5.5	3	2	5			FSs	
BR93A66	—	RFJ-WM	RFVT-WM	RFVM-WM	4K	256×16	2.5 to 5.5	3	2	5			FSs	
BR93A76	RF-WM	RFJ-WM	RFVT-WM	RFVM-WM										

Automotive EEPROM

125°C Operation Built-in ECC Function SPI BUS EEPROM BR25Hxxx-5AC series																	
Part No.	Package and Suffix					Density (bit)	Bit Format (word×bit)	Supply Voltage (V)	Current Consumption (Max)		Write Cycle Time (Max) (ms)	Operating Temperature (°C)	Endurance (times)	Data Retention (years)	ComfySIL™ Functional Safety*1	Automotive Grade AEC-Q100	
	SOP8	SOP-J8	TSSOP-B8	MSOP8	VSON08A(X)2303				Operating (mA)	Standby (µA)							
BR25H010	F-5AC	FJ-5AC	FVT-5AC	FVM-5AC	—	ANUX-5AC	1K	128×8	1.7 to 5.5	8	10	3.5	-40 to +125	4×10 ⁶	100	FSs	YES
BR25H020	F-5AC	FJ-5AC	FVT-5AC	FVM-5AC	—	ANUX-5AC	2K	256×8	1.7 to 5.5	8	10	3.5				FSs	
BR25H040	F-5AC	FJ-5AC	FVT-5AC	FVM-5AC	—	ANUX-5AC	4K	512×8	1.7 to 5.5	8	10	3.5				FSs	
BR25H080	F-5AC	FJ-5AC	FVT-5AC	FVM-5AC	—	ANUX-5AC	8K	1K×8	1.7 to 5.5	8	10	3.5				FSs	
BR25H160	F-5AC	FJ-5AC	FVT-5AC	FVM-5AC	—	ANUX-5AC	16K	2K×8	1.7 to 5.5	8	10	3.5				FSs	
BR25H320	F-5AC	FJ-5AC	FVT-5AC	FVM-5AC	NUX-5AC	—	32K	4K×8	1.7 to 5.5	8	10	3.5				FSs	
BR25H640	F-5AC	FJ-5AC	FVT-5AC	FVM-5AC	NUX-5AC	—	64K	8K×8	1.7 to 5.5	8	10	3.5				FSs	
BR25H128	F-5AC	FJ-5AC	FVT-5AC	FVM-5AC	NUX-5AC	—	128K	16K×8	1.7 to 5.5	8	10	3.5				FSs	
BR25H256	F-5AC	FJ-5AC	FVT-5AC	FVM-5AC	NUX-5AC	—	256K	32K×8	1.7 to 5.5	8	10	3.5				FSs	
BR25H512	F-5AC	FJ-5AC	FVT-5AC	FVM-5AC	—	—	512K	64K×8	1.7 to 5.5	8	20	3.5				FSs	
BR25H1M	F-5AC	FJ-5AC	FVT-5AC	—	—	—	1024K	128K×8	1.7 to 5.5	8	20	3.5				FSs	
125°C Operation SPI BUS EEPROM with ECC Function BR25Hxxx-2AC series																	
Part No.	Package and Suffix					Density (bit)	Bit Format (word×bit)	Supply Voltage (V)	Current Consumption (Max)		Write Cycle Time (Max) (ms)	Operating Temperature (°C)	Endurance (times)	Data Retention (years)	ComfySIL™ Functional Safety*1	Automotive Grade AEC-Q100	
	SOP8	SOP-J8	TSSOP-B8	MSOP8	Operating (mA)				Standby (µA)								
BR25H640	F-2AC	FJ-2AC	FVT-2AC	FVM-2AC	64K	8K×8	2.5 to 5.5	5.5	10	4	-40 to +125	10 ⁶	100	FSs	YES		
BR25H128	F-2AC	FJ-2AC	FVT-2AC	—	128K	16K×8	2.5 to 5.5	5.5	10	4				FSs			
BR25H256	F-2AC	FJ-2AC	—	—	256K	32K×8	2.5 to 5.5	5.5	10	4				FSs			
125°C Operation SPI BUS EEPROM BR25Hxxx-2C series																	
Part No.	Package and Suffix					Density (bit)	Bit Format (word×bit)	Supply Voltage (V)	Current Consumption (Max)		Write Cycle Time (Max) (ms)	Operating Temperature (°C)	Endurance (times)	Data Retention (years)	ComfySIL™ Functional Safety*1	Automotive Grade AEC-Q100	
	SOP8	SOP-J8	TSSOP-B8	MSOP8	Operating (mA)				Standby (µA)								
BR25H010	F-2C	FJ-2C	FVT-2C	FVM-2C	1K	128×8	2.5 to 5.5	4	10	4	-40 to +125	10 ⁶	100	FSs	YES		
BR25H020	F-2C	FJ-2C	FVT-2C	FVM-2C	2K	256×8	2.5 to 5.5	4	10	4				FSs			
BR25H040	F-2C	FJ-2C	FVT-2C	FVM-2C	4K	512×8	2.5 to 5.5	4	10	4				FSs			
BR25H080	F-2C	FJ-2C	FVT-2C	FVM-2C	8K	1K×8	2.5 to 5.5	4	10	4				FSs			
BR25H160	F-2C	FJ-2C	FVT-2C	FVM-2C	16K	2K×8	2.5 to 5.5	4	10	4				FSs			
BR25H320	F-2C	FJ-2C	FVT-2C	FVM-2C	32K	4K×8	2.5 to 5.5	4	10	4				FSs			
BR25H640	F-2C	FJ-2C	FVT-2C	—	64K	8K×8	2.5 to 5.5	5.5	10	4				FSs			
BR25H128	F-2C	FJ-2C	—	—	128K	16K×8	2.5 to 5.5	5.5	10	4				FSs			
105°C Operation SPI BUS EEPROM BR25Axxx-3M series																	
Part No.	Package and Suffix					Density (bit)	Bit Format (word×bit)	Supply Voltage (V)	Current Consumption (Max)		Write Cycle Time (Max) (ms)	Operating Temperature (°C)	Endurance (times)	Data Retention (years)	ComfySIL™ Functional Safety*1	Automotive Grade AEC-Q100	
	SOP8	SOP-J8	TSSOP-B8	MSOP8	Operating (mA)				Standby (µA)								
BR25A256	F-3M	FJ-3M	FVT-3M	—	256K	32K×8	2.5 to 5.5	4	10	5	-40 to +105	10 ⁶	100	FSs	YES		
BR25A512	F-3M	FJ-3M	FVT-3M	—	512K	64K×8	2.5 to 5.5	4	10	5				FSs			
BR25A1M	F-3M	FJ-3M	—	—	1M	128K×8	2.5 to 5.5	4	10	5				FSs			

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*1 For more information about "ComfySIL™ Functional Safety", please refer to the reverse side of the cover.

Operational Amplifiers & Comparators

Operational Amplifiers

P.13

Comparators

P.19

Click on the icon to access the product page on ROHM's website. Please check the website for the latest updates.

Operational Amplifiers

High Performance (Products with multiple features)	P.13	Low Offset Voltage (Input Offset Voltage $\leq 2.5\text{mV}$)	P.14
Low Noise (Equivalent Input Noise Voltage $\leq 20\text{nV}/\sqrt{\text{Hz}}$)	P.14	High Speed (GBW $\geq 5\text{MHz}$)	P.15
Low Power (Circuit Current $\leq 100\mu\text{A}/\text{ch}$)	P.15	General Purpose	P.17

Comparators

Standard	P.19	High Speed	P.20
Low Power Consumption	P.20		

Operational Amplifiers

High Performance (Products with multiple features)

Automotive Rail-to-Rail Input/Output High Performance Operational Amplifiers																			
Part No.	ch	Supply Voltage (V)	Circuit Current (Typ) (mA)	Input Offset Voltage (Max) (mV)	Input Bias Current (Typ) (nA)	Output Current (Typ) (mA)	Input Voltage (V)	Output Voltage (V)	Voltage Gain (Typ) (dB)	CMRR (Typ) (dB)	PSRR (Typ) (dB)	Slew Rate (Typ) (V/ μs)	GBW (Typ) (MHz)	Equivalent Input Noise Voltage (Typ) (nV/ $\sqrt{\text{Hz}}$)	Operating temperature (°C)	Package	Part No. Suffix	ComfySIL™ Functional Safety*1	Automotive Grade AEC-Q100
New LMR376Y	1	2.5 to 5.5	0.85	0.19	0.0005	55	V_{SS} to V_{DD}	$V_{SS}+0.005$ to $V_{DD}-0.007$	140	100	110	1.1	3.2	5.5	-40 to +125	SSOP5	G-C	FSs	YES
Nano BD7280Y	1	2.5 to 5.5	1.7	1.6	0.0005	50	V_{SS} to V_{DD}	$V_{SS}+0.010$ to $V_{DD}-0.010$	115	100	100	10	7	12	-40 to +125	SSOP6	G-C	FSs	YES
Nano BD7281Y	1	2.5 to 5.5	1.7	1.6	0.0005	50	V_{SS} to V_{DD}	$V_{SS}+0.010$ to $V_{DD}-0.010$	115	100	100	10	7	12	-40 to +125	SSOP5	G-C	FSs	YES
TLR376Y	1	2.5 to 5.5	0.645	0.15	0.0005	50	V_{SS} to V_{DD}	$V_{SS}+0.015$ to $V_{DD}-0.025$	137	100	95	2	4	8	-40 to +125	SSOP5	G-C	FSs	YES
TLR2376Y	2	2.5 to 5.5	1.245	0.15	0.0005	50	V_{SS} to V_{DD}	$V_{SS}+0.015$ to $V_{DD}-0.025$	137	100	95	2	4	8	-40 to +125	MSOP8	FVM-C	FSs	YES
TLR4376Y	4	2.5 to 5.5	2.49	0.15	0.0005	50	V_{SS} to V_{DD}	$V_{SS}+0.015$ to $V_{DD}-0.025$	137	100	95	2	4	8	-40 to +125	SOP-J8	FJ-C	FSs	YES
TLR377Y	1	2.5 to 5.5	0.645	1.2	0.0005	50	V_{SS} to V_{DD}	$V_{SS}+0.015$ to $V_{DD}-0.025$	137	100	95	2	4	8	-40 to +125	SSOP5	G-C	FSs	YES
TLR2377Y	2	2.5 to 5.5	1.245	1.2	0.0005	50	V_{SS} to V_{DD}	$V_{SS}+0.015$ to $V_{DD}-0.025$	137	100	95	2	4	8	-40 to +125	MSOP8	FVM-C	FSs	YES
TLR4377Y	4	2.5 to 5.5	2.49	1.2	0.0005	50	V_{SS} to V_{DD}	$V_{SS}+0.015$ to $V_{DD}-0.025$	137	100	95	2	4	8	-40 to +125	SOP-J8	FJ-C	FSs	YES

Automotive High-Performance Operational Amplifiers

Part No.	ch	Supply Voltage (V)	Circuit Current (Typ) (mA)	Input Offset Voltage (Max) (mV)	Input Bias Current (Typ) (nA)	Output Current (Typ) (mA)	Input Voltage (V)	Output Voltage (V)	Voltage Gain (Typ) (dB)	CMRR (Typ) (dB)	PSRR (Typ) (dB)	Slew Rate (Typ) (V/ μs)	GBW (Typ) (MHz)	Equivalent Input Noise Voltage (Typ) (nV/ $\sqrt{\text{Hz}}$)	Operating temperature (°C)	Package	Part No. Suffix	ComfySIL™ Functional Safety*1	Automotive Grade AEC-Q100
LMR1802Y	1	2.5 to 5.5	1.1	0.45	0.0005	3.5	V_{SS} to $V_{DD}-1.0$	$V_{SS}+0.004$ to $V_{DD}-0.007$	140	105	125	1.1	4.4	2.9	-40 to +125	SSOP5	G-C	FSs	YES
LMR1801Y	1	2.2 to 5.5	0.95	0.95	0.0005	3.5	V_{SS} to $V_{DD}-1.0$	$V_{SS}+0.003$ to $V_{DD}-0.007$	140	100	110	2.5	6	5	-40 to +125	SSOP5	G-C	FSs	YES
LMR1803Y	1	2.2 to 5.5	1	0.15	0.0005	3.5	V_{SS} to $V_{DD}-1.0$	$V_{SS}+0.003$ to $V_{DD}-0.007$	140	100	110	2.5	6	5	-40 to +125	SSOP5	G-C	FSs	YES

Rail-to-Rail Input/Output High Performance Operational Amplifiers

Part No.	ch	Supply Voltage (V)	Circuit Current (Typ) (mA)	Input Offset Voltage (Max) (mV)	Input Bias Current (Typ) (nA)	Output Current (Typ) (mA)	Input Voltage	Output Voltage	Voltage Gain (Typ) (dB)	CMRR (Typ) (dB)	PSRR (Typ) (dB)	Slew Rate (Typ) (V/ μs)	GBW (Typ) (MHz)	Equivalent Input Noise Voltage (Typ) (nV/ $\sqrt{\text{Hz}}$)	Operating temperature (°C)	Package	Part No. Suffix	ComfySIL™ Functional Safety*1	Part No. Suffix
Nano BD7282	2	2.5 to 5.5	1.7	1.6	0.0005	50	V_{SS} to V_{DD}	$V_{SS}+0.010$ to $V_{DD}-0.010$	115	100	100	10	7	12	-40 to +125	MSOP8	FVM-LB		
Nano BD7284	4	2.5 to 5.5	1.7	1.6	0.0005	50	V_{SS} to V_{DD}	$V_{SS}+0.010$ to $V_{DD}-0.010$	115	100	100	10	7	12	-40 to +125	SOP14	F-LB		
TLR377	1	2.5 to 5.5	0.585	1.4	0.0005	50	V_{SS} to V_{DD}	$V_{SS}+0.015$ to $V_{DD}-0.025$	137	100	95	2	4	12	-40 to +125	HVSOF5	HVF-LB		
BD5291	1	1.7 to 5.5	0.65	2.5	0.001	17	V_{SS} to V_{DD}	$V_{SS}+0.1$ to $V_{DD}-0.1$	110	90	90	2.5	3.2	18	-40 to +85	SSOP5	G		
																VSOF5	FVE		
																UCSP50L1	GWL		

High Performance Operational Amplifiers

Part No.	ch	Supply Voltage (V)	Circuit Current (Typ) (mA)	Input Offset Voltage (Max) (mV)	Input Bias Current (Typ) (nA)	Output Current (Typ) (mA)	Input Voltage	Output Voltage	Voltage Gain (Typ) (dB)	CMRR (Typ) (dB)	PSRR (Typ) (dB)	Slew Rate (Typ) (V/ μs)	GBW (Typ) (MHz)	Equivalent Input Noise Voltage (Typ) (nV/ $\sqrt{\text{Hz}}$)	Operating temperature (°C)	Package	Part No. Suffix
LMR1802	1	2.5 to 5.5	1.1	0.45	0.0005	3.5	V_{SS} to $V_{DD}-1.0$	$V_{SS}+0.005$ to $V_{DD}-0.007$	140	105	125	1.1	3	2.9	-40 to +125	SSOP5	G-LB
LMR1801	1	2.2 to 5.5	0.95	0.9	0.0005	3.5	V_{SS} to $V_{DD}-1.0$	$V_{SS}+0.005$ to $V_{DD}-0.007$	140	100	125	2.5	6	5	-40 to +125	SSOP5	G-LB
LMR1803	1	2.2 to 5.5	1	0.15	0.0005	3.5	V_{SS} to $V_{DD}-1.0$	$V_{SS}+0.003$ to $V_{DD}-0.007$	140	100	110	2.5	6	5	-40 to +125	SSOP5	G-LB

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Nano Cap is a product using Nano Pulse Control™ technology, Nano Energy™ technology or Nano Cap™ technology. ROHM's innovative "Nano" power supply technologies achieve breakthrough energy savings and miniaturization.

Low Offset Voltage (Input Offset Voltage $\leq 2.5\text{mV}$)

Automotive Rail-to-Rail Input/Output Low Offset Operational Amplifier

Part No.	ch	Supply Voltage (V)	Circuit Current (Typ) (mA)	Input Offset Voltage (Max) (mV)	Input Bias Current (Typ) (nA)	Output Current (Typ) (mA)	Input Voltage (V)	Output Voltage (V)	Voltage Gain (Typ) (dB)	CMRR (Typ) (dB)	PSRR (Typ) (dB)	Slew Rate (Typ) (V/ μ s)	GBW (Typ) (MHz)	Equivalent Input Noise Voltage (Typ) (nV/ $\sqrt{\text{Hz}}$)	Operating temperature ($^{\circ}\text{C}$)	Package	Part No. Suffix	ComfySIL™ Functional Safety*1	Automotive Grade AEC-Q100
New LMR1001Y	1	2.7 to 5.5	0.85	0.012	0.15	35	$V_{\text{SS}} \text{ to } V_{\text{DD}}$	$V_{\text{SS}} + 0.010 \text{ to } V_{\text{DD}} - 0.020$	145	130	115	1.3	1.5	70	-40 to +125	SOP8	F-C	FSs	YES

Rail-to-Rail Input/Output Low Offset Voltage Operational Amplifiers

Part No.	ch	Supply Voltage (V)	Circuit Current (Typ) (mA)	Input Offset Voltage (Max) (mV)	Input Bias Current (Typ) (nA)	Output Current (Typ) (mA)	Input Voltage (V)	Output Voltage (V)	Voltage Gain (Typ) (dB)	CMRR (Typ) (dB)	PSRR (Typ) (dB)	Slew Rate (Typ) (V/ μ s)	GBW (Typ) (MHz)	Equivalent Input Noise Voltage (Typ) (nV/ $\sqrt{\text{Hz}}$)	Operating temperature ($^{\circ}\text{C}$)	Package	Part No. Suffix
New BD87522 EMARMOUR	2	4 to 15	3.95	1	0.001	16.5	$V_{\text{SS}} \text{ to } V_{\text{DD}}$	$V_{\text{SS}} + 0.03 \text{ to } V_{\text{DD}} - 0.05$	110	85	90	2.4	—	50	-40 to +125	SSOP-B14	FV-LB
New BD87524 EMARMOUR	4	4 to 15	7.9	1	0.001	16.5	$V_{\text{SS}} \text{ to } V_{\text{DD}}$	$V_{\text{SS}} + 0.03 \text{ to } V_{\text{DD}} - 0.05$	110	85	90	2.4	—	50	-40 to +125	SSOP-B14	FV-LB

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EMARMOUR™ Mark is achieves the Industry-leading noise immunity.

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Low Noise (Equivalent Input Noise Voltage $\leq 20\text{nV}/\sqrt{\text{Hz}}$)

Automotive Low Noise Operational Amplifiers

Part No.	ch	Supply Voltage (V)	Circuit Current (Typ) (mA)	Input Offset Voltage (Max) (mV)	Input Bias Current (Typ) (nA)	Output Current (Typ) (mA)	Input Voltage (V)	Output Voltage (V)	Voltage Gain (Typ) (dB)	CMRR (Typ) (dB)	PSRR (Typ) (dB)	Slew Rate (Typ) (V/ μ s)	GBW (Typ) (MHz)	Equivalent Input Noise Voltage (Typ) (nV/ $\sqrt{\text{Hz}}$)	Operating temperature ($^{\circ}\text{C}$)	Package	Part No. Suffix	ComfySIL™ Functional Safety*1	Automotive Grade AEC-Q100
BA4580Y	2	4 to 32	6	3	100	—	$V_{\text{EE}} + 1.5 \text{ to } V_{\text{CC}} - 1.5$	$V_{\text{EE}} + 1.5 \text{ to } V_{\text{CC}} - 1.5$	110	110	110	5	10	5	-40 to +105	SOP8	F-M	FSs	YES
BA4584Y	4	4 to 32	11	3	100	—	$V_{\text{EE}} + 1.5 \text{ to } V_{\text{CC}} - 1.5$	$V_{\text{EE}} + 1.5 \text{ to } V_{\text{CC}} - 1.5$	110	110	110	5	10	5	-40 to +105	SSOP-B14	FV-M	FSs	YES
BA4560Y	2	8 to 30	3	6	50	25	$V_{\text{EE}} + 1.0 \text{ to } V_{\text{CC}} - 1.0$	$V_{\text{EE}} + 1.0 \text{ to } V_{\text{CC}} - 1.0$	100	90	90	4	4	8	-40 to +105	SOP8	F-M	FSs	YES
BA4558Y	2	8 to 30	3	6	60	—	$V_{\text{EE}} + 1.0 \text{ to } V_{\text{CC}} - 1.0$	$V_{\text{EE}} + 1.0 \text{ to } V_{\text{CC}} - 1.0$	100	90	90	1	2	12	-40 to +105	SSOP-B8	FV-M	FSs	YES
																MSOP8	FVM-M	FSs	YES

Rail-to-Rail Input/Output Low Noise Operational Amplifiers

Part No.	ch	Supply Voltage (V)	Circuit Current (Typ) (mA)	Input Offset Voltage (Max) (mV)	Input Bias Current (Typ) (nA)	Output Current (Typ) (mA)	Input Voltage (V)	Output Voltage (V)	Voltage Gain (Typ) (dB)	CMRR (Typ) (dB)	PSRR (Typ) (dB)	Slew Rate (Typ) (V/ μ s)	GBW (Typ) (MHz)	Equivalent Input Noise Voltage (Typ) (nV/ $\sqrt{\text{Hz}}$)	Operating temperature ($^{\circ}\text{C}$)	Package	Part No. Suffix
BD12730	1	1.8 to 5.5	0.32	5	50	5	GND to V_+	$GND + 0.05 \text{ to } V_+ - 0.05$	85	70	85	0.4	1	10	-40 to +85	SSOP5	G
BD12732	2	1.8 to 5.5	0.58	5	50	5	GND to V_+	$GND + 0.05 \text{ to } V_+ - 0.05$	85	70	85	0.4	1	10	-40 to +85	SOP8	F
BD12734	4	1.8 to 5.5	1.2	5	50	5	GND to V_+	$GND + 0.05 \text{ to } V_+ - 0.05$	85	70	85	0.4	1	10	-40 to +85	SOP8	F

Low Noise Operational Amplifiers

Part No.	ch	Supply Voltage (V)	Circuit Current (Typ) (mA)	Input Offset Voltage (Max) (mV)	Input Bias Current (Typ) (nA)	Output Current (Typ) (mA)	Input Voltage (V)	Output Voltage (V)	Voltage Gain (Typ) (dB)	CMRR (Typ) (dB)	PSRR (Typ) (dB)	Slew Rate (Typ) (V/ μ s)	GBW (Typ) (MHz)	Equivalent Input Noise Voltage (Typ) (nV/ $\sqrt{\text{Hz}}$)	Operating temperature ($^{\circ}\text{C}$)	Package	Part No. Suffix
LM4565	2	4 to 36	4.5	1.5	70	130	$V_{\text{EE}} + 1.0 \text{ to } V_{\text{CC}} - 1.0$	$V_{\text{EE}} + 1.0 \text{ to } V_{\text{CC}} - 1.0$	100	100	100	5	10	5	-40 to +85	SOP8	F
LM4559	2	8 to 36	3.3	1.5	40	—	$V_{\text{EE}} + 2.0 \text{ to } V_{\text{CC}} - 2.0$	$V_{\text{EE}} + 2.0 \text{ to } V_{\text{DD}} - 2.0$	110	100	100	3.5	4	5	-40 to +85	SOP8	F
BA4564W	4	8 to 30	6	2.5	50	25	$V_{\text{EE}} + 1.0 \text{ to } V_{\text{CC}} - 1.0$	$V_{\text{EE}} + 1.0 \text{ to } V_{\text{CC}} - 1.0$	100	90	90	4	4	8	-40 to +105	SSOP-B14	FV
BA4564R	4	8 to 30	6	6	50	25	$V_{\text{EE}} + 1.0 \text{ to } V_{\text{CC}} - 1.0$	$V_{\text{EE}} + 1.0 \text{ to } V_{\text{CC}} - 1.0$	100	90	90	4	4	8	-40 to +105	SSOP-B14	FV
BA4510	2	2 to 7	5	6	80	10	$V_{\text{EE}} + 1.5 \text{ to } V_{\text{CC}} - 1.5$	$V_{\text{EE}} + 0.1 \text{ to } V_{\text{CC}} - 0.1$	90	80	80	5	10	6	-20 to +75	SOP8	F
BA4584	4	4 to 32	12	3	100	—	$V_{\text{EE}} + 1.5 \text{ to } V_{\text{CC}} - 1.5$	$V_{\text{EE}} + 1.5 \text{ to } V_{\text{CC}} - 1.5$	110	110	110	5	5	5	-40 to +85	SSOP-B14	FV
BA4584R	4	4 to 19	11	3	100	—	$V_{\text{EE}} + 1.5 \text{ to } V_{\text{CC}} - 1.5$	$V_{\text{EE}} + 1.5 \text{ to } V_{\text{CC}} - 1.5$	110	110	110	5	5	5	-40 to +105	SOP14	F

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High Speed (GBW \geq 5MHz)**Automotive High Speed Operational Amplifier**

Part No.	ch	Supply Voltage (V)	Circuit Current (Typ) (mA)	Input Offset Voltage (Max) (mV)	Input Bias Current (Typ) (nA)	Output Current (Typ) (mA)	Input Voltage (V)	Output Voltage (V)	Voltage Gain (Typ) (dB)	CMRR (Typ) (dB)	PSRR (Typ) (dB)	Slew Rate (Typ) (V/ μ s)	GBW (Typ) (MHz)	Equivalent Input Noise Voltage (Typ) (nV/ \sqrt Hz)	Operating temperature ($^{\circ}$ C)	Package	Part No. Suffix	ComfySIL™ Functional Safety*1	Automotive Grade AEC-Q100
LMR1701Y	1	2.7 to 5.5	9.6	6	0.0026	200	V_{SS} to $V_{DD}-0.9$	$V_{SS}+0.020$ to $V_{DD}-0.015$	120	80	86	80	150	3	-40 to +125	SSOP6	G-C	FSs	YES

High Speed Operational Amplifiers

Part No.	ch	Supply Voltage (V)	Circuit Current (Typ) (mA)	Input Offset Voltage (Max) (mV)	Input Bias Current (Typ) (nA)	Output Current (Typ) (mA)	Input Voltage (V)	Output Voltage (V)	Voltage Gain (Typ) (dB)	CMRR (Typ) (dB)	PSRR (Typ) (dB)	Slew Rate (Typ) (V/ μ s)	GBW (Typ) (MHz)	Equivalent Input Noise Voltage (Typ) (nV/ \sqrt Hz)	Operating temperature ($^{\circ}$ C)	Package	Part No. Suffix
LMR1701	1	2.7 to 5.5	9.6	6	0.0026	200	V_{SS} to $V_{DD}-0.9$	$V_{SS}+0.02$ to $V_{DD}-0.015$	120	80	86	80	150	3	-40 to +125	SSOP6	G-LB
 BD77501	1	7 to 15	1.3	27	0.001	7.5	V_{SS} to $V_{DD}-2.0$	$V_{SS}+0.07$ to $V_{DD}-0.06$	75	70	70	10	8	—	-40 to +85	SSOP5	G
 BD77502	2	7 to 15	2.6	27	0.001	7.5	V_{SS} to $V_{DD}-2.0$	$V_{SS}+0.07$ to $V_{DD}-0.06$	75	70	70	10	8	—	-40 to +85	MSOP8	FVM
 BD77504	4	7 to 15	5.2	27	0.001	7.5	V_{SS} to $V_{DD}-2.0$	$V_{SS}+0.07$ to $V_{DD}-0.06$	75	70	70	10	8	—	-40 to +85	SSOP-B14	FV
BU7485/ BU7485S	1	3.0 to 5.5	1.5	9.5	0.001	8	V_{SS} to $V_{DD}-1.4$	$V_{SS}+0.1$ to $V_{DD}-0.1$	105	60	80	10	10	—	-40 to +85/-40 to +105	SSOP5	G
BU7486/ BU7486S	2	3.0 to 5.5	3	9.5	0.001	8	V_{SS} to $V_{DD}-1.4$	$V_{SS}+0.1$ to $V_{DD}-0.1$	105	60	80	10	10	—	-40 to +85/-40 to +105	SOP8	F
																SSOP-B8	FV
																MSOP8	FVM
BU7487/ BU7487S	4	3.0 to 5.5	6	9.5	0.001	8	V_{SS} to $V_{DD}-1.4$	$V_{SS}+0.1$ to $V_{DD}-0.1$	105	60	80	10	10	—	-40 to +85/-40 to +105	SOP14	F
																SSOP-B14	FV
LMR821	1	2.5 to 5.5	0.325	3.5	40	40	V_{SS} to $V_{DD}-0.9$	$V_{SS}+0.1$ to $V_{DD}-0.1$	105	90	85	2	5.5	30	-40 to +85	SSOP5	G
LMR822	2	2.5 to 5.5	0.65	5	40	40	V_{SS} to $V_{DD}-0.9$	$V_{SS}+0.1$ to $V_{DD}-0.1$	105	90	85	2	5.5	30	-40 to +85	SOP8	F
																SOP-J8	FJ
																SSOP-B8	FV
																TSSOP-B8J	FVJ
																MSOP8	FVM
																TSSOP-B8	FVT
LMR824	4	2.5 to 5.5	1.13	5	40	40	V_{SS} to $V_{DD}-0.9$	$V_{SS}+0.1$ to $V_{DD}-0.1$	105	90	85	2	5.5	30	-40 to +85	SOP14	F
																SOP-J14	FJ
																TSSOP-B14J	FVJ
BA2107	1	2 to 14	1.8	6	150	1.4	$V_{EE}+1.5$ to $V_{CC}-1.5$	$V_{SS}+0.2$ to $V_{DD}-0.2$	80	74	80	4	12	—	-40 to +85	SSOP5	G

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 Nano Mark is a product using Nano Pulse Control™ technology, Nano Energy™ technology or Nano Cap™ technology. ROHM's innovative "Nano" power supply technologies achieve breakthrough energy savings and miniaturization. EMARMOUR™ is a product equipped with Nano Cap™ extremely stable control technology. Nano Energy™, Nano Pulse Control™ and Nano Cap™ is a trademark or a registered trademark of ROHM Co., Ltd.**Low Power (Circuit Current \leq 100 μ A/ch)****Automotive Rail-to-Rail Input/Output Low Power Operational Amplifiers**

Part No.	ch	Supply Voltage (V)	Circuit Current (Typ) (μ A)	Input Offset Voltage (Max) (mV)	Input Bias Current (Typ) (nA)	Output Current (Typ) (mA)	Input Voltage (V)	Output Voltage (V)	Voltage Gain (Typ) (dB)	CMRR (Typ) (dB)	PSRR (Typ) (dB)	Slew Rate (Typ) (V/ μ s)	GBW (Typ) (MHz)	Equivalent Input Noise Voltage (Typ) (nV/ \sqrt Hz)	Operating temperature ($^{\circ}$ C)	Package	Part No. Suffix	ComfySIL™ Functional Safety*1	Automotive Grade AEC-Q100
BU7241Y	1	1.8 to 5.5	70	10	0.001	10	V_{SS} to V_{DD}	$V_{SS}+0.05$ to $V_{DD}-0.05$	100	70	80	0.4	1.0	—	-40 to +125	SSOP5	G-C	FSs	YES
BU7242Y	2	1.8 to 5.5	180	10	0.001	10	V_{SS} to V_{DD}	$V_{SS}+0.05$ to $V_{DD}-0.05$	100	70	80	0.4	1.0	—	-40 to +125	MSOP8	FVM-C	FSs	YES
BU7244Y	4	1.8 to 5.5	360	10	0.001	10	V_{SS} to V_{DD}	$V_{SS}+0.05$ to $V_{DD}-0.05$	100	70	80	0.4	1.0	—	-40 to +125	SSOP-B14	FV-C	FSs	YES

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Low Power (Circuit Current $\leq 100\mu\text{A}/\text{ch}$)

Rail-to-Rail Input/Output Low Power Operational Amplifiers

Part No.	ch	Supply Voltage (V)	Circuit Current (Typ) (μA)	Input Offset Voltage (Max) (mV)	Input Bias Current (Typ) (nA)	Output Current (Typ) (mA)	Input Voltage (V)	Output Voltage (V)	Voltage Gain (Typ) (dB)	CMRR (Typ) (dB)	PSRR (Typ) (dB)	Slew Rate (Typ) (V/ μs)	GBW (Typ) (MHz)	Equivalent Input Noise Voltage (Typ) (nV/ $\sqrt{\text{Hz}}$)	Operating temperature (°C)	Package	Part No. Suffix
BU7265/BU7265S	1	1.8 to 5.5	0.35	8.5	0.001	2.4	$V_{\text{SS}} \text{ to } V_{\text{DD}}$	$V_{\text{SS}}+0.1 \text{ to } V_{\text{DD}}-0.1$	95	60	80	0.0024	0.004	—	-40 to +85/-40 to +105	SSOP5	G
BU7266/BU7266S	2	1.8 to 5.5	0.7	8.5	0.001	2.4	$V_{\text{SS}} \text{ to } V_{\text{DD}}$	$V_{\text{SS}}+0.1 \text{ to } V_{\text{DD}}-0.1$	95	60	80	0.0024	0.004	—	-40 to +85/-40 to +105	SOP8	F
BU7266/BU7266S																SSOP-B8	FV
BU7266/BU7266S																MSOP8	FVM
BU7205/BU7205S	1	1.8 to 5.5	0.4	9.5	0.001	1.2	$V_{\text{SS}} \text{ to } V_{\text{DD}}$	$V_{\text{SS}}+0.1 \text{ to } V_{\text{DD}}-0.1$	95	60	80	0.0025	0.0025	—	-40 to +85/-40 to +105	HVSOF5	HFV
BU7245/BU7245S	1	1.8 to 5.5	5	8.5	0.001	4	$V_{\text{SS}} \text{ to } V_{\text{DD}}$	$V_{\text{SS}}+0.1 \text{ to } V_{\text{DD}}-0.1$	95	60	80	0.035	0.07	—	-40 to +85/-40 to +105	HVSOF5	HFV
BU7271/BU7271S	1	1.8 to 5.5	8.6	8	0.001	4	$V_{\text{SS}} \text{ to } V_{\text{DD}}$	$V_{\text{SS}}+0.1 \text{ to } V_{\text{DD}}-0.1$	100	60	80	0.05	0.09	—	-40 to +85/-40 to +105	SSOP5	G
BU7275/BU7275S	1	1.8 to 5.5	40	6	0.001	8	$V_{\text{SS}} \text{ to } V_{\text{DD}}$	$V_{\text{SS}}+0.1 \text{ to } V_{\text{DD}}-0.1$	95	60	80	0.3	0.6	—	-40 to +85/-40 to +105	HVSOF5	HFV
LMR931	1	1.8 to 5.0	85	4	5	80	$V_{\text{SS}} \text{ to } V_{\text{DD}}$	$V_{\text{SS}}+0.037 \text{ to } V_{\text{DD}}-0.04$	101	94	85	0.42	1.5	50	-40 to +85	SSOP5	G
LMR932	2	1.8 to 5.0	140	5.5	5	80	$V_{\text{SS}} \text{ to } V_{\text{DD}}$	$V_{\text{SS}}+0.037 \text{ to } V_{\text{DD}}-0.04$	101	94	85	0.42	1.5	50	-40 to +85	SOP8	F
LMR932																SOP-J8	FJ
LMR932																SSOP-B8	FV
LMR932																TSSOP-B8J	FVJ
LMR932																MSOP8	FVM
LMR932																TSSOP-B8	FVT
LMR934	4	1.8 to 5.0	290	5.5	5	80	$V_{\text{SS}} \text{ to } V_{\text{DD}}$	$V_{\text{SS}}+0.037 \text{ to } V_{\text{DD}}-0.04$	101	94	85	0.42	1.5	50	-40 to +85	SOP14	F
LMR934																SOP-J14	FJ
LMR934																SSOP-B14	FV
LMR934																TSSOP-B14J	FVJ
LMR981	1	1.8 to 5.0	85	4	5	80	$V_{\text{SS}} \text{ to } V_{\text{DD}}$	$V_{\text{SS}}+0.037 \text{ to } V_{\text{DD}}-0.04$	101	94	85	0.42	1.5	50	-40 to +85	SSOP6	G
LMR982	2	1.8 to 5.0	140	5.5	5	80	$V_{\text{SS}} \text{ to } V_{\text{DD}}$	$V_{\text{SS}}+0.037 \text{ to } V_{\text{DD}}-0.04$	101	94	85	0.42	1.5	50	-40 to +85	MSOP10	FVM
BU7241/BU7241S	1	1.8 to 5.5	70	9	0.001	10	$V_{\text{SS}} \text{ to } V_{\text{DD}}$	$V_{\text{SS}}+0.1 \text{ to } V_{\text{DD}}-0.1$	95	60	80	0.4	0.9	—	-40 to +85/-40 to +105	SSOP5	G
BU7242/BU7242S	2	1.8 to 5.5	180	9	0.001	10	$V_{\text{SS}} \text{ to } V_{\text{DD}}$	$V_{\text{SS}}+0.1 \text{ to } V_{\text{DD}}-0.1$	95	60	80	0.4	0.9	—	-40 to +85/-40 to +105	SOP8	F
BU7244/BU7244S	4	1.8 to 5.5	360	9	0.001	10	$V_{\text{SS}} \text{ to } V_{\text{DD}}$	$V_{\text{SS}}+0.1 \text{ to } V_{\text{DD}}-0.1$	95	60	80	0.4	0.9	—	-40 to +85/-40 to +105	MSOP8	FVM
BU7244/BU7244S																VSON008X2030	NUX
BU7244/BU7244S																SOP14	F
BU7244/BU7244S																SSOP-B14	FV

Low Power Operational Amplifiers

Part No.	ch	Supply Voltage (V)	Circuit Current (Typ) (μA)	Input Offset Voltage (Max) (mV)	Input Bias Current (Typ) (nA)	Output Current (Typ) (mA)	Input Voltage (V)	Output Voltage (V)	Voltage Gain (Typ) (dB)	CMRR (Typ) (dB)	PSRR (Typ) (dB)	Slew Rate (Typ) (V/ μs)	GBW (Typ) (MHz)	Equivalent Input Noise Voltage (Typ) (nV/ $\sqrt{\text{Hz}}$)	Operating temperature (°C)	Package	Part No. Suffix
BU7411/BU7411S	1	1.6 to 5.5	0.35	8	0.001	2.4	$V_{\text{SS}} \text{ to } V_{\text{DD}}-1.0$	$V_{\text{SS}}+0.1 \text{ to } V_{\text{DD}}-0.1$	95	60	80	0.0024	0.004	—	-40 to +85/-40 to +105	SSOP5	G
BU7421/BU7421S	1	1.7 to 5.5	8.5	6	0.001	4	$V_{\text{SS}} \text{ to } V_{\text{DD}}-1.2$	$V_{\text{SS}}+0.1 \text{ to } V_{\text{DD}}-0.1$	100	60	80	0.05	0.09	—	-40 to +85/-40 to +105	SSOP5	G
BU7475/BU7475S	1	1.7 to 5.5	9	6.5	0.001	7	$V_{\text{SS}} \text{ to } V_{\text{DD}}-1.2$	$V_{\text{SS}}+0.1 \text{ to } V_{\text{DD}}-0.1$	100	60	80	0.05	0.1	—	-40 to +85/-40 to +105	HVSOF5	HFV
BU7445/BU7445S	1	1.7 to 5.5	40	6	0.001	8	$V_{\text{SS}} \text{ to } V_{\text{DD}}-1.2$	$V_{\text{SS}}+0.1 \text{ to } V_{\text{DD}}-0.1$	100	60	80	0.25	0.4	—	-40 to +85/-40 to +105	HVSOF5	HFV
BU7441/BU7441S	1	1.7 to 5.5	50	6	0.001	6	$V_{\text{SS}} \text{ to } V_{\text{DD}}-1.2$	$V_{\text{SS}}+0.1 \text{ to } V_{\text{DD}}-0.1$	95	60	80	0.3	0.6	—	-40 to +85/-40 to +105	SSOP5	G
BU7442/BU7442S	2	1.7 to 5.5	100	6	0.001	6	$V_{\text{SS}} \text{ to } V_{\text{DD}}-1.2$	$V_{\text{SS}}+0.1 \text{ to } V_{\text{DD}}-0.1$	95	60	80	0.3	0.6	—	-40 to +85/-40 to +105	SOP8	F
BU7442/BU7442S																MSOP8	FVM
BU7442/BU7442S																VSON008X2030	NUX
BU7444S	4	1.7 to 5.5	200	6	0.001	6	$V_{\text{SS}} \text{ to } V_{\text{DD}}-1.2$	$V_{\text{SS}}+0.1 \text{ to } V_{\text{DD}}-0.1$	95	60	80	0.3	0.6	—	-40 to +85/-40 to +105	SOP14	F
TLR341	1	1.8 to 5.5	75	4	0.001	100	$V_{\text{SS}} \text{ to } V_{\text{DD}}-1.0$	$V_{\text{SS}}+0.01 \text{ to } V_{\text{DD}}-0.01$	110	90	95	1.2	2.3	33	-40 to +85	SSOP6	G
TLR342	2	1.8 to 5.5	150	4	0.001	100	$V_{\text{SS}} \text{ to } V_{\text{DD}}-1.0$	$V_{\text{SS}}+0.01 \text{ to } V_{\text{DD}}-0.01$	110	90	95	1.2	2.3	33	-40 to +85	SOP8	F
TLR342																SOP-J8	FJ
TLR342																TSSOP-B8J	FVJ
TLR342																TSSOP-B8	FVT
TLR344	4	1.8 to 5.5	300	4	0.001	100	$V_{\text{SS}} \text{ to } V_{\text{DD}}-1.0$	$V_{\text{SS}}+0.01 \text{ to } V_{\text{DD}}-0.01$	110	90	95	1.2	2.3	33	-40 to +85	SOP14	F
TLR344																SOP-J14	FJ
TLR344																TSSOP-B14J	FVJ
LMR341	1	2.7 to 5.5	80	4	0.001	113	$V_{\text{SS}} \text{ to } V_{\text{DD}}-1.0$	$V_{\text{SS}}+0.01 \text{ to } V_{\text{DD}}-0.01$	116	86	82	1	2	40	-40 to +85	SSOP6	G

General Purpose

Automotive Rail-to-Rail Input/Output General Purpose Operational Amplifiers

Part No.	ch	Supply Voltage (V)	Circuit Current (Typ) (mA)	Input Offset Voltage (Max) (mV)	Input Bias Current (Typ) (nA)	Output Current (Typ) (mA)	Input Voltage (V)	Output Voltage (V)	Voltage Gain (Typ) (dB)	CMRR (Typ) (dB)	PSRR (Typ) (dB)	Slew Rate (Typ) (V/μs)	GBW (Typ) (MHz)	Equivalent Input Noise Voltage (Typ) (nV/√Hz)	Operating temperature (°C)	Package	Part No. Suffix	ComfySIL™ Functional Safety*1	Automotive Grade AEC-Q100	
EMARMOUR	BD87554Y	4	4 to 15	7.9	4	0.001	9.3	V_{SS} to V_{DD}	$V_{SS}+0.03$ to $V_{DD}-0.05$	110	80	90	2.4	—	50	-40 to +125	SSOP-B14	FV-C	FSs	YES
EMARMOUR	BD87581Y	1	4 to 14	2.3	9	0.001	3.5	V_{SS} to V_{DD}	$V_{SS}+0.03$ to $V_{DD}-0.05$	110	60	80	3.5	4	—	-40 to +125	SSOP5	G-C	FSs	YES
EMARMOUR	BD87582Y	2	4 to 14	5	9	0.001	3.5	V_{SS} to V_{DD}	$V_{SS}+0.03$ to $V_{DD}-0.05$	110	60	80	3.5	4	—	-40 to +125	MSOP8	FVM-C	FSs	YES
EMARMOUR	BD87584Y	4	4 to 14	10	9	0.001	3.5	V_{SS} to V_{DD}	$V_{SS}+0.03$ to $V_{DD}-0.05$	110	60	80	3.5	4	—	-40 to +125	SSOP-B14	FV-C	FSs	YES
	BU7264Y	4	1.8 to 5.5	1.1	11	0.001	10	V_{SS} to V_{DD}	$V_{SS}+0.05$ to $V_{DD}-0.05$	95	60	80	1.1	2	—	-40 to +125	SSOP-B14	FV-C	FSs	YES

Automotive General Purpose Operational Amplifiers

Part No.	ch	Supply Voltage (V)	Circuit Current (Typ) (mA)	Input Offset Voltage (Max) (mV)	Input Bias Current (Typ) (nA)	Output Current (Typ) (mA)	Input Voltage (V)	Output Voltage (V)	Voltage Gain (Typ) (dB)	CMRR (Typ) (dB)	PSRR (Typ) (dB)	Slew Rate (Typ) (V/μs)	GBW (Typ) (MHz)	Equivalent Input Noise Voltage (Typ) (nV/√Hz)	Operating temperature (°C)	Package	Part No. Suffix	ComfySIL™ Functional Safety*1	Automotive Grade AEC-Q100	
EMARMOUR	LM2904EY	2	3 to 36	0.6	6	20	30	V_{EE} to $V_{CC}-1.5$	V_{EE} to $V_{CC}-1.5$	100	80	100	0.2	0.5	—	-40 to +150	SOP8	F-C	FSs	YES
New EMARMOUR	LM2902EY	4	3 to 36	1	6	20	30	V_{EE} to $V_{CC}-1.5$	V_{EE} to $V_{CC}-1.5$	100	80	100	0.2	0.5	—	-40 to +150	SSOP-B14	FV-C	FSs	YES
EMARMOUR	BA82904Y	2	3 to 36	0.5	6	20	30	V_{EE} to $V_{CC}-1.5$	V_{EE} to $V_{CC}-1.5$	100	80	100	0.2	0.5	—	-40 to +125	SOP8	F-C	FSs	YES
EMARMOUR	BA82902Y	4	3 to 36	0.7	6	20	30	V_{EE} to $V_{CC}-1.5$	V_{EE} to $V_{CC}-1.5$	100	80	100	0.2	0.5	—	-40 to +125	SOP14	F-C	FSs	YES
EMARMOUR	BA83472Y	2	3 to 36	4.3	10	100	30	V_{EE} to $V_{CC}-2.0$	$V_{EE}+0.3$ to $V_{CC}-1.0$	100	97	97	8.5	3	—	-40 to +125	SOP8	F-C	FSs	YES
EMARMOUR	BA83474Y	4	3 to 36	8.6	10	100	30	V_{EE} to $V_{CC}-2.0$	$V_{EE}+0.3$ to $V_{CC}-1.0$	100	97	97	8.5	3	—	-40 to +125	SSOP-B14	FV-C	FSs	YES
BA2904Y	2	3 to 36	0.5	3.5	20	30	V_{EE} to $V_{CC}-1.5$	V_{EE} to $V_{CC}-1.5$	100	80	100	0.2	0.5	40	-40 to +125	SOP8	F-C	FSs	YES	
			0.5	7	20	30	V_{EE} to $V_{CC}-1.5$	V_{EE} to $V_{CC}-1.5$	100	80	100	0.2	0.5	40	-40 to +125	SSOP-B8	FV-C	FSs	YES	
BA2902Y	4	3 to 36	0.7	3.8	20	30	V_{EE} to $V_{CC}-1.5$	V_{EE} to $V_{CC}-1.5$	100	80	100	0.2	0.5	40	-40 to +125	MSOP8	FVM-C	FSs	YES	
			0.7	7	20	30	V_{EE} to $V_{CC}-1.5$	V_{EE} to $V_{CC}-1.5$	100	80	100	0.2	0.5	40	-40 to +125	SOP8	F-M	FSs	YES	
BA3472Y/ BA3472W	2	3 to 36	4	10/7.5	100	30	V_{EE} to $V_{CC}-2.0$	$V_{EE}+0.3$ to $V_{CC}-1.0$	100	97	97	10	4	—	-40 to +125	SSOP-B8	FV-C	FSs	YES	
			4	10/7.5	100	30	V_{EE} to $V_{CC}-2.0$	$V_{EE}+0.3$ to $V_{CC}-1.0$	100	97	97	10	4	—	-40 to +125	MSOP8/-	FVM-C	FSs	YES	
BA3474Y/ BA3474W	4	3 to 36	8	10/7.5	100	30	V_{EE} to $V_{CC}-2.0$	$V_{EE}+0.3$ to $V_{CC}-1.0$	100	97	97	10	4	—	-40 to +125	SSOP-B14	FV-C	FSs	YES	

Rail-to-Rail Input/Output General Purpose Operational Amplifiers

Part No.	ch	Supply Voltage (V)	Circuit Current (Typ) (mA)	Input Offset Voltage (Max) (mV)	Input Bias Current (Typ) (nA)	Output Current (Typ) (mA)	Input Voltage (V)	Output Voltage (V)	Voltage Gain (Typ) (dB)	CMRR (Typ) (dB)	PSRR (Typ) (dB)	Slew Rate (Typ) (V/μs)	GBW (Typ) (MHz)	Equivalent Input Noise Voltage (Typ) (nV/√Hz)	Operating temperature (°C)	Package	Part No. Suffix
BD7541/ BD7541S	1	5.0 to 14.5	0.18	9	0.001	4	V_{SS} to V_{DD}	$V_{SS}+0.1$ to $V_{DD}-0.1$	95	60	80	0.3	0.6	—	-40 to +85/ -40 to +105	SSOP5	G
BD7542/ BD7542S	2	5.0 to 14.5	0.4	9	0.001	4	V_{SS} to V_{DD}	$V_{SS}+0.1$ to $V_{DD}-0.1$	95	60	80	0.3	0.6	—	-40 to +85/ -40 to +105	SOP8	F
BD7561/ BD7561S	1	5.0 to 14.5	0.44	9	0.001	8	V_{SS} to V_{DD}	$V_{SS}+0.1$ to $V_{DD}-0.1$	95	60	80	0.9	1	—	-40 to +85/ -40 to +105	SSOP5	G
BD7562/ BD7562S	2	5.0 to 14.5	0.9	9	0.001	8	V_{SS} to V_{DD}	$V_{SS}+0.1$ to $V_{DD}-0.1$	95	60	80	0.9	1	—	-40 to +85/ -40 to +105	SOP8	F
BU7255/ BU7255S	1	2.4 to 5.5	0.54	9	0.001	4	V_{SS} to V_{DD}	$V_{SS}+0.1$ to $V_{DD}-0.1$	105	60	80	3.4	4	—	-40 to +85/ -40 to +105	HVSOF5	HFV
BU7261/ BU7261S	1	1.8 to 5.5	0.25	9	0.001	10	V_{SS} to V_{DD}	$V_{SS}+0.1$ to $V_{DD}-0.1$	95	60	80	1.1	2	—	-40 to +85/ -40 to +105	SSOP5	G
BU7262/ BU7262S	2	1.8 to 5.5	0.55	9	0.001	10	V_{SS} to V_{DD}	$V_{SS}+0.1$ to $V_{DD}-0.1$	95	60	80	1.1	2	—	-40 to +85/ -40 to +105	MSOP8	FVM
BU7264/ BU7264S	4	1.8 to 5.5	1.1	9	0.001	10	V_{SS} to V_{DD}	$V_{SS}+0.1$ to $V_{DD}-0.1$	95	60	80	1.1	2	—	-40 to +85/ -40 to +105	SOP14	F
BU7291/ BU7291S	1	2.4 to 5.5	0.47	9	0.001	8	V_{SS} to V_{DD}	$V_{SS}+0.1$ to $V_{DD}-0.1$	105	60	80	3	2.8	—	-40 to +85/ -40 to +105	SSOP5	G
BU7294/ BU7294S	4	2.4 to 5.5	2	9	0.001	8	V_{SS} to V_{DD}	$V_{SS}+0.1$ to $V_{DD}-0.1$	105	60	80	3	2.8	—	-40 to +85/ -40 to +105	SOP14	F
BU7295/ BU7295S	1	1.8 to 5.5	0.15	9	0.001	8	V_{SS} to V_{DD}	$V_{SS}+0.1$ to $V_{DD}-0.1$	95	60	80	1	1	—	-40 to +85/ -40 to +105	HVSOF5	HFV

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EMARMOUR

Mark is achieves the Industry-leading noise immunity.

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General Purpose Operational Amplifiers

Part No.	ch	Supply Voltage (V)	Circuit Current (Typ) (mA)	Input Offset Voltage (Max) (mV)	Input Bias Current (Typ) (nA)	Output Current (Typ) (mA)	Input Voltage (V)	Output Voltage (V)	Voltage Gain (Typ) (dB)	CMRR (Typ) (dB)	PSRR (Typ) (dB)	Slew Rate (Typ) (V/μs)	GBW (Typ) (MHz)	Equivalent Input Noise Voltage (Typ) (nV/√Hz)	Operating temperature (°C)	Package	Part No. Suffix
LM2904	2	3 to 32	0.6	4.5	20	30	V_{EE} to $V_{CC}-1.5$	V_{EE} to $V_{CC}-1.5$	100	80	100	0.3	0.8	40	-40 to +125	SOP8	F
																SOP-J8	FJ
																SSOP-B8	FV
																TSSOP-B8J	FVJ
																MSOP8	FVM
																TSSOP-B8	FVT
LM2902	4	3 to 32	1	4.5	20	30	V_{EE} to $V_{CC}-1.5$	V_{EE} to $V_{CC}-1.5$	100	80	100	0.3	0.8	40	-40 to +125	SOP14	F
																SOP-J14	FJ
																SSOP-B14	FV
																TSSOP-B14J	FVJ
LM324	4	3 to 32	1	4.5	20	30	V_{EE} to $V_{CC}-1.5$	$V_{EE+0.01}$ to $V_{CC}-1.5$	100	80	100	0.3	0.8	40	-40 to +85	SOP14	F
																SOP-J14	FJ
																SSOP-B14	FV
																TSSOP-B14J	FVJ
LM358	2	3 to 32	0.6	4.5	20	30	V_{EE} to $V_{CC}-1.5$	$V_{EE+0.01}$ to $V_{CC}-1.5$	100	80	100	0.3	0.8	40	-40 to +85	SOP8	F
																SOP-J8	FJ
																SSOP-B8	FV
																TSSOP-B8J	FVJ
																MSOP8	FVM
																TSSOP-B8	FVT
LMR321	1	2.7 to 5.5	0.13	4	15	70	V_{EE} to $V_{CC}-0.8$	$V_{EE+0.08}$ to $V_{CC}-0.04$	110	90	90	1	3	39	-40 to +85	SSOP5	G
LMR324	4	2.7 to 5.5	0.41	9	15	70	V_{EE} to $V_{CC}-0.8$	$V_{EE+0.08}$ to $V_{CC}-0.04$	110	90	90	1	3	39	-40 to +85	SOP14	F
																SOP-J14	FJ
																SSOP-B14	FV
																TSSOP-B14J	FVJ
LMR342	2	2.7 to 5.5	0.2	4	0.001	24	V_{SS} to $V_{DD}-1.0$	$V_{SS+0.06}$ to $V_{DD}-0.06$	103	80	85	1	2	40	-40 to +85	SOP8	F
																SOP-J8	FJ
																SSOP-B8	FV
																TSSOP-B8J	FVJ
LMR344	4	2.7 to 5.5	0.4	4	0.001	24	V_{SS} to $V_{DD}-1.0$	$V_{SS+0.06}$ to $V_{DD}-0.06$	103	80	85	1	2	40	-40 to +85	SOP14	F
																SOP-J14	FJ
																TSSOP-B14J	FVJ
																SOP8	F
LMR358	2	2.7 to 5.5	0.21	5	15	70	V_{EE} to $V_{CC}-0.8$	$V_{EE+0.08}$ to $V_{CC}-0.04$	110	90	90	1	3	39	-40 to +85	SOP8	F
																SOP-J8	FJ
																SSOP-B8	FV
																TSSOP-B8J	FVJ
BU7461/BU7461S	1	1.7 to 5.5	0.15	6	0.001	8	V_{SS} to $V_{DD}-1.2$	$V_{SS+0.1}$ to $V_{DD}-0.1$	95	60	80	1	1	-	-40 to +85/-40 to +105	SSOP5	G
																SOP8	F
																MSOP8	FVM
																VSON008X2030	NUX
BU7464/BU7464S	4	1.7 to 5.5	0.6	6	0.001	8	V_{SS} to $V_{DD}-1.2$	$V_{SS+0.1}$ to $V_{DD}-0.1$	95	60	80	1	1	-	-40 to +85/-40 to +105	SOP14	F
																HVSOF5	HFV
																MSOP8	FVM
																TSSOF5	HFV
BU7481/BU7481S	1	1.8 to 5.5	0.42	8	0.001	8	V_{SS} to $V_{DD}-1.2$	$V_{SS+0.1}$ to $V_{DD}-0.1$	105	60	80	3.2	2.8	-	-40 to +85/-40 to +105	SSOP5	G
																SOP8	F
																MSOP8	FVM
																VSON008X2030	NUX
BA3404	2	4 to 36	2	5	70	30	V_{EE} to $V_{CC}-2.0$	V_{EE} to $V_{CC}-2.0$	100	90	94	1.2	1.2	-	-40 to +85	SOP8	F
																MSOP8	FVM
																SOP8	F
																SOP8	F
BA3472	2	3 to 36	4	10	100	30	V_{EE} to $V_{CC}-2.0$	$V_{EE+0.3}$ to $V_{CC}-1.0$	100	97	97	10	4	-	-40 to +85	SOP8	F
																SSOP-B8	FV
																SOP-J8	FJ
																MSOP8	FVM
BA3472R															-40 to +105	MSOP8	FVM
																SOP8	F-LB
																SOP8	F
																SOP8	F
BA3474	4	3 to 36	8														

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Comparators

Standard

Open-Collector Comparators

Part No.	ch	Supply Voltage (V)	Circuit Current (mA)	Input Offset Voltage (mV)	Input Bias Current (nA)	Output Current (mA)	Input Voltage (V)	Voltage Gain (dB)	Response Time (μs)	Operating Temperature (°C)	Package	Part No. Suffix
New LM8391	1	3 to 36	0.3	2 (Max: 5)	50	16	V _{EE} to V _{CC} -1.5	120	1.3	-40 to +125	SSOP5	G-LB
LM2903	2	3 to 32	0.6	1	50	16	V _{EE} to V _{CC} -1.5	120	1	-40 to +125	SOP8 SOP-J8 SSOP-B8 TSSOP-B8J MSOP8 TSSOP-B8	F FJ FV FVJ FVM FVT
LM2901	4	3 to 32	1.2	1	50	16	V _{EE} to V _{CC} -1.5	120	1	-40 to +125	SOP14 SOP-J14 SSOP-B14 TSSOP-B14J	F FJ FV FVJ
LM393	2	3 to 32	0.6	1	50	16	V _{EE} to V _{CC} -1.5	120	1	-40 to +85	SOP8 SOP-J8 SSOP-B8 TSSOP-B8J MSOP8 TSSOP-B8	F FJ FV FVJ FVM FVT
LM339	4	3 to 32	1.2	1	50	16	V _{EE} to V _{CC} -1.5	120	1	-40 to +85	SOP14 SOP-J14 SSOP-B14 TSSOP-B14J	F FJ FV FVJ
BA2903Y	2	2 to 36	0.6	2	50	16	V _{EE} to V _{CC} -1.5	100	1.3	-40 to +125	SOP8	F-LB
BA2901Y	4	2 to 36	0.8	2	50	16	V _{EE} to V _{CC} -1.5	100	1.3	-40 to +125	SOP14	F-LB
BA2903/ BA2903S	2	2 to 36	0.6	2	50	16	V _{EE} to V _{CC} -1.5	100	1.3	-40 to +125/ -40 to +105	SOP8 SSOP-B8 MSOP8	F FV FVM
BA2901/ BA2901S	4	2 to 36	0.8	2	50	16	V _{EE} to V _{CC} -1.5	100	1.3	-40 to +125/ -40 to +105	SOP14 SSOP-B14	F FV
BA8391	1	2 to 36	0.3	2	50	16	V _{EE} to V _{CC} -1.5	100	1.3	-40 to +85	SSOP5	G

Automotive Open-Collector Comparators

Part No.	ch	Supply Voltage (V)	Circuit Current (mA)	Input Offset Voltage (mV)	Input Bias Current (nA)	Output Current (mA)	Input Voltage (V)	Voltage Gain (dB)	Response Time (μs)	Operating Temperature (°C)	Package	Part No. Suffix	ComfySIL™ Functional Safety*1	Automotive Grade AEC-Q100
BA2903Y	2	2 to 36	0.6	2 (Max: 4)	50	16	V _{EE} to V _{CC} -1.5	100	1.3	-40 to +125	SOP8 SSOP-B8 MSOP8	F-C FV-C FVM-C	FSs FSs FSs	YES YES YES
BA2901Y	4	2 to 36	0.8	2 (Max: 4)	50	16	V _{EE} to V _{CC} -1.5	100	1.3	-40 to +125	SOP14 SSOP-B14	F-C FV-C	FSs FSs	YES YES
BA2903Y	2	2 to 36	0.6	2 (Max: 7)	50	16	V _{EE} to V _{CC} -1.5	100	1.3	-40 to +125	SOP8 SSOP-B8 MSOP8	F-M FV-M FVM-M	FSs FSs FSs	YES YES YES
BA2901Y	4	2 to 36	0.8	2 (Max: 7)	50	16	V _{EE} to V _{CC} -1.5	100	1.3	-40 to +125	SOP14 SSOP-B14	F-M FV-M	FSs FSs	YES YES

Automotive Excellent EMI Immunity Open-Collector Comparators (EMARMOUR™ series)

Part No.	ch	Supply Voltage (V)	Circuit Current (mA)	Input Offset Voltage (mV)	Input Bias Current (nA)	Output Current (mA)	Input Voltage (V)	Voltage Gain (dB)	Response Time (μs)	Operating Temperature (°C)	Package	Part No. Suffix	ComfySIL™ Functional Safety*1	Automotive Grade AEC-Q100
New LM8391EY	1	3 to 36	0.3	2 (Max: 5)	50	16	V _{EE} to V _{CC} -1.5	120	1.3	-40 to +150	SSOP5	G-C	FSs	YES
LM2903EY	2	3 to 32	0.6	2	50	16	V _{EE} to V _{CC} -1.5	120	1.3	-40 to +150	SOP-J8	FJ-C	FSs	YES
LM2901EY	4	3 to 32	1.2	2	50	16	V _{EE} to V _{CC} -1.5	120	1.3	-40 to +150	SSOP-B14	FV-C	FSs	YES
BA82903Y	2	2 to 36	0.6	2	50	16	V _{EE} to V _{CC} -1.5	100	1.3	-40 to +125	SOP8 MSOP8	F-C FVM-C	FSs FSs	YES YES
BA82901Y	4	2 to 36	0.8	2	50	16	V _{EE} to V _{CC} -1.5	100	1.3	-40 to +125	SOP14 SSOP-B14	F-C FV-C	FSs FSs	YES YES

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*1 For more information about "ComfySIL™ Functional Safety", please refer to the reverse side of the cover.

The EMARMOUR™ series achieves the Industry-leading noise immunity. EMARMOUR™ is a trademark or a registered trademark of ROHM Co., Ltd.
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High Speed**Push-Pull Comparators**

Part No.	ch	Supply Voltage (V)	Circuit Current (μ A)	Input Offset Voltage (mV)	Input Bias Current (nA)	Output Current (mA)	Input Voltage (V)	Voltage Gain (dB)	Response Time (μ s)	Operating Temperature (°C)	Package	Part No. Suffix
BU7251/ BU7251S	1	1.8 to 5.5	15	1	0.001	6	V_{SS} to V_{DD}	90	0.55	-40 to +85/ -40 to +105	SSOP5	G
BU7252/ BU7252S	2	1.8 to 5.5	35	1	0.001	6	V_{SS} to V_{DD}	90	0.55	-40 to +85/ -40 to +105	SOP8	F
BU5265/ BU5265S	1	1.8 to 5.5	22	1	0.001	3.5	V_{SS} to V_{DD}	90	0.5	-40 to +85/ -40 to +105	HVSOF5	HFV

Open-Drain Comparators

Part No.	ch	Supply Voltage (V)	Circuit Current (μ A)	Input Offset Voltage (mV)	Input Bias Current (nA)	Output Current (mA)	Input Voltage (V)	Voltage Gain (dB)	Response Time (μ s)	Operating Temperature (°C)	Package	Part No. Suffix
BU7250/ BU7250S	1	1.8 to 5.5	15	1	0.001	6	V_{SS} to V_{DD}	90	0.75	-40 to +85/ -40 to +105	SSOP5	G
BU7253/ BU7253S	2	1.8 to 5.5	35	1	0.001	6	V_{SS} to V_{DD}	90	0.75	-40 to +85/ -40 to +105	SOP8	F

Low Power Consumption**Push-Pull Comparators**

Part No.	ch	Supply Voltage (V)	Circuit Current (μ A)	Input Offset Voltage (mV)	Input Bias Current (nA)	Output Current (mA)	Input Voltage (V)	Voltage Gain (dB)	Response Time (μ s)	Operating Temperature (°C)	Package	Part No. Suffix
BU7231/ BU7231S	1	1.8 to 5.5	5	1	0.001	6	V_{SS} to V_{DD}	90	1.7	-40 to +85/ -40 to +105	SSOP5	G
BU7232/ BU7232S	2	1.8 to 5.5	10	1	0.001	6	V_{SS} to V_{DD}	90	1.7	-40 to +85/ -40 to +105	SOP8	F
BU5255/ BU5255S	1	1.8 to 5.5	6.5	1	0.001	3.5	V_{SS} to V_{DD}	90	1.6	-40 to +85/ -40 to +105	HVSOF5	HFV

Automotive Push-Pull Comparator

Part No.	ch	Supply Voltage (V)	Circuit Current (μ A)	Input Offset Voltage (mV)	Input Bias Current (nA)	Output Current (mA)	Input Voltage (V)	Voltage Gain (dB)	Response Time (μ s)	Operating Temperature (°C)	Package	Part No. Suffix	ComfySIL™ Functional Safety*1	Automotive Grade AEC-Q100
BU7232Y	2	1.8 to 5.5	10	1	0.001	7	V_{SS} to V_{DD}	100	1.7	-40 to +125	MSOP8	FVM-C	FSs	YES

Open-Drain Comparators

Part No.	ch	Supply Voltage (V)	Circuit Current (μ A)	Input Offset Voltage (mV)	Input Bias Current (nA)	Output Current (mA)	Input Voltage (V)	Voltage Gain (dB)	Response Time (μ s)	Operating Temperature (°C)	Package	Part No. Suffix
BU7230/ BU7230S	1	1.8 to 5.5	5	1	0.001	6	V_{SS} to V_{DD}	90	1.8	-40 to +85/ -40 to +105	SSOP5	G
BU7233/ BU7233S	2	1.8 to 5.5	10	1	0.001	6	V_{SS} to V_{DD}	90	1.8	-40 to +85/ -40 to +105	SOP8	F

Automotive Open-Drain Comparator

Part No.	ch	Supply Voltage (V)	Circuit Current (μ A)	Input Offset Voltage (mV)	Input Bias Current (nA)	Output Current (mA)	Input Voltage (V)	Voltage Gain (dB)	Response Time (μ s)	Operating Temperature (°C)	Package	Part No. Suffix	ComfySIL™ Functional Safety*1	Automotive Grade AEC-Q100
BU7233Y	2	1.8 to 5.5	10	1	0.001	7	V_{SS} to V_{DD}	100	1.8	-40 to +125	SOP8	F-C	FSs	YES

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Clocks & Timers

High-performance Clock Generator ICs

P.21

CR Control Timer IC

P.21

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High-performance Clock Generator ICs

Clock Generators for Digital Cameras

Part No.	Supply Voltage (V)	Reference Frequency (MHz)	Video Clock (The output which can be selected) (MHz)	CCD Clock (The output which can be selected) (MHz)	USB Clock (MHz)	Jitter 1c Typ (ps)	Package
BU2394KN	3.0 to 3.6	14.318182/ 28.636363	14.318182/ 17.734450	135.000000/ 108.000000/ 98.181818/ 110.000000	48.008022	30	VQFN20
BU2396KN	3.0 to 3.6	12.000000	27.000000	24.000000/ 30.000000/ 36.000000	12.000000	50	VQFN20

DVD-Video Reference Clock Generators for A/V Equipments

Part No.	Supply Voltage (V)	Reference Frequency (MHz)	Output Frequency (MHz)								Jitter 1 σ Typ (ps)	Long-term Jitter P-P Typ (ns)	Package		
			DVD-Video Clock			DVD, Audio, CD Clock (The output which can be switched)				System Clock					
			Video1	Video2	Video3	768fs	512fs	384fs	Other	768fs	384fs	Other			
BU2360FV	2.7 to 3.6	27.0000	27.0000	—	—	—	24.5760/ 22.5792	—	—	33.8688	—	—	70	2.5 (Audio)	SSOP-B16
BU2362FV	2.7 to 3.6	27.0000	27.0000	—	—	—	24.5760/ 22.5792	—	36.8640/ 16.9344	33.8688	16.9344	36.864	70	12 (Audio)	SSOP-B16

Clock Generator with Built-in VCXO for A/V Equipments

Part No.	Supply Voltage (V)	VCXO (Reference Clock)	Clock Buffer	PLL Output Frequency (MHz)								Jitter 1 σ Typ (ps)	C/N Typ (dB)	Package		
				DVD-Video Clock			DVD, Audio, CD Clock (The output which can be switched)				System Clock					
				Video1	Video2	Video3	768fs	512fs	384fs	Other	768fs	512fs	384fs	Other		
BU3087FV	3.135 to 3.465	Tuning range 27MHz±105ppm Typ	—	27.000000	—	—	74.250000 Modulation/ ±0.25%, ±0.50%, ±0.75%, ±1.00%	—	—	—	—	—	—	30	HD-Video -70	SSOP-B16

Clock Generators for Digital Cameras: Three types of clocks generated-CCD, USB, and a Video

DVD-Video Reference Clock Generators for A/V Equipments: DVD/CD-Audio, DVD-Video clock generation using the DVD-Video reference clock

Clock Generator with Built-in VCXO for A/V Equipments: VCXO is Built-in with high-precision external synchronization

CR Control Timer IC

CR Control Timer IC

Part No.	Supply Voltage (V)	PWM Frequency (Hz)	Duty (%)	Circuit Current (mA)	Function	Operating Temperature (°C)	Package	ComfySIL™ Functional Safety*1	Automotive Grade AEC-Q100
BD9555FVM-C	4.5 to 42.0	1 to 10k	1 to 99	1	PWM/Duty 100% Switching terminal	-40 to +125	MSOP8	FSs	YES

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Switch & IPD & Multiplexer & Logic

Automotive Standard Logic ICs		P.22	Standard Logic ICs		P.22
Serial-in/Parallel-out Drivers		P.23	USB Switch ICs		P.23
IPD (Smart Low Side & High Side Switch ICs)		P.23			

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Automotive Standard Logic ICs

Logic Gate (Single type)										
Type	Package/Part No.		Function		Supply Voltage (V)	H Input Voltage (Min) (V)	L Input Voltage (Min) (V)	Operating Temperature (°C)	Output Delay Time $V_{CC}=4.5V$ to 5.5V (Max) (ns)	ComfySIL™ Functional Safety*1
	SSOP5	SSOP6								
BD7LS00	BD7LS00G-C	—	Single 2-input NAND gate	1.65 to 5.5	$V_{CC} \times 0.7$	$V_{CC} \times 0.3$	—40 to +125	10.0	FSs	YES
BD7LS02	BD7LS02G-C	—	Single 2-input NOR gate	1.65 to 5.5	$V_{CC} \times 0.7$	$V_{CC} \times 0.3$	—40 to +125	10.0	FSs	YES
BD7LS04	BD7LS04G-C	—	Single Inverter	1.65 to 5.5	$V_{CC} \times 0.7$	$V_{CC} \times 0.3$	—40 to +125	10.0	FSs	YES
BD7LS08	BD7LS08G-C	—	Single 2-input AND gate	1.65 to 5.5	$V_{CC} \times 0.7$	$V_{CC} \times 0.3$	—40 to +125	10.0	FSs	YES
BD7LS07	BD7LS07G-C	—	Single Buffer with Open-drain	1.65 to 5.5	$V_{CC} \times 0.7$	$V_{CC} \times 0.3$	—40 to +125	9.0	FSs	YES
BD7LS14	BD7LS14G-C	—	Single Schmitt Trigger Inverter	1.65 to 5.5	$V_{CC} \times 0.7$	$V_{CC} \times 0.3$	—40 to +125	11.0	FSs	YES
BD7LS17	BD7LS17G-C	—	Single Schmitt Trigger Buffer	1.65 to 5.5	$V_{CC} \times 0.7$	$V_{CC} \times 0.3$	—40 to +125	11.0	FSs	YES
BD7LS32	BD7LS32G-C	—	Single 2-input OR gate	1.65 to 5.5	$V_{CC} \times 0.7$	$V_{CC} \times 0.3$	—40 to +125	10.0	FSs	YES
BD7LS34	BD7LS34G-C	—	Single Buffer	1.65 to 5.5	$V_{CC} \times 0.7$	$V_{CC} \times 0.3$	—40 to +125	10.0	FSs	YES
BD7LS125	BD7LS125G-C	—	Single 3-state Buffer	1.65 to 5.5	$V_{CC} \times 0.7$	$V_{CC} \times 0.3$	—40 to +125	10.0	FSs	YES
BD7LS97	—	BD7LS97G-C	Configurable Function gate	1.65 to 5.5	$V_{CC} \times 0.7$	$V_{CC} \times 0.3$	—40 to +125	13.0	FSs	YES

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Standard Logic ICs

Analog Switch/Analog Switch (Single type)											
Type	Function	Supply Voltage (V)	Input Voltage (V)		ON Resistance (Max) (Ω)	Control-Output Propagation Delay Time (Typ) (ns)	IN-Out Propagation Delay Time (Typ) (ns)	Max Propagation Frequency (Typ) (MHz)	Package/Part No.		
			H Level (Min)	L Level (Max)					SOP14	SSOP-B14	SSOP5
BU4066BC	Quad Analog Switch	3 to 18	3.5	1.5	950	60	20	—	BU4066BCF	BU4066BCFV	—
BU4S66	Single Analog Switch	3 to 16	3.5	1.5	950	80	15	—	—	—	BU4S66G2
Multiplexer											
Type	Function	Supply Voltage (V)	Input Voltage (V)		ON Resistance (Max) (Ω)	Control-Output Propagation Delay Time (Typ) (ns)	IN-Out Propagation Delay Time (Typ) (ns)	Max Propagation Frequency (Typ) (MHz)	Package/Part No.		
			H Level (Min)	L Level (Max)					SOP16	SSOP-B16	
BU4051BC	Analog Multiplexer/Demultiplexer (8 \leftrightarrow 1)	3 to 18	3.5	1.5	950	170	15	20	BU4051BCF	BU4051BCFV	
BU4052BC	Dual Analog Multiplexer/Demultiplexer (4 \leftrightarrow 1)	3 to 18	3.5	1.5	950	170	15	20	BU4052BCF	BU4052BCFV	
BU4551B	Quad Analog Multiplexer/Demultiplexer (2 \leftrightarrow 1)	3 to 16	3.5	1.5	1,100	360	35	15	BU4551BF	BU4551BFV	
Logic Gates											
Type	Function	Supply Voltage (V)	Input Voltage (V)			Hysteresis Voltage (V)	Output Voltage $I_{OUT}=1\mu A(V)$		Propagation Delay Time (Typ) (ns)	Package/Part No.	
			H Level (Min)	L Level (Max)			H Level (Min)	L Level (Max)		SOP14	
BU4030B	Quad Exclusive OR Gate	3 to 16	3.5	1.5	—	—	4.95	0.05	90	BU4030BF	
Logic Gates (Single type)											
Type	Function	Supply Voltage (V)	Input Voltage (V)			Hysteresis Voltage (V)	Output Voltage $I_{OUT}=1\mu A(V)$		Propagation Delay Time (Typ) (ns)	Package/Part No.	
			H Level (Min)	L Level (Max)			H Level (Min)	L Level (Max)		SSOP5	
BU4S01	Single NOR Gate	3 to 16	3.5	1.5	—	—	4.95	0.05	85	BU4S01G2	
BU4S11	Single NAND Gate	3 to 16	3.5	1.5	—	—	4.95	0.05	85	BU4S11G2	
BU4SU69	Single Unbuffer Inverter	3 to 16	4.0	1.0	—	—	4.95	0.05	55	BU4SU69G2	
BU4S71	Single OR Gate	3 to 16	3.5	1.5	—	—	4.95	0.05	90	BU4S71G2	
BU4S81	Single AND Gate	3 to 16	3.5	1.5	—	—	4.95	0.05	90	BU4S81G2	
BU4S584	Single Schmitt Trigger	3 to 16	3.5	1.5	0.15 to 0.60	—	4.95	0.05	125	BU4S584G2	
Function Logic											
Type	Function	Supply Voltage (V)	Input Voltage (V)			Hysteresis Voltage (V)	Output Voltage $I_{OUT}=1\mu A(V)$		Propagation Delay Time (Typ) (ns)	Package/Part No.	
			H Level (Min)	L Level (Max)	H Level (Min)		H Level (Min)	L Level (Max)		SOP16	
BU4094BC	8bit Static Shift/Store Register (3-State)	3 to 18	3.5	1.5	4.95	0.05	420	2.5	20	BU4094BCF	BU4094BCFV



Serial-in/Parallel-out Drivers

Serial/Parallel 2-input Drivers							
Part No.	Serial Number of Input	Parallel Number of Output	Supply Voltage (V)	Max Output Current (mA)	Max Output Voltage (V)	Output type	Package
BU2098F	2	8	2.7 to 5.5	25	15	Open drain	SOP16
BU2090F		12	2.7 to 5.5	25	25	Open drain	SOP16
BU2090FS		12	2.7 to 5.5	25	25	Open drain	SSOP-A16
Serial/Parallel 4-input Drivers							
Part No.	Serial Number of Input	Parallel Number of Output	Supply Voltage (V)	Max Output Current (mA)	Max Output Voltage (V)	Output type	Package
BU2050F	4	8	4.5 to 5.5	25	5.5	CMOS	SOP14
BU2092F		12	2.7 to 5.5	25	25	Open drain	SOP18
BU2092FV		12	2.7 to 5.5	25	25	Open drain	SSOP-B20
BU2099FV		12	2.7 to 5.5	25	25	Open drain	SSOP-B20
BU2152FS		24	2.7 to 5.5	25	5.5	CMOS	SSOP-A32

Serial/Parallel 2-input Drivers: 2-wires Interface CLOCK, DATA

Serial/Parallel 4-input Drivers: 4-wires Interface CLOCK, DATA, LATCH, ENABLE

USB Switch ICs

DPDT type (Double Pole Double Throw)												
Part No.	Supply Voltage (V)		USB Switch (ch)	UART Switch (ch)	Circuit Current (μ A)	USB Switch ON Resistance (Ω)	USB Switch ON Capacitance (pF)	Package				
	USB	UART										
BD11600NUX	2.5 to 5.5	—	1	—	18	3	6	VSON010X3020				
BD11603MWX	2.5 to 5.5	—	2	—	18	3	7	USON016X3315				
BD11601NUX	2.5 to 5.5	—	1	—	18	2.5	6	VSON008X2020				
BD11670GWL	3.8 to 28.0	—	1	—	26	5	6	UCSP50L1C				
Built-in OVP Micro USB Switch with USB2.0, MHL™ and Audio												
Part No.	Supply Voltage (V)			MIC Switch (ch)	HP Switch (ch)	VBUS Signal Path (ch)	ID-CBUS Path (ch)	OTG-VBUS Voltage Path (ch)				
	VBUS	VBAT	VDDIO									
BD91411GW	3.8 to 28.0	2.9 to 4.6	1.7 to 3.0	2	1 (mono)	1	1	1	6	5	6	UCSP75M3

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IPD (Smart Low Side & High Side Switch ICs)

High Side Switch

L-shaped Protection Smart High Side Switch								
Part No.	Supply Voltage (V)	V_{DS} (Max) (V)	ch	I _{loop} (Min) (A)	ON Resistance (Typ) (m Ω)	Thermal Shut Down	Package	ComfySIL™ Functional Safety* ¹
BV1HD045EFJ-C	6.0 to 28.0	41.0	2	21	45	Self-restart	HTSOP-J8	FSs
BV2HC045EFU-C	6.0 to 19.0	41.0		21	45	Off-latch	HSSOP-C16	FSs
BV2HD045EFU-C	6.0 to 28.0	41.0		21	45	Self-restart	HSSOP-C16	FSs
BV2HD070EFU-C	6.0 to 28.0	41.0		10	70	Self-restart	HSSOP-C16	FSs
Smart High Side Switch								
Part No.	Supply Voltage (V)	V_{DS} (Max) (V)	ch	I _{loop} (Min) (A)	ON Resistance (Typ) (m Ω)	Thermal Shut Down	Package	ComfySIL™ Functional Safety* ¹
BV1HJC45EFJ-C	6.0 to 28.0	45.0	1	5.0	45	Self-restart	HTSOP-J8	FSs
BV1HLC45EFJ-C	6.0 to 28.0	45.0		2.5	45	Self-restart	HTSOP-J8	FSs
New BV1HV050FJ-C	4.5 to 28.0	45.0		3.0	50	Self-restart	SOP-J8	FSs
BV1HD090FJ-C	4.5 to 36.0	45.0		2.7	90	Self-restart	SOP-J8	FSs
BV1HJ180EFJ-C	4.0 to 28.0	45.0		2.0	180	Self-restart	HTSOP-J8	FSs
BD1HCU50EFJ-C	4.0 to 18.0	44.5		0.8	500	Off-latch	HTSOP-J8	FSs
BD1HC500FVM-C	4.0 to 18.0	44.5		0.8	500	Off-latch	MSOP8	FSs
BD1HC500HFN-C	4.0 to 18.0	44.5		0.8	500	Off-latch	HSON8	FSs
BD1HDU50EFJ-C	4.0 to 18.0	44.5		0.8	500	Self-restart	HTSOP-J8	FSs
BD1HD500FVM-C	4.0 to 18.0	44.5		0.8	500	Self-restart	MSOP8	FSs
BD1HD500HFN-C	4.0 to 18.0	44.5		0.8	500	Self-restart	HSON8	FSs
BV2HM050EFV-C	6.0 to 28.0	45.0	2	5.0	50	Self-restart	HTSSOP-B20	FSs
Built-in current sensing function High Side Switch								
Part No.	Supply Voltage (V)	V_{DS} (Max) (V)	ch	I _{loop} (Min) (A)	ON Resistance (Typ) (m Ω)	Thermal Shut Down	Package	ComfySIL™ Functional Safety* ¹
BV1HB045EFJ-C	6.0 to 28.0	45	1	21	45	Self-restart	HTSOP-J8	FSs

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Low Side Switch

Smart Low Side Switch

Part No.	Supply Voltage (V)	V _{DS} (Max) (V)	ch	I _{loop} (Min) (A)	ON Resistance (Typ) (mΩ)	Thermal Shut Down	Package	ComfySIL™ Functional Safety*1	Automotive Grade AEC-Q100
BV1LA025EFJ-C	3.5 to 5.5	42	1	9.0	25	Self-restart	HTSOP-J8	FSs	YES
BV1LB025EFJ-C				35.0	25		HTSOP-J8	FSs	YES
BV1LB028FPJ-C				30.0	28		TO252-J3	FSs	YES
BV1LB045FPJ-C				18.0	45		TO252-J3	FSs	YES
BV1LB085FJ-C				13.0	85		SOP-J8	FSs	YES
BV1LB150FJ-C			2	6.5	150		SOP-J8	FSs	YES
BV1LB300FJ-C				1.7	300		SOP-J8	FSs	YES
BM2LB150FJ-C				6.5	150		SOP-J8	FSs	YES
BM2LB300FJ-C				1.7	300		SOP-J8	FSs	YES

Smart Low Side Switch with Error Flag

Part No.	Supply Voltage (V)	V _{DS} (Max) (V)	ch	I _{loop} (Min) (A)	ON Resistance (Typ) (mΩ)	Thermal Shut Down	Package	ComfySIL™ Functional Safety*1	Automotive Grade AEC-Q100	
New BV1LD040EFJ-C	3.0 to 5.5	40	1	5.5	40	Self-restart	HTSOP-J8	FSs	YES	
BV1LE040EFJ-C				17.5	40		HTSOP-J8	FSs	YES	
New BV1LD080EFJ-C				3.8	80		HTSOP-J8	FSs	YES	
BV1LE080EFJ-C				9.0	80		HTSOP-J8	FSs	YES	
BV1LC085EFJ-C		42		4.0	85		HTSOP-J8	FSs	YES	
BV1LC105FJ-C		1	3.0	105	SOP-J8		FSs	YES		
BV1LC150EFJ-C			3.5	150	HTSOP-J8		FSs	YES		
BV1LE160EFJ-C			5.0	160	HTSOP-J8		FSs	YES		
BV1LE250EFJ-C			3.0	250	HTSOP-J8		FSs	YES		
New BV1LD250EFJ-C	3.5 to 5.5	40	1	1.3	250		HTSOP-J8	FSs	YES	
BV1LC300EFJ-C				1.7	350		HTSOP-J8	FSs	YES	
BV1LC300FJ-C				1.7	350		SOP-J8	FSs	YES	
New BD1LBU50EFJ-C		42		0.8	350		HTSOP-J8	FSs	YES	
BD1LB500FVM-C				0.8	350		MSOP8	FSs	YES	
BM2LE040FJ-C	3.0 to 5.5	40	2	17.5	40	Self-restart	SOP-J8	FSs	YES	
New BM2LD080FJ-C				3.8	80		SOP-J8	FSs	YES	
BM2LE080FJ-C				9.0	80		SOP-J8	FSs	YES	
BM2LC105FJ-C		42		3.0	105		SOP-J8	FSs	YES	
BM2LC120FJ-C				3.0	120		SOP-J8	FSs	YES	
BM2LE160FJ-C		40		5.0	160		SOP-J8	FSs	YES	
BM2LE250FJ-C				3.0	250		SOP-J8	FSs	YES	
BM2LC300FJ-C				1.7	350		SOP-J8	FSs	YES	

Smart Low Side Switch Variable Slew Rate

Part No.	Supply Voltage (V)	V _{DS} (Max) (V)	ch	I _{loop} (Min) (A)	ON Resistance (Typ) (mΩ)	Thermal Shut Down	Package	ComfySIL™ Functional Safety*1	Automotive Grade AEC-Q100
BV1LF080EFJ-C	3.5 to 6.5	42	1	5.0	80	Self-restart	HTSOP-J8	FSs	YES

Multi Channel Smart Low Side Switch

Part No.	Supply Voltage (V)	V _{DS} (Max) (V)	ch	I _{loop} (Min) (A)	ON Resistance (Typ) (mΩ)	Thermal Shut Down	Package	ComfySIL™ Functional Safety*1	Automotive Grade AEC-Q100
New BD4LB650EFV-C	4.0 to 5.5	37	4	0.5 or 1.0	650	Self-restart	HTSSOP-B20	FSs	YES
New BD4LD650EFV-C				0.5 or 1.0	650		HTSSOP-B20	FSs	YES
New BD5LL20AEFV-C				2.0 (OUT 1 to 3)/ 0.5 (OUT 4, 5)	200 (OUT 1 to 3) 540 (OUT 4, 5)		HTSSOP-B20	FSs	YES
New BD8LB65AEFV-C		37	8	0.5 or 1.0	650		HTSSOP-B20	FSs	YES
New BD8LD650EFV-C				0.5 or 1.0	650		HTSSOP-B20	FSs	YES
BD8LB600FS-C	3.0 to 5.5 (Digital)/ 4.0 to 5.5 (Analog)	45		1.0	600		SSOP-A24	FSs	YES
BD8LA700EFV-C				0.5	700	Off-latch	HTSSOP-B24	FSs	YES

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*1 For more information about "ComfySIL™ Functional Safety", please refer to the reverse side of the cover.

Data Converter

D/A Converters

P.25

A/D Converter

P.25

Click on the icon to access the product page on ROHM's website. Please check the website for the latest updates.

D/A Converters

8bit

Standard 8bit Resolution

The converter allows the output voltage to be set with 8-bit precision (256 steps). These popular converters offer feature-rich, highly integrated capabilities.

Part No.	Supply Voltage (V)	ch	Current Consumption (mA)	DNL (LSB)	INL (LSB)	Load Current (mA)	Data Transfer Clock Frequency (MHz)	Input type	Data Latch Method	Package
BH2219FVM	2.7 to 5.5	2	0.4	±1.0	±1.5	±1.0	10	CMOS	LD	MSOP8
BH2227FV	2.7 to 5.5	4	0.8	±1.0	±1.5	±1.0	10	CMOS	CSB	SSOP-B14
BH2228FV	2.7 to 5.5	6	0.8	±1.0	±1.5	±1.0	10	CMOS	CSB	SSOP-B14
BH2226FV	2.7 to 5.5	8	1.1	±1.0	±1.5	±1.0	10	CMOS	CSB	SSOP-B16
BH2223FV	2.7 to 5.5	10	1.6	±1.0	±1.5	±1.0	10	CMOS	LD	SSOP-B16
BH2221FV	2.7 to 5.5	12	1.6	±1.0	±1.5	±1.0	10	CMOS	LD	SSOP-B20

10bit

10bit Resolution

Part No.	Supply Voltage (V)	ch	Current Consumption (mA)	DNL (LSB)	INL (LSB)	Load Current (mA)	Data Transfer Clock Frequency (MHz)	Input type	Data Latch Method	Package
BU2508FV	4.5 to 5.5	4	4.5	±1.0	±3.5	±2.0	10	TTL	LD	SSOP-B14
BU2507FV	4.5 to 5.5	6	4.5	±1.0	±3.5	±2.0	10	TTL	LD	SSOP-B14
BU2506FV	4.5 to 5.5	8	4.5	±1.0	±3.5	±2.0	10	TTL	LD	SSOP-B20
BU2505FV	4.5 to 5.5	10	4.5	±1.0	±3.5	±2.0	10	TTL	LD	SSOP-B20
BU22210MUV	2.7 to 5.5	10	1.2	±0.5	±2.0	±1.0	10	TTL	CSB	VQFN016V3030

A/D Converter

Automotive High Accuracy 12bit A/D Converter

Part No.	Supply Voltage (V)	ch	Current Consumption (mA)	DNL (LSB)	INL (LSB)	Sampling Rate (MSPS)	I/F	Architecture	Package	Automotive Grade AEC-Q100
New BD79104MUF-M	2.7 to 5.25	8	1.1	-0.99 to +1.2	-1.0 to +1.0	1.0	SPI	SAR	VQFN16FV3030 (Wettable Flank)	YES

High Accuracy 12bit A/D Converter (Industrial Equipment Support)

Part No.	Supply Voltage (V)	ch	Current Consumption (mA)	DNL (LSB)	INL (LSB)	Sampling Rate (MSPS)	I/F	Architecture	Package
BU79100G-LA	2.7 to 5.25	1	0.5	-1.0 to +1.0	-1.1 to +1.0	1.0	SPI	SAR	SSOP6
New BD79104FV-LA	2.7 to 5.25	8	1.1	-0.99 to +1.2	-1.0 to +1.0	1.0	SPI	SAR	SSOP-B16

Interfac

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Interface IC for Gas Water Heaters	P.27		

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LVDS Interface ICs

27bit LVDS Transmitter 27 : 4 Serializer

Part No.	Type	bits (bit)	Color Depth	Input Specification	Output Specification	Clock Frequency (MHz)	Supply Voltage (V)	Operating Temperature (°C)	Package
BU90T81	Serializer	27	8	LVC MOS	LVDS Single Link	20 to 112	1.65 to 1.95	-20 to +85	VBGA048W040

27bit LVDS Transmitter 27 : 8 Serializer

BU90T82	Serializer	27	8	LVC MOS	LVDS Dual Link	10 to 174	1.62 to 1.98/ 1.62 to 3.60	-40 to +85	SBGA072T070A
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35bit LVDS Transmitters 35 : 5 Serializer

BU8254KVT	Serializer	35	10	LVC MOS	LVDS Single Link	8 to 112	3.0 to 3.6	-40 to +85	TQFP64V
BU8254GUW	Serializer	35	10	LVC MOS	LVDS Single Link	8 to 112	3.0 to 3.6	-20 to +85	VBGA099W060

56bit LVDS Transmitter 56 : 8 Serializer

BU7988KVT	Serializer	56	8	LVC MOS	LVDS Dual Link	8 to 112	3.0 to 3.6	-20 to +85	TQFP100V
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35bit LVDS Receiver 5 : 35 Deserializer

BU90R104	Deserializer	35	10	LVDS Single Link	LVC MOS	8 to 112	2.3 to 3.6	-40 to +85	TQFP64V
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56bit LVDS Receiver 8 : 56 Deserializer

BU7985KVT	Deserializer	56	8	LVDS Dual Link	LVC MOS	20 to 112	3.0 to 3.6	-20 to +85	TQFP100V
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70bit LVDS Distributor

BU90RT102	Serializer/ Deserializer	70	10	LVDS	LVDS	20 to 135	3.0 to 3.6	-20 to +85	HTSSOP-C64
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4bit LVDS Driver

BU90LV047A	Driver	4	-	LVC MOS	LVDS	250	3.0 to 3.6	-40 to +85	SSOP-B16
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4bit LVDS Receiver

BU90LV048	Receiver	4	-	LVDS	LVC MOS	250	3.0 to 3.6	-40 to +85	SSOP-B16
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4bit LVDS Transceiver

BU90LV049A	Transceiver	4	-	LVC MOS/LVDS	LVC MOS/LVDS	250	3.0 to 3.6	-40 to +85	SSOP-B16
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Multiple Input Switch Monitor LSIs

22ch Models

Part No.	Supply Voltage (V)	Switch Input Number	Switch Input Voltage Range (V)	Wetting Current (mA)	Operating Current Intermittent Monitoring 50ms (Max) (µA)	Control I/F	Clock Frequency (MHz)	Operating Temperature (°C)	Package	ComfySIL™ Functional Safety*1	Automotive Grade AEC-Q100
BD3378MUV-M	6.0 to 28.0 (VPUA/VPUB) 3.1 to 5.25 (VDDI)	22	-14 to +40	1/3/5/10/15 (Pull up/Pull down)	100	SPI	up to 4.4	-40 to +125	VQFN48MCV070	FSs	YES

33ch Models

BD3381EKV-C	6.0 to 28.0 (VPUA/VPUB) 3.1 to 5.25 (VDDI)	33	-14 to +40	1/3/5/10/15 (Pull up/Pull down)	110	SPI	up to 4.4	-40 to +125	HTQFP64BV	FSs	YES
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10ch Models

BD3376EFV-C	8.0 to 26.0 (VPUA/VPUB) 3.1 to 5.25 (VDDI)	10	-14 to +40	1/3/5/10/15 (Pull up/Pull down)	100	SPI	up to 4.4	-40 to +125	HTSSOP-B30	FSs	YES
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LIN Transceivers

LIN Transceivers										
Part No.	Supported Standards	Supply Voltage (V)	Operating Temperature (°C)	Absolute Maximum Rating of LIN pin (V)	Transmission Rate (Max) (kbps)	Supply Current at Sleep Mode (Typ) (μA)	Package	ComfySIL™ Functional Safety*1	Automotive Grade AEC-Q100	
New BD41033FJ-C	LIN2.0, LIN2.1, LIN2.2, LIN2.2A, ISO17987-4: 2016 (12V)	5 to 27	-40 to +125	-27 to +40	20	3	SOP-J8	FSs	YES	
BD41030FJ-C	LIN2.0, LIN2.1, LIN2.2, LIN2.2A	5 to 27	-40 to +125	-27 to +40	20	3	SOP-J8	FSs	YES	
BD41030HFN-C	LIN2.0, LIN2.1, LIN2.2, LIN2.2A	5 to 27	-40 to +125	-27 to +40	20	3	HSON8	FSs	YES	

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CAN Transceivers

CAN Transceivers										
Part No.	Supported Standards	Supply Voltage (V)	Operating Temperature (°C)	Absolute Maximum Rating of CAN pin (V)	Transmission Rate (Max) (Mbps)	Supply Current at Standby Mode (Typ) (μA)	Package	ComfySIL™ Functional Safety*1	Automotive Grade AEC-Q100	
BD41041FJ-C	ISO 11898-2: 2016	4.75 to 5.25	-40 to +125	-27 to +40	1	10	SOP-J8	FSs	YES	
BD41044FJ-C	ISO 11898-2: 2016	4.75 to 5.25	-40 to +125	-27 to +40	5	10	SOP-J8	FSs	YES	

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CXPI Transceivers

CXPI Transceivers										
Part No.	Supported Standards	Supply Voltage (V)	Operating Temperature (°C)	Absolute Maximum Rating of BUS (V)	Transmission Rate (kbps)	Supply Current at Sleep Mode (Typ) (μA)	Package	ComfySIL™ Functional Safety*1	Automotive Grade AEC-Q100	
BD41003FJ-C	JASO_D015_3	7 to 18	-40 to +125	-27 to +40	18.8 to 20.0	3	SOPJ-8	FSs	YES	

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*1 For more information about "ComfySIL™ Functional Safety", please refer to the reverse side of the cover.

USB Type-C Power Delivery

For POWER SOURCE (POWER Role: Source, DATA Role: DFP, Internal Shunt Reg., Variable OCP, Variable OVP, Internal Vconn SW)

Part No.	Supply Voltage (V)	IO Supply Voltage (V)	Type-C/PD Support	Initial Supply Capable Voltage/Current (V/A)	Tolerant Voltage at CC Pins (V)	Gate Drivers for Nch FET	After OCP Behavior After OVP Behavior	DP Alternate Mode	Operating Temperature (°C)	Package
BD93F50MWV	3.1 to 22.0	1.7 to 5.5	R1.3/R3.0	5V to 20V Selectable	28	For Source: 1pair (For Sink: 1pair)	OCP: Selectable OVP: Selectable	DP_SINK with Ext-MCU	-30 to +85	UQFN040V5050

For POWER SOURCE & SINK (POWER Role: Source/Sink/DRP, DATA Role: DFP/UFP/Dual Role Data)

Part No.	Supply Voltage (V)	IO Supply Voltage (V)	Type-C/PD Support	Connected The Required Initial Voltage (V)		CC terminal voltage (V)	Gate Drivers for Nch FET	DP Alternate Mode	Operating Temperature (°C)	Package
				Dead Battery	Non Dead Battery					
BD93E30GWL	3.1 to 22.0	1.7 to 5.5	R1.3/R3.0	5V to 20V Selectable (Sink) / 5V (Source)		6.0	For Sink: 1pair For Source: 1pair	DP_SOURCE	-30 to +85	UCSP50L2C
BD93E70GWL	3.1 to 22.0	1.7 to 5.5	R1.3/R3.0	5V (Sink) / 5V to 20V Selectable (Source)						UCSP50L2C

For POWER SINK (POWER Role: Sink, DATA Role: UFP)

Part No.	Supply Voltage (V)	IO Supply Voltage (V)	Type-C/PD Support	Connected The Required Initial Voltage (V) Without Ext-MCU	Start of Automatic Power Receiving Without Ext-MCU	CC terminal voltage (V)	Gate Drivers for Nch FET	DP Alternate Mode	Operating Temperature (°C)	Package
BD93E11GWL	3.1 to 22.0	R1.3/R3.0 1.7 to 5.5 R2.2/R3.1	5V to 20V Selectable		Selectable	6.0	For Sink: 1pair For Source: 1pair	-	-30 to +85	UCSP50L2C
BD93F10MWV	3.1 to 22.0					28				UQFN040V5050
New BD93F12MWV	3.1 to 20.0					28				UQFN040V5050
BD91N01NUX	4.0 to 5.5	R1.3/-		Type-C 5V	✓	28	For Sink: 1path			VSON010X3020

Interface IC for Gas Water Heaters

For Gas Water Heaters Interface IC

Part No.	Supply Voltage (V)	Circuit Current (mA)	Oscillation Frequency (MHz)	Detection Frequency (kHz)	Pseudo-sine Wave Output Circuit	External Analog Signal Detection Circuit	Analog Switch (ch)	Operating Temperature (°C)	Package
BD88030FV	4.5 to 5.5	2.5	4	250	✓	✓	2	-20 to +80	SSOP-B16

Power Management

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Linear Regulators

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Regulator Product Table

Max. Rating Input Voltage	Output Current Current	up to 0.1A	0.15A	0.2A	0.25A	0.3A	0.5A	0.55A	0.7A	1A	1.5A	2A	3A
42 to 50V	BD7xxL05G-C ^{*2} ►P.31 BD42540FJ-C ^{*3} BD42500G-C ^{*3} ►P.42	BD9xxN1 ^{*1/2} BD9xxN1W ^{*1/2} ►P.30	BD7xxU2EFJ-C ^{*2} BD7xxL2FP-C ^{*2} BD7xxL2FP3-C ^{*2} BD4xxS2 ^{*1/2} BD4xxS2W ^{*1/2} ►P.30 BD820F5UEFJ-C ^{*3} ►P.41 BD4269FJ-C ^{*3} ►P.42	BD42530UEFJ-C ^{*2} BD42530FP2-C ^{*2} BD42530FPJ-C ^{*2} ►P.42	BD4269UEFJ-C ^{*23} ►P.42	BD357YFP-M ^{*2} BD357YHFP-M ^{*3} BD7xxL5FP-C ^{*2} ►P.29 BD800MSW ^{*1/2} BD00EASW ^{*1} BD4xxS5 ^{*1/2} BD4xxS5W ^{*1/2} BD9xxM5EFJ-C ^{*2} BD9xxM5WEFJ-C ^{*2} ►P.30 BD30xxHFP ^{*2} ►P.41 BD42754FPJ-C ^{*23} BD42754FP2-C ^{*23} BD3925FP-C ^{*2} BD3925HFP-C ^{*2} ►P.42	BD4271EFJ-C ^{*23} BD4271HFP-C ^{*23} BD4271FP2-C ^{*23} ►P.41	BD800M7WFP2-C ^{*2} ►P.30					
30 to 36V	BDxxFA1FP3 BD50FA1MG-M ^{*2} BD00FA1WEFJ ►P.33					BD3650FP-M ^{*2} ►P.31 BA3662CP-V5 ►P.33	BA178Mxx (BA78Mxx) ^{*1} ►P.29		BA178Bxx (BA78Bxx) ^{*1} ►P.29 BAxxxCC0W ^{*1} BAxxxCC0W ^{*1} BDxxFC0 BDxxFC0W ^{*1} BDxxC0A ^{*1/2} BDxxC0AW ^{*1/2} ►P.32		BAxxDD0 BAxxDD0W ^{*1} BDxxFD0W ^{*1} BD00FDAWHFP ►P.31		
20V						BDL00A5NUF-C ^{*2} BDL00A5EFJ-C ^{*2} ►P.33							
18V									BAxxBC0 ^{*1} BAxxBC0W ^{*1} ►P.33		BAxxJC5T BA00JC5WT ►P.33		
15V						BDxxGA3V ^{*2} BDxxGA3W ^{*1} ►P.35	BDxxGA5WEFJ BDxxGA5VEFJ-M ^{*2} BDxxGA5VEFJ-LB ^{*4} ►P.34		BA1117FP ►P.29 BDxxGC0WEFJ BDxxGC0VEFJ-M ^{*2} BDxxGC0VEFJ-LB ^{*4} ►P.34				
10V						BDxxHA3WEFJ BDxxHA3VEFJ-M ^{*2} ►P.36 BDxxHA3VEFJ-LB ^{*4} ►P.37	BDxxHA5WEFJ BDxxHA5VEFJ-M ^{*2} ►P.36		BDxxHC0WEFJ BDxxHC0VEFJ-M ^{*2} BDxxHC0VEFJ-LB ^{*4} ►P.36	BDxxHC5WEFJ BDxxHC5VEFJ-M ^{*2} BDxxHC5VEFJ-LB ^{*4} ►P.35			
6 to 7V			BUxxTD2W [*] BUxxTD3W [*] BUxxTA2W [*] ►P.39 BUxxSD2MG-M ^{*2} BUxxJA2MNVX-C ^{*2} BUxxJA2VG-C ^{*2} BUxxJA2DG-C ^{*2} BUxxSA4WGWL ►P.40	BU1xxJA3DG-C ^{*2} ►P.39	BDxxKA5 BDxxK5W [*] BDxxA5WEFJ BDxxA5VEFJ-M ^{*2} BD00A5MHFV-M ^{*2} BDxxA5VEFJ-LB ^{*4} ►P.38 BUxxD5WG ►P.39				BDxxIC0W [*] BDxxIC0V [*] BDxxIC0VEFJ-LB ^{*4} ►P.37 BD00JC0MNUX-M ►P.41				
less than 6V	BD7602GUL (1ch) ►P.41	BD7602GUL (2ch) ►P.41				BUxxSA5GWZ BD3540NUV ►P.41 BD37201NUX ►P.42			BD3541NUV ►P.41 BD3533F BD3539VM BD3539NUX BD35390FJ BD35395FJ-M ^{*2} ►P.43		BD3552HFN ►P.41	BD3508MUV ►P.41	

*1 Package Lineup *2 Automotive Grade *3 Multi Function Regulator (Ex. Voltage Detection) *4 Industrial Grade

Linear Regulators

Please ensure that minimum Input Voltage always exceeds the sum of Output Voltage and drop out voltage for the device.

78 series Regulators/Standard Regulator

35V Withstand Voltage 1A Fixed Output Three-Terminal Regulators (BA78xx series)

Type	Input Voltage (V)	Output Voltage (V)	Output Voltage Precision (%)	Output Current (A)	Circuit Current (mA)	Thermal Shutdown Circuit	Area of Safety Operation Circuit	Over-Current Protection Circuit	Package/Part No.	
									TO220CP-3	TO252-3
BA17805 (BA7805)	7.5 to 25.0	5	±4	1.0	4.5	✓	✓	✓	BA17805CP	BA17805FP
BA17806 (BA7806)	8.5 to 21.0	6							BA17806CP	BA17806FP
BA17807 (BA7807)	9.5 to 22.0	7							BA17807CP	BA17807FP
BA17808 (BA7808)	10.5 to 23.0	8							BA17808CP	BA17808FP
BA17809 (BA7809)	11.5 to 26.0	9							BA17809CP	BA17809FP
BA17810 (BA7810)	12.5 to 25.0	10							BA17810CP	BA17810FP
BA17812 (BA7812)	15.0 to 27.0	12							BA17812CP	BA17812FP
BA17815 (BA7815)	17.5 to 30.0	15							BA17815CP	BA17815FP
BA17818 (BA7818)	21.0 to 33.0	18							BA17818CP	BA17818FP
BA17820 (BA7820)	23.0 to 33.0	20							BA17820CP	BA17820FP
BA17824 (BA7824)	27.0 to 33.0	24							BA17824CP	BA17824FP

35V Withstand Voltage 500mA Fixed Output Three-Terminal Regulators (BA78Mxx series)

Type	Input Voltage (V)	Output Voltage (V)	Output Voltage Precision (%)	Output Current (A)	Circuit Current (mA)	Thermal Shutdown Circuit	Area of Safety Operation Circuit	Over-Current Protection Circuit	Package/Part No.	
									TO220CP-3	TO252-3
BA178M05 (BA78M05)	7.5 to 25.0	5	±4	0.5	4.5	✓	✓	✓	BA178M05CP	BA178M05FP
BA178M06 (BA78M06)	8.5 to 21.0	6							BA178M06CP	BA178M06FP
BA178M07 (BA78M07)	9.5 to 22.0	7							BA178M07CP	BA178M07FP
BA178M08 (BA78M08)	10.5 to 23.0	8							BA178M08CP	BA178M08FP
BA178M09 (BA78M09)	11.5 to 26.0	9							BA178M09CP	BA178M09FP
BA178M10 (BA78M10)	12.5 to 25.0	10							BA178M10CP	BA178M10FP
BA178M12 (BA78M12)	15.0 to 27.0	12							BA178M12CP	BA178M12FP
BA178M15 (BA78M15)	17.5 to 30.0	15							BA178M15CP	BA178M15FP
BA178M18 (BA78M18)	21.0 to 33.0	18							BA178M18CP	BA178M18FP
BA178M20 (BA78M20)	23.0 to 33.0	20							BA178M20CP	BA178M20FP
BA178M24 (BA78M24)	27.0 to 33.0	24							BA178M24CP	BA178M24FP

15V Withstand Voltage 1A Variable Output Three-Terminal Regulator

Part No.	Input Voltage (V)	Output Voltage (V)	Output Voltage Precision (%)	Output Current (A)	Adjustment Pin Current (µA)	Reference Voltage (V)	Ripple Rejection (dB)	Load Regulation (mV)	Protection Circuit	Package
BA1117FP	10.0	Variable	±1	1.0	60	1.2 (I _o =1A)	75 (f=120Hz, V _i -V _o =3V, V _{ripple} =1V _{pp})	10	Over-Current/Temperature	TO252-3

LDO Regulators

50V Withstand Voltage Low Quiescent Current 500mA Variable/Fixed Output LDO Regulators

Part No.	Input Voltage (V)	Output Voltage (V)	Output Voltage Precision (%)	Output Current (A)	Saturation Voltage (V)	Circuit Current (µA)	Operating Temperature (°C)	Shutdown Switch	Protection Circuit	Package	ComfySIL™ Functional Safety*1	Automotive Grade AEC-Q100
BD3570YFP-M	4.5 to 36.0	3.3	±2 (T _a =-40 to +125°C)	0.5	0.25 (I _o =200mA)	30	T _a =-40 to +125	-	Over-Current/Temperature	TO252-3	FSs	YES
BD3570YHFP-M										HRP5	FSs	YES
BD3571YFP-M										TO252-3	FSs	YES
BD3571YHFP-M										HRP5	FSs	YES
BD3572YFP-M										TO252-5	FSs	YES
BD3572YHFP-M										HRP5	FSs	YES
BD3573YFP-M										TO252-5	FSs	YES
BD3573YHFP-M										HRP5	FSs	YES
BD3574YFP-M										TO252-5	FSs	YES
BD3574YHFP-M										HRP5	FSs	YES
BD3575YFP-M										TO252-5	FSs	YES
BD3575YHFP-M										HRP5	FSs	YES

50V Withstand Voltage Ultra Low Quiescent Current 500mA Fixed Output LDO Regulators

Part No.	Input Voltage (V)	Output Voltage (V)	Output Voltage Precision (%)	Output Current (A)	Saturation Voltage (V)	Circuit Current (µA)	Operating Temperature (°C)	Shutdown Switch	Protection Circuit	Package	ComfySIL™ Functional Safety*1	Automotive Grade AEC-Q100
BD733L5FP-C	4.17 to 45.0	3.3	±2 (T _a =-40 to +125°C)	0.5	0.4 (I _o =200mA)	6	T _a =-40 to +125	-	Over-Current/Temperature	TO252-3	FSs	YES
BD750L5FP-C	5.6 to 45.0	5.0	±2 (T _a =-40 to +125°C)	0.5	0.25 (I _o =200mA)					TO252-3	FSs	YES

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*1 For more information about "ComfySIL™ Functional Safety", please refer to the reverse side of the cover.

50V Withstand Voltage Ultra Low Quiescent 200mA Fixed Output LDO Regulators

Part No.	Input Voltage (V)	Output Voltage (V)	Output Voltage Precision (%)	Output Current (A)	Saturation Voltage (V)	Circuit Current (μ A)	Operating Temperature (°C)	Shutdown Switch	Protection Circuit	Package	ComfySIL™ Functional Safety*1	Automotive Grade AEC-Q100		
BD733U2EFJ-C	4.37 to 45.0	3.3	± 2 ($T_a = -40$ to $+125^\circ\text{C}$)	0.2	0.6 ($I_o = 200\text{mA}$)	6	$T_a = -40$ to $+125$	—	Over-Current/Temperature	HTSOP-J8	FSs	YES		
BD733L2FP-C					0.4 ($I_o = 200\text{mA}$)					TO252-3	FSs	YES		
BD733L2FP3-C										SOT223-4	FSs	YES		
BD750U2EFJ-C		5.8 to 45.0		0.2		6	$T_a = -40$ to $+125$	—		HTSOP-J8	FSs	YES		
BD750L2FP-C										TO252-3	FSs	YES		
BD750L2FP3-C										SOT223-4	FSs	YES		

45V Withstand Voltage Low Quiescent Current 700mA Variable Output LDO Regulators

Part No.	Input Voltage (V)	Output Voltage (V)	Output Voltage Precision (%)	Output Current (A)	I/O Voltage Difference (V)	Circuit Current (μ A)	Operating Temperature (°C)	Shutdown Switch	Protection Circuit	Package	ComfySIL™ Functional Safety*1	Automotive Grade AEC-Q100
BD800M7WFP2-C	3.0 to 42.0	Variable 1.2 to 16.0	± 2.6 ($T_{J1} = -40$ to $+150^{\circ}\text{C}$)	0.7	0.6 ($I_{O1} = 700\text{mA}$)	17	$T_{J2} = -40$ to $+150$	✓	Over-Current/Temperature	TO263-5	FSs	YES

45V Withstand Voltage Low Quiescent Current 500mA Variable Output LDO Regulators

45V Withstand Voltage Low Quiescent Current 500mA Fixed Output LDO Regulators

Type	Input Voltage (V)	Output Voltage (V)	Output Voltage Precision (%)	Output Current (A)	I/O Voltage Difference (V)	Circuit Current (μ A)	Operating Temperature (°C)	Shutdown Switch	Protection Circuit	Package/Part No.			ComfySIL™ Functional Safety*1	Automotive Grade AEC-Q100
										TO263-3	HTSOP-J8	TO263-5		
New BD433S5	4.0 to 42.0	3.3	± 2 ($T_f = -40$ to +150°C)	0.5	0.25 ($I_o = 300\text{mA}$)	38	$T_f = -40$ to +150	—	Over-Current/Temperature	BD433S5FP2-C	BD433S5EFJ-C	—	FSs	YES
New BD450S5	5.5 to 42.0	5.0			0.2 ($I_o = 300\text{mA}$)					BD450S5FP2-C	BD450S5EFJ-C	—	FSs	YES
New BD433S5W	4.0 to 42.0	3.3			0.25 ($I_o = 300\text{mA}$)					—	BD433S5WEFJ-C	BD433S5WFP2-C	FSs	YES
New BD450S5W	5.5 to 42.0	5.0			0.2 ($I_o = 300\text{mA}$)					—	BD450S5WEFJ-C	BD450S5WFP2-C	FSs	YES

45V Withstand Voltage Low Quiescent Current 500mA Variable/Fixed Output LDO Regulators (QuiCur™ series^{**2})

Part No.	Input Voltage (V)	Output Voltage (V)	Output Voltage Precision (%)	Output Current (A)	I/O Voltage Difference (V)	Circuit Current (μ A)	Operating Temperature (°C)	Shutdown Switch	Protection Circuit	Package	ComfySIL™ Functional Safety*1	Automotive Grade AEC-Q100
New BD900M5EFJ-C	3.0 to 42.0	Variable 1.0 to 16.0	± 2 ($T_J = -40$ to $+150^\circ\text{C}$)	0.5	0.36 ($I_O = 300\text{mA}$)	9.5	$T_J = -40$ to $+150$	—	Over-Current/Temperature	HTSSOP-J8	FSs	YES
New BD933M5EFJ-C		3.3			0.41 ($I_O = 300\text{mA}$)					HTSSOP-J8	FSs	YES
New BD950M5EFJ-C		5.0			0.36 ($I_O = 300\text{mA}$)					HTSSOP-J8	FSs	YES
New BD900M5WEFJ-C		Variable 1.0 to 16.0			0.36 ($I_O = 300\text{mA}$)					HTSSOP-J8	FSs	YES
New BD933M5WEFJ-C		3.3			0.41 ($I_O = 300\text{mA}$)					HTSSOP-J8	FSs	YES
New BD950M5WEFJ-C		5.0			0.36 ($I_O = 300\text{mA}$)					HTSSOP-J8	FSs	YES

45V Withstand Voltage Low Quiescent Current 200mA Fixed Output LDO Regulators

Type	Input Voltage (V)	Output Voltage (V)	Output Voltage Precision (%)	Output Current (A)	I/O Voltage Difference (V)	Circuit Current (μA)	Operating Temperature (°C)	Shutdown Switch	Protection Circuit	Package/Part No.		ComfySIL™ Functional Safety*1	Automotive Grade AEC-Q100
										HTSOP-J8	SOT223-4		
New BD433S2	3.9 to 42.0	3.3	± 2 $(T_{J\text{f}} = -40 \text{ to } +150^\circ\text{C})$	0.2	0.2 ($I_{\text{o}}=100\text{mA}$)	40	$T_{\text{J}\text{f}} = -40 \text{ to } +150$	—	Over-Current/Temperature	BD433S2EFJ-C	BD433S2FP3-C	FSs	YES
New BD450S2	5.5 to 42.0	5.0			0.16 ($I_{\text{o}}=100\text{mA}$)					BD450S2EFJ-C	BD450S2FP3-C	FSs	YES
New BD433S2W	3.9 to 42.0	3.3			0.2 ($I_{\text{o}}=100\text{mA}$)					BD433S2WEFJ-C	BD433S2WFP3-C	FSs	YES
New BD450S2W	5.5 to 42.0	5.0			0.16 ($I_{\text{o}}=100\text{mA}$)					BD450S2WEFJ-C	BD450S2WFP3-C	FSs	YES

45V Withstand Voltage Low Quiescent Current 150mA Variable/Fixed Output LDO Regulators (Nano Cap™ series)

Type	Input Voltage (V)	Output Voltage (V)	Output Voltage Precision (%)	Output Current (A)	I/O Voltage Difference (V)	Circuit Current (μ A)	Operating Temperature (°C)	Shutdown Switch	Protection Circuit	Package/Part No.		ComfySIL™ Functional Safety*1	Automotive Grade AEC-Q100
										HTSOP-J8	SSOP5		
BD900N1	3.0 to 42.0	Variable 1.0 to 18.0	± 2 ($T_J = -40$ to $+150^\circ\text{C}$)	0.15	0.5 ($I_O = 100\text{mA}$)	28	$T_J = -40$ to $+150$	—	Over-Current/Temperature	BD900N1EFJ-C	BD900N1G-C	FSs	YES
BD933N1		3.3			0.42 ($I_O = 100\text{mA}$)					BD933N1EFJ-C	BD933N1G-C	FSs	YES
BD950N1		5.0			0.5 ($I_O = 100\text{mA}$)					BD950N1EFJ-C	BD950N1G-C	FSs	YES
BD900N1W		Variable 1.0 to 18.0			0.42 ($I_O = 100\text{mA}$)			✓	Over-Current/Temperature	BD900N1WEFJ-C	BD900N1WG-C	FSs	YES
BD933N1W		3.3			0.5 ($I_O = 100\text{mA}$)					BD933N1WEFJ-C	BD933N1WG-C	FSs	YES
BD950N1W		5.0			0.5 ($I_O = 100\text{mA}$)					BD950N1WEFJ-C	BD950N1WG-C	FSs	YES

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*1 For more information about "ComfySIL™ Functional Safety", please refer to the reverse side of the cover.

*2 QuiCur™ is a combination of technologies that provides high-speed load response.

 ROHM's innovative "Nano" power supply technologies achieve breakthrough energy savings and miniaturization.
Nano Cap™ series is a product equipped with Nano Cap™ extremely stable control technology. Nano Energy™, Nano Pulse Control™ and Nano Cap™ is a trademark or a registered trademark of ROHM Co., Ltd.

Please ensure that minimum Input Voltage always exceeds the sum of Output Voltage and drop out voltage for the device.

45V Withstand Voltage 50mA Ultra Low Quiescent Current Fixed Output LDO Regulators

Part No.	Input Voltage (V)	Output Voltage (V)	Output Voltage Precision (%)	Output Current (A)	I/O Voltage Difference (V)	Circuit Current (μ A)	Operating Temperature (°C)	Shutdown Switch	Protection Circuit	Package	ComfySIL™ Functional Safety*1	Automotive Grade AEC-Q100
BD725L05G-C	3.5 to 42.0	2.5	± 2 (T _j =-40 to +150°C)	0.05	—	6	T _j =-40 to +150	—	Over-Current/Temperature	SSOP5	FSs	YES
BD730L05G-C	3.5 to 42.0	3.0			0.3 (I _o =50mA)					SSOP5	FSs	YES
BD733L05G-C	3.8 to 42.0	3.3			0.35 (I _o =50mA)					SSOP5	FSs	YES
BD750L05G-C	5.6 to 42.0	5.0			—					SSOP5	FSs	YES

36V Withstand Voltage 300mA Fixed Output LDO Regulator

Part No.	Input Voltage (V)	Output Voltage (V)	Output Voltage Precision (%)	Output Current (A)	I/O Voltage Difference (V)	Circuit Current (mA)	Operating Temperature (°C)	Protection Circuit	Package	ComfySIL™ Functional Safety*1	Automotive Grade AEC-Q100
BD3650FP-M	5.6 to 30.0	5.0	± 2 (T _a =-40 to +125°C)	0.3	0.2 (I _o =200mA)	0.5	T _a =-40 to +125	Over-Current/Temperature	TO252-3	FSs	YES

35V Withstand Voltage 2A Variable/Fixed Output LDO Regulators

Type	Input Voltage (V)	Output Voltage (V)	Output Voltage Precision (%)	Output Current (A)	Bias Current (mA)	I/O Voltage Difference (V)	Ripple Rejection (dB)	Load Regulation (mV)	Shutdown Switch	Protection Circuit	Package/Part No.			
											TO220FP-3	TO220FP-5	HRP5	TO263-5
BA15DD0	3.0 to 25.0	1.5	± 1	0.9	0.45 (I _o =2A)	50 (I _o =0 to 2A)	55	Over-Voltage/Over-Current/Temperature	—	BA15DD0T	—	—	—	—
BA18DD0		1.8								BA18DD0T	—	—	—	—
BA25DD0		2.5								BA25DD0T	—	—	—	—
BA30DD0		3.0								BA30DD0T	—	—	—	—
BA33DD0		3.3								BA33DD0T	—	—	—	—
BA50DD0		5.0								BA50DD0T	—	—	—	—
BA90DD0		9.0								BA90DD0T	—	—	—	—
BAJ2DD0		12.0								BAJ2DD0T	—	—	—	—
BAJ6DD0		16.0								BAJ6DD0T	—	—	—	—
BA00DD0W		Variable 1.5 to 16.0								—	BA00DD0WCP-V5 (TO220CP-V5)	BA00DD0WHFP	—	—
BA15DD0W	4.0 to 32.0	1.5	± 1.5	0.5	0.4 (I _o =1A)	V _O *2x0.7% (I _o =5mA to 1A)	50 (I _o =0 to 1A)	Over-Current/Temperature	✓	BA15DD0WT	BA15DD0WHFP	—	—	—
BA18DD0W		1.8								BA18DD0WT	BA18DD0WHFP	—	—	—
BA25DD0W		2.5								BA25DD0WT	BA25DD0WHFP	—	—	—
BA30DD0W		3.0								BA30DD0WT	BA30DD0WHFP	—	—	—
BA33DD0W		3.3								BA33DD0WT	BA33DD0WHFP	—	—	—
BA50DD0W		5.0								BA50DD0WT	BA50DD0WHFP	—	—	—
BA90DD0W		9.0								BA90DD0WT	BA90DD0WHFP	—	—	—
BAJ2DD0W		12.0								BAJ2DD0WT	BAJ2DD0WHFP	—	—	—
BAJ6DD0W		16.0								BAJ6DD0WT	BAJ6DD0WHFP	—	—	—
BD00FD0W		Variable 1.5 to 16.0		± 1	0.4 (I _o =1A)	V _O *2x0.7% (I _o =5mA to 1A)	50 (I _o =0 to 1A)	Over-Current/Temperature	✓	—	—	BD00FD0WHFP	BD00FD0WFP2	—
BD15FD0W		1.5								—	—	BD15FD0WHFP	BD15FD0WFP2	—
BD18FD0W		1.8								—	—	BD18FD0WHFP	BD18FD0WFP2	—
BD25FD0W		2.5								—	—	BD25FD0WHFP	BD25FD0WFP2	—
BD30FD0W		3.0								—	—	BD30FD0WHFP	BD30FD0WFP2	—
BD33FD0W		3.3								—	—	BD33FD0WHFP	BD33FD0WFP2	—
BD50FD0W		5.0		± 1	0.4 (I _o =1A)	V _O *2x0.7% (I _o =5mA to 1A)	50 (I _o =0 to 1A)	Over-Current/Temperature	✓	—	—	BD50FD0WHFP	BD50FD0WFP2	—
BD80FD0W		8.0								—	—	BD80FD0WHFP	BD80FD0WFP2	—
BD90FD0W		9.0								—	—	BD90FD0WHFP	BD90FD0WFP2	—
BDJ2FD0W		12.0								—	—	BDJ2FD0WHFP	BDJ2FD0WFP2	—
BDJ5FD0W		15.0								—	—	BDJ5FD0WHFP	BDJ5FD0WFP2	—
BDJ6FD0W		16.0								—	—	BDJ6FD0WHFP	BDJ6FD0WFP2	—
BD00FDAW	4.0 to 32.0	Variable 1.5 to 30.0 (T _s =25°C)	± 1							—	—	BD00FDAWHFP	—	—

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*1 For more information about "ComfySIL™ Functional Safety", please refer to the reverse side of the cover.

*2 V_O is Output voltage/Unit: V



LDO Regulators

Please ensure that minimum Input Voltage always exceeds the sum of Output Voltage and drop out voltage for the device.

35V Withstand Voltage 1A Variable/Fixed Output LDO Regulator

Type	Input Voltage (V)	Output Voltage (V)	Output Voltage Precision (%)	Output Current (A)	Bias Current (mA)	I/O Voltage Difference (V)	Ripple Rejection (dB)	Load Regulation (mV)	Shutdown Switch	Protection Circuit	Package/Part No.					
											TO220FP-3	TO220FP-5	TO252-3	TO252-5	HTSOP-J8	
BA03CC0		3.0									BA03CC0T	—	BA03CC0FP	—	—	
BA033CC0		3.3									BA033CC0T	—	BA033CC0FP	—	—	
BA05CC0		5.0									BA05CC0T	—	BA05CC0FP	—	—	
BA06CC0		6.0									—	—	BA06CC0FP	—	—	
BA07CC0		7.0									BA07CC0T	—	BA07CC0FP	—	—	
BA08CC0		8.0									BA08CC0T	—	BA08CC0FP	—	—	
BA09CC0		9.0									BA09CC0T	—	BA09CC0FP	—	—	
BAJ0CC0		10.0									BAJ0CC0T	—	BAJ0CC0FP	—	—	
BAJ2CC0		12.0									BAJ2CC0T	—	BAJ2CC0FP	—	—	
BAJ5CC0		15.0									BAJ5CC0T	—	BAJ5CC0FP	—	—	
BA00CC0W	4.0 to 25.0	Variable 3.0 to 15.0	±2			2.5	0.3 (I _o =500mA)	50 (I _o =5mA to 1A)			Over-Voltage/ Over-Current/ Temperature	BA00CC0WT/ BA00CC0WCP-V5 (TO220CP-V5)	—	BA00CC0WFP	—	
BA03CC0W		3.0										—	BA03CC0WT	—	—	
BA033CC0W		3.3										—	BA033CC0WT	—	BA033CC0WFP	
BA05CC0W		5.0										—	BA05CC0WT	—	BA05CC0WFP	
BA06CC0W		6.0										—	—	—	BA06CC0WFP	
BA07CC0W		7.0										—	BA07CC0WT	—	BA07CC0WFP	
BA08CC0W		8.0										—	BA08CC0WT	—	BA08CC0WFP	
BA09CC0W		9.0										—	BA09CC0WT	—	BA09CC0WFP	
BAJ0CC0W		10.0										—	BAJ0CC0WT	—	—	
BAJ2CC0W		12.0										—	BAJ2CC0WT	—	BAJ2CC0WFP	
BD33FC0	4.3 to 26.5	3.3					—				Over-Current/ Temperature	—	BD33FC0FP	—	—	
BD50FC0	6.0 to 26.5	5.0					0.3 (I _o =500mA)					—	BD50FC0FP	—	—	
BD00FC0W	4.0 to 26.5	Variable 1.0 to 15.0					—					—	BD00FC0WFP	BD00FC0WEFJ		
BD30FC0W		3.0					—					—	BD30FC0WFP	BD30FC0WEFJ		
BD33FC0W	4.3 to 26.5	3.3					—					—	BD33FC0WFP	BD33FC0WEFJ		
BD50FC0W	6.0 to 26.5	5.0					—					—	BD50FC0WFP	BD50FC0WEFJ		
BD60FC0W	7.0 to 26.5	6.0					—					—	BD60FC0WFP	BD60FC0WEFJ		
BD70FC0W	8.0 to 26.5	7.0					—					—	BD70FC0WFP	BD70FC0WEFJ		
BD80FC0W	9.0 to 26.5	8.0					—					—	BD80FC0WFP	BD80FC0WEFJ		
BD90FC0W	10.0 to 26.5	9.0					—					—	BD90FC0WFP	BD90FC0WEFJ		
BDJ0FC0W	11.0 to 26.5	10.0					—					—	BDJ0FC0WFP	BDJ0FC0WEFJ		
BDJ2FC0W	13.0 to 26.5	12.0					—					—	BDJ2FC0WFP	BDJ2FC0WEFJ		
BDJ5FC0W	16.0 to 26.5	15.0					—					—	BDJ5FC0WFP	BDJ5FC0WEFJ		
Type	Input Voltage (V)	Output Voltage (V)	Output Voltage Precision (%)	Output Current (A)	Bias Current (mA)	I/O Voltage Difference (V)	Ripple Rejection (dB)	Load Regulation (mV)	Shutdown Switch	Protection Circuit	Package/Part No.					
											TO252-3	TO252-5	HRP5	TO263-3	TO263-5	
BD33C0A	4.3 to 26.5	3.3				—					BD33C0AAPP-C	—	BD33C0AHFP-C	BD33C0AFTP2-C	— FSs YES	
BD50C0A	6.0 to 26.5	5.0	±3 (T _a =-40 to +125°C)			0.3 (I _o =500mA)					BD50C0AAPP-C	—	BD50C0AHFP-C	BD50C0AFTP2-C	— FSs YES	
BD80C0A	9.0 to 26.5	8.0	+3 (T _a =-40 to +125°C)			50					BD80C0AAPP-C	—	BD80C0AHFP-C	BD80C0AFTP2-C	— FSs YES	
BD90C0A	10.0 to 26.5	9.0				—					BD90C0AAPP-C	—	BD90C0AHFP-C	BD90C0AFTP2-C	— FSs YES	
BD33C0AW	4.3 to 26.5	3.3				—					—	BD33C0AWFP/ BD33C0AWFP-C	—/BD33C0AWHFP-C	—/BD33C0AWHFP2-C	—/FSs YES	
BD50C0AW	6.0 to 26.5	5.0	±3 (T _a =-40 to +125°C)			55					—	BD50C0AWFP/ BD50C0AWFP-C	—/BD50C0AWHFP-C	—/BD50C0AWHFP2-C	—/FSs YES	
BD80C0AW	9.0 to 26.5	8.0	+3 (T _a =-40 to +125°C)			50					—	BD80C0AWFP/ BD80C0AWFP-C	—/BD80C0AWHFP-C	—/BD80C0AWHFP2-C	FSs YES	
BD90C0AW	10.0 to 26.5	9.0				—					—	BD90C0AWFP/ BD90C0AWFP-C	—/BD90C0AWHFP-C	—/BD90C0AWHFP2-C	FSs YES	
Type	Input Voltage (V)	Output Voltage (V)	Output Voltage Precision (%)	Output Current (A)	Bias Current (mA)	I/O Voltage Difference (V)	Ripple Rejection (dB)	Load Regulation (mV)	Shutdown Switch	Protection Circuit	Package/Part No.					
											TO252-5	HRP5	TO263-5	TO220CP-V5	ComfySIL™ Functional Safety*1 AEC-Q100	
BD00C0AW	4.0 to 26.5	Variable 3.0 to 15.0/ Variable 1.0 to 15.0	±1±3 (T _a =-40 to +125°C)	1.0	0.5	0.3 (I _o =500mA)	55	V _o *2×0.01 (I _o =5mA to 1A)	✓	Over-Current/ Temperature	BD00C0AWFP/BD00C0AWFP-C	—/BD00C0AWHFP-C	—/BD00C0AWHFP2-C	—/FSs	—/YES	

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*2 V_o is Output voltage/Unit: V

Please ensure that minimum Input Voltage always exceeds the sum of Output Voltage and drop out voltage for the device.

35V Withstand Voltage 300mA Variable Output LDO Regulator

Part No.	Input Voltage (V)	Output Voltage (V)	Output Voltage Precision (%)	Output Current (A)	Bias Current (mA)	I/O Voltage Difference (V)	Ripple Rejection (dB)	Load Regulation	Protection Circuit	Package
BA3662CP-V5	4 to 25	Variable 3.0 to 15.0	±2	0.3	2.5	0.3 (I _o =0.2A)	55	40mV (I _o =5 to 200mA)	Over-Voltage/ Over-Current/ Temperature	TO220CP-V5

30V Withstand Voltage 100mA Variable/Fixed Output LDO Regulators

Part No.	Input Voltage (V)	Output Voltage (V)	Output Voltage Precision (%)	Output Current (A)	Bias Current (mA)	I/O Voltage Difference (V)	Load Regulation (%)	Protection Circuit	Input Capacitor (μF)	Output Capacitor (μF)	Package	ComfySIL™ Functional Safety*1	Automotive Grade AEC-Q100
BD33FA1FP3	V _o +3 to 25	3.3	±1	0.1	0.3	1 (I _o =100mA)	±1.5	Over-Current/ Temperature	1.0	1.0	SOT89-3K	—	—
BD50FA1FP3		5.0									SOT89-3K	—	—
BD54FA1FP3		5.4									SOT89-3K	—	—
BDJ2FA1FP3		12.0									SOT89-3K	—	—
BD50FA1MG-M		5.0	±1.5 (T _a =25°C), ±2 (T _a =-40°C to +105°C)				0.3				SSOP5	FSs	YES
BD00FA1WEFJ		Variable 3.0 to 12.0	±1				2 (I _o =100mA)				HTSOP-J8	—	—

20V Withstand Voltage 500mA Variable Output LDO Regulator

Part No.	Input Voltage (V)	Output Voltage (V)	Output Voltage Precision (%)	Output Current (A)	Circuit Current (μA)	I/O Voltage Difference (V)	Load Regulation (mV)	Protection Circuit	Package	ComfySIL™ Functional Safety*1	Automotive Grade AEC-Q100
New BDL00A5NUF-C	2.9 to 18	1 to 17	±2	0.5	30	0.28 (I _o =500mA)	15 (5V, I _o =0.1mA to 500mA)	Over-Current/ Temperature	VSON10FV3030	FSs	YES
New BDL00A5EFJ-C		1 to 17	±2						HTSOP-J8	FSs	YES

18V Withstand Voltage 1.5A Variable/Fixed Output LDO Regulators

Part No.	Input Voltage (V)	Output Voltage (V)	Output Voltage Precision (%)	Output Current (A)	Bias Current (mA)	I/O Voltage Difference (V)	Ripple Rejection (dB)	Load Regulation (mV)	Input Capacitor (μF)	Output Capacitor (μF)	Shutdown Switch	Protection Circuit	Package
BA15JC5T	3.0 to 16.0	1.5	±1	1.5	0.5	0.3 (I _o =500mA)	55	5 (I _o =5mA to 1.5A)	0.33	22.0	—	Over-Current/ Temperature	TO220FP-3
BA18JC5T		1.8											
BA25JC5T		2.5											
BA30JC5T		3.0											
BA33JC5T		3.3											
BA50JC5T		5.0											
BA60JC5T		6.0											
BA80JC5T		8.0											
BA90JC5T		9.0											
BA00JC5WT		Variable 1.5 to 12.0											TO220FP-5

18V Withstand Voltage 1A Variable/Fixed Output LDO Regulators

Type	Input Voltage (V)	Output Voltage (V)	Output Voltage Precision (%)	Output Current (A)	Bias Current (mA)	I/O Voltage Difference (V)	Ripple Rejection (dB)	Load Regulation (mV)	Input Capacitor (μF)	Output Capacitor (μF)	Shutdown Switch	Protection Circuit	Package/Part No.			
													TO252-3	TO252-5	TO220FP-3	TO220FP-5
BA15BC0	3.0 to 16.0	1.5	±2	1.0	0.5	0.3 (I _o =200mA)	55	35 (I _o =0 to 1A)	0.33	22.0	—	Over-Current/ Temperature	BA15BC0FP	—	BA15BC0T	—
BA18BC0		1.8											BA18BC0FP	—	BA18BC0T	—
BA25BC0		2.5											BA25BC0FP	—	BA25BC0T	—
BA30BC0		3.0											BA30BC0FP	—	BA30BC0T	—
BA33BC0		3.3											BA33BC0FP	—	BA33BC0T	—
BA50BC0		5.0											BA50BC0FP	—	BA50BC0T	—
BA60BC0		6.0											BA60BC0FP	—	BA60BC0T	—
BA70BC0		7.0											BA70BC0FP	—	BA70BC0T	—
BA80BC0		8.0											BA80BC0FP	—	BA80BC0T	—
BA90BC0		9.0											BA90BC0FP	—	BA90BC0T	—
BAJ0BC0		10.0											BAJ0BC0FP	—	BAJ0BC0T	—
BA00BC0W	Variable 1.5 to 12.0	Variable 1.5 to 12.0	±2	1.0	0.5 (V _o ≤6.0)	0.3 (I _o =200mA)	55	35 (I _o =0 to 1A)	0.33	22.0	—	Over-Current/ Temperature	BA00BC0WFP/ BA00BC0WCP-V5 (TO220CP-V5)	—	BA00BC0WT	—
BA15BC0W		1.5											BA15BC0WFP	—	BA15BC0WT	—
BA18BC0W		1.8											BA18BC0WFP	—	BA18BC0WT	—
BA25BC0W		2.5											BA25BC0WFP	—	BA25BC0WT	—
BA30BC0W		3.0											BA30BC0WFP	—	BA30BC0WT	—
BA33BC0W		3.3											BA33BC0WFP	—	BA33BC0WT	—
BA50BC0W		5.0											BA50BC0WFP	—	BA50BC0WT	—
BA60BC0W		6.0											BA60BC0WFP	—	BA60BC0WT	—
BA70BC0W		7.0											BA70BC0WFP	—	BA70BC0WT	—
BA80BC0W		8.0											BA80BC0WFP	—	BA80BC0WT	—
BA90BC0W		9.0											BA90BC0WFP	—	BA90BC0WT	—
BAJ0BC0W		10.0											BAJ0BC0WFP	—	BAJ0BC0WT	—

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*1 For more information about "ComfySIL™ Functional Safety", please refer to the reverse side of the cover.

15V Withstand Voltage 1A Variable/Fixed Output LDO Regulators

Part No.	Input Voltage (V)	Output Voltage (V)	Output Voltage Precision (%)	Output Current (A)	Bias Current (mA)	I/O Voltage Difference (V)	Ripple Rejection (dB)	Load Regulation (mV)	Input Capacitor (μ F)	Output Capacitor (μ F)	Shutdown Switch	Protection Circuit	Package	ComfySIL™ Functional Safety*1	Automotive Grade AEC-Q100
Consumer/Automotive Grade															
BD00GC0WEFJ / New BD00GC0VEFJ-M	4.5 to 14.0	Variable 1.5 to 13.0	± 1 ($T_a = +25^\circ\text{C}$), ± 3 ($T_a = -40$ to $+105^\circ\text{C}$) <Automotive Grade>	1.0	0.6 (I _o =1A)	60 (f=100Hz, 50mV _{pp} , I _o =0A)	25 (I _o =0 to 1A)	1.0	1.0	✓	Over-Current/Temperature		HTSOP-J8	-/FSs	-/YES
BD15GC0WEFJ / New BD15GC0VEFJ-M													HTSOP-J8	-/FSs	-/YES
BD18GC0WEFJ / New BD18GC0VEFJ-M													HTSOP-J8	-/FSs	-/YES
BD25GC0WEFJ / New BD25GC0VEFJ-M													HTSOP-J8	-/FSs	-/YES
BD30GC0WEFJ / New BD30GC0VEFJ-M													HTSOP-J8	-/FSs	-/YES
BD33GC0WEFJ / New BD33GC0VEFJ-M													HTSOP-J8	-/FSs	-/YES
BD50GC0WEFJ / New BD50GC0VEFJ-M													HTSOP-J8	-/FSs	-/YES
BD60GC0WEFJ / New BD60GC0VEFJ-M													HTSOP-J8	-/FSs	-/YES
BD70GC0WEFJ / New BD70GC0VEFJ-M													HTSOP-J8	-/FSs	-/YES
BD80GC0WEFJ / New BD80GC0VEFJ-M													HTSOP-J8	-/FSs	-/YES
BD90GC0WEFJ / New BD90GC0VEFJ-M													HTSOP-J8	-/FSs	-/YES
BDJ0GC0WEFJ / New BDJ0GC0VEFJ-M													HTSOP-J8	-/FSs	-/YES
BDJ2GC0WEFJ / New BDJ2GC0VEFJ-M													HTSOP-J8	-/FSs	-/YES

15V Withstand Voltage 1A Variable/Fixed Output LDO Regulators (Industrial Equipment)

15V Withstand Voltage 500mA Variable/Fixed Output LDO Regulators

Part No.	Input Voltage (V)	Output Voltage (V)	Output voltage Precision (%)	Output Current (A)	Bias Current (mA)	I/O Voltage Difference (V)	Ripple Rejection (dB)	Load Regulation (mV)	Input Capacitor (μ F)	Output Capacitor (μ F)	Shutdown Switch	Protection circuit	Package	ComfySIL™ Functional Safety*1	Automotive Grade AEC-Q100
Consumer/Automotive Grade															
BD00GA5WEFJ/ New BD00GA5VEFJ-M	4.5 to 14.0	Variable 1.5 to 13.0	± 1 ($T_a=25^\circ C$), ± 3 ($T_a=-40$ to $+105^\circ C$) <Automotive Grade>	0.5	0.6	0.6 ($I_o=500mA$)	60 ($f=100Hz$, $50mV_{P-P}$, $I_o=0A$)	25 ($I_o=0$ to $500mA$)	1.0	1.0	✓	Over-Current/Temperature	HTSOP-J8	/-FSs	/YES
BD15GA5WEFJ/ New BD15GA5VEFJ-M													HTSOP-J8	/-FSs	/YES
BD18GA5WEFJ/ New BD18GA5VEFJ-M													HTSOP-J8	/-FSs	/YES
BD25GA5WEFJ/ New BD25GA5VEFJ-M													HTSOP-J8	/-FSs	/YES
BD30GA5WEFJ/ New BD30GA5VEFJ-M													HTSOP-J8	/-FSs	/YES
BD33GA5WEFJ/ New BD33GA5VEFJ-M													HTSOP-J8	/-FSs	/YES
BD50GA5WEFJ/ New BD50GA5VEFJ-M													HTSOP-J8	/-FSs	/YES
BD60GA5WEFJ/ New BD60GA5VEFJ-M													HTSOP-J8	/-FSs	/YES
BD70GA5WEFJ/ New BD70GA5VEFJ-M													HTSOP-J8	/-FSs	/YES
BD80GA5WEFJ/ New BD80GA5VEFJ-M													HTSOP-J8	/-FSs	/YES
BD90GA5WEFJ/ New BD90GA5VEFJ-M													HTSOP-J8	/-FSs	/YES
BDJ0GA5WEFJ/ New BDJ0GA5VEFJ-M													HTSOP-J8	/-FSs	/YES
BDJ2GA5WEFJ/ New BDJ2GA5VEFJ-M													HTSOP-J8	/-FSs	/YES

15V Withstand Voltage 500mA Variable/Fixed Output LDO Regulators (Industrial Equipment)

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Please ensure that minimum Input Voltage always exceeds the sum of Output Voltage and drop out voltage for the device.

15V Withstand Voltage 300mA Variable/Fixed Output LDO Regulators

Type	Input Voltage (V)	Output Voltage (V)	Output Voltage Precision (%)	Output Current (A)	Bias Current (mA)	I/O Voltage Difference (V)	Ripple Rejection (dB)	Load Regulation (mV)	Input Capacitor (μ F)	Output Capacitor (μ F)	Shutdown Switch	Protection Circuit	Package/Part No.		ComfySIL™ Functional Safety*1	Automotive Grade AEC-Q100
													HTSOP-8	VSON008X2030		
New BD00GA3V	4.5 to 14.0	Variable 1.5 to 13.0	± 1 ($T_a=+25^\circ\text{C}$), ± 3 ($T_a=-40$ to $+105^\circ\text{C}$)	0.3	0.6 (I _o =300mA)	60 (f=100Hz, 50mV _{PP} , I _o =0A)	25 (I _o =0 to 300mA)	1.0	1.0	✓	Over-Current/Temperature	BD00GA3VEFJ-M	—	FSs	YES	
New BD15GA3V		1.5										BD15GA3VEFJ-M	—	FSs	YES	
New BD18GA3V		1.8										BD18GA3VEFJ-M	—	FSs	YES	
New BD25GA3V		2.5										BD25GA3VEFJ-M	—	FSs	YES	
New BD30GA3V		3.0										BD30GA3VEFJ-M	—	FSs	YES	
New BD33GA3V		3.3										BD33GA3VEFJ-M	—	FSs	YES	
New BD50GA3V		5.0										BD50GA3VEFJ-M	—	FSs	YES	
New BD60GA3V		6.0										BD60GA3VEFJ-M	—	FSs	YES	
New BD70GA3V		7.0										BD70GA3VEFJ-M	—	FSs	YES	
New BD80GA3V		8.0										BD80GA3VEFJ-M	—	FSs	YES	
New BD90GA3V		9.0										BD90GA3VEFJ-M	—	FSs	YES	
New BDJ0GA3V		10.0										BDJ0GA3VEFJ-M	—	FSs	YES	
New BDJ2GA3V		12.0										BDJ2GA3VEFJ-M	—	FSs	YES	
BD00GA3W	4.5 to 14.0	Variable 1.5 to 13.0	± 1	0.3	0.6 (I _o =300mA)	60 (f=100Hz, 50mV _{PP} , I _o =0A)	25 (I _o =0 to 300mA)	1.0	1.0	✓	Over-Current/Temperature	BD00GA3WEFJ	BD00GA3WNUX	—	—	
BD15GA3W		1.5										BD15GA3WEFJ	BD15GA3WNUX	—	—	
BD18GA3W		1.8										BD18GA3WEFJ	BD18GA3WNUX	—	—	
BD25GA3W		2.5										BD25GA3WEFJ	BD25GA3WNUX	—	—	
BD30GA3W		3.0										BD30GA3WEFJ	BD30GA3WNUX	—	—	
BD33GA3W		3.3										BD33GA3WEFJ	BD33GA3WNUX	—	—	
BD50GA3W		5.0										BD50GA3WEFJ	BD50GA3WNUX	—	—	
BD60GA3W		6.0										BD60GA3WEFJ	BD60GA3WNUX	—	—	
BD70GA3W		7.0										BD70GA3WEFJ	BD70GA3WNUX	—	—	
BD80GA3W		8.0										BD80GA3WEFJ	BD80GA3WNUX	—	—	
BD90GA3W		9.0										BD90GA3WEFJ	BD90GA3WNUX	—	—	
BDJ0GA3W		10.0										BDJ0GA3WEFJ	BDJ0GA3WNUX	—	—	
BDJ2GA3W		12.0										BDJ2GA3WEFJ	BDJ2GA3WNUX	—	—	

10V Withstand Voltage 1.5A Variable/Fixed Output LDO Regulators

10V Withstand Voltage 1.5A Variable/Fixed Output LDO Regulators (Industrial Equipment)

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LDO Regulators

Please ensure that minimum Input Voltage always exceeds the sum of Output Voltage and drop out voltage for the device.

10V Withstand Voltage 1A Variable/Fixed Output LDO Regulators

Part No.	Input Voltage (V)	Output Voltage (V)	Output Voltage Precision (%)	Output Current (A)	Bias Current (mA)	I/O Voltage Difference (V)	Ripple Rejection (dB)	Load Regulation (mV)	Input Capacitor (μ F)	Output Capacitor (μ F)	Shutdown Switch	Protection Circuit	Package	ComfySIL™ Functional Safety*1	Automotive Grade AEC-Q100
Consumer/Automotive Grade															
BD00HC0WEFJ/ New BD00HC0VEFJ-M	4.5 to 8.0	Variable 0.8 to 7.0 (Automotive Grade Variable 1.5 to 7.0)	± 1 ($T_a=+25^\circ C$), ± 3 ($T_a=-40$ to $+105^\circ C$) <Automotive Grade>	1.0	0.6	0.6 ($I_o=1A$)	60 ($f=100Hz$, $50mV_{pp}$, $I_o=0A$)	25 ($I_o=0$ to 1A)	1.0	1.0	✓	Over-Current/Temperature	HTSOP-J8	-/FSs	-/YES
BD15HC0WEFJ/ New BD15HC0VEFJ-M		1.5											HTSOP-J8	-/FSs	-/YES
BD18HC0WEFJ/ New BD18HC0VEFJ-M		1.8											HTSOP-J8	-/FSs	-/YES
BD25HC0WEFJ/ New BD25HC0VEFJ-M		2.5											HTSOP-J8	-/FSs	-/YES
BD30HC0WEFJ/ New BD30HC0VEFJ-M		3.0											HTSOP-J8	-/FSs	-/YES
BD33HC0WEFJ/ New BD33HC0VEFJ-M		3.3											HTSOP-J8	-/FSs	-/YES
BD50HC0WEFJ/ New BD50HC0VEFJ-M		5.0											HTSOP-J8	-/FSs	-/YES
BD60HC0WEFJ/ New BD60HC0VEFJ-M		6.0											HTSOP-J8	-/FSs	-/YES
BD70HC0WEFJ/ New BD70HC0VEFJ-M		7.0											HTSOP-J8	-/FSs	-/YES

10V Withstand Voltage 1A Variable/Fixed Output LDO Regulators (Industrial Equipment)

Part No.	Input Voltage (V)	Output Voltage (V)	Output Voltage Precision (%)	Output Current (A)	Bias Current (mA)	I/O Voltage Difference (V)	Ripple Rejection (dB)	Load Regulation (mV)	Input Capacitor (μ F)	Output Capacitor (μ F)	Shutdown Switch	Protection Circuit	Package		
New BD00HC0VEFJ-LB	4.5 to 8.0	Variable 1.5 to 7.0	± 1 ($T_a=+25^\circ C$), ± 3 ($T_a=-40$ to $+105^\circ C$) <Automotive Grade>	1.0	0.6	0.6 ($I_o=1A$)	60 ($f=100Hz$, $50mV_{pp}$, $I_o=0A$)	25 ($I_o=0$ to 1A)	1.0	1.0	✓	Over-Current/Temperature	HTSOP-J8		
New BD15HC0VEFJ-LB		1.5											HTSOP-J8		
New BD18HC0VEFJ-LB		1.8											HTSOP-J8		
New BD25HC0VEFJ-LB		2.5											HTSOP-J8		
New BD30HC0VEFJ-LB		3.0											HTSOP-J8		
New BD33HC0VEFJ-LB		3.3											HTSOP-J8		
New BD50HC0VEFJ-LB		5.0											HTSOP-J8		
New BD60HC0VEFJ-LB		6.0											HTSOP-J8		
New BD70HC0VEFJ-LB		7.0											HTSOP-J8		

10V Withstand Voltage 500mA Variable/Fixed Output LDO Regulators

Part No.	Input Voltage (V)	Output Voltage (V)	Output Voltage Precision (%)	Output Current (A)	Bias Current (mA)	I/O Voltage Difference (V)	Ripple Rejection (dB)	Load Regulation (mV)	Input Capacitor (μ F)	Output Capacitor (μ F)	Shutdown Switch	Protection Circuit	Package	ComfySIL™ Functional Safety*1	Automotive Grade AEC-Q100
Consumer/Automotive Grade															
BD00HA5WEFJ/ New BD00HA5VEFJ-M	4.5 to 8.0	Variable 1.5 to 7.0	± 1 ($T_a=+25^\circ C$), ± 3 ($T_a=-40$ to $+105^\circ C$) <Automotive Grade>	0.5	0.6	0.6 ($I_o=500mA$)	60 ($f=100Hz$, $50mV_{pp}$, $I_o=0A$)	25 ($I_o=0$ to 500mA)	1.0	1.0	✓	Over-Current/Temperature	HTSOP-J8	-/FSs	-/YES
BD15HA5WEFJ/ New BD15HA5VEFJ-M		1.5											HTSOP-J8	-/FSs	-/YES
BD18HA5WEFJ/ New BD18HA5VEFJ-M		1.8											HTSOP-J8	-/FSs	-/YES
BD25HA5WEFJ/ New BD25HA5VEFJ-M		2.5											HTSOP-J8	-/FSs	-/YES
BD30HA5WEFJ/ New BD30HA5VEFJ-M		3.0											HTSOP-J8	-/FSs	-/YES
BD33HA5WEFJ/ New BD33HA5VEFJ-M		3.3											HTSOP-J8	-/FSs	-/YES
BD50HA5WEFJ/ New BD50HA5VEFJ-M		5.0											HTSOP-J8	-/FSs	-/YES
BD60HA5WEFJ/ New BD60HA5VEFJ-M		6.0											HTSOP-J8	-/FSs	-/YES
BD70HA5WEFJ/ New BD70HA5VEFJ-M		7.0											HTSOP-J8	-/FSs	-/YES

10V Withstand Voltage 300mA Variable/Fixed Output LDO Regulators

Part No.	Input Voltage (V)	Output Voltage (V)	Output Voltage Precision (%)	Output Current (A)	Bias Current (mA)	I/O Voltage Difference (V)	Ripple Rejection (dB)	Load Regulation (mV)	Input Capacitor (μ F)	Output Capacitor (μ F)	Shutdown Switch	Protection Circuit	Package	ComfySIL™ Functional Safety*1	Automotive Grade AEC-Q100
Consumer/Automotive Grade															
BD00HA3WEFJ/ New BD00HA3VEFJ-M	4.5 to 8.0	Variable 1.5 to 7.0	± 1 ($T_a=+25^\circ C$), ± 3 ($T_a=-40$ to $+105^\circ C$) <Automotive Grade>	0.3	0.6	0.6 ($I_o=300mA$)	60 ($f=100Hz$, $50mV_{pp}$, $I_o=0A$)	25 ($I_o=0$ to 300mA)	1.0	1.0	✓	Over-Current/Temperature	HTSOP-J8	-/FSs	-/YES
BD15HA3WEFJ/ New BD15HA3VEFJ-M		1.5											HTSOP-J8	-/FSs	-/YES
BD18HA3WEFJ/ New BD18HA3VEFJ-M		1.8											HTSOP-J8	-/FSs	-/YES
BD25HA3WEFJ/ New BD25HA3VEFJ-M		2.5											HTSOP-J8	-/FSs	-/YES
BD30HA3WEFJ/ New BD30HA3VEFJ-M		3.0											HTSOP-J8	-/FSs	-/YES
BD33HA3WEFJ/ New BD33HA3VEFJ-M		3.3											HTSOP-J8	-/FSs	-/YES
BD50HA3WEFJ/ New BD50HA3VEFJ-M		5.0											HTSOP-J8	-/FSs	-/YES
BD60HA3WEFJ/ New BD60HA3VEFJ-M		6.0											HTSOP-J8	-/FSs	-/YES
BD70HA3WEFJ/ New BD70HA3VEFJ-M		7.0											HTSOP-J8	-/FSs	-/YES

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10V Withstand Voltage 300mA Variable/Fixed Output Industrial LDO Regulators (Industrial Equipment)

Part No.	Input Voltage (V)	Output Voltage (V)	Output Voltage Precision (%)	Output Current (A)	Bias Current (mA)	I/O Voltage Difference (V)	Ripple Rejection (dB)	Load Regulation (mV)	Input Capacitor (μ F)	Output Capacitor (μ F)	Shutdown Switch	Protection circuit	Package
New BD00HA3VEFJ-LB	4.5 to 8.0	Variable 1.5 to 7.0	± 1 ($T_a=+25^\circ\text{C}$), ± 3 ($T_a=-40$ to $+105^\circ\text{C}$)	0.3	0.6	(I _o =300mA)	60 (f=100Hz, 50mV _{pp} , I _o =0A)	25 (I _o =0 to 300mA)	1.0	1.0	✓	Over-Current/Temperature	HTSOP-J8
New BD15HA3VEFJ-LB		1.5											HTSOP-J8
New BD18HA3VEFJ-LB		1.8											HTSOP-J8
New BD25HA3VEFJ-LB		2.5											HTSOP-J8
New BD30HA3VEFJ-LB		3.0											HTSOP-J8
New BD33HA3VEFJ-LB		3.3											HTSOP-J8
New BD50HA3VEFJ-LB		5.0											HTSOP-J8
New BD60HA3VEFJ-LB		6.0											HTSOP-J8
New BD70HA3VEFJ-LB		7.0											HTSOP-J8

7V Withstand Voltage 1A Variable/Fixed Output LDO Regulators

Type	Input Voltage (V)	Output Voltage (V)	Output Voltage Precision (%)	Output Current (A)	Bias Current (mA)	I/O Voltage Difference (V)	Ripple Rejection (dB)	Load Regulation (mV)	Input Capacitor (μ F)	Output Capacitor (μ F)	Shutdown Switch	Protection Circuit	Package/Part No.		ComfySIL™ Functional Safety*1	Automotive Grade AEC-Q100
													HTSOP-J8			
BD00IC0W	2.4 to 5.5	Variable 0.8 to 4.5	± 1 ($T_a=+25^\circ\text{C}$), ± 3 ($T_a=-40$ to $+105^\circ\text{C}$)	1.0	0.3	0.4 (I _o =1A)	60 (f=100Hz, 50mV _{pp} , I _o =0A)	25 (I _o =0 to 1A)	1.0	1.0	✓	Over-Current/Temperature	BD00IC0WEFJ	BD00IC0WHFV	—	—
BD10IC0W		1.0											BD10IC0WEFJ	BD10IC0WHFV	—	—
BD12IC0W		1.2											BD12IC0WEFJ	BD12IC0WHFV	—	—
BD1CIC0W		1.25											—	BD1CIC0WHFV	—	—
BD15IC0W		1.5											BD15IC0WEFJ	BD15IC0WHFV	—	—
BD18IC0W		1.8											BD18IC0WEFJ	BD18IC0WHFV	—	—
BD25IC0W		2.5											BD25IC0WEFJ	BD25IC0WHFV	—	—
BD26IC0W		2.6											—	BD26IC0WHFV	—	—
BD30IC0W		3.0											BD30IC0WEFJ	BD30IC0WHFV	—	—
BD33IC0W		3.3											BD33IC0WEFJ	BD33IC0WHFV	—	—
New BD00IC0V		Variable 0.8 to 4.5											BD00IC0VEFJ-M	—	FSs	YES
New BD10IC0V		1.0											BD10IC0VEFJ-M	—	FSs	YES
New BD12IC0V		1.2											BD12IC0VEFJ-M	—	FSs	YES
New BD15IC0V		1.5											BD15IC0VEFJ-M	—	FSs	YES
New BD18IC0V		1.8											BD18IC0VEFJ-M	—	FSs	YES
New BD25IC0V		2.5											BD25IC0VEFJ-M	—	FSs	YES
New BD30IC0V		3.0											BD30IC0VEFJ-M	—	FSs	YES
New BD33IC0V		3.3											BD33IC0VEFJ-M	—	FSs	YES

7V Withstand Voltage 1A Variable/Fixed Output LDO Regulators (Industrial Equipment)

Part No.	Input Voltage (V)	Output Voltage (V)	Output Voltage Precision (%)	Output Current (A)	Bias Current (mA)	I/O Voltage Difference (V)	Ripple Rejection (dB)	Load Regulation (mV)	Input Capacitor (μ F)	Output Capacitor (μ F)	Shutdown Switch	Protection circuit	Package
New BD00IC0VEFJ-LB	2.3 to 5.5	Variable 0.8 to 4.5	± 1 ($T_a=+25^\circ\text{C}$), ± 3 ($T_a=-40$ to $+105^\circ\text{C}$)	1.0	0.3	0.4 (I _o =1A)	60 (f=100Hz, 50mV _{pp} , I _o =0A)	25 (I _o =0 to 1A)	1.0	1.0	✓	Over-Current/Temperature	HTSOP-J8
New BD10IC0VEFJ-LB		1.0											HTSOP-J8
New BD12IC0VEFJ-LB		1.2											HTSOP-J8
New BD15IC0VEFJ-LB		1.5											HTSOP-J8
New BD18IC0VEFJ-LB		1.8											HTSOP-J8
New BD25IC0VEFJ-LB		2.5											HTSOP-J8
New BD30IC0VEFJ-LB		3.0											HTSOP-J8
New BD33IC0VEFJ-LB		3.3											HTSOP-J8

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LDO Regulators

Please ensure that minimum Input Voltage always exceeds the sum of Output Voltage and drop out voltage for the device.

7V Withstand Voltage 500mA Variable/Fixed Output LDO Regulators (BDxxKA5 series)

Type	Input Voltage (V)	Output Voltage (V)	Output Voltage Precision (%)	Output Current (A)	Bias Current (mA)	I/O Voltage Difference (V)	Ripple Rejection (dB)	Load Regulation (mV)	Input Capacitor (μ F)	Output Capacitor (μ F)	Shutdown Switch	Protection Circuit	Package/Part No.		
													TO252-3	TO252-5	SOP8
BD10KA5	2.3 to 5.5	1.0	± 1	0.5	0.35	0.12 ($I_o=200\text{mA}$)	50	25 ($I_o=0 \text{ to } 500\text{mA}$)	1.0	1.0	-	Over-Current/Temperature	BD10KA5FP	-	-
BD12KA5		1.2											BD12KA5FP	-	-
BD15KA5		1.5											BD15KA5FP	-	-
BD18KA5		1.8											BD18KA5FP	-	-
BD25KA5		2.5											BD25KA5FP	-	-
BD30KA5		3.0											BD30KA5FP	-	-
BD33KA5		3.3											BD33KA5FP	-	-
BD00KA5W		Variable 1.0 to 4.0											-	BD00KA5WFP	BD00KA5WF
BD10KA5W		1.0											-	BD10KA5WFP	BD10KA5WF
BD12KA5W		1.2											-	BD12KA5WFP	BD12KA5WF
BD15KA5W		1.5											-	BD15KA5WFP	BD15KA5WF
BD18KA5W		1.8											-	BD18KA5WFP	BD18KA5WF
BD25KA5W		2.5											-	BD25KA5WFP	BD25KA5WF
BD30KA5W		3.0											-	BD30KA5WFP	BD30KA5WF
BD33KA5W		3.3											-	BD33KA5WFP	BD33KA5WF

7V Withstand Voltage 500mA Variable/Fixed Output LDO Regulators

Part No.	Input Voltage (V)	Output Voltage (V)	Output Voltage Precision (%)	Output Current (A)	Bias Current (mA)	I/O Voltage Difference (V)	Ripple Rejection (dB)	Load Regulation (mV)	Input Capacitor (μ F)	Output Capacitor (μ F)	Shutdown Switch	Protection Circuit	Package	ComfySIL™ Functional Safety*1	Automotive Grade AEC-Q100										
BD00IA5WEFJ	2.4 to 5.5	Variable 0.8 to 4.5	± 1	0.5	0.25	0.4 ($f=100\text{Hz}, 50\text{mV}_{pp}, I_o=0\text{A}$)	60	25 ($I_o=0 \text{ to } 500\text{mA}$)	1.0	1.0	-	Over-Current/Temperature	HTSOP-J8	-	-										
BD10IA5WEFJ		1.0											HTSOP-J8	-	-										
BD12IA5WEFJ		1.2											HTSOP-J8	-	-										
BD15IA5WEFJ		1.5											HTSOP-J8	-	-										
BD18IA5WEFJ		1.8											HTSOP-J8	-	-										
BD25IA5WEFJ		2.5											HTSOP-J8	-	-										
BD30IA5WEFJ		3.0											HTSOP-J8	-	-										
BD33IA5WEFJ		3.3											HTSOP-J8	-	-										
New BD00IA5VEFJ-M/		Variable 0.8 to 4.5	± 1 ($T_a=+25^\circ\text{C}$, ± 3 ($T_a=-40 \text{ to } +105^\circ\text{C}$))											HTSOP-J8/ HVSOF6	FSs	YES									
New BD00IA5MHFV-M		1.0												HTSOP-J8	FSs	YES									
New BD10IA5VEFJ-M		1.2												HTSOP-J8	FSs	YES									
New BD12IA5VEFJ-M		1.5												HTSOP-J8	FSs	YES									
New BD15IA5VEFJ-M		1.8												HTSOP-J8	FSs	YES									
New BD18IA5VEFJ-M		2.5												HTSOP-J8	FSs	YES									
New BD25IA5VEFJ-M		3.0												HTSOP-J8	FSs	YES									
New BD30IA5VEFJ-M		3.3												HTSOP-J8	FSs	YES									
New BD33IA5VEFJ-M		3.3												HTSOP-J8	FSs	YES									

7V Withstand Voltage 500mA Variable/Fixed Output LDO Regulators (Industrial Equipment)

Part No.	Input Voltage (V)	Output Voltage (V)	Output Voltage Precision (%)	Output Current (A)	Bias Current (mA)	I/O Voltage Difference (V)	Ripple Rejection (dB)	Load Regulation (mV)	Input Capacitor (μ F)	Output Capacitor (μ F)	Shutdown Switch	Protection Circuit	Package
New BD00IA5VEFJ-LB	2.4 to 5.5	Variable 0.8 to 4.5	± 1 ($T_a=+25^\circ\text{C}$, ± 3 ($T_a=-40 \text{ to } +105^\circ\text{C}$))	0.5	0.25	0.4 ($f=100\text{Hz}, 50\text{mV}_{pp}, I_o=0\text{A}$)	60	25 ($I_o=0 \text{ to } 500\text{mA}$)	1.0	1.0	-	Over-Current/Temperature	HTSOP-J8
New BD10IA5VEFJ-LB		1.0											HTSOP-J8
New BD12IA5VEFJ-LB		1.2											HTSOP-J8
New BD15IA5VEFJ-LB		1.5											HTSOP-J8
New BD18IA5VEFJ-LB		1.8											HTSOP-J8
New BD25IA5VEFJ-LB		2.5											HTSOP-J8
New BD30IA5VEFJ-LB		3.0											HTSOP-J8
New BD33IA5VEFJ-LB		3.3											HTSOP-J8

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6.5V Withstand Voltage 500mA CMOS LDO Regulators

Part No.	Input Voltage (V)	Output Voltage (V)	Output Voltage Precision (%)	Output Current (A)	Bias Current (μ A)	I/O Voltage Difference (mV)	Ripple Rejection (dB)	Load Regulation (mV)	Protection Circuit	Package
BU18SD5WG	1.7 to 6.0	1.8	± 2	0.5	33	150 ($I_o=100mA$)	68	0.5	Over-Current/Temperature	SSOP5
BU33SD5WG		3.3				85 ($I_o=100mA$)				SSOP5

6.5V Withstand Voltage 300mA CMOS LDO Regulators

Part No.	Input Voltage (V)	Output Voltage (V)	Output Voltage Precision (%)	Output Current (A)	Vsat (Max) (mV)	Ripple Rejection (dB)	Load Regulation (Max) (mV)	Circuit Current (μA)	Input Capacitor (μF)	Output Capacitor (μF)	Shut Down Switch	Over-Current Protection	Temperature Protection	Discharge Function	Package	ComfySIL™ Functional Safety*1	Automotive Grade AEC-Q100
BU12JA3DG-C	1.7 to 6.0	1.2	± 2 ($T_i = -40$ to +150°C)	0.3	500 ($I_o = 300mA$)	60 ($f_{RR} = 1kHz$, $I_{out} = 300mA$)	15 ($I_{out} = 1mA$ to 300mA)	37	0.1	1.0	✓	✓	✓	✓	SSOP5	FSs	YES
BU15JA3DG-C		1.5			365 ($I_o = 300mA$)										SSOP5	FSs	YES
BU18JA3DG-C		1.8			330 ($I_o = 300mA$)										SSOP5	FSs	YES
BU25JA3DG-C		2.5			240 ($I_o = 300mA$)										SSOP5	FSs	YES
BU30JA3DG-C		3.0			220 ($I_o = 300mA$)										SSOP5	FSs	YES
BU33JA3DG-C		3.3			200 ($I_o = 300mA$)										SSOP5	FSs	YES

6.5V Withstand Voltage 200mA CMOS LDO Regulators

Type	Input Voltage (V)	Output Voltage (V)	Output Voltage Precision	Output Current (A)	Vsat (V)	Ripple Rejection (dB)	Load Regulation (mV)	Circuit Current (μ A)	Output Short Current (mA)	Input Capacitor (μ F)	Output Capacitor (μ F)	Shut Down Switch	Over-Current Protection	Temperature Protection	Discharge Function	Package/Part No.	
																SSON004X1010	SSOP5
BU10TD2W/BU10TD3W	1.0	±25mV	0.2	70	10 ($I_o=0.01$ to 100mA)	35	70	0.47	0.47	✓	✓	✓	✓	✓	BU10TD2WNVX	BU10TD3WG	
BU1ATD2W/-															BU1ATD2WNVX	-	
BU11TD2W/BU11TD3W															BU11TD2WNVX	BU11TD3WG	
BU1BTD2W/-															BU1BTD2WNVX	-	
BU12TD2W/BU12TD3W															BU12TD2WNVX	BU12TD3WG	
BU1CTD2W/BU1CTD3W															BU1CTD2WNVX	BU1CTD3WG	
BU13TD2W/BU13TD3W															BU13TD2WNVX	BU13TD3WG	
BU15TD2W/BU15TD3W															BU15TD2WNVX	BU15TD3WG	
BU18TD2W/BU18TD3W															BU18TD2WNVX	BU18TD3WG	
BU1JTD2W/BU1JTD3W															BU1JTD2WNVX	BU1JTD3WG	
BU19TD2W/BU19TD3W															BU19TD2WNVX	BU19TD3WG	
BU20TD2W/BU20TD3W															BU20TD2WNVX	BU20TD3WG	
BU2ATD2W/-															BU2ATD2WNVX	-	
BU21TD2W/BU21TD3W															BU21TD2WNVX	BU21TD3WG	
BU23TD2W/-															BU23TD2WNVX	-	
BU25TD2W/BU25TD3W		±1%	280 ($I_o=200mA$)	260 ($I_o=200mA$)	240 ($I_o=200mA$)	220 ($I_o=200mA$)	35	70	0.47	0.47	✓	✓	✓	✓	BU25TD2WNVX	BU25TD3WG	
BU26TD2W/BU26TD3W															BU26TD2WNVX	BU26TD3WG	
BU27TD2W/BU27TD3W															BU27TD2WNVX	BU27TD3WG	
BU2HTD2W/-															BU2HTD2WNVX	-	
BU28TD2W/BU28TD3W															BU28TD2WNVX	BU28TD3WG	
BU2JTD2W/BU2JTD3W															BU2JTD2WNVX	BU2JTD3WG	
BU29TD2W/BU29TD3W															BU29TD2WNVX	BU29TD3WG	
BU30TD2W/BU30TD3W															BU30TD2WNVX	BU30TD3WG	
BU31TD2W/BU31TD3W															BU31TD2WNVX	BU31TD3WG	
BU32TD2W/BU32TD3W															BU32TD2WNVX	BU32TD3WG	
BU33TD2W/BU33TD3W															BU33TD2WNVX	BU33TD3WG	
BU34TD2W/BU34TD3W															BU34TD2WNVX	BU34TD3WG	

Type	Input Voltage (V)	Output Voltage (V)	Output Voltage Precision	Output Current (A)	V _{sat} (V)	Ripple Rejection (dB)	Load Regulation (mV)	Circuit Current (μA)	Output Short Current (mA)	Input Capacitor (μF)	Output Capacitor (μF)	Shut Down Switch	Over-Current Protection	Temperature Protection	Discharge Function	Package/Part No.	
																SSON004X1216	HVSOF5
BU15TA2W	2.5 to 5.5	1.5	±25mV	0.2	±1%	65	10 (I _o =0.01 to 100mA)	40	70	1.0	1.0	✓	✓	✓	✓	BU15TA2WNVX	BU15TA2WHFV
BU18TA2W		1.8														BU18TA2WNVX	BU18TA2WHFV
BU25TA2W		2.5					400 (I _o =200mA)	40	70	1.0	1.0	✓	✓	✓	✓	BU25TA2WNVX	BU25TA2WHFV
BU26TA2W		2.6														BU26TA2WNVX	BU26TA2WHFV
BU27TA2W		2.7														BU27TA2WNVX	BU27TA2WHFV
BU28TA2W		2.8					360 (I _o =200mA)	40	70	1.0	1.0	✓	✓	✓	✓	BU28TA2WNVX	BU28TA2WHFV
BU2JTA2W		2.85														BU2JTA2WNVX	BU2JTA2WHFV
BU29TA2W		2.9						330 (I _o =200mA)	40	70	1.0	1.0	✓	✓	✓	BU29TA2WNVX	BU29TA2WHFV
BU30TA2W		3.0														BU30TA2WNVX	BU30TA2WHFV
BU31TA2W		3.1														BU31TA2WNVX	BU31TA2WHFV
BU32TA2W		3.2					300 (I _o =200mA)	40	70	1.0	1.0	✓	✓	✓	✓	BU32TA2WNVX	BU32TA2WHFV
BU33TA2W		3.3														BU33TA2WNVX	BU33TA2WHFV
BU34TA2W		3.4														BU34TA2WNVX	BU34TA2WHFV



LDO Regulators

Please ensure that minimum Input Voltage always exceeds the sum of Output Voltage and drop out voltage for the device.

6.5V Withstand Voltage 200mA CMOS LDO Regulators

Part No.	Input Voltage (V)	Output Voltage (V)	Output Voltage Precision (%)	Output Current (A)	V _{sat} (mV)	Ripple Rejection (dB)	Load Regulation (mV)	Circuit Current (μA)	Output Short Current (mA)	Input Capacitor (μF)	Output Capacitor (μF)	Shut Down Switch	Over-Current Protection	Temperature Protection	Discharge Function	Package	ComfySIL™ Functional Safety*1	Automotive Grade AEC-Q100
BU12SD2MG-M		1.2	± 2 ($T_A = -40$ to $+105^\circ\text{C}$)		280 ($I_{out}=100\text{mA}$)	68 ($f_{RR}=1\text{kHz}, I_{out}=10\text{mA}$)	1 ($I_{out}=1$ to 200mA)	33	100	1.0	1.0	-	-	-	SSOP5	FSs	YES	
BU15SD2MG-M		1.5			180 ($I_{out}=100\text{mA}$)													
BU18SD2MG-M		1.8			150 ($I_{out}=100\text{mA}$)													
BU25SD2MG-M		2.5			100 ($I_{out}=100\text{mA}$)													
BU28SD2MG-M		2.8			85 ($I_{out}=100\text{mA}$)													
BU30SD2MG-M		3.0																
BU33SD2MG-M		3.3																
BU10JA2MNVX-C		1.0	± 2		800 ($I_{out}=200\text{mA}$)	70 ($f_{RR}=1\text{kHz}, I_{out}=10\text{mA}$)	10 ($I_{out}=0.01\text{mA}$ to 100mA)	35	70	0.47	0.47	✓	✓	✓	SSON004R1010	FSs	YES	
BU11JA2MNVX-C		1.1			600 ($I_{out}=200\text{mA}$)													
BU12JA2MNVX-C		1.2			440 ($I_{out}=200\text{mA}$)													
BU1CJA2MNVX-C		1.25			380 ($I_{out}=200\text{mA}$)													
BU15JA2MNVX-C		1.5			280 ($I_{out}=200\text{mA}$)													
BU18JA2MNVX-C		1.8			260 ($I_{out}=200\text{mA}$)													
BU25JA2MNVX-C		2.5			240 ($I_{out}=200\text{mA}$)													
BU28JA2MNVX-C		2.8			220 ($I_{out}=200\text{mA}$)													
BU2JJA2MNVX-C		2.85				0.2	68 ($f_{RR}=1\text{kHz}, I_{out}=10\text{mA}$)	0.5 ($I_{out}=1\text{mA}$ to 100mA)	33	100	1.0	1.0	✓	✓	✓	SSON004R1010	FSs	YES
BU29JA2MNVX-C		2.9																
BU30JA2MNVX-C		3.0																
BU33JA2MNVX-C		3.3																
BU34JA2MNVX-C		3.4																
BU10JA2VG-C		1.0																
BU12JA2VG-C		1.2																
BU1CJA2VG-C		1.25																
BU15JA2VG-C		1.5																
BU18JA2VG-C		1.8																
BU25JA2VG-C		2.5																
BU28JA2VG-C		2.8																
BU2JJA2VG-C		2.85																
BU30JA2VG-C		3.0																
BU33JA2VG-C		3.3																
BU10JA2DG-C		1.0	± 2			160 ($I_{out}=100\text{mA}$)	70 ($f_{RR}=1\text{kHz}, I_{out}=10\text{mA}$)	0.5 ($I_{out}=1\text{mA}$ to 100mA)	33	100	1.0	1.0	✓	✓	✓	SSOP5	FSs	YES
BU12JA2DG-C		1.2																
BU1CJA2DG-C		1.25																
BU15JA2DG-C		1.5																
BU18JA2DG-C		1.8																
BU25JA2DG-C		2.5																
BU28JA2DG-C		2.8																
BU2JJA2DG-C		2.85																
BU30JA2DG-C		3.0																
BU33JA2DG-C		3.3																

6.5V Withstand Voltage 200mA CMOS LDO Regulators with Shutdown Switch WL-CSP type

Part No.	Input Voltage (V)	Output Voltage (V)	Output Voltage Precision	Output Current (A)	V _{sat} (mV)	Ripple Rejection (dB)	Load Regulation (mV)	Circuit Current (μA)	Output Short Current (mA)	Input Capacitor (μF)	Output Capacitor (μF)	Shut Down Switch	Over-Current Protection	Temperature Protection	Discharge Function	Package (mm)
BU18SA4WGWL	1.7 to 5.5	1.8	$\pm 50\text{mV}$	0.2	150 ($I_o=100\text{mA}$)	70	2 ($I_o=1$ to 100mA)	40	100	1.0	1.0	✓	✓	✓	UCSP50L1 0.8x0.8, H=Max 0.55mm	
BU25SA4WGWL		2.5														
BU2FSA4WGWL		2.55														
BU28SA4WGWL		2.8														
BU30SA4WGWL		3.0														
BU33SA4WGWL		3.3														

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6V Withstand Voltage Ultra Low Voltage Output LDO Regulator

Part No.	Output Current (A)	Input Voltage (V)		Output Voltage (V)	Voltage Accuracy (%)	Power Good	Adjustable Soft Start	UVLO	OCP	TSD	Package
		V _{CC}	V _{IN}								
BD00JC0MNUX-M	1.0	3.0 to 5.5	0.95 to V _{CC} -1	Variable 0.65 to 2.70	±2	✓	✓	✓	Recovery	Recovery	VSON010X3030

5.5V Withstand Voltage 500mA CMOS LDO Regulators WL-CSP type

Part No.	Input Voltage (V)	Output Voltage (V)	Output Voltage Precision (%)	Output Current (A)	Bias Current (μA)	I/O Voltage Difference (mV)	Ripple Rejection (dB)	Load Regulation (mV)	Protection Circuit	Package
BU30SA5WGWZ	1.8 to 5.0	3	±1	0.5	33	80 (I _O =100mA)	70dB (f=1kHz)	6 (I _{out} =0.01mA to 300mA)	Over-Current/Temperature	UCSP30L1
BU33SA5WGWZ		3.3								UCSP30L1

UVLO: Under Voltage Lock Out, OCP: Over-Current Protection, TSD: Thermal Shut Down

Ultra Low Dropout LDO Regulators

Ultra LDO type, Fast Transient Response LDO Regulators

Part No.	Output Current (A)	Input Voltage (V)		Output Voltage (V)	Voltage Accuracy (%)	Power Good	Adjustable Soft Start	UVLO	OCP	TSD	Package
		V _{CC}	V _{IN}								
BD3552HFN	2.0	4.3 to 5.5	0.95 to (V _{CC} -1)	0.65 to 2.70	±1	—	✓	Recovery	Recovery	HSON8	
BD3508MUV	3.0		0.75 to (V _{CC} -1)								VQFN020V4040
BD3540NUV	0.5	3.0 to 5.5	0.95 to (V _{CC} -1)	0.65 to 2.70	±1	✓	✓	Recovery	Recovery	VSON010V3030	
BD3541NUV	1.0		0.95 to (V _{CC} -1)								VSON010V3030

UVLO: Under Voltage Lock Out, OCP: Over-Current Protection, TSD: Thermal Shut Down

Multi-Output LDO Regulators

2ch Variable Step CMOS LDO Regulator

Part No.	Input Voltage (V)	V _{OUT}	Selectable Output Voltage (V)			Output Current (A)	Vsat (mV) (I _O =100mA)	Ripple Rejection (dB)	Load Regulation (%)	Circuit Current (μA)	Output Short Current (mA)	Input Capacitor (μF)	Output Capacitor (μF)	Shut Down Switch	Over-Current Protection	Temperature Protection	Low Voltage Protection	Package (mm)
			1ch	3.0	2ch													VCSP50L1C 1.6x1.6, H=Max 0.57
BD7602GUL	2.7 to 5.5	1ch	3.0			2	0.1	45	0.7	10	—	1.0	4.7	✓	✓	✓	VCSP50L1C 1.6x1.6, H=Max 0.57	
		2ch	2.8	2.9	2.95		0.15											

LDO Regulators with Watchdog Timer and Voltage Detector

50V Withstand Voltage Low Quiescent Current 500mA LDO Regulators with Watchdog Timer and Voltage Detector

Part No.	Input Voltage (V)	LDO				Voltage Detector			Circuit Current (μA)	Operating Temperature (°C)	Package	ComfySIL™ Functional Safety*1	Automotive Grade AEC-Q100
		Output Voltage (V)	Output Voltage Precision (%)	Output Current (A)	I/O Voltage Difference (V)	Detection Voltage (V)	Voltage Detection Precision (%)	Function					
BD3021HFP	5.6 to 36.0	5	±2 (T _J =-40 to +125°C)	0.5	0.3 (I _O =200mA)	4.5	±2	4.5V Voltage Detector+WDT (Active switch) Adjustable Voltage Detector+WDT	80	T _J =-40 to +125	HRP7	FSs	YES
BD3020HFP						4.65							

45V Withstand Voltage Low Quiescent Current 550mA LDO Regulators with Watchdog Timer and Voltage Detector

Part No.	Input Voltage (V)	LDO				Voltage Detector			Circuit Current (μA)	Operating Temperature (°C)	Package	ComfySIL™ Functional Safety*1	Automotive Grade AEC-Q100
		Output Voltage (V)	Output Voltage Precision (%)	Output Current (A)	I/O Voltage Difference (V)	Detection Voltage (V)	Voltage Detection Precision (%)	Function					
BD4271EFJ-C	5.5 to 45.0	5	±2 (T _J =-40 to +150°C)	0.55	0.2 (I _O =300mA)	4.65	±2.6	4.65V Voltage Detector+WDT	75	T _J =-40 to +150	HTSOP-J8	FSs	YES
BD4271HFP-C						4.65							
BD4271FP2-C						4.65							

45V Withstand Voltage Low Quiescent Current 200mA LDO Regulator with Watchdog Timer and Voltage Detector

Part No.	Input Voltage (V)	LDO				Voltage Detector			Circuit Current (μA)	Operating Temperature (°C)	Package	ComfySIL™ Functional Safety*1	Automotive Grade AEC-Q100
		Output Voltage (V)	Output Voltage Precision (%)	Output Current (A)	I/O Voltage Difference (V)	Detection Voltage (V)	Voltage Detection Precision (%)	Function					
BD820F5UEFJ-C	5.9 to 42.0	5	±2 (T _J =-40 to +150°C)	0.2	0.4 (I _O =200mA)	4.2	±2.62	4.2V Voltage Detector+WDT	5	T _J =-40 to +150	HTSOP-J8	FSs	YES

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*1 For more information about "ComfySIL™ Functional Safety", please refer to the reverse side of the cover.



LDO Regulators with Voltage Detector

Please ensure that minimum Input Voltage always exceeds the sum of Output Voltage and drop out voltage for the device.

45V Withstand Voltage Low Quiescent Current 500mA LDO Regulators with Reset

Part No.	Input Voltage (V)	LDO				Voltage Detector		Shutdown Switch	Circuit Current (μA)	Operating Temperature (°C)	Package	ComfySIL™ Functional Safety*1	Automotive Grade AEC-Q100
		Output Voltage (V)	Output Voltage Precision (%)	Output Current (A)	I/O Voltage Difference (V)	Detection Voltage (V)	Voltage Detection Precision (%)						
BD42754FPJ-C	5.5 to 45.0	5	± 2 ($T_j = -40$ to $+150^\circ\text{C}$, $V_{cc} = 6.0$ to 28V, $I_o = 5$ to 400mA)	0.5	0.25 ($I_o = 300\text{mA}$)	4.62	± 2.8	—	75	$T_j = -40$ to $+150$	TO252-J5	FSs	YES
BD42754FP2-C											TO263-5	FSs	YES

45V Withstand Voltage Low Quiescent Current 200mA/300mA LDO Regulators with 2ch RESET

Part No.	Input Voltage (V)	LDO				Voltage Detector		Shutdown Switch	Circuit Current (μA)	Operating Temperature (°C)	Package	ComfySIL™ Functional Safety*1	Automotive Grade AEC-Q100
		Output Voltage (V)	Output Voltage Precision (%)	Output Current (A)	I/O Voltage Difference (V)	Detection Voltage (V)	Voltage Detection Precision (%)						
BD4269FJ-C	5.5 to 45.0	5	± 2 ($T_j = -40$ to $+150^\circ\text{C}$, $V_{cc} = 6.0$ to 16V, $I_o = 1$ to 100mA)	0.2	0.25 ($I_o = 100\text{mA}$)	Variable (with RADJ not used: 4.62V)	± 2.6	—	70	$T_j = -40$ to $+150$	SOP-J8	FSs	YES
BD4269UEFJ-C											HTSOP-J8	FSs	YES

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*1 For more information about "ComfySIL™ Functional Safety", please refer to the reverse side of the cover.

Voltage Tracker

50V Withstand Voltage 500mA Voltage Tracker

Part No.	Input Voltage (V)	Output Current (A)	Offset Voltage (mV)	I/O Voltage Difference (V)	Circuit Current (μA)	Operating Temperature (°C)	Package	ComfySIL™ Functional Safety*1	Automotive Grade AEC-Q100
BD3925FP-C	4.5 to 36.0	0.5	± 10 ($T_a = -40$ to $+125^\circ\text{C}$, $V_{cc} = 6$ to 36V, $I_o = 5$ to 200mA)	0.25 ($I_o = 200\text{mA}$)	45	$T_a = -40$ to $+125$	TO252-5	FSs	YES
BD3925HFP-C							HRP5	FSs	YES

45V Withstand Voltage 250mA Voltage Tracker

Part No.	Input Voltage (V)	Output Current (A)	Offset Voltage (mV)	I/O Voltage Difference (V)	Circuit Current (μA)	Operating Temperature (°C)	Package	ComfySIL™ Functional Safety*1	Automotive Grade AEC-Q100
BD42530UEFJ-C	5.6*2 to 42.0	0.25	± 10 ($T_j = -40$ to $+150^\circ\text{C}$, $V_{cc} = 6$ to 32V, $I_o = 0.1$ to 250mA)	0.28 ($I_o = 200\text{mA}$)	40	$T_j = -40$ to $+150$	HTSOP-J8	FSs	YES
BD42530FP2-C							TO263-5	FSs	YES
BD42530FPJ-C							TO252-J5	FSs	YES

45V Withstand Voltage 70mA Voltage Tracker

Part No.	Input Voltage (V)	Output Current (A)	Offset Voltage (mV)	I/O Voltage Difference (V)	Circuit Current (μA)	Operating Temperature (°C)	Package	ComfySIL™ Functional Safety*1	Automotive Grade AEC-Q100
BD42540FJ-C	5.4*2 to 42.0	0.07	± 10 ($T_j = -40$ to $+150^\circ\text{C}$, $V_{cc} = 5.5$ to 26V, $I_o = 0.1$ to 60mA)	0.2 ($I_o = 70\text{mA}$)	40	$T_j = -40$ to $+150$	SOP-J8	FSs	YES

45V Withstand Voltage 50mA Voltage Tracker

Part No.	Input Voltage (V)	Output Current (A)	Offset Voltage (mV)	I/O Voltage Difference (V)	Circuit Current (μA)	Operating Temperature (°C)	Package	ComfySIL™ Functional Safety*1	Automotive Grade AEC-Q100
BD42500G-C	5.3*2 to 42.0	0.05	± 15 ($T_j = -40$ to $+150^\circ\text{C}$, $V_{cc} = 6$ to 40V, $I_o = 1$ to 50mA)	0.12 ($I_o = 50\text{mA}$)	40	$T_j = -40$ to $+150$	SSOP5	FSs	YES

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*1 For more information about "ComfySIL™ Functional Safety", please refer to the reverse side of the cover.

*2 5V setting

Power Supply IC for High Fidelity Audio

Power Supply IC for High Fidelity Audio

Part No.	Output Current (A)	Input Voltage (V)	Output Voltage (V)	Reference Voltage Accuracy (%)	Dropout Voltage (mV)	Noise Level (μVRms)	PSRR (dB)	Over-Current Protection	Thermal Protection	Package
MUS-IC BD37201NUX	0.5	2.7 to 5.5	Variable 1.0 to 4.5	±1	200	3.3	90 (f=1kHz) 55 (f=1MHz)	✓	✓	VSON008X2030

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It is the masterpiece of ROHM audio IC which pursues both the numerical values and sound quality performance required in an audio device.

**Linear Regulators
for DDR SDRAM**

Please ensure that minimum input voltage always exceeds the sum of output voltage and drop out voltage for the device.

Termination Regulators for DDR SDRAM

Part No.	V _{CC} Input Voltage (V)	V _{TT,IN} Termination Input Voltage (V)	V _{DQO} Reference Input Voltage (V)	V _{TT} Output Voltage (V)	V _{TT} Voltage Precision (mV)	V _{TT} Output Current (A)	V _{REF} Output Current (mA)	Features								Package							
								Enable	Soft Start	Power Good	UVLO	Output Ceramic Capacitors	Thermal Protection	DDR (VDDQ)									
														DDR1 (2.5V/2.6V)	DDR2 (1.8V)	DDR2L (1.5V)	LPDDR2 (1.2V)	DDR3 (1.5V)	DDR3L (1.35V)	DDR3U (1.25V)	LPDDR3 (1.2V)	DDR4 (1.2V)	
BD3533F	2.7 to 5.5	1.0 to 5.5	1.00 to 2.75	0.75 to 1.25	±30	±1.0	±20	✓	✓	—	✓	—	Recovery	✓	✓	—	—	—	—	—	SOP8		
BD3539FVM	2.7 to 5.5	1.0 to 5.5	1.00 to 2.75	0.75 to 1.25	±15	±1.0	±25	✓	✓	—	✓	✓	Recovery	✓	✓	✓	—	✓	—	—	MSOP8		
BD3539NUX																					VSON008X2030		
BD35390FJ	2.7 to 5.5	1.0 to 5.5	1.00 to 2.75	0.75 to 1.25	±15	±1.0	—	✓	✓	✓	✓	✓	Recovery	✓	✓	✓	—	✓	—	—	SOP-J8		

Automotive Termination Regulator for DDR SDRAM

Part No.	V _{CC} Input Voltage (V)	V _{TT,IN} Termination Input Voltage (V)	V _{DQO} Reference Input Voltage (V)	V _{TT} Output Voltage (V)	V _{TT} Voltage Precision (mV)	V _{TT} Output Current (A)	V _{REF} Output Current (mA)	Features								Package	Automotive Grade AEC-Q100						
								Enable	Soft Start	Power Good	UVLO	Output Ceramic Capacitors	Thermal Protection	DDR (VDDQ)									
								DDR1 (2.5V/2.6V)	DDR2 (1.8V)	DDR2L (1.5V)	LPDDR2 (1.2V)	DDR3 (1.5V)	DDR3L (1.35V)	DDR3U (1.25V)	LPDDR3 (1.2V)	DDR4 (1.2V)							
BD35395FJ-M	2.7 to 5.5	1.0 to 5.5	1.00 to 2.75	0.500 to 1.375	±13.5	±1.0	—	✓	✓	✓	✓	✓	✓	Recovery	✓	✓	✓	—	✓	✓	—	SOP-J8	YES

Switching Regulators

Integrated FET Switching Regulators (Buck Converters)	P.44	Integrated FET Switching Regulators (Boost and Buck-Boost Converters)	P.46
External FET Switching Regulators (Buck Controllers)	P.46	External FET Switching Regulators (Boost and Buck-Boost Controllers)	P.47
For Automotive Switching Regulators	P.47		

Switching Regulators

Integrated FET Switching Regulators (Buck Converters)**Withstand Voltage 7V or less 1A or less Single Output Buck Converters**

Part No.	Input Voltage Maximum Rating (V)	Output Current (A)	Input Voltage (V)	Output Voltage (V)	Switching Frequency (MHz)	Circuit Current (μA)	Control Mode	Features						Package (mm)
								Power Good	Adjustable Soft Start	Synchronous Rectifier	Light-Load Efficiency	Over-Current Protection	Thermal Protection	
BD9122GUL	7	0.3	2.5 to 5.5	1 to 2	1	200	Current	—	—	✓	✓	✓	✓	Latch
Nano BD70522GUL*1	6	0.5	2.5 to 5.5	1.2 to 3.3*2	1	0.18	On-time	✓	—	✓	✓	✓	✓	Recovery Recovery
BD9161FVM	7	0.6	2.5 to 4.5	1.0 to 3.3	1	200	Current	—	—	✓	✓	✓	✓	Latch Latch MSOP8
BD9161FVM-LB	7	0.6	2.5 to 4.5	1.0 to 3.3	1	200	Current	—	—	✓	✓	✓	✓	Latch Latch MSOP8
BD9120HFN	7	0.8	2.7 to 4.5	1.0 to 1.5	1	200	Current	—	—	✓	✓	✓	✓	Latch Latch HSON8
BD9102FVM	7	0.8	4.0 to 5.5	1.24	1	250	Current	—	—	✓	✓	✓	✓	Latch Latch MSOP8
BD8966FVM	7	0.8	4.0 to 5.5	1.0 to 2.5	1	—	Current	—	—	✓	—	✓	✓	Latch Latch MSOP8
BD9106FVM	7	0.8	4.0 to 5.5	1.0 to 2.5	1	250	Current	—	—	✓	✓	✓	✓	Latch Latch MSOP8
BD9106FVM-LB	7	0.8	4.0 to 5.5	1.0 to 2.5	1	250	Current	—	—	✓	✓	✓	✓	Latch Latch MSOP8
BD9109FVM	7	0.8	4.5 to 5.5	3.3	1	250	Current	—	—	✓	✓	✓	✓	Latch Latch MSOP8
BD9109FVM-LB	7	0.8	4.5 to 5.5	3.3	1	250	Current	—	—	✓	✓	✓	✓	Latch Latch MSOP8
BD9104FVM	7	0.8	4.5 to 5.5	3.3	1	250	Current	—	—	✓	✓	✓	✓	Latch Latch MSOP8
BD9A100MUV	7	1	2.7 to 5.5	0.8 to ($V_{IN} \times 0.7$)	1	350	Current	✓	✓	✓	✓	✓	✓	Recovery Recovery VQFN016V3030
BD9A101MUV-LB	7	1	2.7 to 5.5	0.8 to ($V_{IN} \times 0.7$)	1	350	Current	✓	✓	✓	✓	✓	✓	Recovery Recovery VQFN016V3030
BD9B100MUV	7	1	2.7 to 5.5	0.8 to ($V_{IN} \times 0.8$)	2/1	35	On-time	✓	✓	✓	✓	Deep	Recovery Recovery	VQFN016V3030
BU90008GWZ	7	1	2.3 to 5.5	1	3.6	45	On-time	—	—	✓	✓	✓	✓	Recovery Recovery UCSP35L1 1.3x0.9, H=0.4
BU90003GWZ	7	1	2.3 to 5.5	1.2	4	45	On-time	—	—	✓	✓	✓	✓	Recovery Recovery UCSP35L1 1.3x0.9, H=0.4
BU90007GWZ	7	1	2.3 to 5.5	1.25	4	45	On-time	—	—	✓	✓	✓	✓	Recovery Recovery UCSP35L1 1.3x0.9, H=0.4
BU90009GWZ	7	1	2.3 to 5.5	1.3	4.2	45	On-time	—	—	✓	✓	✓	✓	Recovery Recovery UCSP35L1 1.3x0.9, H=0.4
BU90004GWZ	7	1	2.3 to 5.5	1.8	5.4	45	On-time	—	—	✓	✓	✓	✓	Recovery Recovery UCSP35L1 1.3x0.9, H=0.4
BU90104GWZ	7	1	2.3 to 5.5	1.8	5.4	45	On-time	—	—	✓	✓	✓	✓	Recovery Recovery UCSP35L1 1.3x0.9, H=0.4
BU90005GWZ	7	1	2.3 to 5.5	2.5	6	45	On-time	—	—	✓	✓	✓	✓	Recovery Recovery UCSP35L1 1.3x0.9, H=0.4
BU90006GWZ	7	1	2.3 to 5.5	3	6	55	On-time	—	—	✓	✓	✓	✓	Recovery Recovery UCSP35L1 1.3x0.9, H=0.4
BU90002GWZ	7	1	4.0 to 5.5	3.3	6	55	On-time	—	—	✓	✓	✓	✓	Recovery Recovery UCSP35L1 1.3x0.9, H=0.4

Withstand Voltage 7V or less 1.2 to 3A Single Output Buck Converters

Part No.	Input Voltage Maximum Rating (V)	Output Current (A)	Input Voltage (V)	Output Voltage (V)	Switching Frequency (MHz)	Circuit Current (μA)	Control Mode	Features						Package (mm)
								Power Good	Adjustable Soft Start	Synchronous Rectifier	Light-Load Efficiency	Over-Current Protection	Thermal Protection	
BD9107FVM	7	1.2	4.0 to 5.5	1.0 to 1.8	1	250	Current	—	—	✓	✓	✓	✓	Latch Latch MSOP8
BU90028NUX	7	1.5	2.3 to 5.5	1.18	1	53	On-time	—	—	✓	✓	✓	✓	Recovery Recovery VSON008X2030
BU90023NUX	7	1.5	2.3 to 5.5	1.23	1	53	On-time	—	—	✓	✓	✓	✓	Recovery Recovery VSON008X2030
New BD9B206NF-Z	6	2	2.7 to 5.5	0.6 to 4.0	2.2	4	On-time	✓	—	✓	✓	✓	✓	Recovery Recovery VFN006V1515A
BD9B200MUV	7	2	2.7 to 5.5	0.8 to ($V_{IN} \times 0.8$)	2/1	40	On-time	✓	✓	✓	✓	Deep	Recovery Recovery	VQFN016V3030
BD9A201FP4-LBZ	7	2	2.7 to 5.5	0.8 to ($V_{IN} \times 0.7$)	1	350	Current	✓	—	✓	—	—	Recovery Recovery	TSOT23-8L
BD9110NV	7	2	4.5 to 5.5	1.0 to 2.5	1	250	Current	—	—	✓	✓	✓	✓	Latch Latch SON008V5060
BD9130NV	7	2	2.7 to 5.5	1.0 to 2.5*2	1	250	Current	—	—	✓	✓	✓	✓	Latch Latch SON008V5060
BD8961INV	7	2	4.5 to 5.5	3.3	1	—	Current	—	—	✓	—	—	—	Latch Latch SON008V5060
BD9111INV	7	2	4.5 to 5.5	3.3	1	250	Current	—	—	✓	✓	✓	✓	Latch Latch SON008V5060
BD8963EFJ	7	3	2.7 to 5.5	1.0 to 2.5*2	1	—	Current	—	—	✓	—	—	—	Latch Latch HTSOP-J8
BD9139MUV	7	3	2.7 to 5.5	0.8 to 3.3*2	1	200	Current	—	—	✓	✓	✓	✓	Latch Latch VQFN016V3030
BD9A300MUV	7	3	2.7 to 5.5	0.8 to ($V_{IN} \times 0.7$)	1	350	Current	✓	✓	✓	✓	✓	✓	Recovery Recovery VQFN016V3030
BD9A301MUV-LB	7	3	2.7 to 5.5	0.8 to ($V_{IN} \times 0.7$)	1	350	Current	✓	✓	✓	✓	✓	✓	Recovery Recovery VQFN016V3030
BD9B305QUZ	7	3	2.7 to 5.5	0.6 to ($V_{IN} \times 0.8$)	1	15	On-time	✓	✓	✓	✓	✓	✓	Recovery Recovery VMMPO8LZ2020 2.0x2.0, H=0.4
BD9B333GWZ	7	3	2.7 to 5.5	0.6 to ($V_{IN} \times 0.8$)	1.3	50	On-time	✓	✓	✓	✓	Deep	Recovery Recovery	UCSP35L1 1.98x1.8, H=0.4
New BD9B306NF-Z	6	3	2.7 to 5.5	0.6 to 4.0	2.2	4	On-time	✓	—	✓	✓	✓	✓	Recovery Recovery VFN006V1515A
BD9B300MUV	7	3	2.7 to 5.5	0.8 to ($V_{IN} \times 0.8$)	2/1	35	On-time	✓	✓	✓	✓	Deep	Recovery Recovery	VQFN016V3030
BD9B301MUV-LB	7	3	2.7 to 5.5	0.8 to ($V_{IN} \times 0.8$)	2/1	45	On-time	✓	✓	✓	✓	Deep	Recovery Recovery	VQFN016V3030
BD9B304QWZ	7	3	2.7 to 5.5	0.8 to ($V_{IN} \times 0.8$)	2/1	40	On-time	—	—	✓	✓	Deep	Recovery Recovery	UMMP008AZ020 2.0x2.0, H=0.4

*1 BD70522GUL has an ultra-high efficiency battery management solution evaluation board "REFLV BMS001-EVK-001". This board is equipped with NGK Insulators, Ltd.'s new thin, large-capacity lithium-ion secondary battery "EnerCera™". For details, please refer to the ROHM's website.

*2 Restrictions depend on input/output voltage conditions.

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Withstand Voltage 7V or less 4A or more Single Output Buck Converters

Part No.	Input Voltage Maximum Rating (V)	Output Current (A)	Input Voltage (V)	Output Voltage (V)	Switching Frequency (MHz)	Circuit Current (μA)	Control Mode	Features						Package
								Power Good	Adjustable Soft Start	Synchronous Rectifier	Light-Load Efficiency	Over-Current Protection	Thermal Protection	
BD9137MUV	7	4	2.7 to 5.5	0.8 to 3.3*	1	250	Current	—	—	✓	✓	Recovery	Recovery	VQFN020V4040
BD91361MUV	7	4	2.7 to 5.5	0.8 to 3.3*	1	250	Current	—	—	✓	✓	Latch	Latch	VQFN020V4040
BD9A400MUV	7	4	2.7 to 5.5	0.8 to ($V_{IN} \times 0.7$)	1	350	Current	✓	✓	✓	✓	Recovery	Recovery	VQFN016V3030
BD9B400MUV	7	4	2.7 to 5.5	0.8 to ($V_{IN} \times 0.8$)	2/1	45	On-time	✓	✓	✓	✓	Deep	Recovery	Recovery
New BD9B406NF-Z	6	4	2.7 to 5.5	0.6 to 4.0	2.2	4	On-time	✓	—	✓	✓	Recovery	Recovery	VFN006V1515A
BD91364BMUU	7	5	2.9 to 5.5	0.8 to ($V_{IN} \times 0.8$)	1.7	150	On-time	✓	✓	✓	✓	Latch	Recovery	VQFN20U4040M
BD9B500MUV	7	5	2.7 to 5.5	0.8 to ($V_{IN} \times 0.8$)	2/1	45	On-time	✓	✓	✓	✓	Deep	Recovery	Recovery
BD9A600MUV	7	6	2.7 to 5.5	0.8 to ($V_{IN} \times 0.7$)	1	400	Current	✓	✓	✓	✓	✓	Recovery	Recovery
BD9B600MUV	7	6	2.7 to 5.5	0.8 to ($V_{IN} \times 0.8$)	2/1	45	On-time	✓	✓	✓	✓	Deep	Recovery	Recovery

Withstand Voltage 20V or less 1A or less Single Output Buck Converters

Part No.	Input Voltage Maximum Rating (V)	Output Current (A)	Input Voltage (V)	Output Voltage (V)	Switching Frequency (MHz)	Circuit Current (μA)	Control Mode	Features						Package	
								Power Good	Adjustable Soft Start	Synchronous Rectifier	Light-Load Efficiency	Over-Current Protection	Thermal Protection	Over-Voltage Protection	
BD8312HFN	15	0.8	3.5 to 14.0	1.2 to 12.0*	1.5	600	Voltage	—	—	✓	—	—	Recovery	—	HSON8
BD8313HFN	15	1	3.5 to 14.0	1.2 to 12.0*	1	600	Voltage	—	—	✓	—	—	Recovery	—	HSON8

Withstand Voltage 20V or less 2A to 3A Single Output Buck Converters

Part No.	Input Voltage Maximum Rating (V)	Output Current (A)	Input Voltage (V)	Output Voltage (V)	Switching Frequency (MHz)	Circuit Current (μA)	Control Mode	Features						Package (mm)	
								Power Good	Adjustable Soft Start	Synchronous Rectifier	Light-Load Efficiency	Over-Current Protection	Thermal Protection	Over-Voltage Protection	
BD9141MUV	15	2	4.5 to 13.2	2.5 to 6.0*	0.5	300	Current	—	—	✓	✓	Latch	Latch	—	VQFN020V4040
BD95821MUV	15.2	2	7.5 to 15.0	0.8 to ($V_{IN} \times 0.5$) ($V_{IN} \times 0.5 \leq 5.5$)	0.5 to 0.8	1,200	H ³ Reg	✓	—	✓	—	Latch	Recovery	✓	VQFN016V3030
BD9325FJ	20	2	4.75 to 18.0	0.9 to ($V_{IN} \times 0.9$)	0.38	2,100	Current	—	✓	—	—	Recovery	Recovery	—	SOP-J8
BD9325FJ-LB	20	2	4.75 to 18.0	0.9 to ($V_{IN} \times 0.9$)	0.38	2,100	Current	—	✓	—	—	Recovery	Recovery	—	SOP-J8
BD9859EFJ	15	3	5 to 14	1.0 to ($V_{IN} \times 0.7$)	0.75	2,800	Current	—	—	—	—	Recovery	Recovery	—	HTSOP-J8
BD95831MUV	15.2	3	7.5 to 15.0	0.8 to ($V_{IN} \times 0.5$) ($V_{IN} \times 0.5 \leq 5.5$)	0.5 to 0.8	1,200	H ³ Reg	✓	—	✓	—	Latch	Recovery	✓	VQFN016V3030
BD9D320EFJ	20	3	4.5 to 18.0	0.765 to 7.0 ($V_{IN} \times 0.07$) to ($V_{IN} \times 0.65$)	0.7	1,000	On-time	—	✓	✓	—	Recovery	Recovery	—	HTSOP-J8
BD9D300MUV	20	3	4.0 to 17.0	0.9 to 5.25	1.25	20	On-time	✓	✓	✓	✓	Recovery	Recovery	✓	VQFN016V3030
BD9C301FJ	20	3	4.5 to 18.0	($V_{IN} \times 0.125$) to ($V_{IN} \times 0.7$)	0.5	1,500	Current	—	—	✓	—	Latch	Recovery	—	SOP-J8
BD9C301FJ-LB	20	3	4.5 to 18.0	($V_{IN} \times 0.125$) to ($V_{IN} \times 0.7$)	0.5	1,500	Current	—	—	✓	—	Latch	Recovery	—	SOP-J8
BD9D321EFJ	20	3	4.5 to 18.0	0.765 to 7.0 ($V_{IN} \times 0.07$) to ($V_{IN} \times 0.65$)	0.7	700	On-time	—	✓	✓	✓	Recovery	Recovery	—	HTSOP-J8
BD9D322QWZ	20	3	4.5 to 18.0	0.765 to 7.0 ($V_{IN} \times 0.07$) to ($V_{IN} \times 0.65$)	0.7	700	On-time	—	✓	✓	✓	Recovery	Recovery	—	UMMP008Z2020 2.0x2.0, H=0.4
BD9D323QWZ	20	3	4.5 to 18.0	0.765 to 7.0 ($V_{IN} \times 0.07$) to ($V_{IN} \times 0.65$)	0.7	1,000	On-time	—	✓	✓	—	Recovery	Recovery	—	UMMP008Z2020 2.0x2.0, H=0.4
BD9326EFJ	20	3	4.75 to 18.0	0.9 to ($V_{IN} \times 0.9$)	0.38	2,100	Current	—	✓	—	—	Recovery	Recovery	—	HTSOP-J8
BD9326EFJ-LB	20	3	4.75 to 18.0	0.9 to ($V_{IN} \times 0.9$)	0.38	2,100	Current	—	✓	—	—	Recovery	Recovery	—	HTSOP-J8

Withstand Voltage 20V or less 4A or more Single Output Buck Converters

Part No.	Input Voltage Maximum Rating (V)	Output Current (A)	Input Voltage (V)	Output Voltage (V)	Switching Frequency (MHz)	Circuit Current (μA)	Control Mode	Features						Package	
								Power Good	Adjustable Soft Start	Synchronous Rectifier	Light-Load Efficiency	Over-Current Protection	Thermal Protection	Over-Voltage Protection	
BD95841MUV	15.2	4	7.5 to 15.0	0.8 to ($V_{IN} \times 0.5$) ($V_{IN} \times 0.5 \leq 5.5$)	0.5 to 0.8	1,200	H ³ Reg	✓	—	✓	—	Latch	Recovery	✓	VQFN016V3030
BD9C401EFJ	20	4	4.5 to 18.0	($V_{IN} \times 0.125$) to ($V_{IN} \times 0.7$) ($V_{IN} \times 0.125 \geq 0.8$)	0.5	1,500	Current	—	—	✓	—	Latch	Recovery	—	HTSOP-J8
BD9327EFJ	20	4	4.75 to 18.0	0.9 to ($V_{IN} \times 0.9$)	0.38	2,100	Current	—	✓	—	—	Recovery	Recovery	—	HTSOP-J8
BD9327EFJ-LB	20	4	4.75 to 18.0	0.9 to ($V_{IN} \times 0.9$)	0.38	2,100	Current	—	✓	—	—	Recovery	Recovery	—	HTSOP-J8
BD9C501EFJ	20	5	4.5 to 18.0	($V_{IN} \times 0.075$) to ($V_{IN} \times 0.7$) ($V_{IN} \times 0.075 \geq 0.8$)	0.5	1,500	Current	—	—	✓	—	Latch	Recovery	—	HTSOP-J8
BD9C601EFJ	20	6	4.5 to 18.0	($V_{IN} \times 0.075$) to ($V_{IN} \times 0.7$) ($V_{IN} \times 0.075 \geq 0.8$)	0.5	1,500	Current	—	—	✓	—	Latch	Recovery	—	HTSOP-J8
BD95861MUV	20	6	7.5 to 18.0	0.8 to ($V_{IN} \times 0.5$) ($V_{IN} \times 0.5 \leq 5.5$)	0.35 to 0.80	1,200	H ³ Reg	✓	—	✓	—	Latch	Recovery	✓	VQFN024V4040

Withstand Voltage 22V or more 1A or less Single Output Buck Converters

Part No.	Input Voltage Maximum Rating (V)	Output Current (A)	Input Voltage (V)	Output Voltage (V)	Switching Frequency (MHz)	Circuit Current (μA)	Control Mode	Features						Package	
								Power Good	Adjustable Soft Start	Synchronous Rectifier	Light-Load Efficiency	Over-Current Protection	Thermal Protection	Over-Voltage Protection	
BD9G102G-LB	45	0.5	6 to 42	($V_{IN} \times 0.08$) to ($V_{IN} \times 0.8$) ($V_{IN} \times 0.08 \geq 0.75$)	1	500	Current	—	—	—	—	Recovery	Recovery	✓	SSOP6
BD9G101G	45	0.5	6 to 42	($V_{IN} \times 0.15$) to ($V_{IN} \times 0.7$) ($V_{IN} \times 0.15 \geq 1.0$)	1.5	700	Current	—	—	—	—	Recovery	Recovery	—	SSOP6
BD9227F	22	1	6 to 20	($V_{IN} \times 0.252$) to V_{IN} ($V_{IN} \times 0.252 \geq 1.0$)	1	400	Current	—	—	—	—	Recovery	Recovery	—	SOP8
BD9E105FP4-Z	30	1	4.5 to 28	$V_{IN} \times 0.1V$ or $0.7V$ to $V_{IN} \times 0.8V$	0.5	55	Current	—	—	✓	✓	Recovery	Recovery	✓	TSOT23-6L
BD9E104FJ	30	1	7 to 26	($V_{IN} \times 0.143$) to ($V_{IN} \times 0.5$) ($V_{IN} \times 0.143 \geq 1.0$)	0.57	250	Current	—	—	✓	✓	Recovery	Recovery	✓	SOP-J8
BD9E101FJ-LB	40	1	7 to 36	($V_{IN} \times 0.0855$) to ($V_{IN} \times 0.7$) ($V_{IN} \times 0.0855 \geq 1.0$)	0.57	1,500	Current	—	—	✓	—	Recovery	Recovery	✓	SOP-J8
BD9E100FJ-LB	40	1	7 to 36	($V_{IN} \times 0.15$) to ($V_{IN} \times 0.7$) ($V_{IN} \times 0.15 \geq 1.0$)	1	1,500	Current	—	—	✓	—	Recovery	Recovery	✓	SOP-J8
Nano BD9V101MUF-LB	70	1	16 to 60	0.8 to 5.5	1.9 to 2.3	2,500	Current	✓	—	✓	—	Recovery	Recovery	✓	VQFN24FV4040

*Restrictions depend on input/output voltage conditions.

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Integrated FET Switching Regulators (Buck Converters)

Withstand Voltage 22V or more 1.2A to 3A Single Output Buck Converters

Part No.	Input Voltage Maximum Rating (V)	Output Current (A)	Input Voltage (V)	Output Voltage (V)	Switching Frequency (MHz)	Circuit Current (μ A)	Control Mode	Features							Package
								Power Good	Adjustable Soft Start	Synchronous Rectifier	Light-Load Efficiency	Over-Current Protection	Thermal Protection	Over-Voltage Protection	
BD9E151ANUX	30	1.2	6 to 28	1.0 to $(V_{IN} \times 0.7)$ or $(V_{IN} - 5.0)^{*2}$	0.6	800	Current	—	✓	—	—	Recovery	Recovery	✓	VSON008X2030
BD9701CP-V5	36	1.5	8 to 35	1.0 to $(V_{IN} - 3.0)$	0.1	4,000	Voltage	—	—	—	—	Recovery	Recovery	—	TO220CP-V5
BD9701FP	36	1.5	8 to 35	1.0 to $(V_{IN} - 3.0)$	0.1	4,000	Voltage	—	—	—	—	Recovery	Recovery	—	TO252-5
BD9703CP-V5	36	1.5	8 to 35	1.0 to $(V_{IN} - 3.0)$	0.3	5,000	Voltage	—	—	—	—	Recovery	Recovery	—	TO220CP-V5
BD9703FP	36	1.5	8 to 35	1.0 to $(V_{IN} - 3.0)$	0.3	5,000	Voltage	—	—	—	—	Recovery	Recovery	—	TO252-5
BD9870FPS	36	1.5	8 to 35	1.0 to $0.8 \times (V_{IN} - I_{O} \times R_{ON})$	0.9	5,000	Voltage	—	—	—	—	Recovery	Recovery	—	TO252S-5
BD9873CP-V5	36	1.5	8 to 35	1.0 to $0.8 \times (V_{IN} - I_{O} \times R_{ON})$	0.11	5,000	Voltage	—	—	—	—	Recovery	Recovery	—	TO220CP-V5
BD9G201UEFJ-LB	45	1.5	4.5 to 42.0	0.8 to V_{IN}^{*1}	0.3	1,200	Current	—	—	—	—	Recovery	Recovery	—	HTSOP-J8ES
BD9E200FP4-Z	30	2	4.5 to 26.0	$V_{IN} \times 0.1$ or 0.7V to $V_{IN} \times 0.8V$	0.5	95	Current	—	—	✓	✓	Recovery	Recovery	✓	TSOT23-6L
BD9E201FP4-Z	30	2	4.5 to 28.0	$V_{IN} \times 0.1$ or 0.7V to $V_{IN} \times 0.8V$	0.35	510	Current	—	—	✓	—	Recovery	Recovery	✓	TSOT23-6L
BD9778HFP	36	2	7 to 35	$(V_{IN} \times 0.06)$ to V_{IN} ($V_{IN} \times 0.06) \geq 1.0$	0.05 to 0.50	3,000	Voltage	—	—	—	—	Recovery	Recovery	—	HRP7
New BD9E301UEFJ-LB	40	2.5	7 to 36	$(V_{IN} \times 0.0855)$ to $(V_{IN} \times 0.7)$ ($V_{IN} \times 0.0855) \geq 1.0$	0.57	1,500	Current	—	—	✓	—	Recovery	Recovery	✓	HTSOP-J8
New BD9E300UEFJ-LB	40	2.5	7 to 36	$(V_{IN} \times 0.15)$ to $(V_{IN} \times 0.7)$ ($V_{IN} \times 0.15) \geq 1.0$	1	1,500	Current	—	—	✓	—	Recovery	Recovery	✓	HTSOP-J8
BD9E302EFJ	30	3	7 to 28	$(V_{IN} \times 0.11)$ to $(V_{IN} \times 0.7)$ ($V_{IN} \times 0.11) \geq 1.0$	0.55	290	Current	—	—	✓	✓	Recovery	Recovery	✓	HTSOP-J8
BD9702CP-V5	36	3	8 to 35	1.0 to $(V_{IN} - 3.0)$	0.11	4,000	Voltage	—	—	—	—	Recovery	Recovery	—	TO220CP-V5
BD9874CP-V5	36	3	8 to 35	1.0 to $0.8 \times (V_{IN} - I_{O} \times R_{ON})$	0.11	5,000	Voltage	—	—	—	—	Recovery	Recovery	—	TO220CP-V5
BD9E304FP4-LBZ	39	3	4.5 to 36	$V_{IN} \times 0.1V$ or 0.7V to $V_{IN} \times 0.8V$	0.3	45	Current	—	✓	✓	✓	Recovery	Recovery	✓	TSOT23-8L
New BD9E303UEFJ-LB	40	3	7 to 36	$(V_{IN} \times 0.06)$ to $(V_{IN} \times 0.8)$ ($V_{IN} \times 0.06) \geq 1.0$	0.3	2,200	Current	—	—	✓	—	Recovery	Recovery	✓	HTSOP-J8
BD9G341AEFJ	80	3	12 to 76	1.0 to $(V_{IN} \times 0.9)^{*1}$	0.05 to 0.75	1,500	Current	—	—	—	—	Recovery	Recovery	✓	HTSOP-J8
BD9G341AEFJ-LB	80	3	12 to 76	1.0 to $(V_{IN} \times 0.9)^{*1}$	0.05 to 0.75	1,500	Current	—	—	—	—	Recovery	Recovery	✓	HTSOP-J8

Withstand Voltage 22V or more 4A or more Single Output Buck Converters

Part No.	Input Voltage Maximum Rating (V)	Output Current (A)	Input Voltage (V)	Output Voltage (V)	Switching Frequency (MHz)	Circuit Current (μ A)	Control Mode	Features							Package
								Power Good	Adjustable Soft Start	Synchronous Rectifier	Light-Load Efficiency	Over-Current Protection	Thermal Protection	Over-Voltage Protection	
BD95514MUV	30	4	4.5 to 28.0	0.7 to 5.0	0.2 to 1.0	1,300	H:Reg	✓	✓	✓	✓	✓	✓	✓	VQFN032V5050
Nano BD9F500QUZ	39	3 or 5	4.5 to 36.0	0.6 to 14.0	0.6, 1.0, 2.2	20	On-time	✓	✓	✓	✓	✓	✓	✓	VMMPL6LZ3030
BD9G500UEFJ-LA	80	5	7 to 76	1.0 to $(0.97 \times V_{IN})^{*1}$	0.1 to 0.65	750	Current	—	—	—	—	Recovery	Recovery	✓	HTSOP-J8
BD9F800MUX	30	8	4.5 to 28.0	0.765 to 13.5 ^{*1}	0.3, 0.6	850	On-time	✓	—	✓	—	Recovery	Recovery	—	VQFN11X3535A

Dual Output Buck Converters

Part No.	Input Voltage Maximum Rating (V)	Output Current (A)	Input Voltage (V)	Output Voltage (V)	Switching Frequency (MHz)	Circuit Current (μ A)	Control Mode	Features							Package
								Synchronous Rectifier	Light-Load Efficiency	Over-Current Protection	Thermal Protection	Over-Voltage Protection	—	—	
BD9152MUV	7	I _{O1} : 1.5 I _{O2} : 1.5	4.5 to 5.5	V _{O1} : 3.3 V _{O2} : 0.8 to 2.5	1	500	Current	✓	✓	Latch	Recovery	✓	✓	✓	VQFN020V4040
BD93291EFJ	30	I _{O1} : 2.5 I _{O2} : 1.5	8 to 26	V _{O1} : 5.0 V _{O2} : 0.8 to 4.0	1.5 to 2.5	600	H:Reg	✓	✓	Recovery	Recovery	✓	✓	✓	HTSOP-J8

*1 Restrictions depend on input/output voltage conditions.

*2 The lower voltage is output.

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Integrated FET Switching Regulators (Boost and Buck-Boost Converters)

Single Output Boost and Buck-Boost Converters

Part No.	Input Voltage Maximum Rating (V)	Switch Current Limit (mA)	Input Voltage (V)	Output Voltage (V)	Switching Frequency (MHz)	Circuit Current (μ A)	Control Mode	Features							Package		
								Boost	Buck-Boost	SEPIC	Inverting	Synchronous Rectifier	Light-Load Efficiency	Over-Current Protection	Thermal Protection		
BU33DV5G	6	10	1.75 to 4.50	3.3	0.1	250	Current	✓	—	—	—	✓	—	Recovery	✓	SSOP5	
BU33DV7NUX	7	300	1.8 to 5.5	3.3	0.6	25	Current	✓	—	—	—	✓	✓	✓	✓	VSON010V3030	
BU34DV7NUX	7	300	1.8 to 5.5	3.4	0.6	25	Current	✓	—	—	—	✓	✓	✓	✓	VSON010V3030	
BU33UV7NUX	6.5	500	0.6 to 4.5	3.3	0.8	7	Current	✓	—	—	—	✓	✓	✓	✓	VSON010X3020	
BD8152FVM	7	1,400	2.5 to 5.5	V_{IN} to 14	0.6/1.2	1,200	Current	✓	✓	✓	—	—	—	—	—	MSOP8	
BD8158FVM	7	1,400	2.1 to 4.0	V_{IN} to 14	0.6/1.2	1,200	Current	✓	✓	✓	—	—	—	—	—	MSOP8	
BD83070GWL	6	2,000	2.0 to 5.5	2.5 or 3.3	1.5	2.8	Current	—	✓	—	—	✓	✓	✓	✓	UCSP50L1C	
BD8306MUV	7	2,000	1.8 to 5.5	1.8 to 5.2	0.3 to 2.0	500	Voltage	✓	✓	—	—	✓	—	—	Latch	✓	VQFN016V3030
BD8311NUV	14	2,500	3.5 to 11.0	4 to 11	1.2	600	Voltage	✓	—	—	—	—	—	—	Latch	✓	VSON010V3030
BD8314NUV	14	2,500	3 to 12	4 to 12	1.2	600	Voltage	✓	—	—	—	—	—	—	Latch	✓	VSON010V3030

Dual Output Boost and Buck-Boost Converters

Part No.	Input Voltage Maximum Rating (V)	Input Voltage (V)	Output Voltage (V)	Switching Frequency (MHz)	Circuit Current (μ A)	Control Mode	Features							Package		
							Boost	Buck-Boost	SEPIC	Inverting	Synchronous Rectifier	Light-Load Efficiency	Over-Current Protection	Thermal Protection		
BD8317GWL	7	2.5 to 5.5	V _{O1} : -9.0 to -1.0 V _{O2} : V_{IN} to 18	0.8	500	Current	✓	—	—	✓	—	—	—	Latch	✓	UCSP50L1
BD8316GWL	7	2.5 to 5.5	V _{O1} : -9.0 to -1.0 V _{O2} : V_{IN} to 18	1.6	500	Current	✓	—	—	✓	—	—	—	Latch	✓	UCSP50L1
BD83854GWL	7	2.5 to 4.5	±5.4	1.0/0.5	2,500	Current	✓	—	—	✓	✓	✓	✓	Latch	✓	UCSP50L1C
BD83854MUV	7	2.5 to 4.5	±5.4	1.0/0.5	2,500	Current	✓	—	—	✓	✓	✓	✓	Latch	✓	VQFN20PV3535

*Restrictions depend on input/output voltage conditions.

Dual Output Buck Controllers

Part No.	Input Voltage Maximum Rating (V)	Input Voltage (V)	Supply Voltage (V)	Output Voltage (V)	Switching Frequency (MHz)	Circuit Current (μ A)	Control Mode	Features								Package
								Power Good	Externally Synchronizable	Adjustable Soft Start	Synchronous Rectifier	Light-Load Efficiency	Over-Current Protection	Thermal Protection		
BD95602MUV-LB	30	5.5 to 28.0	—	1.0 to 5.5	0.15 to 0.50	250	H ³ Reg	✓	—	✓	✓	✓	✓	✓	Latch Recovery	VQFN032V5050
BD9848FV	36	3.6 to 35.0	—	1.0 to V_{IN}^*	0.1 to 1.5	3,000	Voltage	—	—	✓	—	—	—	—	Recovery Recovery	SSOP-B20

*Restrictions depend on input/output voltage conditions.

External FET Switching Regulators (Boost and Buck-Boost Controllers)**Single Output Boost and Buck-Boost Controllers**

Part No.	Input Voltage Maximum Rating (V)	Input Voltage (V)	Output Voltage (V)	Switching Frequency (MHz)	Circuit Current (μ A)	Control Mode	Features								Package
							Boost	Buck-Boost	Inverting	Buck	Externally Synchronizable	Adjustable Soft Start	Synchronous Rectifier	Over-Current Protection	Thermal Protection
BD8303MUV	15	2.7 to 14.0	1 to 12	0.2 to 1.0	650	Voltage	—	✓	—	—	—	—	✓	Latch Recovery	VQFN016V3030
BD9306AFVM	20	4.2 to 18.0	V_{IN} to $(V_{IN}/0.3)$	0.1 to 0.8	1,500	Voltage	✓	—	—	—	—	—	—	Latch Recovery	MSOP8
BD9615MUV-LB	62	3.5 to 60.0	V_{IN} to $(V_{IN}/0.2)$	0.1 to 2.5	2,000	Voltage	✓	—	—	—	✓	✓	—	Recovery Recovery	VQFN16KV3030

Dual Output Boost and Buck-Boost Controllers

Part No.	Input Voltage Maximum Rating (V)	Input Voltage (V)	Output Voltage (V)	Switching Frequency (MHz)	Circuit Current (μ A)	Control Mode	Features								Package	
							Boost	Buck-Boost	Inverting	Buck	Externally Synchronizable	Adjustable Soft Start	Synchronous Rectifier	Over-Current Protection	Thermal Protection	
BD9851EFV	20	4 to 18	1 or more	0.01 to 0.3	2,500	Voltage	✓	—	✓	—	—	—	✓	—	Latch Recovery	HTSSOP-B20
BA9743AFV	36	3.6 to 35.0	2.505 or more	0.01 to 0.8	1,600	Voltage	✓	—	✓	✓	—	—	✓	—	Latch Recovery	SSOP-B16
BA9744FV	36	2.5 to 35.0	1.222 or more	0.01 to 0.8	3,900	Voltage	✓	—	✓	✓	—	—	✓	—	Latch Recovery	SSOP-B16
BA9741F	36	3.6 to 35.0	2.5 or more	0.01 to 0.8	1,600	Voltage	✓	—	✓	✓	—	—	✓	—	Latch Recovery	SOP16
BA9741FS	36	3.6 to 35.0	2.5 or more	0.01 to 0.8	1,600	Voltage	✓	—	✓	✓	—	—	✓	—	Latch Recovery	SSOP-A16

For Automotive Switching Regulators**Single Output Primary Integrated Switch Buck Converters**

Part No.	Output FET	Input Voltage Maximum Rating (V)	Input Current (A)	Output Voltage (V)	Output Voltage Accuracy (%)	Circuit Current (μ A)	Switching Frequency (MHz)	Control Mode	Features								Operating Temperature (°C)	Package	ComfySIL™ Functional Safety*1	Automotive Grade AEC-Q100
									Power Good	Sync	Adjustable Soft Start	Synchronous Rectification	Light-Load Efficiency	Over-Voltage Protection	Spread Spectrum					
Nano BD9V100MUF-C	600m Ω	400m Ω	70	1	16 to 60	Adj. (0.8 to 5.5)	± 2.0	2,500	1.9 to 2.3	Current	✓	—	—	✓	—	—	-40 to +125	VQFN24FV4040	FSs	YES
Nano BD9P105EFV-C	210m Ω	140m Ω	42	1	3.5 to 40	Adj. (0.8 to 5.5)	± 1.75	15	2.2	Current	✓	✓	—	✓	✓	✓	-40 to +125	HTSSOP-B20	FSs	YES
Nano BD9P105MUF-C	200m Ω	130m Ω	42	1	3.5 to 40	Adj. (0.8 to 8.5)	± 1.75	15	2.2	Current	✓	✓	—	✓	✓	✓	-40 to +125	VQFN20FV4040	FSs	YES
Nano BD9P108MUF-C	200m Ω	130m Ω	42	1	3.5 to 40	Adj. (0.8 to 8.5)	± 1.75	15	2.2	Current	✓	✓	—	✓	✓	✓	-40 to +125	VQFN24FV4040	FSs	YES
Nano BD9P135EFV-C	210m Ω	140m Ω	42	1	3.5 to 40	3.3	± 1.75	15	2.2	Current	✓	✓	—	✓	✓	✓	-40 to +125	HTSSOP-B20	FSs	YES
Nano BD9P135MUF-C	200m Ω	130m Ω	42	1	3.5 to 40	3.3	± 1.75	15	2.2	Current	✓	✓	—	✓	✓	✓	-40 to +125	VQFN20FV4040	FSs	YES
Nano BD9P155EFV-C	210m Ω	140m Ω	42	1	3.5 to 40	5	± 1.75	15	2.2	Current	✓	✓	—	✓	✓	✓	-40 to +125	HTSSOP-B20	FSs	YES
Nano BD9P155MUF-C	200m Ω	130m Ω	42	1	3.5 to 40	5	± 1.75	15	2.2	Current	✓	✓	—	✓	✓	✓	-40 to +125	VQFN20FV4040	FSs	YES
BD90610UEFJ-C	Pch 160m Ω	—	42	1.25	3.5 to 36.0	Adj. (0.8 to V_{IN})	± 2.0	2,200	0.05 to 0.6	Current	—	✓	—	—	—	—	-40 to +125	HTSOP-J8	FSs	YES
New BD9G201UEFJ-M	140m Ω	—	45	1.5	4.5 to 42.0	Adj. (0.8 to V_{IN})	± 2.0	1,200	0.3	Current	—	✓	—	—	—	—	-40 to +105	HTSOP-J8ES	FSs	YES
Nano BD8P250MUF-C	110m Ω	110m Ω	42	2	3.5 to 36.0	5.0	± 2.0	8	2.2	Current	✓	—	—	✓	✓	✓	-40 to +125	VQFN24FV4040	FSs	YES
Nano BD9P205EFV-C	150m Ω	100m Ω	42	2	3.5 to 40.0	Adj. (0.8 to 8.5)	± 1.75	15	2.2	Current	✓	✓	—	✓	✓	✓	-40 to +125	HTSSOP-B20	FSs	YES
Nano BD9P205MUF-C	140m Ω	90m Ω	42	2	3.5 to 40.0	Adj. (0.8 to 8.5)	± 1.75	15	2.2	Current	✓	✓	—	✓	✓	✓	-40 to +125	VQFN24FV4040	FSs	YES
Nano BD9P208MUF-C	140m Ω	90m Ω	42	2	3.5 to 40.0	Adj. (0.8 to 8.5)	± 1.75	15	2.2	Current	✓	✓	—	✓	✓	✓	-40 to +125	VQFN24FV4040	FSs	YES
Nano BD9P235EFV-C	150m Ω	100m Ω	42	2	3.5 to 40.0	3.3	± 1.75	15	2.2	Current	✓	✓	—	✓	✓	✓	-40 to +125	HTSSOP-B20	FSs	YES
Nano BD9P235MUF-C	140m Ω	90m Ω	42	2	3.5 to 40.0	3.3	± 1.75	15	2.2	Current	✓	✓	—	✓	✓	✓	-40 to +125	VQFN20FV4040	FSs	YES
Nano BD9P255EFV-C	150m Ω	100m Ω	42	2	3.5 to 40.0	5	± 1.75	15	2.2	Current	✓	✓	—	✓	✓	✓	-40 to +125	HTSSOP-B20	FSs	YES
Nano BD9P255MUF-C	140m Ω	90m Ω	42	2	3.5 to 40.0	5	± 1.75	15	2.2	Current	✓	✓	—	✓	✓	✓	-40 to +125	VQFN20FV4040	FSs	YES
Nano BD9P206EFV-C	150m Ω	100m Ω	42	2	3.5 to 40.0	0.8 to 8.5	± 1.75	15	0.44	Current	✓	✓	—	✓	✓	✓	-40 to +125	HTSSOP-B20	FSs	YES
Nano BD9P236EFV-C	150m Ω	100m Ω	42	2	3.5 to 40.0	3.3	± 1.75	15	0.44	Current	✓	✓	—	✓	✓	✓	-40 to +125	HTSSOP-B20	FSs	YES
Nano BD9P256EFV-C	150m Ω	100m Ω	42	2	3.5 to 40.0	5.0	± 1.75	15	0.44	Current	✓	✓	—	✓	✓	✓	-40 to +125	HTSSOP-B20	FSs	YES
Nano BD9P233MUF-C	Pch 120m Ω	42m Ω	42	2	3 to 36	3.3	± 2.0	26	0.2 to 2.4	Current	✓	✓	✓	✓	✓	✓	-40 to +125	VQFN32FAV050	FSs	YES
BD99010EFV-M	Pch 170m Ω	130m Ω	42	2	3.5 to 36.0	3.3	± 2.0	22	0.2 to 0.5	Current	—	—	—	✓	✓	✓	-40 to +105	HTSSOP-B24	FSs	YES
BD99011EFV-M	Pch 170m Ω	130m Ω	42	2	3.5 to 36.0	5.0	± 2.0	22	0.2 to 0.5	Current	—	—	—	✓	✓	✓	-40 to +105	HTSSOP-B24	FSs	YES
BD9060F-C	300m Ω	—	42	2	5 to 35	Adj. (0.8 to V_{IN})	± 2.0	3,700	0.05 to 0.5	Voltage	—	✓	—	—	—	—	-40 to +125	SOP8	FSs	YES
BD9060HFP-C	300m Ω	—	42	2	5 to 35	Adj. (0.8 to V_{IN})	± 2.0	3,700	0.05 to 0.5	Voltage	—	✓	—	—	—	—	-40 to +125	HRP7	FSs	YES
BD90620UEFJ-C	Pch 160m Ω	—	42	2.5	3.5 to 36.0	Adj. (0.8 to V_{IN})	± 2.0	2,200	0.05 to 0.6	Current	—	✓	—	—	—	—	-40 to +125	HTSOP-J8	FSs	YES
BD90620HFP-C	Pch 160m Ω	—	42	2.5	3.5 to 36.0	Adj. (0.8 to V_{IN})	± 2.0	2,200	0.05 to 0.6	Current	—	✓	—	—	—	—	-40 to +125	HRP7	FSs	YES
Nano BD9P305EFV-C	135m Ω	90m Ω	42	3	3.5 to 40.0	Adj. (0.8 to 8.5)	± 1.75	15	0.44/2.2	Current	✓	✓	—	✓	✓	✓	-40 to +125	HTSSOP-B20	FSs	YES
Nano BD9P308MUF-C	125m Ω	80m Ω	42	3	3.5 to 40.0	Adj. (0.8 to 8.5)	± 1.75	15	0.44/2.2	Current	✓	✓	—</td							

For Automotive Switching Regulators

Part No.	Output FET		Input Voltage Maximum Rating (V)	Output Current (A)	Input Voltage (V)	Output Voltage (V)	Output Voltage Accuracy (%)	Circuit Current (μ A)	Switching Frequency (MHz)	Control Mode	QuiCur™ technology	Features							Operating Temperature (°C)	Package	ComfySIL™ Functional Safety*1	Automotive Grade AEC-Q100	
	Upper (Typ)	Bottom (Typ)										Power Good	Sync	Adjustable Soft Start	Synchronous Rectification	Light-Load Efficiency	Over-Voltage Protection	Output Discharge					
BD9S000NUX-C	Pch (270mΩ)	Nch (180mΩ)	7	0.6	2.7 to 5.5	Adj. (0.8 to V_{IN})	±1.5	350	2.2	Current	—	✓	—	✓	✓	—	✓	✓	—	-40 to +125	VSON008X2020	FSs	YES
BD9SD11NUX-C	Pch (270mΩ)	Nch (180mΩ)	7	0.6	2.7 to 5.5	1.15	±1.5	400	2.2	Current	—	✓	—	✓	✓	—	✓	—	—	-40 to +125	VSON008X2020	FSs	YES
BD9S012NUX-C	Pch (270mΩ)	Nch (180mΩ)	7	0.6	2.7 to 5.5	1.1	±1.5	350	2.2	Current	—	✓	—	✓	✓	—	✓	✓	—	-40 to +125	VSON008X2020	FSs	YES
BD9S100NUX-C	Pch (270mΩ)	Nch (180mΩ)	7	1	2.7 to 5.5	Adj. (0.8 to V_{IN})	±1.5	350	2.2	Current	—	✓	—	✓	✓	—	✓	✓	—	-40 to +125	VSON008X2020	FSs	YES
BD9S110NUX-C	Pch (270mΩ)	Nch (180mΩ)	7	1	2.7 to 5.5	1.2	±1.5	400	2.2	Current	—	✓	—	✓	✓	—	✓	✓	—	-40 to +125	VSON008X2020	FSs	YES
BD9S111NUX-C	Pch (270mΩ)	Nch (180mΩ)	7	1	2.7 to 5.5	1.8	±1.5	400	2.2	Current	—	✓	—	✓	✓	—	✓	✓	—	-40 to +125	VSON008X2020	FSs	YES
BD9S109NUX-C	Pch (150mΩ)	Nch (95mΩ)	7	1	2.7 to 5.5	Adj. (0.8 to V_{IN})	±1.5	400	2.2	Current	—	✓	—	✓	✓	—	✓	✓	—	-40 to +125	VSON008X2020	FSs	YES
BD9S209NUX-C	Pch (150mΩ)	Nch (95mΩ)	7	2	2.7 to 5.5	Adj. (0.8 to V_{IN})	±1.5	400	2.2	Current	—	✓	—	✓	✓	—	✓	✓	—	-40 to +125	VSON008X2020	FSs	YES
BD9S201NUX-C	Pch (150mΩ)	Nch (95mΩ)	7	2	2.7 to 5.5	Adj. (0.8 to V_{IN})	±1.5	400	2.2	Current	—	✓	—	✓	✓	—	✓	✓	—	-40 to +125	VSON008X2020	FSs	YES
BD9S231NUX-C	Pch (150mΩ)	Nch (95mΩ)	7	2	2.7 to 5.5	Adj. (0.8 to V_{IN})	±1.5	400	2.2	Current	—	✓	—	✓	✓	—	✓	—	—	-40 to +125	VSON008X2020	FSs	YES
BD9S200MUF-C	Nch (35mΩ)	Nch (35mΩ)	7	2	2.7 to 5.5	Adj. (0.8 to V_{IN} or 0.8)	±1.5	650	2.2	Current	—	✓	✓	✓	✓	✓	✓	✓	—	-40 to +125	VQFN16FV3030	FSs	YES
BD9S300MUF-C	Nch (35mΩ)	Nch (35mΩ)	7	3	2.7 to 5.5	Adj. (0.8 to V_{IN} or 0.8)	±1.5	650	2.2	Current	—	✓	✓	✓	✓	✓	✓	✓	—	-40 to +125	VQFN16FV3030	FSs	YES
BD9S400MUF-C	Nch (35mΩ)	Nch (35mΩ)	7	4	2.7 to 5.5	Adj. (0.8 to V_{IN} or 0.8)	±1.5	650	2.2	Current	—	✓	✓	✓	✓	✓	✓	✓	—	-40 to +125	VQFN16FV3030	FSs	YES
Nano BD9S402MUF-C	Pch (60mΩ)	Nch (35mΩ)	7	4	2.7 to 5.5	Adj. (0.6 to V_{IN} × 0.75)	±1.0	1,800	2.2	Current	✓	✓	—	✓	✓	—	✓	✓	—	-40 to +125	VQFN16FV3030	FSs	YES

Single Output Secondary Integrated FET Switch Buck-Boost Converters (Quick Buck Booster™)

Part No.	Output FET		Input Voltage Maximum Rating (V)	Output Current (A)	Input Voltage (V)	Output Voltage (V)	Output Voltage Accuracy (%)	Circuit Current (μ A)	Switching Frequency (MHz)	Control Mode	QuiCur™ technology	Features							Operating Temperature (°C)	Package	ComfySIL™ Functional Safety*1	Automotive Grade AEC-Q100
	Upper (Typ)	Bottom (Typ)										Power Good	Sync	Adjustable Soft Start	Synchronous Rectification	Light-Load Efficiency	Over-Voltage Protection	Spread Spectrum				
BD8P250MUF-C + BD90302NUF-C	Nch (110mΩ)	Nch (110mΩ)	42	0.8	2.7 to 36	5.0	±2.0	8	2.2	Current	✓	—	—	✓	✓	✓	✓	✓	-40 to +125	VQFN24FV4040	FSs	YES
	Pch (65mΩ)	Nch (65mΩ)	7	—	—	—	—	65	—	—	—	—	—	—	—	—	—	—	VSON10FV3030	YES		

Dual Output Primary External FET Switch Buck Controllers

Part No.	Output FET		Input Voltage Maximum Rating (V)	Output Current (A)	Input Voltage (V)	Output Voltage (V)	Output Voltage Accuracy (%)	Circuit Current (μ A)	Switching Frequency (MHz)	Control Mode	QuiCur™ technology	Features							Operating Temperature (°C)	Package	ComfySIL™ Functional Safety*1	Automotive Grade AEC-Q100
	Upper (Typ)	Bottom (Typ)										Power Good	Sync	Adjustable Soft Start	Synchronous Rectification	Light-Load Efficiency	Over-Voltage Protection	Spread Spectrum				
BD9015KV-M	Ext. Nch	Ext. Nch	35	—	3.9 to 30.0	Adj. (0.8 to 10)	±1.5	4,000	0.25 to 0.55	Current	✓	✓	✓	✓	—	✓*	—	-40 to +105	VQFP48C	FSs	YES	
BD9016KV-M	Ext. Nch	Ext. Nch	35	—	3.9 to 30.0	Adj. (0.8 to 10)	±1.5	4,000	0.25 to 0.55	Current	✓	✓	✓	✓	—	✓*	—	-40 to +105	VQFP48C	FSs	YES	

Single Output Primary External FET Switch Buck-Boost Controller

Part No.	Output FET		Input Voltage Maximum Rating (V)	Output Current (A)	Input Voltage (V)	Output Voltage (V)	Output Voltage Accuracy (%)	Circuit Current (μ A)	Switching Frequency (MHz)	Control Mode	QuiCur™ technology	Features							Operating Temperature (°C)	Package	ComfySIL™ Functional Safety*1	Automotive Grade AEC-Q100
	Upper (Typ)	Bottom (Typ)										Power Good	Sync	Adjustable Soft Start	Synchronous Rectification	Light-Load Efficiency	Over-Voltage Protection	Spread Spectrum				
BD9035AEFV-C	Ext. Pch	Ext. Nch	40	—	3.8 to 30.0	Adj.	±1.5	7,000	0.1 to 0.6	Voltage	✓	✓	✓	—	—	✓	—	-40 to +125	HTSSOP-B24	FSs	YES	

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*1 For more information about "ComfySIL™ Functional Safety", please refer to the reverse side of the cover.

*2 When over voltage is detected, Bottom FET is OFF

*3 When over voltage is detected, Bottom FET is ON

 **Nano** Mark is a product using Nano Pulse Control™ technology, Nano Energy™ technology or Nano Cap™ technology. ROHM's innovative "Nano" power supply technologies achieve breakthrough energy savings and miniaturization.

 **Nano** Mark is a product equipped with Nano Pulse Control™ ultra-high-speed pulse control technology. Nano Energy™, Nano Pulse Control™ and Nano Cap™ is a trademark or a registered trademark of ROHM Co., Ltd.

Power Management ICs for System (PMICs)

System Power Supply ICs for Car Audio	P.49	System Power Supply ICs for LCD Panels	P.49
Programmable Gamma-Voltage Generator/Gamma Buffer Amplifiers	P.50	System Power Supply ICs for DSC/DVCs	P.50
System Power Supply ICs for Automotive	P.50	System Power Supply ICs for Industrial Equipment/Consumer	P.51

Power Management ICs for System (PMICs)

System Power Supply ICs for Car Audio

Part No.	Supply Voltage (V)	Function				Input I/F	Package	ComfySIL™ Functional Safety*1	Automotive Grade AEC-Q100				
		Reference Voltage (V)	Output Current (A)	Protection Circuit									
				Over-Current	Temperature								
BD49101AEFS-M*2/ BD49101ARFS-M*3	5.5 to 25.0	Buck DC-DC1	Controller	0.8	—	Current Limit with Short Current Protection Circuit Foldback	I ² C	HTSSOP-A44 (EXP-PAD down HTSSOP-A44 package) HTSSOP-A44R (EXP-PAD up HTSSOP-A44R package)	FSs/FSs YES				
		Buck DC-DC2	Low Power Standby REG	0.8	1.0								
		REG1	Secondly	0.6	0.5								
		REG2	—	0.8	0.1								
		REG3	Secondly	0.8	0.3								
		REG4	Secondly, Voltage Calibration	0.8	1.5 (Variable)								
		REG5	—	0.8	0.1								
		High Side Switch	—	—	0.5								
		+B Detection Circuit	Over/Under Current Detection	—	—								

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*1 For more information about "ComfySIL™ Functional Safety", please refer to the reverse side of the cover.

*2 BD49101AEFS-M: EXP-PAD down HTSSOP-A44 package

*3 BD49101ARFS-M: EXP-PAD up HTSSOP-A44R package

System Power Supply ICs for LCD Panels

Multi-Channel System Power Supply ICs for Small- to Medium-Sized Panels									
Part No.	Supply Voltage (V)	Operating Temperature (°C)	Operating Frequency (MHz)	Output for Source Voltage (V)	Output for Logic Voltage (V)	Output for Gate Voltage (V)	Start up Sequence Circuit	V COM (ch)	Package
BD8163EFV	2.1 to 6.0	-40 to +125	1.1	up to 18.0	2.5	Variable	✓	—	HTSSOP-B24
BD9862MUV	1.8 to 5.5	-40 to +85	0.7 to 1.4	up to 15.0	—	Variable	✓	—	VQFN024W4040

Multi-Channel System Power Supply ICs for Large Panels

Part No.	Supply Voltage (V)	Operating Temperature (°C)	Operating Frequency (MHz)	Output for Source Voltage (V)	Output for Logic Voltage 1	Output for Logic Voltage 2	Output for Gate Voltage	Start up Sequence Circuit	V COM (ch)	Package
BM81110MUW	8.6 to 14.7	-40 to +85	0.75/1.0	up to 19.8	Variable	Variable	Variable	✓	—	VQFN40W6060A

Automotive Panel Power Management ICs

Part No.	Supply Voltage (V)	Operating Temperature (°C)	Operating Frequency (MHz)	Output for Source Voltage1 (V)	Output for Source Voltage2 (V)	Output for Logic Voltage (V)	Output for Gate Voltage (V)	Start up Sequence Circuit	V COM (ch)	Package	ComfySIL™ Functional Safety*1	Automotive Grade AEC-Q100
BD81842MUV-M	2.0 to 5.5	-40 to +105	2.1	up to 18.0	—	—	Variable	✓	1	VQFN24SV4040	FSs	YES
BM81810MUV-M	2.6 to 5.5	-40 to +105	0.525/1.05/2.1	5.0 to 17.0 0.1V step	—	0.9 to 3.4 50mV step	8.0 to 35.0 0.2V step/ -14.0 to -4.0 0.1V step	✓	1	VQFN32SV5050	FSs	YES
BM81810MUF-M*2												
BD81870EFV-M	2.5 to 5.5	-40 to +105	2.1	up to 18.0	V _{DD} -13.0 to -1.0	—	—	✓	—	HTSSOP-B20	FSs	YES
New BD81870MUF-M												

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*1 For more information about "ComfySIL™ Functional Safety", please refer to the reverse side of the cover.

*2 Differences between BM81810MUF-M and BM81810MUV-M: BM81810MUF-M is a Wettable flank package.

Programmable Gamma-Voltage Generator/Gamma Buffer Amplifiers

High-precision Gamma Correction ICs with Built-in DAC

Part No.	Supply Voltage (V)		Operating Temperature (°C)	Clock Frequency (MHz)	DAC (bit)	Serial I/F	Auto Data Read	V COM (ch)	Buffer for Gamma (ch)	Package
	Gamma Collection Input	Logic								
BD8149MUV	10 to 18	2.1 to 3.6	-25 to +85	0.4	10	I ² C BUS	Built-in	—	12	VQFN032V5050

High-precision Gamma Correction IC with Built-in DAC for Automotive Panels

Part No.	Supply Voltage (V)		Operating Temperature (°C)	Clock Frequency (MHz)	DAC (bit)	Serial I/F	Auto Data Read	V COM (ch)	Buffer for Gamma (ch)	Package	ComfySIL™ Functional Safety*1	Automotive Grade AEC-Q100
	Gamma Collection Input	Logic										
BD81849MUV-C	10 to 18	2.1 to 3.6	-40 to +105	0.4	10	I ² C BUS	Built-in	—	12	VQFN32SV5050	FSs	YES

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*1 For more information about "ComfySIL™ Functional Safety", please refer to the reverse side of the cover.

System Power Supply ICs for DSC/DVCs

System Switching Regulator ICs for Digital Video Cameras/for DSLRs

Part No.	ch	Operating Frequency (MHz)	Supply Voltage (V)	Reference Voltage (V)	Reference Voltage Precision (%)	Step up (ch)	Step Down (ch)	Buck-Boost (ch)	Inverting/Stepdown (ch)	Built-in FET (ch)	Synchronous Rectifier (ch)	Load Switch (ch)	Package (mm)
BD9865MWV	4	0.6 to 1.5	4 to 14	1.0	±1.0	—	2	1	1	4	3	—	UQFN040V5050
				0.8	±1.25								
BD9866GUL	4	0.6 to 1.5	4 to 14	0.6	±1.66	—	3	1	—	4	4	—	VCSP50L3 3.75x3.75, H=Max 0.55
				0.8	±1.25								

Strobe Charge Control ICs

Part No.	Supply Voltage (V _{cc}) (V)	Peak Current (A)	Full Charge Detection Voltage (V)	100nsec pulse AC Full Charge Detection Voltage	Full Terminal Output		Power Transistor Saturation Voltage I _{sw} =1A (V)		IGBT OUT N (mA)	IGBT OUT P (mA)	Package
BD4234NUX	2.5 to 5.5	0.5 to 2.0	1±1.1%	1.0V –1.1% to +1.6%	Nch Open drain	—	0.4	—	30	140	VSON010X3020

System Power Supply ICs for Automotive

2ch System Power Supply IC for Automotive

Part No.	Supply Voltage (V)	Operating Frequency (kHz)	Operating Temperature (°C)	Sequence	Output Voltage Precision (%)	Output		Function					Package	ComfySIL™ Functional Safety*1	Automotive Grade AEC-Q100
						ch	V _{out} /Max I _{out}	Over-Current Protection	TSD	Under/Over Voltage Detection	Reset	WDT			
BD39012EFV-C	4 to 36 (Rating 45V)	200 to 600	-40 to +125	External Control EN1: DC-DC EN2: LDO	±2	1ch (DC-DC)	Synchronous Buck DC-DC Converter (V _{out} variable, 1A)	✓	✓	✓	—	WINDOW WDT	HTSSOP-B24	FSs	YES
						2ch (LDO)	LDO (5V, 0.4A)								

3ch System Power Supply IC for Automotive (ADAS)

Part No.	Supply Voltage (V)	Switching Frequency (MHz)	Operating Temperature (°C)	Output Voltage Precision (%)	DC-DC Output			Function			Protection Circuit	Package	ComfySIL™ Functional Safety*1	Automotive Grade AEC-Q100		
					Item	DC-DC1 Buck	DC-DC2 Buck	DC-DC3 Buck	DC-DC4 Boost	Reset	Power Good	External LDO CTRL				
BD86852MUF-C	4 to 18	2.2	-40 to +125	2	Output Voltage (V)	3.3 or 3.9	1.1 or 1.2	1.8	—	✓	✓	✓	OVP, OCP, UVLO TSD	VQFN24FV4040	FSs	YES
					Output Current (A)	2	1	1	5	✓	WINDOW WDT	OVP, OCP, SCP, T-Warning				

4ch System Power Supply IC for Automotive (ADAS)

Part No.	Supply Voltage (V)	Switching Frequency (MHz)	Operating Temperature (°C)	Output Voltage Precision (%)	DC-DC Output					Protection Circuit	Package	ComfySIL™ Functional Safety*1	Automotive Grade AEC-Q100		
					Item	DC-DC1 Buck	DC-DC2 Buck	DC-DC3 Buck	DC-DC4 Boost	Reset	WDT				
BD39031MUF-C	4 to 28	2.2	-40 to +125	±1.5 (DC-DC4 ±2.0)	Output Voltage (V)	3.3	1.2	0.8 to 2.5	5	✓	WINDOW WDT	OVP, OCP, SCP, T-Warning	VQFN40FV6060	FSs	YES
					Output Current (A)	Ext.FET	2.5	2.5	0.5						

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*1 For more information about "ComfySIL™ Functional Safety", please refer to the reverse side of the cover.

Part No.	Supply Voltage (V)	Switching Frequency (MHz)	Output Voltage Precision (%)	Item	DC-DC Output				LDO	DC (SW)	Reset	WDT	Monitoring Function	Protection Circuit	Operating Temperature (°C)	Package	ComfySIL™ Functional Safety*1	Automotive Grade AEC-Q100
					DC-DC1 Boost	DC-DC2 Buck	DC-DC3 Buck	DC-DC4 Buck										
BD9573MUF-M	3 to 3.6	2.25	±1.8	Output Voltage (V)	5	1.8	1.35 or 1.5	1.03	2.5	VIN7	✓	WINDOW WDT	—	UVLO, SCP, OCP, OVP, UVP, TSD	-40 to +105	VQFN56FV8080	FSs	YES
				Output Current (A)	0.2	1	2	5.2	0.15	0.3	✓	WINDOW WDT	OVD/UVD TW	UVLO, SCP, OCP, OVP, UVP, TSD	-40 to +125	VQFN56FV8080	FSm	YES
PMICs for Automotive Camera																		
Part No.	Supply Voltage (V)	Switching Frequency (MHz)	Item	DC-DC Output				LDO		Operating Temperature (°C)	Package	ComfySIL™ Functional Safety*1	Automotive Grade AEC-Q100					
				CH1	CH2	CH3	CH4	CH1	CH2									
BD868A0MUF-C	4 to 18	2.25	Output Voltage (V)	3.7V	1.1V	1.8V	3.3V	-40 to +125				VQFN20FV3535	FSp	YES				
			Output Current (A)	2.0A	1.2A	1.0A	0.3A					VQFN20FV3535	FSp	YES				
BD868B0MUF-C			Output Voltage (V)	3.7V	1.1V	1.8V	3.3V					VQFN20FV3535	FSp	YES				
			Output Current (A)	2.0A	1.2A	0.4A	0.3A					VQFN20FV3535	FSp	YES				
BD868C0MUF-C			Output Voltage (V)	3.3V	1.2V	1.8V	2.8V					VQFN20FV3535	FSp	YES				
			Output Current (A)	2.0A	1.2A	1.0A	0.3A					VQFN20FV3535	FSp	YES				
BD868C1MUF-C			Output Voltage (V)	3.8V	1.1V	1.8V	3.3V					VQFN20FV3535	FSp	YES				
			Output Current (A)	2.0A	1.2A	1.0A	0.3A					VQFN20FV3535	FSp	YES				
BD868D0MUF-C			Output Voltage (V)	3.3V	1.2V	1.8V	2.8V					VQFN20FV3535	FSp	YES				
			Output Current (A)	2.0A	1.2A	1.0A	0.3A					VQFN20FV3535	FSp	YES				

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★: Under Development

*1 For more information about "ComfySIL™ Functional Safety", please refer to the reverse side of the cover.

System Power Supply ICs for Industrial Equipment/Consumer

Power Management IC (PMIC) for Intel® Atom™ E3800 series Platform																				
Part No.	Supply Voltage (V)	Item	DC-DC Output						SW	LDO output								I/F	Protection Circuit	Package (mm)
			DC-DC1 VIP0A	DC-DC2 VIP0B	DC-DC3 VIP0A	DC-DC4 VDDQ	DC-DC5 VIP0SS	DC-DC6 VCC		LDO1 VRTC	LDO2 V3P3A	LDO3 V3P3S	LDO4 VIP24A	LDO5 VSDIO	LDO6 VIP24S	LDO7 VTT	LDO8 VSFR			
BD9596BMWV	3.5 to 5.5	Output Voltage (V)	1.0	1.0	1.8	1.2 to 1.6	1.05	0.5 to 1.2	1.8	3.3	3.3	3.3	1.24	1.8 or 3.3	1.24	VDDO/2	1.35	IMVP7	UVLO, TSD, SCP, OVP	UQFN88MV0100 10x10x1.0
		Output Current (mA)	700	2,600	1,800	4,500	1,300	13,000		800	120	100	500	50	20	50	530			

Power Management ICs for NXP i.MX series Applications Processors

Part No.	Correspondence	Item	DC-DC Output						LDO Output								White LED Driver	Lithium Ion Charging Control	Coulomb Counter	RTC	GPO (ch)	I²C I/F	Package	
			BUCK1	BUCK2	BUCK3	BUCK4	BUCK5	BUCK6	BUCK7	BUCK8	LDO1	LDO2	LDO3	LDO4	LDO5	LDO6	LDO7	LDOSNVS	LDOLPSR	LDODVREF				
BD71815AGW	i.MX 7Solo i.MX 7Dual	Output Voltage (V)	0.8 to 2.0	0.8 to 2.0	1.2 to 2.7	1.0 to 3.3	1.8 to 3.3	—	—	—	0.8 to 3.3	0.8 to 3.3	0.8 to 3.3	0.8 to 3.3	0.8 to 3.3	—	—	3	1.8	0.5x DVREFIN	IMVP7	UCSP55M4C		
		Output Current (mA)	800	1,000	500	1,000	1,000	—	—	—	100	100	50	400	250	—	—	25	100	10				
BD71837AMWV	System PMIC for i.MX 8M Family	Output Voltage (V)	0.7 to 1.3	0.7 to 1.3	0.7 to 1.3	0.7 to 1.3	0.7 to 1.35	0.7 to 1.35	0.8 to 1.95	0.8 to 1.95	0.8 to 1.95	3.0 to 3.3	0.9	1.8 to 1.9	0.9 to 1.8	1.8 to 1.9	1.8 to 1.9	—	—	—	—	—	—	UQFN68CV8080
		Output Current (mA)	3,600	4,000	2,100	1,000	2,500	3,000	1,500	3,000	10	10	300	250	300	300	150	—	—	—	—	—	—	
BD71847AMWV	System PMIC for i.MX 8M Mini Family	Output Voltage (V)	0.7 to 1.3	0.7 to 1.3	0.7 to 1.3	0.7 to 1.3	0.7 to 1.35	0.7 to 1.35	0.8 to 1.95	0.8 to 1.95	0.8 to 1.95	3.0 to 3.3	0.9	1.8 to 1.9	0.9 to 1.8	1.8 to 1.9	1.8 to 1.9	—	—	—	—	—	—	UQFN56BV7070
		Output Current (mA)	3,000	3,000	—	—	3,000	3,000	1,500	3,000	10	10	300	250	300	300	300	—	—	—	—	—	—	
BD71850MWV	System PMIC for i.MX 8M Nano Family	Output Voltage (V)	0.7 to 1.3	0.7 to 1.3	0.7 to 1.3	0.7 to 1.3	0.7 to 1.35	0.7 to 1.35	0.8 to 1.95	0.8 to 1.95	0.8 to 1.95	3.0 to 3.3	0.9	1.8 to 1.9	0.9 to 1.8	1.8 to 1.9	1.8 to 1.9	—	—	—	—	—	—	UQFN56BV7070
		Output Current (mA)	3,000	3,000	—	—	3,000	3,000	1,500	3,000	10	10	300	250	300	300	300	—	—	—	—	—	—	

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Non-isolated type AC-DC Converters

Surface Mount SOP Package Built-in 650V FET																		
Part No.	Output Voltage (V)	MOSFET V _{DS} (Max) (V)	Control Method	Switching Frequency (kHz)	Frequency Reduction Function	Max Duty (%)	ON Resistance (Ω)	OCP Current (A)	Dynamic Over-Current Protection (A)	Start-up Current (mA)	Package							
BM2P109TF	10.0						9.5	0.45	1.4									
BM2P104QF							4.0	0.80	1.6									
BM2P129TF	12.0						9.5											
BM2P139TF							4.5											
BM2P135TF	13.0						4.0	0.80	1.6									
BM2P134QF		650	PWM	100	—	75	9.5											
BM2P159PF	14.2						0.30		0.95									
BM2P159T1F	15.0							0.45	1.4									
BM2P189TF	18.0																	
BM2P209TF	20.0																	
BM2P249TF	24.8																	

Non-isolated type AC-DC Converters

Surface Mount SOP Package Built-in 800V FET

Part No.	Output Voltage (V)	MOSFET V _{DS} (Max) (V)	Control Method	Switching Frequency (kHz)	Frequency Reduction Function	Max Duty (%)	ON Resistance (Ω)	OCP Current (A)	Dynamic Over-Current Protection (A)	Start-up Current (mA)	Package
BM2P107QKF	10.0	800	PWM	100	—	75	7.5	0.80	1.6	3	SOP8
BM2P137TKF	13.0							0.45	1.4		SOP8
BM2P137QKF								0.80	1.6		SOP8

High Heat Dissipation DIP Package Built-in 650V FET

Part No.	Output Voltage (V)	MOSFET V _{DS} (Max) (V)	Control Method	Switching Frequency (kHz)	Frequency Reduction Function	Max Duty (%)	ON Resistance (Ω)	OCP Current (A)	Dynamic Over-Current Protection (A)	Start-up Current (mA)	Package
BM2PAA1Y-Z	2.0	650	PWM	65	✓	40	1.5	1.76	1.76	3	DIP7K
BM2PAB1Y-Z				25	—			1.76	1.76		DIP7K
BM2PDA1Y-Z				65	✓			0.88	0.93		DIP7K
BM2PD1Y-Z				25	—			0.88	0.93		DIP7K
BM2P101W-Z				65	✓			1.46	2.55		DIP7K
BM2P101X-Z				100	—	75	4.0	2.00	3.5		DIP7K
BM2P104Q-Z				100	—			0.80	1.6		DIP7K
BM2P121W-Z				100	—			1.46	2.55		DIP7K
BM2P121X-Z				100	—			2.00	3.5		DIP7K
BM2P121XH-Z*				65	✓	40	1.5	2.00	3.5		DIP7K
BM2P131W-Z	13.0	14.0	15.0	100	—			1.46	2.55		DIP7K
BM2P131X-Z				100	—			2.00	3.5		DIP7K
BM2P134Q-Z				100	—			0.80	1.6		DIP7K
BM2P141W-Z				100	—			1.46	2.55		DIP7K
BM2P141X-Z				100	—			2.00	3.5		DIP7K
BM2P151W-Z				65	✓			1.46	2.55		DIP7K
BM2P151X-Z				65	✓			2.00	3.5		DIP7K
BM2P151S-Z				65	✓			2.30	4.025		DIP7K
BM2P161W-Z				65	✓	40	1.5	1.46	4.015		DIP7K
BM2P161X-Z				65	✓			2.00	3.5		DIP7K
BM2P181S-Z	17.75	18.0	20.0	25	—			2.60	3.90		DIP7K
BM2P181W-Z	25			—	1.46			2.55	DIP7K		
BM2P181X-Z	25			—	2.00			3.5	DIP7K		
BM2P201W-Z	65			✓	1.46			2.55	DIP7K		
BM2P201X-Z	65			✓	2.00			3.5	DIP7K		
BM2P241W-Z	65			✓	1.46			2.55	DIP7K		
BM2P241X-Z	65			✓	2.00			3.5	DIP7K		
BM2P249Q-Z	100			—	9.5			0.80	2.2	DIP7K	

High Heat Dissipation DIP Package Built-in 800V FET

Part No.	Output Voltage (V)	MOSFET V _{DS} (Max) (V)	Control Method	Switching Frequency (kHz)	Frequency Reduction Function	Max Duty (%)	ON Resistance (Ω)	OCP Current (A)	Dynamic Over-Current Protection (A)	Start-up Current (mA)	Package
BM2P107QK-Z	10.0	800	PWM	100	—	75	7.5	0.80	1.6	3	DIP7K
BM2P137QK-Z	13.0										DIP7K

*TSD temperature change version of the BM2P121X-Z.

Isolated and Non-isolated Type AC-DC Converter

Part No.	Supply Voltage (V)	MOSFET V _{DS} (Max) (V)	Control Method	Switching Frequency (kHz)	Frequency Reduction Function	Max Duty (%)	ON Resistance (Ω)	Peak Current (A)	Dynamic Over-Current Protection (V)	OCP Current (V)	Current Sense Resistor	Start-up Current (mA)	Brown Out	Brown Out OVP Protection	V _{cc} OVP	Package
BM2P0363F	8.9 to 26.0	730	PWM	25	—	75	3.0	4.0	0.7	0.4	3.0	15	—	—	Auto Restart	SOP8
BM2P064EF				65	—				1.05							SOP8
BM2P104EF				100	—				0.3							SOP8
BM2P134EF				130	—				—							SOP8
BM2P060LF-Z				75	✓				Extrenal							SOP20A
BM2P061LF-Z				65	✓				—							SOP20A
BM2P060MF-Z				75	✓				—							SOP20A
BM2P061MF-Z				65	✓				—							SOP20A
BM2P063MF-Z				3.0	4.0				—							SOP20A

Surface Mount SOP Package Built-in 800V FET

Part No.	Supply Voltage (V)	MOSFET V _{DS} (Max) (V)	Control Method	Switching Frequency (kHz)	Frequency Reduction Function	Max Duty (%)	ON Resistance (Ω)	Peak Current (A)	Dynamic Over-Current Protection (V)	OCP Current (V)	Current Sense Resistor	Start-up Current (mA)	Brown Out	Brown Out OVP Protection	V _{cc} OVP	Package
BM2P0363KF	8.9 to 26.0	800	PWM	25	—	75	3.0	—	0.7	0.4	3.0	—	—	Auto Restart	SOP8	
BM2P074KF				65	✓				6.7						SOP8	

High Heat Dissipation DIP Package Built-in 650V FET

Part No.	Supply Voltage (V)	MOSFET V _{DS} (Max) (V)	Control Method	Switching Frequency (kHz)	Frequency Reduction Function	Max Duty (%)	ON Resistance (Ω)	Peak Current (A)	Dynamic Over-Current Protection (V)	OCP Current (V)	Current Sense Resistor	Start-up Current (mA)	Brown Out	Brown Out OVP Protection	V _{cc} OVP	Package
BM2P0391	8.9 to 26.0	650	PWM	100	✓	75	2.4	5.2	—	0.4	Extrenal	6	✓ (adjustable)	—	Auto Restart	DIP7K

High Heat Dissipation DIP Package Built-in 730V FET																					
Part No.	Supply Voltage (V)	MOSFET V _{DS} (Max) (V)	Control Method	Switching Frequency (kHz)	Frequency Reduction Function	Max Duty (%)	ON Resistance (Ω)	Peak Current (A)	Dynamic Over-Current Protection (A)	OCP Current (V)	Current Sense Resistor	Start-up Current (mA)	Brown Out	Brown Out OVP Protection	V _{CC} OVP	Package					
New BM2P06A1J-Z	8.9 to 26.0	65	PWM	✓	80	1.0	12.0	1.23	0.78	Extrenal	3.0	✓ (adjustable)	Auto Restart	Auto Restart	DIP7K						
New BM2P06B1J-Z						3.0	4.0														
New BM2P06A3J-Z						0.955	12.0	1.0	0.4			5.5									
New BM2P06B3J-Z						1.0	—														
BM2P061E-Z						3.0	—	1.0	0.3			3.0									
BM2P061H-Z						4.0	—														
BM2P0151-Z						3.0	—	1.0	0.3			5.5									
BM2P0161-Z						4.0	—														
BM2P0361-Z						3.0	—	1.0	0.3			3.0									
BM2P0362-Z						4.0	—														
BM2P064E-Z						0.955	12.0	1.0	0.3			5.5									
BM2P101E-Z						1.0	—														
BM2P101H-Z						0.955	12.0	1.0	0.3			3.0									
BM2P10A1J-Z						1.0	—														
BM2P10B1J-Z						3.0	4.0	1.0	0.3			5.5									
BM2P10A3J-Z						0.955	12.0														
BM2P10B3J-Z						1.0	—	1.0	0.3			3.0									
BM2P104E-Z						3.0	—														
BM2P131E-Z						0.955	12.0	1.0	0.3			5.5									
BM2P131H-Z						3.0	4.0														
BM2P134E-Z						1.0	12.0	1.0	0.3			3.0									
BM2P13A1J-Z						3.0	4.0														
BM2P13B1J-Z						0.955	12.0	1.0	0.3			5.5									
BM2P13A3J-Z						1.0	—														
BM2P13B3J-Z						3.0	4.0	1.0	0.3			3.0									
New BM2P13C1J-Z						0.955	12.0														
New BM2P13C3J-Z						1.0	—	1.0	0.3			5.5									
New BM2P13C5J-Z						3.0	4.0														
New BM2P13C7J-Z						0.955	12.0	1.0	0.3			3.0									
New BM2P13C9J-Z						1.0	—														
New BM2P13C11J-Z						3.0	4.0	1.0	0.3			5.5									
New BM2P13C13J-Z						0.955	12.0														
New BM2P13C15J-Z						1.0	—	1.0	0.3			3.0									
New BM2P13C17J-Z						3.0	4.0														
New BM2P13C19J-Z						0.955	12.0	1.0	0.3			5.5									
New BM2P13C21J-Z						1.0	—														
New BM2P13C23J-Z						3.0	4.0	1.0	0.3			3.0									
New BM2P13C25J-Z						0.955	12.0														
New BM2P13C27J-Z						1.0	—	1.0	0.3			5.5									
New BM2P13C29J-Z						3.0	4.0														
New BM2P13C31J-Z						0.955	12.0	1.0	0.3			3.0									
New BM2P13C33J-Z						1.0	—														
New BM2P13C35J-Z						3.0	4.0	1.0	0.3			5.5									
New BM2P13C37J-Z						0.955	12.0														
New BM2P13C39J-Z						1.0	—	1.0	0.3			3.0									
New BM2P13C41J-Z						3.0	4.0														
New BM2P13C43J-Z						0.955	12.0	1.0	0.3			5.5									
New BM2P13C45J-Z						1.0	—														
New BM2P13C47J-Z						3.0	4.0	1.0	0.3			3.0									
New BM2P13C49J-Z						0.955	12.0														
New BM2P13C51J-Z						1.0	—	1.0	0.3			5.5									
New BM2P13C53J-Z						3.0	4.0														
New BM2P13C55J-Z						0.955	12.0	1.0	0.3			3.0									
New BM2P13C57J-Z						1.0	—														
New BM2P13C59J-Z						3.0	4.0	1.0	0.3			5.5									
New BM2P13C61J-Z						0.955	12.0														
New BM2P13C63J-Z						1.0	—	1.0	0.3			3.0									
New BM2P13C65J-Z						3.0	4.0														
New BM2P13C67J-Z						0.955	12.0	1.0	0.3			5.5									
New BM2P13C69J-Z						1.0	—														
New BM2P13C71J-Z						3.0	4.0	1.0	0.3			3.0									
New BM2P13C73J-Z						0.955	12.0														
New BM2P13C75J-Z						1.0	—	1.0	0.3			5.5									
New BM2P13C77J-Z																					

Quasi-resonant AC-DC Converters Built-in SiC MOSFET/GaN HEMT

High Power TO220 Package Built-in 1,700V SiC MOSFET (Industrial Equipment)												
Part No.	Supply Voltage (V)	SiC MOSFET V _{DS} (Max) (V)	Control Method	Maximum Frequency (kHz)	ON Resistance (Ω)	Dynamic Over-Current Protection (A)	OCP Exchange Function	V _{CC} OVP	BR UVLO	FB OLP Protection	ZT OVP Protection	Package
BM2SCQ121T-LBZ	15 to 27.5	1,700	QR	120	1.12	-	✓	Latch	-	Auto Restart	TO220-6M	
BM2SCQ122T-LBZ										Latch	Latch	TO220-6M
BM2SCQ123T-LBZ										Auto Restart		TO220-6M
BM2SCQ124T-LBZ										Latch		TO220-6M

High Power TO263 Package Built-in 1,700V SiC MOSFET (Industrial Equipment)												
Part No.	Supply Voltage (V)	SiC MOSFET V _{DS} (Max) (V)	Control Method	Maximum Frequency (kHz)	ON Resistance (Ω)	Dynamic Over-Current Protection (A)	OCP Exchange Function	V _{CC} OVP	BR UVLO	FB OLP Protection	ZT OVP Protection	Package
BM2SC121FP2-LBZ	15 to 27.5	1,700	QR	120	1.12	-	✓	Latch	-	Auto Restart	TO263-7L	
BM2SC122FP2-LBZ										Latch	Latch	TO263-7L
BM2SC123FP2-LBZ										Auto Restart		TO263-7L
BM2SC124FP2-LBZ										Latch		TO263-7L
New BM2SC125FP2-LBZ										✓	Auto Restart	Auto Restart

EcoGaN™ Power Stage ICs												
Part No.	Drain Pin Voltage (Max) (V)	Input Voltage Range (V)	Supply Pin Voltage (V)	Supply Pin Operating Current (Typ) (μA)	Supply Pin Quiescent Current (Typ) (μA)	ON Resistance (Typ) (mΩ)	Turn ON Delay Time (Typ) (ns)	Turn OFF Delay Time (Typ) (ns)	Operating Temperature (°C)	Package		
Nano BM3G015MUV-LB	650	-0.6 to +30	6.25 to 30	450	150	150	11	15	-40 to +105	VQFN046V8080		
Nano BM3G007MUV-LB				650	180	70	12			VQFN046V8080		

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 Nano Mark is a product using Nano Pulse Control™ technology, Nano Energy™ technology or Nano Cap™ technology. ROHM's innovative "Nano" power supply technologies achieve breakthrough energy savings and miniaturization.

 Nano Mark is a product equipped with Nano Cap™ extremely stable control technology. Nano Energy™, Nano Pulse Control™ and Nano Cap™ is a trademark or a registered trademark of ROHM Co., Ltd.

Isolated Type FET external AC-DC Controller ICs

PWM Control type													Package					
Part No.	Supply Voltage (V)	Control Method	Switching Frequency (kHz)	START-UP Circuit	Frequency Reduction Mode	Max Duty (%)	AC Voltage Correction	V _{CC} Recharge	Start-up Current (mA)	BR UVLO	V _{CC} OVP	FBOLP	Package					
BM1P061FJ	8.9 to 26.0	PWM	65	✓	✓	75	✓	✓	3.0	✓	Auto Restart	SOP-J8						
BM1P062FJ												Latch						
BM1P065FJ												Auto Restart						
BM1P066FJ												Latch						
BM1P067FJ												Auto Restart						
BM1P068FJ			100	✓	✓	75	✓	—	3.0	—	Auto Restart	Auto Restart	SOP-J8					
BM1P101FJ												Latch						
BM1P102FJ												Auto Restart						
BM1P105FJ												Latch						
BM1P107FJ												Auto Restart						
BM1P10CFJ	9.3 to 55.0	8.5 to 25.0						✓	5.5	✓	—	Latch	SOP-J7S					
BD7672BG	Latch							Auto Restart	SSOP6									
BD7673AG								Latch	SSOP6									
BD7679G								Auto Restart	Auto Restart	SSOP6								

Quasi-resonant type (Industrial Equipment)												
Part No.	Supply Voltage (V)	Control Method	START-UP Circuit	Start-up Current (mA)	Maximum Frequency (kHz)	Frequency Reduction Mode	AC Voltage Correction	FB OLP Protection	V _{CC} OVP	ZT OVP	Package	
New BM1Q002AFJ-LB	8.9 to 26	QR	✓	3.0	120	✓	✓	Auto Restart	Latch	Latch	SOP-J7S	
New BM1Q021AFJ-LB												SOP-J7S

Quasi-resonant type												
Part No.	Supply Voltage (V)	Control Method	START-UP Circuit	Start-up Current (mA)	Maximum Frequency (kHz)	Frequency Reduction Mode	AC Voltage Correction	FB OLP Protection	V _{CC} OVP	ZT OVP	Package	
BM1Q002FJ	8.9 to 26.0	QR	✓	3.0	120	✓	✓	Auto Restart	Latch	Latch	SOP-J8	
BM1Q011FJ												SOP-J7S
BM1Q021FJ												SOP-J8
BM1Q104FJ												SOP-J8

Quasi-resonant type For SiC Drive (Industrial Equipment)												
Part No.	Supply Voltage (V)	Control Method	START-UP Circuit	Start-up Current (mA)	Maximum Frequency (kHz)	Frequency Reduction Mode	AC Voltage Correction	FB OLP Protection	V _{CC} OVP	ZT OVP	Package	
BD7682FJ-LB	15.0 to 27.5	QR	—	—	120	✓	✓	Auto Restart	Latch	Latch	SOP-J8	
BD7683FJ-LB												SOP-J8
BD7684FJ-LB			—	—	120	✓	✓	Auto Restart	Auto Restart	Auto Restart	SOP-J8	
BD7685FJ-LB												SOP-J8

Quasi-resonant type+PFC Built-in type													Package
Part No.	Supply Voltage (V)	Control Method	START-UP Circuit	Start-up Current (mA)	QR Maximum Frequency (kHz)	PFC Maximum Frequency (kHz)	QR Frequency Reduction	PFC Frequency Reduction	PFC Output Voltage Switching	BR UVLO	V _{CC} OVP	ZT OVP	Package
BM1C101F	8.9 to 26.0	PFC+QR	✓	6.5	120	400	✓	✓	✓	—	✓	Auto Restart	SOP18
BM1C102F													SOP18

BCM Type PFC Controller ICs

Singles PFC												
Part No.	Supply Voltage (V)	Control Method	START-UP Circuit	Zero Detection Method	OVP Detection	PFC Maximum Frequency (kHz)	Over Shoot Reduction Function	Brown Out	V _{cc} Discharge	Package		
BD7690FJ	10.0 to 26.0	BCM PFC	-	Auxiliary Winding	Single	220	-	-	-	SOP-J8		
BD7691FJ				Resistance	Double	450	✓			SOP-J8		
BD7692FJ										SOP-J8		
BD7693FJ				Auxiliary Winding	Single	-	-	✓	✓	SOP-J8		
BD7694FJ										SOP-J8		
New BD7695FJ										SOP-J8		
New BD7696FJ	12.0 to 38.0									SOP-J8		

AC Voltage Zero Cross Detection ICs

AC Voltage Zero Cross Detection ICs												
Part No.	Supply Voltage (V)	Maximum AC Input Voltage (V)	DC Voltage Monitor Function	Zero Cross Delay Time (μs)	Output Waveform	Stand by Current (μA)	Quiescent Current (μ)	Output Type	Protection Circuit	Operating Temperature (°C)	Package	
BM1Z012FJ	10 to 28	600	-	Variable	Pulse	50	160	Nch Open Drain	TSD/UVLO	-40 to +105	SOP-J7S	
BM1Z001FJ				300 to 500							SOP-J7S	
BM1Z002FJ				Variable							SOP-J7S	
BM1Z003FJ			✓	Edge	Pulse	-	-	-	-		SOP-J7S	
BM1Z101FJ				300 to 500							SOP-J11	
BM1Z102FJ				Variable							SOP-J11	
BM1Z103FJ				Edge							SOP-J11	

Secondary Side Synchronous Rectification ICs

Secondary Side Synchronous Rectification ICs											
Part No.	Supply Voltage (V)	Control Method	Shunt Regulator Accuracy (%)	Drain Terminal Maximum Voltage (V)	Compulsion OFF Time (μs)	V _{cc} OVP	Auto Sleep Function	CCM Mode	Package		
BM1R00146F	2.7 to 32.0	SR	±0.5	120	1.3	Auto Restart	✓	✓	✓	SOP8	
BM1R00147F					2.0						
BM1R00148F					3.0						
BM1R00149F					3.6						
BM1R00178F					3.0						
BD87007FJ			±1.0	3.85	-						
BD85506F	5.0 to 32.0	SR for LLC			✓		—	—	SOP14		

Isolated DC-DC Converter ICs

Isolated DC-DC Converter ICs (Optocoupler-less) (Industrial Equipment)																		
Part No.	Output Power	SW Terminal Withstand Voltage (V)	Over-Current Detection Current (A)	Input Voltage (V)	Switching Frequency (kHz)	Control Method	Features											
							Enable	Soft Start	Light-Load Efficiency	UVLO	Over-Current Protection	Thermal Protection						
BD7F100EFJ-LB	1W at V _{IN} 5.0V 5W at V _{IN} 24V	60	1.25	3.0 to 40.0	400	Adaptive on-time	✓	✓	✓	Recovery	Recovery							
BD7F100HFN-LB																		
BD7F200UEFJ-LB																		
BD7F200HFN-LB																		
BD7J101EFJ-LB			0.9	8.0 to 80.0														
BD7J101HFN-LB																		
BD7J201EFJ-LB			1.8	8.0 to 80.0														
BD7J201HFN-LB																		
BD7J200EFJ-LB			1.75	8.0 to 80.0														
BD7J200HFN-LB																		

☆: Under Development

Automotive Isolated DC-DC Converter ICs

Automotive Isolated DC-DC Converter ICs (Optocoupler-less)												
Part No.	Output Power	SW Terminal Withstand Voltage (V)	Over-Current Detection Current (A)	Input Voltage (V)	Switching Frequency (kHz)	Control Method	Features					
							Enable	Soft Start	Light-Load Efficiency	UVLO	Over-Current Protection	Thermal Protection
BD7F005EFJ-C	2W at V _{IN} 8V	62	1.38	3.4 to 42.0	363	Adaptive on-time	✓	✓	✓	✓	Recovery	Recovery
BD7F105EFJ-C												
BD7F205EFJ-C												

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*1 For more information about "ComfySIL™ Functional Safety", please refer to the reverse side of the cover.

Gate Drivers

Isolated Gate Drivers

Automotive Isolated Gate Drivers

Part No.	Input-side Supply Voltage (V)	Output-side Positive Supply Voltage (V)	Output-side Negative Supply Voltage (V)	Isolation Voltage (Vrms)	I/O Delay Time (ns)	Minimum Input Pulse Width (ns)	Output Current (A)	Operating Temperature (°C)	Function	Package	ComfySIL™ Functional Safety*1	Automotive Grade AEC-Q100
BM6101FV-C	4.5 to 5.5	14 to 24	-12 to 0	2,500	350	180	± 3	-40 to +125	Active miller clamping/Fault signal output/UVLO/SCP/DESAT/Soft turn-off function for SCP	SSOP-B20W	FSs	YES
BM6102FV-C	4.5 to 5.5	14 to 20	-	2,500	200	100	± 3	-40 to +125	Active miller clamping/Fault signal output/UVLO/SCP/DESAT/Soft turn-off function for SCP	SSOP-B20W	FSs	YES
BM6104FV-C	4.5 to 5.5	10 to 24	-12 to 0	2,500	150	90	± 3	-40 to +125	Active miller clamping/Fault signal output/UVLO/SCP/DESAT/Soft turn-off function for SCP	SSOP-B20W	FSs	YES
BM6109FV-C	4.5 to 5.5	14 to 18	-	2,500	700	600	± 4.5	-40 to +125	Active miller clamping/Fault signal output/UVLO/SCP/Soft turn-off function for SCP	SSOP-B28W	FSs	YES
New BM6112HFV-C	4.5 to 5.5	14 to 20	-12 to 0	3,750	150	90	± 20	-40 to +125	Active miller clamping/Fault signal output/UVLO/SCP/DESAT/Soft turn-off function for SCP	SSOP-B28WR6	FSs	YES
BM6112FV-C	4.5 to 5.5	14 to 20	-12 to 0	3,750	150	90	± 20	-40 to +125	Active miller clamping/Fault signal output/UVLO/SCP/DESAT/Soft turn-off function for SCP	SSOP-B28W	FSs	YES
BM61M22BFJ-C	4.5 to 5.5	9 to 24	-	2,500	60	60	± 2	-40 to +125	UVLO	SOP-JW8	FSs	YES
BM61M41RFV-C	4.5 to 5.5	9 to 24	-	3,750	65	60	± 4	-40 to +125	Active miller clamping/UVLO	SSOP-B10W	FSs	YES
BM61S40RFV-C	4.5 to 5.5	16 to 20	-	3,750	65	60	± 4	-40 to +125	Active miller clamping/UVLO/OVP	SSOP-B10W	FSs	YES
BM61S41RFV-C	4.5 to 5.5	16 to 24	-	3,750	65	60	± 4	-40 to +125	Active miller clamping/UVLO	SSOP-B10W	FSs	YES

Isolated Gate Driver (For Industrial Equipment)

Part No.	Input-side Supply Voltage (V)	Output-side Positive Supply Voltage (V)	Output-side Negative Supply Voltage (V)	Isolation Voltage (Vrms)	I/O Delay Time (ns)	Minimum Input Pulse Width (ns)	Output Current (A)	Operating Temperature (°C)	Function	Package
BM6108FV-LB	4.5 to 5.5	10 to 24	-12 to 0	2,500	150	90	± 3	-40 to +105	Active miller clamping/Fault signal output/UVLO/SCP/DESAT/Soft turn-off function for SCP	SSOP-B20W

Automotive Isolated Gate Drivers with Flyback Controller

Part No.	Input-side Supply Voltage (V)	Output-side Positive Supply Voltage (V)	Output-side Negative Supply Voltage (V)	Isolation Voltage (Vrms)	I/O Delay Time (ns)	Minimum Input Pulse Width (ns)	Output Current (A)	Operating Temperature (°C)	Function	Package	ComfySIL™ Functional Safety*1	Automotive Grade AEC-Q100
BM60052AFV-C	4 to 32	10 to 20	-12 to 0	2,500	120	90	± 3	-40 to +125	Active miller clamping/Fault signal output/UVLO/DESAT/Ready output/Soft turn-off function for DESAT	SSOP-B28W	FSs	YES
BM60054AFV-C	4 to 32	10 to 20	-12 to 0	2,500	120	90	± 3	-40 to +125	Active miller clamping/Fault signal output/UVLO/SCP/Ready output/Soft turn-off function for SCP	SSOP-B28W	FSs	YES
BM60055FV-C	4.5 to 30.0	9 to 24	-	2,500	250	170	± 5	-40 to +125	Active miller clamping/Fault signal output/UVLO/SCP/Soft turn-off function for SCP/OCP/2 level turn off	SSOP-B28W	FSs	YES
BM60060FV-C	8 to 24	13.5 to 24.0	-	2,500	210	90	± 9	-40 to +125	Active miller clamping/Fault signal output/UVLO/SCP/Soft turn-off function for SCP/Gate Resistance Selecting	SSOP-B28W	FSs	YES
BM60059FV-C	4.5 to 24	14 to 24	-	2,500	450	400	External Settings /-10	-40 to +125	Active miller clamping/Fault signal output/UVLO/SCP/Soft turn-off function for SCP/Gate Resistance Selecting	SSOP-B28W	FSs	YES

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*1 For more information about "ComfySIL™ Functional Safety", please refer to the reverse side of the cover.

Others

IGBT/MOSFET Low-side Gate Driver

Part No	Input-side Supply Voltage (V)	I/O Delay Time (ns)	Output Current (A)	ch	Operating Temperature (°C)	Package	Automotive Grade AEC-Q100
BD2310G	4.5 to 18	15	4/-4	1	-40 to +125	SSOP5	-

IGBT/MOSFET High-side Low-side Gate Drivers

Part No	Input-side Supply Voltage (V)	High-side Floating Supply Voltage (V)	I/O Delay Time (ns)	minimum Output Current (A)	ch	Miller Clamping Function	Operating Temperature (°C)	Package	ComfySIL™ Functional Safety*1	Automotive Grade AEC-Q100
BD2320UEFJ-LA	7.5 to 14.5	100	27/29	3.5/-4.5*2		-	-40 to +125	HTSOP-J8	-	-
BM60212FV-C	10 to 24	1,200	75	3/-3		✓	-40 to +125	SSOP-B20W	FSs	YES
BM60213FV-C	10 to 24	1,200	75	3/-3		-	-40 to +125	SSOP-B20W	FSs	YES

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*2 BD2320UEFJ-LA is a standard value.

(LAPIS Technology products)

Non-insulated Gate Driver for Battery Management System (BMS)

Part No.	Supply Voltage (V)	Gate Driving Voltage (V) Min	Turn on Time (μs) Max	Turn off Time (μs) Max	Operating temperature (°C)	Package
ML5810A	+6.5 to +64.0	10	350	70	-40 to +105	P-TSSOP20-0225-0.65-TK6

Power Management Switch

1 Channel Compact High Side Switch ICs

Part No.	Supply Voltage (V)	ON Resistance (mΩ)	Control Input Logic	Output Current (A)	Over-Current Detection (A) Min/Typ/Max	Output Turn on Time (ms)	OCP	Thermal Shut Down	Flag Output Delay at Over-Current (ms)	Discharge Resistance (Ω)	Package
BD2220G	2.7 to 5.5	160	H Active	0.5	0.5/-1.0	1.0	Latch	Recovery			SSOP5
BD2221G	2.7 to 5.5	160	L Active	0.5	0.5/-1.0	1.0	Latch	Recovery			SSOP5
BD6538G	2.7 to 5.5	150	H Active	0.5	0.5/-1.0	1.0	Latch	Recovery			SSOP5
BD2224G	2.7 to 5.5	150	H Active	0.5	0.55/0.78/1.0	1.0	Recovery	Recovery			SSOP5
BD2225G	2.7 to 5.5	150	L Active	0.5	0.55/0.78/1.0	1.0	Recovery	Recovery			SSOP5
BD2226G	2.7 to 5.5	150	H Active	0.65	0.75/1.0/1.35	1.0	Recovery	Recovery			SSOP5
BD2227G	2.7 to 5.5	150	L Active	0.65	0.75/1.0/1.35	1.0	Recovery	Recovery			SSOP5
BD2232G	2.7 to 5.5	100	H Active	1.0	1.15/1.275/1.4	1.0	Recovery	Recovery		60	SSOP5
BD2233G	2.7 to 5.5	100	L Active	1.0	1.15/1.275/1.4	1.0	Recovery	Recovery		60	SSOP5
BD2240G	2.7 to 5.5	110	H Active	0.75	0.82/0.97/1.12	1.0	Recovery	Recovery		60	SSOP5
BD2241G	2.7 to 5.5	110	L Active	0.75	0.82/0.97/1.12	1.0	Recovery	Recovery		60	SSOP5
BD2246G	2.7 to 5.5	110	H Active	0.5	0.63/0.765/0.9	1.0	Recovery	Recovery		60	SSOP5
BD2247G	2.7 to 5.5	110	L Active	0.5	0.63/0.765/0.9	1.0	Recovery	Recovery		60	SSOP5
BD2248G	2.7 to 5.5	110	H Active	0.2	0.2/0.3/0.4	1.0	Recovery	Recovery		60	SSOP5
BD2222G*	2.8 to 5.5	90	H Active	1.5	0.2 to 1.7 (adjustable)	0.6	Recovery	Recovery			SSOP6
BD2242G*	2.8 to 5.5	90	H Active	1.5	0.2 to 1.7 (adjustable)	0.6	Recovery	Recovery		60	SSOP6
BD2243G*	2.8 to 5.5	90	L Active	1.5	0.2 to 1.7 (adjustable)	0.6	Recovery	Recovery		60	SSOP6

*UL approved File No. E243261

Automotive 1 Channel Compact High Side Switch ICs

Part No.	Supply Voltage (V)	ON Resistance (mΩ)	Control Input Logic	Output Current (A)	Over-Current Detection (A) Min/Typ/Max	Output Turn on Time (ms)	OCP	Thermal Shut Down	Flag Output Delay at Over-Current (ms)	Discharge Resistance (Ω)	Package	ComfySIL™ Functional Safety*1	Automotive Grade AEC-Q100
BD22621G-M	2.7 to 5.5	120	H Active	0.15	0.18/0.30/0.42	1.0	Recovery	Recovery	15	60	SSOP5	FSs	YES
BD2262G-M	2.7 to 5.5	120	H Active	0.2	0.2/0.3/0.4	1.0	Recovery	Recovery		60	SSOP5	FSs	YES
BD22641G-M	2.7 to 5.5	120	H Active	0.5	0.57/0.76/0.96	1.0	Recovery	Recovery		60	SSOP5	FSs	YES
BD2264G-M	2.7 to 5.5	120	H Active	0.5	0.63/0.765/0.9	1.0	Recovery	Recovery		60	SSOP5	FSs	YES
BD2265G-M	2.7 to 5.5	120	L Active	0.5	0.63/0.765/0.9	1.0	Recovery	Recovery		60	SSOP5	FSs	YES
BD2266G-M	2.7 to 5.5	120	H Active	0.75	0.82/0.97/1.12	1.0	Recovery	Recovery		60	SSOP5	FSs	YES
BD2267G-M	2.7 to 5.5	120	L Active	0.75	0.82/0.97/1.12	1.0	Recovery	Recovery		60	SSOP5	FSs	YES
BD2268G-M	2.7 to 5.5	110	H Active	1.0	1.15/1.275/1.4	1.0	Recovery	Recovery		60	SSOP5	FSs	YES
BD2269G-M	2.7 to 5.5	110	L Active	1.0	1.15/1.275/1.4	1.0	Recovery	Recovery		60	SSOP5	FSs	YES
BD2244G-M*2	2.8 to 5.5	100	H Active	1.5	0.2 to 1.7 (adjustable)	0.6	Recovery	Recovery		60	SSOP6	FSs	YES
BD2245G-M*2	2.8 to 5.5	100	L Active	1.5	0.2 to 1.7 (adjustable)	0.6	Recovery	Recovery		60	SSOP6	FSs	YES

1 Channel Compact High Side Switch ICs (Industrial Equipment)

Part No.	Supply Voltage (V)	ON Resistance (mΩ)	Control Input Logic	Output Current (A)	Over-Current Detection (A) Min/Typ/Max	Output Turn on Time (ms)	OCP	Thermal Shut Down	Flag Output Delay at Over-Current (ms)	Discharge Resistance (Ω)	Package
BD2220G-LB	2.7 to 5.5	160	H Active	0.5	0.5/-/1.0	1.0	Latch	Recovery	15	—	SSOP5
BD2221G-LB	2.7 to 5.5	160	L Active	0.5	0.5/-/1.0	1.0	Latch	Recovery		—	SSOP5
BD6538G-LB	2.7 to 5.5	150	H Active	0.5	0.5/-/1.0	1.0	Latch	Recovery		—	SSOP5
BD2224G-LB	2.7 to 5.5	150	H Active	0.5	0.55/0.78/1.0	1.0	Recovery	Recovery		—	SSOP5
BD2225G-LB	2.7 to 5.5	150	L Active	0.5	0.55/0.78/1.0	1.0	Recovery	Recovery		—	SSOP5
BD2226G-LB	2.7 to 5.5	150	H Active	0.65	0.75/1.0/1.35	1.0	Recovery	Recovery		—	SSOP5
BD2227G-LB	2.7 to 5.5	150	L Active	0.65	0.75/1.0/1.35	1.0	Recovery	Recovery		—	SSOP5

1 Channel High Side Switch ICs

Part No.	Supply Voltage (V)	ON Resistance (mΩ)	Control Input Logic	Output Current (A)	Over-Current Detection (A) Min/Typ/Max	Output Turn on Time (ms)	OCP	Thermal Shut Down	Flag Output Delay at Over-Current (ms)	Discharge Resistance (Ω)	Package	
BD82020FVJ*2	2.8 to 5.5	90	H Active	1.1	1.1/1.5/2.0	0.4	Recovery	Recovery	12	75	TSSOP-B8J	
BD82021FVJ*2	2.8 to 5.5	90	L Active	1.1	1.1/1.5/2.0	0.4	Recovery	Recovery		75	TSSOP-B8J	
BD82022FVJ*2	2.8 to 5.5	90	H Active	1.5	1.5/2.0/2.6	0.4	Recovery	Recovery		75	TSSOP-B8J	
BD82023FVJ*2	2.8 to 5.5	90	L Active	1.5	1.5/2.0/2.6	0.4	Recovery	Recovery		75	TSSOP-B8J	
BD82024FVJ*2	2.8 to 5.5	90	H Active	2.1	2.1/2.5/3.3	0.4	Recovery	Recovery		75	TSSOP-B8J	
BD82025FVJ*2	2.8 to 5.5	90	L Active	2.1	2.1/2.5/3.3	0.4	Recovery	Recovery		75	TSSOP-B8J	
BD2051AFJ	2.7 to 5.5	80	H Active	0.5	0.7/1.0/1.6	1.2	Recovery	Recovery		1.3	—	SOP-J8
BD2065AFJ	2.7 to 5.5	80	H Active	1.0	1.1/1.5/2.3	1.2	Recovery	Recovery		2.5	—	SOP-J8
BD2028FVJ*2	4.5 to 5.5	72	H Active	0.5	0.6/1.0/1.2	0.3	Recovery	Recovery		75	TSSOP-B8J	
BD82029FVJ*2	4.5 to 5.5	72	L Active	0.5	0.6/1.0/1.2	0.3	Recovery	Recovery		55	TSSOP-B8J	
BD82030FVJ*2	4.5 to 5.5	72	H Active	1.0	1.05/1.5/1.8	0.3	Recovery	Recovery		55	TSSOP-B8J	
BD82031FVJ*2	4.5 to 5.5	72	L Active	1.0	1.05/1.5/1.8	0.3	Recovery	Recovery		55	TSSOP-B8J	
BD82032FVJ*2	4.5 to 5.5	72	H Active	1.5	1.55/2.0/2.3	0.3	Recovery	Recovery		55	TSSOP-B8J	
BD82033FVJ*2	4.5 to 5.5	72	L Active	1.5	1.55/2.0/2.3	0.3	Recovery	Recovery		55	TSSOP-B8J	
BD82034FVJ*2	4.5 to 5.5	72	H Active	2.0	2.05/2.5/2.8	0.3	Recovery	Recovery		55	TSSOP-B8J	
BD82035FVJ*2	4.5 to 5.5	72	L Active	2.0	2.05/2.5/2.8	0.3	Recovery	Recovery		55	TSSOP-B8J	
BD82038FVJ*2	2.7 to 5.5	72	H Active	0.5	0.60/1.00/1.20	0.5	Recovery	Recovery	7	55	TSSOP-B8J	
BD82039FVJ*2	2.7 to 5.5	72	L Active	0.5	0.60/1.00/1.20	0.5	Recovery	Recovery		55	TSSOP-B8J	
BD82040FVJ*2	2.7 to 5.5	72	H Active	1.0	1.05/1.50/1.80	0.5	Recovery	Recovery		55	TSSOP-B8J	
BD82041FVJ*2	2.7 to 5.5	72	L Active	1.0	1.05/1.50/1.80	0.5	Recovery	Recovery		55	TSSOP-B8J	
BD82042FVJ*2	2.7 to 5.5	72	H Active	1.5	1.55/2.00/2.30	0.5	Recovery	Recovery		55	TSSOP-B8J	
BD82043FVJ*2	2.7 to 5.5	72	L Active	1.5	1.55/2.00/2.30	0.5	Recovery	Recovery		55	TSSOP-B8J	
BD82044FVJ*2	2.7 to 5.5	72	H Active	2.0	2.05/2.50/2.80	0.5	Recovery	Recovery		55	TSSOP-B8J	
BD82045FVJ*2	2.7 to 5.5	72	L Active	2.0	2.05/2.50/2.80	0.5	Recovery	Recovery	15	55	TSSOP-B8J	
BD82046FVJ*2	2.7 to 5.5	72	H Active	2.5	2.70/3.20/3.80	0.5	Recovery	Recovery		55	TSSOP-B8J	
BD82047FVJ*2	2.7 to 5.5	72	L Active	2.5	2.70/3.20/3.80	0.5	Recovery	Recovery		55	TSSOP-B8J	
BD82001FVJ	2.7 to 5.5	70	H Active	0.9	1.0/1.5/2.0	0.8	Recovery	Recovery		—	TSSOP-B8J	
BD82000FVJ	2.7 to 5.5	70	L Active	0.9	1.0/1.5/2.0	0.8	Recovery	Recovery		—	TSSOP-B8J	
BD82065FVJ	2.7 to 5.5	70	H Active	1.1	1.5/2.4/3.0	0.8	Recovery	Recovery		—	TSSOP-B8J	
BD82061FVJ	2.7 to 5.5	70	L Active	1.1	1.5/2.4/3.0	0.8	Recovery	Recovery		—	TSSOP-B8J	

Automotive 1 Channel High Side Switch ICs

Part No.	Supply Voltage (V)	ON Resistance (mΩ)	Control Input Logic	Output Current (A)	Over-Current Detection (A) Min/Typ/Max	Output Turn on Time (ms)	OCP	Thermal Shut Down	Flag Output Delay at Over-Current (ms)	Discharge Resistance (Ω)	Package	ComfySIL™ Functional Safety*1	Automotive Grade AEC-Q100
BD82004FVJ-M	2.7 to 5.5	70	H Active	0.9	1.0/1.5/2.0	0.8	Recovery	Recovery	15	—	TSSOP-B8J	FSs	YES
BD82005FVJ-M	2.7 to 5.5	70	L Active	0.9	1.0/1.5/2.0	0.8	Recovery	Recovery		—	TSSOP-B8J	FSs	YES
BD82006FVJ-M	2.7 to 5.5	70	H Active	1.1	1.5/2.4/3.0	0.8	Recovery	Recovery		—	TSSOP-B8J	FSs	YES
BD82007FVJ-M	2.7 to 5.5	70	L Active	1.1	1.5/2.4/3.0	0.8	Recovery	Recovery		—	TSSOP-B8J	FSs	YES

1 Channel High Side Switch ICs (Industrial Equipment)

Part No.	Supply Voltage (V)	ON Resistance (mΩ)	Control Input Logic	Output Current (A)	Over-Current Detection (A) Min/Typ/Max	Output Turn on Time (ms)	OCP	Thermal Shut Down	Flag Output Delay at Over-Current (ms)	Discharge Resistance (Ω)	Package
BD82001FVJ-LB	2.7 to 5.5	70	H Active	0.9	1.0/1.5/2.0	0.8	Recovery	Recovery	15	—	TSSOP-B8J
BD82002FVJ-LB	2.7 to 5.5	70	L Active	0.9	1.0/1.5/2.0	0.8	Recovery	Recovery		—	TSSOP-B8J
BD82005FVJ-LB	2.7 to 5.5	70	H Active	1.1	1.5/2.4/3.0	0.8	Recovery	Recovery		—	TSSOP-B8J
BD82006FVJ-LB	2.7 to 5.5	70	L Active	1.1	1.5/2.4/3.0	0.8	Recovery	Recovery		—	TSSOP-B8J

2 Channel High Side Switch ICs

Part No.	Supply Voltage (V)	ON Resistance (mΩ)	Control Input Logic	Output Current (A)	Over-Current Detection (A) Min/Typ/Max	Output Turn on Time (ms)	OCP	Thermal Shut Down	Flag Output Delay at Over-Current (ms)	Discharge Resistance (Ω)	Package	
BD6516F*2	3.0 to 5.5	110	H Active	1.1	1.2/1.65/2.5	1.3	Recovery	Recovery	15	1	—	SOP8
BD2066FJ*2	2.7 to 5.5	80	H Active	1.0	1.5/2.4/3.0	0.8	Recovery	Recovery		15	—	SOP-J8
BD2062FJ*2	2.7 to 5.5	80	L Active	1.0	1.5/2.4/3.0	0.8	Recovery	Recovery		—	—	SOP-J8

Automotive 2 Channel High Side Switch ICs

Part No.	Supply Voltage (V)	ON Resistance (mΩ)	Control Input Logic	Output Current (A)	Over-Current Detection (A) Min/Typ/Max	Output Turn on Time (ms)	OCP	Thermal Shut Down	Flag Output Delay at Over-Current (ms)	Discharge Resistance (Ω)	Package	ComfySIL™ Functional Safety*1	Automotive Grade AEC-Q100
BD2068FJ-M	2.7 to 5.5												

Power Management Switch

2 Channel High Side Switch ICs (Industrial Equipment)

Part No.	Supply Voltage (V)	ON Resistance (mΩ)	Control Input Logic	Output Current (A)	Over-Current Detection (A) Min/Typ/Max	Output Turn on Time (ms)	OCP	Thermal Shut Down	Flag Output Delay at Over-Current (ms)	Discharge Resistance (Ω)	Package
BD2066FJ-LB*	2.7 to 5.5	80	H Active	1.0	1.5/2.4/3.0	0.8	Recovery	Recovery	15	—	SOP-J8
BD2062FJ-LB*	2.7 to 5.5	80	L Active	1.0	1.5/2.4/3.0	0.8	Recovery	Recovery		—	SOP-J8

*UL approved File No. E243261

Load Switch ICs

Part No.	Input Voltage (V)	Current Consumption (μA)	ON Resistance (mΩ)	Number of Output channel (ch)	Control Input Logic	Output Current (A)	Over-Current Detection (A) Min/Typ/Max	Output Turn on Time (ms)	Thermal Shut Down	Discharge Resistance (Ω)	Package (mm)
BD6528HFV	V _{DD} =2.7 to 4.5/ V _{IN} =0 to 2.7	20	110	1	H Active	0.5	—	0.5	—	70	HVSOF6
BD6529GUL	V _{DD} =2.7 to 4.5/ V _{IN} =0 to 2.7	20	100		H Active	0.5	—	0.5	—	70	VCSP50L1 1.0×1.5, H=0.55
BD2200GUL	2.7 to 5.5	20	100		H Active	0.5	—	1.0	—	70	VCSP50L1 1.0×1.5, H=0.55
BD2201GUL	2.7 to 5.5	20	100		H Active	1.0	—	1.0	—	70	VCSP50L1 1.0×1.5, H=0.55
BD2204GUL	V _{IN1} =2.7 to 4.5/ V _{IN2} =1.2 to 2.4	30	120		H Active	0.5	—	0.06	Recovery	80	VCSP50L1 1.0×1.5, H=0.55
BD2202G	2.7 to 3.6	70	150		H Active	0.2	0.25/-/1.0	1.2	Recovery	—	SSOP5
BD2206G	2.7 to 3.6	70	150		H Active	0.5	0.8/-/1.6	1.2	Recovery	—	SSOP5
BD6520F	3.0 to 5.5	110	50		H Active	2.0	—	2.0	Latch	350	SOP8
BD6522F	3.0 to 5.5	110	50		H Active	2.0	—	1.0	Latch	350	SOP8

Load Switch ICs (Industrial Equipment)

Part No.	Input Voltage (V)	Current Consumption (μA)	ON Resistance (mΩ)	Number of Output channel (ch)	Control Input Logic	Output Current (A)	Over-Current Detection (A) Min/Typ/Max	Output Turn on Time (ms)	Thermal Shut Down	Discharge Resistance (Ω)	Package
BD2202G-LB	2.7 to 3.6	70	150	1	H Active	0.2	0.25/-/1.0	1.2	Recovery	—	SSOP5
BD2206G-LB	2.7 to 3.6	70	150		H Active	0.5	0.8/-/1.6	1.2	Recovery	—	SSOP5

Compact High Side Load Switch ICs

Part No.	Input Voltage (V)	Current Consumption (μA)	ON Resistance (mΩ)	Number of Output channel (ch)	Control Input Logic	Output Current (A)	Over-Current Detection (A) Min/Typ/Max	Output Turn on Time (ms)	Thermal Shut Down	Discharge Resistance (Ω)	Package
BUS1DJC0GWZ	1.1 to 5.0	0.35	63	1	H Active	2.0	—	0.012	—	80	UCSP30L1 0.8×0.8, H=0.35
BUS1DJC3GWZ	1.1 to 5.0	0.35	63		H Active	2.0	—	0.19	—	80	UCSP30L1 0.8×0.8, H=0.35
BDS2EJAAGUL	3.0 to 3.6	0.2	45	2	H Active	1.0	1.0	— (Soft Start)	Recovery	30	VCSP50L1 1.95×1.0, H=0.55

34V Withstand Voltage 1ch Compact High Side Load Switch ICs

Part No.	Input Voltage (V)	Current Consumption (μA)	ON Resistance (mΩ)	Number of Output channel (ch)	Control Input Logic	Output Current (A)	Over-Current Detection (A) Min/Typ/Max	Output Turn on Time (ms)	Thermal Shut Down	Discharge Resistance (Ω)	Package
BV1HAL45EFJ	8 to 32	0.5	45	1	H Active	3.4 to 9.9 Adjustable	17.4 to 34.6	11.79 to 64.05 Adjustable	Recovery	—	HTSOP-J8
BV1HAL85EFJ	8 to 32	0.5	85		H Active	2.5 to 6.5 Adjustable	8.7 to 17.3	5.45 to 29.60 Adjustable	Recovery	—	HTSOP-J8
BV1HALA5EFJ	8 to 32	0.5	150		H Active	0.75 to 2.1 Adjustable	5.7 to 11.3	5.45 to 29.60 Adjustable	Recovery	—	HTSOP-J8

Controller IC for High Side NMOSFET

Part No.	Supply Voltage (V)	Current Consumption (μA)	Output Voltage (V)		Number of Output channel (ch)	Control Input Logic	Output Turn on Time (ms)	Discharge Resistance (Ω)	Package
			V _{CC} =3.3V	V _{CC} =5.0V					
BD2270HFV	2.7 to 5.5	50	9.5	13.5	1	H Active	0.13	200	HVSOF5

Controller IC for High Side NMOSFET (Industrial Equipment)

Part No.	Supply Voltage (V)	Current Consumption (μA)	Output Voltage (V)		Number of Output channel (ch)	Control Input Logic	Output Turn on Time (ms)	Discharge Resistance (Ω)	Package
			V _{CC} =3.3V	V _{CC} =5.0V					
BD2270HFV-LB	2.7 to 5.5	50	9.5	13.5	1	H Active	0.13	200	HVSOF5

Wireless Charging LSIs

(LAPIS Technology products)

13.56MHz Wireless Charge													
Part No.	Function Overview	Maximum Charging Power	NFC Forum Compliant	Feature	Charging Control	NFC Tag Type	Communication Speed (kbps)	I/F	Clock Source (MHz)	Supply Voltage (V)	Application	Operating Temperature (°C)*1	Package
ML7630	Power Receiver	200mW	Built-in LDO	Current, Voltage, Temperature Monitoring	NFC Forum Type3 Tag	212	I ² C slave×1ch	—	Generated from magnetic field	Consumer	-40 to +85	S-UFLGA34-2.59×2.59-0.40-W (WL-CSP34)	
ML7631	Power Transmitter			Transmission Power Adjust Control		212	I ² C slave×1ch	27.12MHz (Crystal)	4.5 to 5.5	Consumer	-40 to +85	P-WQFN32-0505-0.50-A63	
☆ML7650	Power Receiver	3W	Built-in LDO	Current, Voltage, Temperature Monitoring	NFC Forum Type3 Tag	212/424	I ² C slave×1ch SPI slave×1ch	—	Generated from magnetic field	Consumer/ Industrial	-40 to +85	S-UFLGA30-2.28×2.61-0.40-W (WL-CSP30) P-WQFN32-0505-0.50-A63	
☆ML7651	Power Transmitter			Transmission Power Adjust Control		212/424	I ² C slave×1ch SPI slave×1ch	27.12MHz (Crystal)	4.5 to 5.5	Consumer/ Industrial	-40 to +85	P-WQFN40-0606-0.50-63	
ML7660	Power Receiver	1W	Built-in LDO	Current, Voltage, Temperature Monitoring	NFC Forum Type3 Tag	212/424	I ² C slave×1ch SPI slave×1ch	—	Generated from magnetic field	Consumer/ Industrial	-40 to +85	S-UFLGA30-2.28×2.61-0.40-W (WL-CSP30) P-WQFN32-0505-0.50-A63	
ML7661	Power Transmitter			Transmission Power Adjust Control		212/424	I ² C slave×1ch SPI slave×1ch	27.12MHz (Crystal)	4.5 to 5.5	Consumer/ Industrial	-40 to +85	P-WQFN40-0606-0.50-63	
New ML7662	Power Receiver	1W	Built-in LDO	Current, Voltage, Temperature Monitoring	NFC Forum Type3 Tag	212/424	I ² C slave×1ch SPI slave×1ch	—	Generated from magnetic field	Consumer/ Industrial	-40 to +85	S-UFLGA30-2.28×2.61-0.40-W (WL-CSP30) P-WQFN32-0505-0.50-A63	
New ML7663	Power Transmitter			Transmission Power Adjust Control		212/424	I ² C slave×1ch SPI slave×1ch	27.12MHz (Crystal)	4.5 to 5.5	Consumer/ Industrial	-40 to +85	P-WQFN40-0606-0.50-63	
New ML7670	Power Receiver	250mW	Built-in LDO	Current, Voltage, Temperature Monitoring	NFC Forum Type3 Tag	212/424	I ² C slave×1ch SPI slave×1ch	—	Generated from magnetic field	Consumer	-40 to +85	S-UFLGA30-2.28×2.56-0.40-W (WL-CSP30)	
New ML7671	Power Transmitter			Transmission Power Adjust Control		212/424	I ² C slave×1ch SPI slave×1ch	27.12MHz (Crystal)	4.5 to 5.5	Consumer	-40 to +85	P-WQFN40-0606-0.50-63	
☆ML7740	Power Receiver	1Wx2	Dual TX	Current, Voltage, Temperature Monitoring	NFC Forum Type3 Tag	212/424	I ² C slave×1ch	—	Generated from magnetic field	Consumer	-40 to +85	S-UFLGA30-2.28×2.61-0.40-W (WL-CSP30)	
☆ML7741	Power Transmitter			Transmission Power Adjust Control		212/424	I ² C slave×1ch	27.12MHz (Crystal)	2.6 to 5.5	Consumer	-40 to +85	TBD	
☆ML7750	Power Receiver	1W	Antenna Sharing	Current, Voltage, Temperature Monitoring	NFC Forum Type3 Tag	212/424	I ² C slave×1ch	—	Generated from magnetic field	Consumer	-40 to +85	S-UFLGA30-2.28×2.61-0.40-W (WL-CSP30)	
☆ML7751	Power Transmitter			Transmission Power Adjust Control		212/424	I ² C slave×1ch	27.12MHz (Crystal)	4.5 to 5.5	Consumer	-40 to +85	P-WQFN40-0606-0.50-63	
13.56MHz Wireless Charge (for Automotive)													
Part No.	Function Overview	Maximum Charging Power	NFC Forum Compliant	Feature	Charging Control	NFC Tag Type	Communication Speed (kbps)	I/F	Clock Source (MHz)	Supply Voltage (V)	Application	Operating Temperature (°C)*1	Package
New ML7800	Power Receiver	1W	AEC-Q100	Current, Voltage, Temperature Monitoring	NFC Forum Type3 Tag	212/424	I ² C slave×1ch	—	Generated from magnetic field	Automotive ^{*3}	-40 to +85	P-WQFN32-0505-0.50-A63	
New ML7801	Power Transmitter			Transmission Power Adjust Control		212/424	I ² C slave×1ch	27.12MHz (Crystal)	4.5 to 5.5	Automotive ^{*3}	-40 to +85	P-WQFN40-0606-0.50-63	

^{*1} Communication period^{*2} Type-F only^{*3} Please inquire to the sales

☆: Under Development

Battery Management

Battery Charger ICs

Part No.	Supply Voltage (V)	ON Resistance (mΩ)	Charge Voltage (V)	Charge Current Accuracy (%)	Switching Frequency (kHz)	Operating Temperature (°C)	Package	
BD71631QWZ	(2.9V:30mA, 4.0V:300mA) to 5.5	—	2.0 to 4.7 (±2%)	(I _{CHG} =100mA to 300mA)	±10	—	-30 to +105	UMMP10LZ1824
BD8664GW	4.1 to 5.5	70	8.3±0.5%	—	±2	1,000	-30 to +85	UCSP75M2
BD8665GW	4.1 to 5.5	70	8.4±0.5%	—	±3	1,000	-30 to +85	UCSP75M2
BD99950MUV	6.0 to 24.0	—	8.4/12.6±0.5%	—	±3	600 to 1,200	-10 to +85	VQFN20PV3535
BD99954GW	3.8 to 25.0	—	4.192/8.4/ 12.592/16.8±0.5%	—	±2 to ±40	600 to 1,200	-30 to +85	UCSP55M3C
BD99954MWV	3.8 to 25.0	—	4.192/8.4/ 12.592/16.8±0.5%	—	±2 to ±40	600 to 1,200	-30 to +85	UQFN040V5050

Charge Protection ICs

Standard Protection type

Part No.	Absolute Maximum Ratings (V)	Over Voltage Detection Level (V)	Under Voltage Detection Level (V)	Over-Current Detection Level (A)	R _{on} (mΩ)	OK/FLGB PIN Logic			Package (mm)
						<UVLO	Normal	>OVLO	
BD6040GUL	+30	6.4±0.2	2.65±0.12	Min 1.2	125 (Typ)	H	L	H	VCSP50L1 1.6x1.6, H=Max 0.55
BD6041GUL	+30	5.85±0.15	2.65±0.12	Min 1.2	125 (Typ)	H	L	H	VCSP50L1 1.6x1.6, H=Max 0.55

Negative Voltage Protection type

Part No.	Absolute Maximum Ratings (V)	Over Voltage Detection Level (V)	Under Voltage Detection Level (V)	Over-Current Detection Level (A)	R _{on} (mΩ)	OK/FLGB PIN Logic			Package (mm)
						<UVLO	Normal	>OVLO	
BD6046GUL	±30	6.7±0.2	3.6±0.18	Min 1.2	250 (Typ)	H	H	L	VCSP50L2 2.5x2.5, H=Max 0.55
BD6047AGUL	±30	5.85±0.15	3.6±0.18	Min 1.7	125 (Typ)	H	H	L	VCSP50L1 1.95x1.95, H=Max 0.55

Standard Protection type: Charger protection IC provides over voltage protection for charger IC. Built-in circuits include overvoltage lockout, over-current limit, undervoltage protection, internal start up delay, and status flag.
 Negative Voltage Protection type: Addition to the conventional standard charge protection IC, it prevents the negative voltage happened by the USB reverse insertion without any additional components.

Automotive Cell Balance IC of Power Storage Element Cells

Automotive EDLC Cell Balance IC (4 to 6 series)

Part No.	Absolute Maximum Ratings (V)	Cell Voltage Detection Range VCB (V)	Over-voltage Detection Voltage 1 (V)	Over-voltage Detection Voltage 2 (V)	Shunt SW R _{on} (Ω)	Function			Package (mm)	ComfySIL™ Functional Safety*1	Automotive Grade AEC-Q100
						EN	OVLO	Stack IC			
BD14000EFV-C	+28	2.4 to 3.1V± (1%) (0.1V/step usable)	V _{CB} +0.15 or 0.25 (OVLOSEL=L or H)	V _{CB} -0.3 or 0.5 (OVLOSEL=L or H)	1 (Typ)	✓	✓	✓	HTSSOP-B30 10.0x7.6, H=Max 1.0	FSs	YES

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*1 For more information about "ComfySIL™ Functional Safety", please refer to the reverse side of the cover.

Automotive Coulomb Counter IC

Automotive Coulomb Counter IC

Part No.	Supply Voltage (V)	Gain (V/V)	Resolution (bit)	I/F	Operating Temperature (°C)	Package	ComfySIL™ Functional Safety*1	Automotive Grade AEC-Q100
BD7220FV-C	4.5 to 5.5	5/25/51	16	SPI	-40 to +125	SSOP-B20 6.5x6.4 (t=1.45)	FSs	YES

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*1 For more information about "ComfySIL™ Functional Safety", please refer to the reverse side of the cover.

Li-ion Battery Monitoring LSIs

(LAPIS Technology products)

Stand-alone type

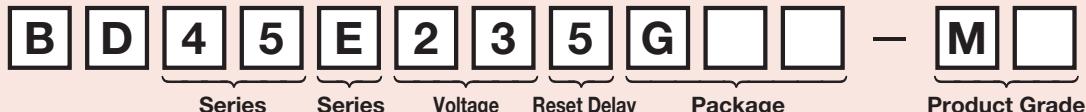
Part No.	Description	Supply Voltage (V)	Oversupply Detection Accuracy (Typ) (mV)	Charge/Discharge Control FET driver	Cell Balancing Switch	Current Consumption (Typ) (μA)	Oversupply/Undervoltage Detection	Charge and Discharge Over-Current Detection	Temperature Detection	Short Circuit Detection	Open Wire Detection	Parameter Change	Operation Temperature (°C)	Package
					Operating	Power-down								
ML5241	5-cells, 2nd protection				—	1	0.1							P-WSON10 -0303-0.50-63
ML5205	5-cells/2nd protection, number of connected battery cells detection	+5 to +25	±25	—	—	3	—							P-VSSOP8 -0150-0.65-TK6
ML5206	5-cells, 2nd protection with Autonomous Cell Balancing				Internal (Autonomous)	1								P-VSSOP8 -0150-0.65-TK6
ML5243	5-cells, cell voltage/current/temperature protection	+5 to +60	±15	Low-side	—	4.5								P-TSSOP20 -0225-0.65-TK6
ML5233	10-cells, cell voltage/current/temperature protection, cascade connection	+7 to +80	±20	—	—	25	0.1	✓	✓	✓	✓			P-LQFP32 -0707-0.80-TK6
ML5245	13-cells, cell voltage/current/temperature protection, cell voltage monitoring					2.5	—	Oversupply detection	—	—	—			P-SSOP30 -56-0.65-ZK6
ML5232	14-cells, 2nd protection													P-TSSOP20 -0225-0.65-TK6

Analog Front-End type

Part No.	Description	Supply Voltage (V)	Cell Voltage Measurement Error (Typ) (mV)	Monitoring Output	Charge/Discharge Control FET driver	Cell Balancing Switch	Current Consumption (Typ) (μA)	Oversupply/Undervoltage Detection	Charge and Discharge Over-Current Detection	Short Circuit Detection	Parameter Change	Operation Temperature (°C)	Package	
					Operating	Power-down								
ML5204	5-cells, analog monitoring output	+3.3 to +42.0	±25	cell voltage/current	—	14		✓	✓					P-TSSOP20 -0225-0.65-TK6
ML5248	7-cells, analog monitoring output	+5.0 to +31.5	±20		High-side	32	0.1	—						P-SSOP30 -56-0.65-ZK6
ML5236	14-cells, ADC built-in, digital monitoring output	+8 to +64	±15	cell voltage/current/temperature	internal	330	Overvoltage detection	—						P-TQFP44 -1010-0.80-ZK6
ML5238	16-cells, analog monitoring output	+7 to +80	±20	cell voltage/current	Low-side	50		—						P-QFP44 -910-0.80-2K6
ML5239	16-cells, ADC built-in, cascade connection, digital monitoring output	+10 to +72	±10	cell voltage/temperature	—	1200								P-TQFP64 -1010-0.50-ZK6

Voltage Detectors (Reset ICs)

Over Voltage Detectors (Reset ICs)	P.61	Voltage Detectors with Adjustable Delay Time	P.61
Voltage Detectors for Automotive	P.62	Power Supply Monitoring IC for Automotive	P.62
Voltage Detectors with Watchdog Timer	P.62	Composite type Voltage Detector (2ch+Comparator)	P.62

Voltage Detectors How to find part number

- 48: Without Delay Time, Open-Drain Output type
 49: Without Delay Time, CMOS Output type
 45: Fixed Delay Time, Open-Drain Output type
 46: Fixed Delay Time, CMOS Output type
 52: Adjustable Delay Time, Open-Drain Output type
 53: Adjustable Delay Time, CMOS Output type
 71: Overvoltage Detection Type, Without Delay Time, Open-Drain Output type
 70: Overvoltage Detection Type, Without Delay Time, Open-Drain Output type
 73: Overvoltage Detection Type, Without Delay Time, CMOS Output type

Ex. 23: 2.3V

None: Without/Adjustable Delay Time
5: 50ms
1: 100ms
2: 200msE/None: Active "L"
L: Active "L"
H: Active "H"
HW: High Voltage Window Detection Type
W: Window Detection TypeG: SSOP5 (SOT23-5)
SSOP6 (SOT23-6)
HFV: HVSOF5
NVX: SSON004R10101/None: For Consumer
M/2M: For Car Infotainment
C/2C: For Car

Voltage Detectors (Reset ICs)

Over Voltage Detectors (Reset ICs)

Part No.	Voltage Detection Precision at $T_s=+25^\circ\text{C}$ (%)	Voltage Detection (V)	RESET Active Voltage (V)	Detection Step (V)	Output type	Circuit Current (μA)		Hysteresis Voltage (mV)	"L" Output Current (mA)	Package
						I_{CCL}	I_{CCH}			
BD71L4LG-1	± 0.8	4.05	1.2 to 7.0	—	Open Drain	0.6	0.7	30	4 ($V_{\text{DD}}=4.25\text{V}$)	SSOP5
BD71L4LHFV-1	± 0.8	4.05	1.2 to 7.0	—					4 ($V_{\text{DD}}=4.25\text{V}$)	HVSOF5
BD71L3SHFV	± 1.0	3.83	1.2 to 7.0	—					4 ($V_{\text{DD}}=4.03\text{V}$)	HVSOF5

Over Voltage Detector ICs (125°C Corresponding)

Part No.	Types	Voltage Detection Precision Within The All Temperature (%)	Voltage Detection (V)	RESET Active Voltage (V)	Detection Step (V)	Output type	Circuit Current (μA)		Hysteresis Voltage (V)	"L" Output Current (mA)	Package	ComfySIL™ Functional Safety*1	Automotive Grade AEC-Q100
							ON	OFF					
Nano BD70HxxG-2C series	0.1V step 4 types	± 1.4	3.46 to 3.76	0.8 to 6.0	0.1	Open Drain	0.27	0.3	—	1.0mA or more	SSOP5	FSs	YES
	0.1V step 4 types		3.46 to 3.76	0.8 to 6.0	0.1								
Nano BD73HxxG-2C series	0.1V step 4 types					CMOS							

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Detection voltage is applied in the xx of part No. Please see the Data sheet specifications.

 Nano Mark is a product using Nano Pulse Control™ technology, Nano Energy™ technology or Nano Cap™ technology. ROHM's innovative "Nano" power supply technologies achieve breakthrough energy savings and miniaturization.
 Nano Mark is a product equipped with Nano Energy™ ultra-low-current technology. Nano Energy™, Nano Pulse Control™ and Nano Cap™ is a trademark or a registered trademark of ROHM Co., Ltd.
Voltage Detectors with Adjustable Delay Time**Voltage Detectors with Externally-Adjustable Delay Time**

Part No.	Types	Voltage detection Precision at $T_s=+25^\circ\text{C}$ (%)	Voltage Detection (V)	RESET Active Voltage (V)	Detection Step (V)	Output type	Circuit Current (μA)		Hysteresis Voltage (V)	"L" Output Current (mA)	RESET Active Timeout Period (ms)	Package	
							ON	OFF					
New BD52xxG-1 series	0.1V step 42 types	± 0.9	0.9 to 5.0	0.8 to 6.0	0.1	Open Drain	0.23	0.27	$V_{\text{DET}} \times 0.05$	1.0 or more	2.0 or more	Variable	SSOP5

Voltage Detectors with Voltage Detection/Externally-Adjustable Delay Time

Part No.	Voltage Detection Precision at $T_s=+25^\circ\text{C}$ (%)	Voltage Detection (V)	Power Supply Voltage (V)	Output type	Circuit Current (μA)	Hysteresis Voltage (V)	Output ON Resistance (Ω)	RESET Active Timeout Period (ms)	Package
BD4142HFV	± 1.8	0.5	3.0 to 5.5	Open Drain	7.5	0.01	100	Variable	HVSOF5

Voltage Detectors with Externally-Adjustable Delay Time: Detection voltage (from 0.9V to 5.0V as 0.1V step) is applied in the xx of part No. Ex: In case of 2.3V detection voltage in BD52xxG-1 series, part No. is BD5223G-1.

Voltage Detectors for Automotive

Part No.	Types	Voltage Detection Precision at T _A =25°C (%)	Voltage Detection (V)	RESET Active Voltage (V)	Detection Step (V)	Output type	Circuit Current (μA)		Hysteresis Voltage (V)	"L" Output Current (mA)	RESET Active Timeout Period (ms)	Delay Time Precision (%)	Manual Reset PIN	Package	ComfySIL™ Functional Safety*1	Automotive Grade AEC-Q100	
							ON	OFF									
BD48ExxG-M series	0.1V step 38 types	±1	2.3 to 6.0	0.95 to 10.00	0.1	Open Drain	0.60 (V _{DET} =4.8V)	0.85 (V _{DET} =4.8V)	V _{DET} ×0.05	0.4 or more (V _{D0} =1.5V V _{S0} =0.5V)	2 or more (V _{D0} =2.4V V _{S0} =0.5V)	—	—	NO	SSOP5	FSs	YES
BD49ExxG-M series	0.1V step 38 types		2.3 to 6.0	0.95 to 10.00	0.1		CMOS					—	—	NO	SSOP5	FSs	YES
BD45Exx5G-M series	0.1V step 26 types		2.3 to 4.8	0.95 to 10.00	0.1							50	—	YES	SSOP5	FSs	YES
BD45Exx1G-M series	0.1V step 26 types		2.3 to 4.8	0.95 to 10.00	0.1	Open Drain						100	—	YES	SSOP5	FSs	YES
BD45Exx2G-M series	0.1V step 26 types		2.3 to 4.8	0.95 to 10.00	0.1							200	—	YES	SSOP5	FSs	YES
BD46Exx5G-M series	0.1V step 26 types		2.3 to 4.8	0.95 to 10.00	0.1							50	—	YES	SSOP5	FSs	YES
BD46Exx1G-M series	0.1V step 26 types		2.3 to 4.8	0.95 to 10.00	0.1	CMOS						100	—	YES	SSOP5	FSs	YES
BD46Exx2G-M series	0.1V step 26 types		2.3 to 4.8	0.95 to 10.00	0.1							200	—	YES	SSOP5	FSs	YES
Nano BD52xxG-2M series	0.1V step 42 types		0.9 to 5.0	0.8 to 6.0	0.1	Open Drain				1.0 or more (V _{D0} =2.4V V _{S0} =0.4V)	2.0 or more (V _{D0} =2.4V V _{S0} =0.4V)	Variable	±30% (All Temperature)	NO	SSOP5	FSs	YES
Nano BD53xxG-2M series	0.1V step 42 types		0.9 to 5.0	0.8 to 6.0	0.1	CMOS						Variable	±30% (All Temperature)	NO	SSOP5	FSs	YES

Voltage Detectors (125°C Corresponding)

Part No.	Types	Voltage Detection Precision Within The All Temperature (%)	Voltage Detection (V)	RESET Active Voltage Range (V)	Detection step (V)	Output Type	Circuit current (μA)		Hysteresis Voltage (V)	"L" Output current (mA) (V _{D0} =0.4V)	RESET Active Timeout Period (ms)	Delay Time Precision (%)	Manual Reset PIN	Package	ComfySIL™ Functional Safety*1	Automotive Grade AEC-Q100	
							ON	OFF									
Nano BD52xxG-2C series	0.1V step 42 types	±3	0.9 to 5.0	0.8 to 6.0	0.1	Open Drain			V _{DET} ×0.05			Variable	±50 (All Temperature)	NO	SSOP5	FSs	YES
Nano BD53xxG-2C series	0.1V step 42 types		0.9 to 5.0	0.8 to 6.0	0.1		CMOS			0.23	0.27	Variable		NO	SSOP5	FSs	YES
Nano BD5320NVX-2C	1	±2.5	2.0	0.8 to 6.0	—	CMOS				1.0 or more (V _{D0} =1.2V)	2.0 or more (V _{D0} =2.4V)	Variable	NO SSON004R1010	FSs	YES		
Nano BD52xxNVX-2C series	8 types		1.4 to 3.1	0.8 to 6.0	—					0.23	0.27	Variable		NO SSON004R1010	FSs	YES	
Nano BD70HxxG-2C/ BD70HxxG-C series	0.1V step 5 types	±1.4	3.46 to 3.76/3.06	0.8 to 6.0	0.1	Open Drain				0.27	0.3	—	—	NO	SSOP5	FSs/FSs	YES
Nano BD73HxxG-2C series	0.1V step 4 types		3.46 to 3.76	0.8 to 6.0	0.1		CMOS					—		NO	SSOP5	FSs	YES

Window Voltage Detectors (125°C Corresponding)

Part No.	Operating Supply Voltage (V)	Voltage Detection Precision Within The All Temperature (%)	Over Voltage Detection (V)	Low Voltage Detection (V)	Output Type	Circuit current (μA)	Hysteresis Voltage (V)	"L" Output Current (mA) (V _{D0} =0.4V)	RESET Active Timeout Period (ms)	Delay Time Precision (%)	Package	ComfySIL™ Functional Safety*1	Automotive Grade AEC-Q100
Nano BD48HW0G-C	1.8 to 40	±0.75	1.277	1.277	Open Drain	0.5	V _{DET} ×0.01	2 or more (V _{D0} =1.8V)	—	—	SSOP6	FSs	YES
BD48W00G-C			1.2	1.2		3		1					
Nano BD52W01G-C	1.6 to 6.0	±5	1.32	1.08	Open Drain	0.3		1 or more (V _{D0} =1.6V)	Variable	±50 (All Temperature)	SSOP6	FSs	YES
Nano BD52W02G-C			1.65	1.35				2 or more (V _{D0} =2.4V)					
Nano BD52W03G-C			1.98	1.62	CMOS								
Nano BD52W04G-C			2.75	2.25									
Nano BD52W05G-C			3.63	2.97	CMOS								
Nano BD52W06G-C			5.5	4.5									

Detection voltage is applied in the "xx" of part No. Ex.: In case of 2.3V detection voltage in BD48ExxG-M series, Part No. is BD48E23G-M.

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Power Supply Monitoring IC for Automotive

Part No.	Supply Voltage (V)	RESET Detection Voltage (V)	Power good Detection Voltage (V)	Detection level (%)	Detection Precision (%)	Power good ch	Output type	WDT type	RESET Active Timeout Period	Self-diagnosis function	Package	ComfySIL™ Functional Safety*1	Automotive Grade AEC-Q100
BD39040MUF-C	2.7 to 5.5	Variable	Variable	±10	±3	4	Open Drain	Window Type	10ms	YES	VQFN16FV3030	FSs	YES
BD39042MUF-C				±6	±1.4				10ms		VQFN16FV3030	FSs	YES

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Others

Part No.	Voltage Detection Precision (%)	Voltage Detection (V)	RESET Active Voltage (V)	Output type	Circuit Current (μA)	Hysteresis Voltage (V)	"L" Output Current (mA)	RESET Active Timeout Period	Delay Circuit Resistance (MΩ)	WDT Active Voltage (V)	INH Mode (Active)	Package
BD37A19FVM	±1.5	1.9	1.0 to 10.0	Open Drain	5	V _{DET} ×0.13	0.7	Variable	10	2.5 to 10.0	H	MSOP8
BD37A41FVM		4.1	1.0 to 10.0			V _{DET} ×0.035					H	MSOP8
BD87A28FVM		2.8	1.0 to 10.0			V _{DET} ×0.045					L	MSOP8
BD87A29FVM		2.9	1.0 to 10.0			V _{DET} ×0.05					L	MSOP8
BD87A34FVM		3.4	1.0 to 10.0			V _{DET} ×0.035					L	MSOP8
BD87A41FVM		4.1	1.0 to 10.0								L	MSOP8
BD99A41F		4.1	1.0 to 10.0								H	SOP8

Composite type Voltage Detector (2ch+Comparator)

Part No.	Voltage Detection Precision (%)	Voltage Detection (V)	Output type	Circuit Current (μA)	Hysteresis Voltage (mV)	RESET Active Timeout Period	Input Voltage (V)	Package
BD3775AF	±1.5	1.23	Open Collector+Constant Current Pull Up	350	28	Variable	3.5 to 18.0	SOP8

Motor/Actuator Drivers

DC Brush Motor Drivers	P.63	Stepper Motor Drivers	P.65
3-Phase Brushless Motor Drivers	P.68	Fan Motor Drivers	P.69
Drivers for Printer	P.72	Drivers for Camera	P.72
Mobile Phone Module Drivers	P.73		

 Click on the icon to access the product page on ROHM's website. Please check the website for the latest updates.

DC Brush Motor Drivers

7V Max H-Bridge Drivers

Part No.	ch	Supply Voltage (V)	Output Current (A)	Input Threshold Voltage (V)		Output ON Resistance (Typ) (Ω)	Output Modes	Package
				H Level	L Level			
BD6210F	1	3.0 to 5.5	0.5	2.0 or more	0.8 or less	1.0	Forward/Reverse/Standby (Idle)/Brake	SOP8
BD6210HFP			1.0			1.0		HRP7
BD6211F			2.0			0.5		SOP8
BD6211HFP								HRP7
BD6212FP								HSOP25
BD6212HFP								HRP7

18V Max H-Bridge Drivers

Part No.	ch	Supply Voltage (V)	Output Current (A)	Input Threshold Voltage (V)		Output ON Resistance (Typ) (Ω)	Output Modes	Package
				H Level	L Level			
BD6220F	1	6.0 to 15.0	0.5	2.0 or more	0.8 or less	1.5	Forward/Reverse/Standby (Idle)/Brake	SOP8
BD6221F			1.0			1.5		SOP8
BD6222FP			2.0			1.0		HSOP25
BD6222HFP						1.5		HRP7
BD6225FP			0.5			1.5		HSOP25
BD6226FP			1.0			1.5		HSOP25

36V Max H-Bridge Drivers

Part No.	ch	Supply Voltage (V)	Output Current (A)	Input Threshold Voltage (V)		Output ON Resistance (Typ) (Ω)	Output Modes	Package
				H Level	L Level			
BD6230F	1	6.0 to 32.0	0.5	2.0 or more	0.8 or less	1.5	Forward/Reverse/Standby (Idle)/Brake	SOP8
BD6231F			1.0			1.5		SOP8
BD6231HFP			2.0			1.0		HRP7
BD6232FP						1.5		HSOP25
BD6232HFP						1.0		HRP7
BD6236FP	2	8.0 to 28.0	1.0			1.5		HSOP25
BD6236FM			2.0			1.0		HSOP-M28
BD6237FM						1.0		HSOP-M28
BD62105AFVM			0.5			1.8		MSOP8
New BD62110JEFJ			1.0			0.65		HTSOP-J8
New BD62120JEFJ			2.0			0.35		HTSOP-J8
New BD62130JEFJ			3.0			1.9		HTSSOP-B28
BD62210AEFV			1.0			0.65		HTSSOP-B24
BD60203EFV			1.7					HTSSOP-B28
BD62220AEFV			2.0					VQFN032V5050
BD62221MUV	2	8.0 to 28.0	2.0			0.55		

40V Max H-Bridge Drivers

Part No.	ch	Supply Voltage (V)	Output Current (A)	Output Modes	Output ON Resistance (Upper + Lower) (Typ) (Ω)	Operating Temperature (°C)	Package	ComfySIL™ Functional Safety*1	Automotive Grade AEC-Q100
BD16950EFV-C	1	5.5 to 40.0	—	Available to select High, Low or Hi-Z Output by each Output terminal.	—	-40 to +125	HTSSOP-B24	FSs	YES
BD16939AEFV-C	3 (Half 6ch)	6.3 to 32.0	1.0	Available to select High, Low or Hi-Z Output by each Output terminal.	1.35	-40 to +125	HTSSOP-B28	FSs	YES
BD16938AEFV-C	4 (Half 8ch)	6.3 to 32.0	1.0	Available to select High, Low or Hi-Z Output by each Output terminal.	1.4	-40 to +125	HTSSOP-B28	—	YES
BD16912EFV-C	1	6.0 to 18.0	3.0	Forward/Reverse/Standby/Brake	0.36	-40 to +125	HTSSOP-B20	FSs	YES

50V Max H-Bridge Drivers

Part No.	ch	Supply Voltage (V)	Output Current (A)	Input Threshold Voltage (V)		Output ON Resistance (Typ) (Ω)	Output Modes	Package
				H Level	L Level			
BD63130AFM	1	8.0 to 46.2	3.0	2.0 or more	0.8 or less	0.55	Forward/Reverse/Standby (Idle)/Brake	HSOP-M36
BD63150AFM			5.0			0.3		HSOP-M36

H-Bridge Driver High-Current

Part No.	ch	Supply Voltage (V)	Output Current (A)	Input Threshold Voltage (V)		Output ON Resistance (Typ) (Ω)	Output Modes	Package
				H Level	L Level			
BD62321HFP	1	6.0 to 32.0	3.0	2.0 or more	0.8 or less	1.0	Forward/Reverse/Standby (Idle)/Brake	HRP7

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DC Brush Motor Drivers

H-Bridge Drivers High-Speed series

Part No.	ch	Supply Voltage (V)	Output Current (A)	Input Threshold Voltage (V)		Output ON Resistance (Typ) (Ω)	Output Modes	Package
				H Level	L Level			
BD6736FV	1	2.0 to 9.0	1.0 peak 3.2	2.0 or more	0.7 or less	0.35	Forward/Reverse/ Standby (Idle)/ Brake	SSOP-B20
BD6376GUL	1	2.0 to 9.0	1.0	2.0 or more	0.7 or less	0.45		VCSP50L1
BD65494MUV	1	2.0 to 9.0	1.0 peak 2.5	2.0 or more	0.7 or less	0.55		VQFN016V3030
BD63576NUX	1	2.0 to 10.0	1.2 peak 3.2	$V_{cc} \times 0.7$ or more	$V_{cc} \times 0.3$ or less	0.55		VSOP008X2020
BD65491FV	1	1.8 to 16.0	1.2 Peak 4	1.45 or more	0.5 or less	0.35		SSOP-B16
BD65496MUV	1	1.8 to 16.0	1.2 peak 5	1.45 or more	0.5 or less	0.35		VQFN024V4040
BD63573NUV	1	2.0 to 16.0	1.2 peak 3.2	1.45 or more	0.5 or less	0.38		VSOP010V3030
BD6735FV	2	2.0 to 8.0	1.0	2.0 or more	0.7 or less	1.0		SSOP-B20
BD63572MUV	2	2.0 to 9.0	1.0 peak 2.5	1.85 or more	0.9 or less	0.4		VQFN20PV3535
BD63565EFV	2	1.8 to 16.0	1.0	1.45 or more	0.5 or less	0.9		HTSSOP-B20
BD65492MUV	2	1.8 to 16.0	1.0	1.45 or more	0.5 or less	0.9		VQFN024V4040

Stepper Motor Drivers

High Performance, High Reliability 36V Stepper Motor Drivers For PPCs, MFPs, Industrial equipments etc.

BD63740FM	
BD63731EFV	
BD63730EFV	
BD63725BEFV	
BD63720AEFV	
BD63715AEFV	
BD63710AEFV	
BD63920MUV	
BD63910MUV	
BD63716AMWV	
BD68720EFV	
BD68715EFV	
BD68710EFV	
BD6389FM	
BD6387EFV	
BD6385EFV	
BD6383EFV	

*1 BD6387EFV, BD6385EFV, BD6383EFV and BD6389FM are function-compatible.

*2 BD6387EFV, BD6385EFV and BD6383EFV are all pin-compatible.

*3 BD68720EFV, BD68715EFV and BD68710EFV are function-compatible.

*4 BD68720EFV, BD68715EFV and BD68710EFV are all pin-compatible.

*5 BD63731EFV, BD63725BEFV, BD63720AEFV, BD63715AEFV and BD63710AEFV are function-compatible.

*6 BD63731EFV, BD63725BEFV, BD63720AEFV, BD63715AEFV and BD63710AEFV are all pin-compatible.

Part No.	Supply Voltage (V) V _{CC}	Output Current (A)	Circuit Current (mA)	Input Threshold Voltage (V)		Output ON Resistance (Ω)	Package
				High Level	Low Level		
BD63740FM	8 to 28	4.0	2.0	2.0	0.8	0.28	HSOP-M36
BD63731EFV	8 to 28	3.0	2.0	2.0	0.8	0.28	HTSSOP-B28
BD63730EFV	19 to 28	3.0	2.0	2.0	0.8	0.4	HTSSOP-B54
BD63725BEFV	8 to 28	2.5	2.0	2.0	0.8	0.35	HTSSOP-B28
BD63720AEFV	19 to 28	2.0	2.0	2.0	0.8	0.65	HTSSOP-B28
BD63715AEFV	19 to 28	1.5	2.0	2.0	0.8	0.95	HTSSOP-B28
BD63710AEFV	19 to 28	1.0	2.0	2.0	0.8	1.2	HTSSOP-B28
BD63920MUV	8 to 28	2.0	2.5	2.0	0.8	0.49	VQFN028V5050
BD63910MUV	8 to 28	1.0	2.5	2.0	0.8	1.3	VQFN028V5050
BD63716AMWV	8 to 28	1.5	2.0	2.0	0.8	0.85	UQFN040V5050
BD68720EFV	19 to 28	2.0	2.0	2.0	0.8	0.65	HTSSOP-B28
BD68715EFV	19 to 28	1.5	2.0	2.0	0.8	0.95	HTSSOP-B28
BD68710EFV	19 to 28	1.0	2.0	2.0	0.8	1.2	HTSSOP-B28
BD6389FM	10 to 28	2.2	4.5	2.0	0.8	0.7	HSOP-M36
BD6387EFV	10 to 28	2.0	4.5	2.0	0.8	0.8	HTSSOP-B40
BD6385EFV	10 to 28	1.5	4.5	2.0	0.8	1.0	HTSSOP-B40
BD6383EFV	10 to 28	1.0	4.5	2.0	0.8	1.5	HTSSOP-B40

High-efficiency 36V Withstand Voltage Stepping Motor Driver

BD65520MUV	
Part No.	Supply Voltage (V) V _{CC}
New BD65520MUV	8 to 28

Symbol Key	CLK Control signal input CLK-IN type	PARA Control signal input PARALLEL-IN type	Iomax 1.0A	Iomax 1.5A	Iomax 2.0A	Iomax 2.2A	Iomax 2.5A	Iomax 3.0A	Iomax 4.0A	Maximum output current	1/4STEP	1/2STEP	1/2.5STEP	Number of step	Constant-PWM	Switch able between forward and reverse
DECAY SW	SLOW/FAST/MIX DECAY switching function	Thin PKG	Small power package	High power package	FUNC Function compatible	EPI Easy replacement pin compatible with competitor's	ONE POWER	T.S.D.	O.C.P.	UV LO	UV LO	OVLO	OVLO	4kV	6kV	
T.S.D.	Built-in thermal shut-down circuit	O.C.P.	Built-in over-current protection circuit	UV LO	Built-in under voltage lock out circuit	OVLO	Built-in over voltage lock out circuit	ESD	Adjacent pin short protection	Term Short Protection						
															Protection	

Standard 36V Stepping Motor Drivers

BD6395FP

	I _{max} 1.5A 1/2STEP	Constant Current PWM	Small Power package	ONE POWER	T.S.D.	O.C.P.	UV LO	OVLO	4 kV	FUNCTION COMPATIBLE ^{*1}	
	I _{max} 1.2A 1/4STEP	Constant Current PWM	Thin PKG	Small Power package	ONE POWER	T.S.D.	O.C.P.	UV LO	OVLO	4 kV	FUNCTION COMPATIBLE ^{*2}
	I _{max} 2.0A 1/4STEP	Constant Current PWM	Thin PKG	Small Power package	ONE POWER	T.S.D.	O.C.P.	UV LO	OVLO	4 kV	FUNCTION COMPATIBLE ^{*3}
	I _{max} 1.0A 1/4STEP	Constant Current PWM	Thin PKG	Small Power package	ONE POWER	T.S.D.	O.C.P.	UV LO	OVLO	4 kV	FUNCTION COMPATIBLE ^{*4}
	I _{max} 0.8A 1/4STEP	Constant Current PWM	Thin PKG	Small Power package	ONE POWER	T.S.D.	O.C.P.	UV LO	OVLO	4 kV	FUNCTION COMPATIBLE ^{*5}
	I _{max} 1.5A 1/2STEP	Constant Current PWM	Thin PKG	Small Power package	ONE POWER	T.S.D.	O.C.P.	UV LO	OVLO	4 kV	FUNCTION COMPATIBLE ^{*6}
	I _{max} 1.2A 1/2STEP	Constant Current PWM	Thin PKG	Small Power package	ONE POWER	T.S.D.	O.C.P.	UV LO	OVLO	4 kV	FUNCTION COMPATIBLE ^{*7}
	I _{max} 2.0A 1/2STEP	Constant Current PWM	Thin PKG	Small Power package	ONE POWER	T.S.D.	O.C.P.	UV LO	OVLO	4 kV	FUNCTION COMPATIBLE ^{*8}
	I _{max} 2.0A 1/2STEP	Constant Current PWM	Thin PKG	Small Power package	ONE POWER	T.S.D.	O.C.P.	UV LO	OVLO	4 kV	FUNCTION COMPATIBLE ^{*9}
	I _{max} 1.0A 1/4STEP	Constant Current PWM	Thin PKG	Small Power package	ONE POWER	T.S.D.	O.C.P.	UV LO	OVLO	4 kV	FUNCTION COMPATIBLE ^{*10}
	I _{max} 0.8A 1/2STEP	Constant Current PWM	Thin PKG	Small Power package	ONE POWER	T.S.D.	O.C.P.	UV LO	OVLO	4 kV	FUNCTION COMPATIBLE ^{*11}
	I _{max} 1.5A 1/2STEP	Constant Current PWM	Thin PKG	Small Power package	ONE POWER	T.S.D.	O.C.P.	UV LO	OVLO	4 kV	FUNCTION COMPATIBLE ^{*12}
	I _{max} 1.5A 1/2STEP	Constant Current PWM	Thin PKG	Small Power package	ONE POWER	T.S.D.	O.C.P.	UV LO	OVLO	4 kV	FUNCTION COMPATIBLE ^{*13}
	I _{max} 1.5A 1/2STEP	Constant Current PWM	Thin PKG	Small Power package	ONE POWER	T.S.D.	O.C.P.	UV LO	OVLO	4 kV	FUNCTION COMPATIBLE ^{*14}
	I _{max} 1.2A 1/2STEP	Constant Current PWM	Thin PKG	Small Power package	ONE POWER	T.S.D.	O.C.P.	UV LO	OVLO	4 kV	FUNCTION COMPATIBLE ^{*15}
	I _{max} 1.65A 1/2STEP	Constant Current PWM	Thin PKG	Small Power package	ONE POWER	T.S.D.	O.C.P.	UV LO	OVLO	4 kV	FUNCTION COMPATIBLE ^{*16}

^{*1} The BD6395FP, BD6393FP, and BD6290EFV are all function-compatible.^{*2} The BD6395FP and BD6393FP are all pin-compatible.^{*3} The BD63620AEFV, BD63610AEFV, and BD63801EFV are all function-compatible.^{*4} The BD63960EFV and BD63940EFV are all pin-compatible.^{*5} The BD68620EFV and BD68610EFV are all function-compatible.^{*6} The BD63960EFV and BD63940EFV are all function-compatible.^{*7} The BD63960EFV and BD63940EFV are all function-compatible.^{*8} The BD63621MUV and BD63620AEFV are all function-compatible.^{*9} The BD63610AEFV and BD63801EFV are all function-compatible.^{*10} The BD63801EFV and BD63801EFV are all function-compatible.^{*11} The BD63888AEKV and BD68888AEKV are all function-compatible.^{*12} The BD60223FP and BD63620AEFV are all function-compatible.^{*13} The BD68888AEKV and BD68888AEKV are all function-compatible.^{*14} The BD68888AEKV and BD68888AEKV are all function-compatible.^{*15} The BD63888MUV and BD68888MUV are all function-compatible.^{*16} The BD68888MUV and BD68888MUV are all function-compatible.

Part No.	Supply Voltage (V) V _{CC}	Output Current (A)	Circuit Current (mA)	Input Threshold Voltage (V)		Output ON Resistance (Ω)	Package
				High Level	Low Level		
BD6395FP	16 to 28	1.5	3.0	2.0	0.8	1.2	HSOP25
BD6393FP	16 to 28	1.2	3.0	2.0	0.8	1.5	HSOP25
BD68620EFV	19 to 28	2.0	1.3	2.0	0.8	0.95	HTSSOP-B24
BD68610EFV	19 to 28	1.0	1.3	2.0	0.8	1.8	HTSSOP-B20
BD6290EFV	19 to 28	0.8	3.0	2.0	0.8	2.8	HTSSOP-B24
BD63960EFV	19 to 28	1.5	2.7	2.0	0.8	1.1	HTSSOP-B24
BD63940EFV	19 to 28	1.2	2.7	2.0	0.8	1.4	HTSSOP-B24
BD63621MUV	8 to 28	2.0	2.5	2.0	0.8	0.49	VQFN028V5050
BD63620AEFV	19 to 28	2.0	1.3	2.0	0.8	0.95	HTSSOP-B24
BD63610AEFV	19 to 28	0.8	1.3	2.0	0.8	1.8	HTSSOP-B20
BD63801EFV	19 to 28	0.8	2.7	2.0	0.8	2.8	HTSSOP-B24
BD60223FP	8 to 28	1.5	2.5	2.0	0.8	0.55	HSOP25
BD63888AEKV	8 to 28	1.5	5.0	2.0	0.8	1.0	HTQFP48V
BD68888AEKV	8 to 28	1.5	5.0	2.0	0.8	1.0	HTQFP48V
BD63888MUV	8 to 28	1.2	5.0	2.0	0.8	1.0	VQFN036V6060
BD68888MUV	8 to 28	1.65	5.0	2.0	0.8	1.0	VQFN036V6060

Symbol Key		Control signal input CLK-IN type		Control signal input PARA-IN type		SPI BUS		Constant Current PWM		Thin PKG		Switch able between forward and reverse		Small power package		High power package		DECAY SW		DECAY switching function		Easy replacement pin compatible with competitor's
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μ-step 36V Stepping Motor Drivers**BD63860EFV****BD63510AEFV****BD63511EFV****BD63520AEFV****BD63521EFV****BD63524AEFV****BD63525AEFV****BD63740FM**

*1 The BD63510AEFV, BD63520AEFV and BD63525AEFV are all function-compatible.

*2 The BD63511AEFV and BD63521AEFV are all function-compatible.

Part No.	Supply Voltage (V) V _{CC}	Output Current (A)	Circuit Current (mA)	Input Threshold Voltage (V)		Output ON Resistance (Ω)	Package
				High Level	Low Level		
BD63860EFV	16 to 28	2.5	4.0	2.0	0.8	0.8	HTSSOP-B28
BD63510AEFV	8 to 28	1.0	2.5	2.0	0.8	1.75	HTSSOP-B28
BD63511EFV	8 to 28	1.0	2.5	2.0	0.8	1.75	HTSSOP-B28
BD63520AEFV	8 to 28	2.0	2.5	2.0	0.8	0.65	HTSSOP-B28
BD63521EFV	8 to 28	2.0	2.5	2.0	0.8	0.65	HTSSOP-B28
BD63524AEFV	8 to 28	2.5	2.5	2.0	0.8	0.35	HTSSOP-B28
BD63525AEFV	8 to 28	2.5	2.5	2.0	0.8	0.35	HTSSOP-B28
BD63740FM	8 to 28	4.0	2.0	2.0	0.8	0.28	HSOP-M36

Low Voltage Stepping Motor Drivers For Mini and Handheld Printers**BD6382EFV****BD6381EFV****BD6380EFV**

Part No.	Supply Voltage (V) V _{CC}	Output Current (A)	Circuit Current (mA)	Input Threshold Voltage (V)		Output ON Resistance (Ω)	Package
				High Level	Low Level		
BD6382EFV	3.0 to 5.5	5.5 to 13.5	0.8	1.6	2.0	0.8	1.2
BD6381EFV	2.5 to 5.5	6.0 to 13.5	1.2	1.6	2.0	0.8	1.0
BD6380EFV	2.5 to 5.5	4.0 to 13.5	0.8	1.6	2.0	0.8	1.2

40V Stepping Motor Driver**BD63401EFV**

Part No.	Supply Voltage (V) V _{CC}	Output Current (A)	Circuit Current (mA)	Input Threshold Voltage (V)		Output ON Resistance (Ω)	Package
				High Level	Low Level		
BD63401EFV	8 to 33	1.35	2.0	2.0	0.8	1.0	HTSSOP-B20

45V Stepping Motor Drivers**BD6425EFV****BD6423EFV****BD6422EFV**

Part No.	Supply Voltage (V) V _{CC}	Output Current (A)	Circuit Current (mA)	Input Threshold Voltage (V)		Output ON Resistance (Ω)	Package
				High Level	Low Level		
BD6425EFV	19 to 42	1.5	2.0	2.0	0.8	1.1	HTSSOP-B28
BD6423EFV	19 to 42	1.0	2.0	2.0	0.8	2.0	HTSSOP-B24
BD6422EFV	19 to 42	1.0	2.0	2.0	0.8	2.0	HTSSOP-B24

36V Unipolar Stepper Motor Driver**BM6343FS-Z**

Part No.	Supply Voltage (V) V _{CC}	Output Current (A)	Circuit Current (mA)	Input Threshold Voltage (V)		Output ON Resistance (Ω)	Package
				High Level	Low Level		
BM6343FS-Z	8 to 28	3.0	5.0	2.0	0.8	0.10	SSOP-A54_36

(A) Built-in over-current protection circuit
UV LO Built-in under voltage lock out circuit
FUNC Function-compatible

Standby 0µA current 0µA
-40°C Operating temperature range +85°C

Built-in over voltage lock out circuit
Inverse mounting protection

4KV 8KV ESD resistance

Adjacent pin short protection

ONE POWER due to built-in regulator

S S Built-in thermal shut-down circuit
T.S.D.

Automotive 40V Stepping Motor Driver

BD63800MUF-C



CLK IN

Control signal input CLK-IN type



SPI

Built-in servo circuit

 I_{max}

Maximum output current



1.2A

1/2 STEP



Current PWM

Switch able between forward and reverse



FW/RW

External output FET



T.S.D.

External output FET



ONE POWER

Built-in thermal T.S.D. shut-down circuit



36V MAX

Built-in thermal T.S.D. shut-down circuit



40V MAX

Built-in thermal T.S.D. shut-down circuit



60V MAX

Built-in thermal T.S.D. shut-down circuit



100V MAX

Built-in thermal T.S.D. shut-down circuit



120° SLOPE PWM

Voltage resistance



120° PWM

Output power system



180° PWM

Number of step



DMOS

Built-in motor lock-up protection circuit



FG AMP

Built-in FG Amplifier



HYS

Built-in hysteresis Amplifier



O.C.P

Built-in over-current protection circuit



V

Built-in over voltage protection circuit



U.V.P

Built-in under voltage protection circuit

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*1 For more information about "ComfySIL™ Functional Safety", please refer to the reverse side of the cover.

3-Phase Brushless Motor Drivers

3-Phase Brushless Motor Pre-Drivers with Speed Control

BD6762FV



SERVO

120° SLOPE PWM



External FET

FG AMP



HYS

AMP



T.S.D.

T.S.D.



SHORT BRAKE

FW/RW



Motor lock protection



V

O.V.P.



V

U.V.P.

BD63030EKV-C



SERVO

180° PWM



External FET

FG AMP



T.S.D.



SHORT BRAKE



Motor lock protection



V



O.C.P.



V

O.V.P.

Part No.	Max Voltage (V)	Supply Voltage (V)	Operating Temperature (°C)	Circuit Current (mA)	Input Threshold Voltage (V)		External FET Drive Voltage		PWM Frequency (kHz)	Package
					H Level	L Level	Upper (V)	Lower (V)		
BD6762FV	36	16 to 28	-25 to +75	17	2.2	0.8	$V_{cc}+6.8$	10.8	16	HTSSOP-B24
BD63030EKV-C	50	6.5 to 18.0	-40 to +125	18	3.8	1.9	$2 \times V_{cc}-1.0$	5.5	20	HTQFP64AV

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3-Phase Brushless Motor Pre-Drivers

BD6761FS



180° PWM



External FET



T.S.D.



SHORT BRAKE



Motor lock protection



V



U.V.P.

BD63001AMUV



120° PWM



External FET



T.S.D.



SHORT BRAKE



Motor lock protection



V



U.V.P.

BD63002AMUV



120° PWM



External FET



T.S.D.



SHORT BRAKE



Motor lock protection



V



U.V.P.

BM62300MUV



180° PWM



External FET



T.S.D.



SHORT BRAKE



Motor lock protection



V



U.V.P.

BD63003MUV



120° PWM



External FET



T.S.D.



SHORT BRAKE



Motor lock protection



V



U.V.P.

BD67891MUV



120° PWM



External FET



T.S.D.



SHORT BRAKE



Motor lock protection



V



U.V.P.

BD16805FV-M



60V MAX

180° PWM



External FET



T.S.D.



SHORT BRAKE



Motor lock protection



V



O.C.P.



V

O.V.P.

BM64070MUV



100V MAX

180° PWM



External FET



T.S.D.



SHORT BRAKE



Motor lock protection



V



O.C.P.



V

O.V.P.

BM64300MUV



100V MAX

180° PWM



External FET



T.S.D.



SHORT BRAKE



Motor lock protection



V



O.C.P.



V

O.V.P.

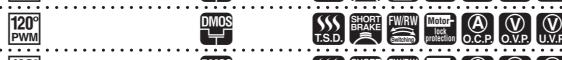
Part No.	Max Voltage (V)	Supply Voltage (V)	Operating Temperature (°C)	Circuit Current (mA)	Input Threshold Voltage (V)		External FET Drive Voltage		PWM Frequency (kHz)	Package
					H Level	L Level	Upper			

3-Phase Brushless Motor Drivers

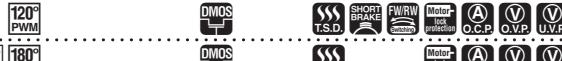
BD63005AMUV



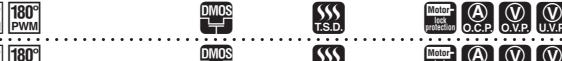
BD63006MUV



BD63007MUV



BD63015EFV



BD63035EFV-M



BD16852EFV-C



Part No.	Max Voltage (V)	Supply Voltage (V)	Output Current (A)	Operating Temperature (°C)	Circuit Current (mA)	Input Threshold Voltage (V)		Output ON Resistance (Ω)	PWM Frequency (kHz)	Package	ComfySIL™ Functional Safety*1	Automotive Grade AEC-Q100
						H Level	L Level					
BD63005AMUV	33	10 to 28	2	-25 to +85	4.4	2.0	0.8	0.17	External IN	VQFN040V6060	—	—
BD63006MUV	33	8 to 28	1.5	-40 to +85	4.4	2.0	0.8	0.8	External IN	VQFN024V4040	—	—
BD63007MUV	33	8 to 28	3	-25 to +85	4.4	2.0	0.8	0.17	External IN	VQFN040V6060	—	—
BD63015EFV	36	8 to 28	1.5	-40 to +105	8	2.0	0.8	0.6	External IN	HTSSOP-B20	—	—
BD63035EFV-M	36	8 to 28	1.5	-40 to +105	8	2.0	0.8	0.6	22.7	HTSSOP-B20	FSs	YES
BD16852EFV-C	40	5.5 to 18.0	3.2	-40 to +125	5	—	—	0.4	20	HTSSOP-B28	FSs	YES

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*1 For more information about "ComfySIL™ Functional Safety", please refer to the reverse side of the cover.

Fan Motor Drivers

5V Single-Phase Full-wave Fan Motor Drivers

BH6766FVM



BD6965NUX



BU6909AGFT



BU69090NUX



Part No.	Supply Voltage (V)	I _o Max (mA)	Power Transistor	Output Saturation Voltage (V)	Speed Control	Half Bias Voltage (V)	Lock Time Ratio	Package
BH6766FVM	2.0 to 6.0	630	CMOS	Upper and Lower 0.6 (I _o =250mA)	—	1.3	—	MSOP8
BD6965NUX	2.0 to 5.5	800	CMOS	Upper and Lower 0.4 (I _o =250mA)	Direct PWM	—	1 : 10	VSON008X2030
BU6909AGFT	1.8 to 5.5	800	CMOS	Upper and Lower 0.16 (I _o =200mA)	Direct PWM	Include Hall sensor	1 : 10	TSSOF6
BU69090NUX	1.8 to 5.5	800	CMOS	Upper and Lower 0.16 (I _o =200mA)	Direct PWM	Include Hall sensor	1 : 10	VSON008X2030

Standard Single-Phase Full-wave Fan Motor Drivers

BD6981FVM



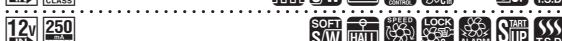
BD6982FVM



BD6967FVM



BD6968FVM



BD6962FVM



BD6964FVM



BD6961F



BD6964F



BD69830FV



Part No.	Supply Voltage (V)	I _o Max (mA)	Power Transistor	Output Saturation Voltage (V)	Speed Control	Half Bias Voltage (V)	Lock Time Ratio	Package
BD6981FVM	2.8 to 16.0	800	DMOS	Upper and Lower 0.45 (I _o =200mA)	—	1.2	1 : 6	MSOP8
BD6982FVM	2.8 to 16.0	800	DMOS	Upper and Lower 0.45 (I _o =200mA)	—	1.2	1 : 6	MSOP8
BD6967FVM	3.3 to 14.0	800	DMOS	Upper and Lower 0.45 (I _o =200mA)	DC/Direct PWM	1.2	1 : 10	MSOP10
BD6968FVM	3.3 to 14.0	800	DMOS	Upper and Lower 0.45 (I _o =200mA)	DC/Direct PWM	1.2	1 : 10	MSOP10
BD6962FVM	3.3 to 14.0	800	DMOS	Upper and Lower 0.4 (I _o =300mA)	Direct PWM	—	1 : 10	MSOP8
BD6964FVM	3.3 to 14.0	800	DMOS	Upper and Lower 0.4 (I _o =300mA)	Direct PWM	—	1 : 10	MSOP8
BD6961F	3.3 to 14.0	1,000	DMOS	Upper and Lower 0.4 (I _o =300mA)	Direct PWM	—	1 : 10	SOP8
BD6964F	3.3 to 14.0	1,000	DMOS	Upper and Lower 0.4 (I _o =300mA)	Direct PWM	—	1 : 10	SOP8
BD69830FV	6.0 to 28.0	900	DMOS	Upper and Lower 0.6 (I _o =200mA)	Direct PWM	1.2	1 : 30	SSOP-B14

Built-in under voltage lock out circuit	Built-in over voltage lock out circuit	Adjacent pin short protection	5V power supply compatible	12V power supply compatible	24V power supply compatible	250mA CLASS	300mA CLASS	350mA CLASS	This is an indication for the amount of current that can flow into a motor running at fixed speed.
Include Hall sensor	RPM pulse signal output	Built-in hall element	power supply voltage	Rotational speed control possible	External capacitor for detecting motor lock not necessary	Motor lock detection function	Motor lock detection function	ALARM signal output	
Motor startup possible low-duty	Drive method with hall sensor for detecting the rotor position	Soft S/W switching							

Multifunction Single-Phase Full-wave Fan Motor Drivers

BD6971FV



BD6994FV



BD6995FV



BD61243FV



BD61245EFV



BD61248NUX



BD69730FV



BD69740FV



BD61250MUV



BD61251FV



Part No.	Supply Voltage (V)	I _o Max (mA)	Power Transistor	Output Saturation Voltage (V)	Speed Control	Hall Bias Voltage (V)	Lock Time Ratio	Package
BD6971FV	3.5 to 17.0	1,000	DMOS	Upper and Lower 0.6 (I _o =200mA)	DC/PWM	1.3	1 : 10	SSOP-B14
BD6994FV	4.5 to 17.0	1,200	DMOS	Upper and Lower 0.6 (I _o =400mA)	DC/PWM	1.25	1 : 10	SSOP-B16
BD6995FV	4.3 to 17.0	1,200	DMOS	Upper and Lower 0.6 (I _o =400mA)	DC	1.25	1 : 10	SSOP-B16
BD61243FV	5.5 to 16.0	1,200	DMOS	Upper and Lower 0.4 (I _o =400mA)	DC/PWM	1.25	1 : 10	SSOP-B14
BD61245EFV	4.0 to 16.0	1,800	DMOS	Upper and Lower 0.2 (I _o =400mA)	DC/PWM	—	1 : 10	HTSSOP-B16
BD61248NUX	4.5 to 16.0	1,200	DMOS	Upper and Lower 0.2 (I _o =200mA)	PWM	—	1 : 10	VSON010X3030
BD69730FV	4.3 to 17.0	10	Pre-Driver	—	DC/PWM	1.26	1 : 20	SSOP-B16
BD69740FV	4.3 to 17.0	10	Pre-Driver	—	DC/PWM	1.26	1 : 20	SSOP-B16
BD61250MUV	4.5 to 36.0	10	Pre-Driver	—	DC/PWM	—	1 : 20	VQFN024V4040
BD61251FV	4.5 to 16.0	10	Pre-Driver	—	PWM	—	1 : 20	SSOP-B16

2-Phase Half-wave Fan Motor Driver

BA6406F



Part No.	Supply Voltage (V)	I _o Max (mA)	Power Transistor	Output Saturation Voltage (V)	Speed Control	Hall Bias Voltage (V)	Zener Diode Clamp Voltage (V)	Output Clamp Voltage (V)	Lock Time Ratio	Package
BA6406F	4.0 to 28.0	70	Pre-Driver	—	—	—	—	—	1 : 4.5	SOP8

3-Phase Full-wave Fan Motor Drivers

BD67173NUX



BD6326ANUX



BD63282EFV



BD63242EFV



BD63242FV



BD63241FV



BD63251MUV



Part No.	Supply Voltage (V)	I _o Max (mA)	Power Transistor	Output Saturation Voltage (V)	Speed Control	Hall Bias Voltage (V)	Lock Time Ratio	Package
BD67173NUX	2.2 to 5.5	700	CMOS	Upper and Lower 0.25 (I _o =250mA)	PWM	—	1 : 5	VSON010X3030
BD6326ANUX	2.2 to 5.5	700	CMOS	Upper and Lower 0.25 (I _o =250mA)	PWM	—	1 : 5	VSON010X3030
BD63282EFV	5.0 to 16.0	1,000	DMOS	Upper and Lower 0.3 (I _o =300mA)	DC/PWM	—	1 : 2, 1 : 5, 1 : 10	HTSSOP-B20
BD63242EFV	5.0 to 16.0	1,000	DMOS	Upper and Lower 0.3 (I _o =300mA)	DC/PWM	—	Setting of SOSC-pin	HTSSOP-B16
BD63242FV	5.0 to 16.0	1,000	DMOS	Upper and Lower 0.3 (I _o =300mA)	DC/PWM	—	Setting of SOSC-pin	SSOP-B16
BD63241FV	5.0 to 16.0	1,000	DMOS	Upper and Lower 0.24 (I _o =300mA)	PWM	1.25	1 : 5	SSOP-B16
BD63251MUV	5.5 to 15.0	10	Pre-Driver	—	PWM	1.25	1 : 10	VQFN024V4040

Symbol Key	5V IN	12V IN	24V IN	Power supply compatible	350 mA CLASS	400 mA CLASS	450 mA CLASS	800 mA CLASS	PRE DRIVER	This is an indication for the amount of current that can flow into a motor running at fixed speed.	Small PKG	Small mount type	FC	RPM pulse signal output
SENSOR LESS DRIVE	One hall sensor drive	Three hall sensor drive	SOFT S/W switching	PWM 150° power system	PWM 180° power system	HALL power supply voltage	Built-in hall element	SPEED CONTROL	Rotational speed control possible					

3-Phase Brushless Fan Motor Drivers For Household Appliances

BM6241FS250V
MAXI_{max}
2.0A**BM6242FS**600V
MAXI_{max}
1.5A**BM6243FS**600V
MAXI_{max}
2.5A**BM6244FS**250V
MAXI_{max}
2.0A**BM6245FS**600V
MAXI_{max}
1.5A**BM6246FS**600V
MAXI_{max}
2.5A**BM6247FS**250V
MAXI_{max}
2.0A**BM6248FS**600V
MAXI_{max}
1.5A**BM6249FS**600V
MAXI_{max}
2.5A**BM6258FS**600V
MAXI_{max}
1.5A

Part No.	Control	Output Device	Rated Voltage (V)	Output Current (A)	Output ON Resistance (Ω)	Diode Forward Voltage (V)	FG Conversion Ratio	Package
BM6241FS	6 inputs	MOSFET	250	2.0	0.9	0.9	12:12	SSOP-A54_23
BM6242FS	6 inputs	MOSFET	600	1.5	2.7	1.1	12:12	SSOP-A54_23
BM6243FS	6 inputs	MOSFET	600	2.5	1.7	1.1	12:12	SSOP-A54_23
BM6244FS	120°	MOSFET	250	2.0	0.9	0.9	12:12	SSOP-A54_36A
BM6245FS	120°	MOSFET	600	1.5	2.7	1.1	12:12	SSOP-A54_36A
BM6246FS	120°	MOSFET	600	2.5	1.7	1.1	12:12	SSOP-A54_36A
BM6247FS	180° (Sinusoidal)	MOSFET	250	2.0	0.9	0.9	12:12	SSOP-A54_36A
BM6248FS	180° (Sinusoidal)	MOSFET	600	1.5	2.7	1.1	12:12	SSOP-A54_36A
BM6249FS	180° (Sinusoidal)	MOSFET	600	2.5	1.7	1.1	12:12	SSOP-A54_36A
BM6258FS	180° (Sinusoidal)	MOSFET	600	1.5	2.7	1.1	15:12	SSOP-A54_36A

3-Phase Brushless Fan Motor Controllers For Household Appliances

Part No.	Supply Voltage (V)	Commutation Logic	Control Voltage Input (V)	Phase Control (deg)	FG Conversion Ratio	Package
BD62012BFS	10.0 to 18.0	150°	2.1 to 5.4	0 to +30	12 : 12	SSOP-A24
New BD62017BFS	10.0 to 18.0	180° (Sinusoidal)	2.1 to 5.4	0 to +40	15 : 12	SSOP-A24
BD62018BFS	10.0 to 18.0	180° (Sinusoidal)	2.1 to 5.4	0 to +40	12 : 12	SSOP-A24

Fractional Pulse Rate Converters

Part No.	Supply Voltage (V)	Circuit Current (mA)	Input Frequency (kHz)	Conversion Ratio	Package
BU6821G	4.5 to 5.5	0.5	0.005 to 5	15 : 12	SSOP5
BU6823G	4.5 to 5.5	0.5	0.005 to 5	21 : 12	SSOP5

External capacitor for detecting motor lock not necessary

Motor lock detection function

Lock alarm signal output

Minimum rotational speed setting

Motor startup possible low-duty

Built-in thermal shut-down circuit

Output current limit can be set

Soft start

Built-in diode for preventing damage due to backward connection

Rated Voltage

Maximum Output Current

Maximum Output Current

Maximum Output Current

Built-in under voltage lock out circuit

Built-in over-current protection circuit

Drivers for Printer

Motor Drivers with Brush for Printers

Part No.	Supply Voltage (V)	Output Current (A)	Output Current Peak (A)	Circuit Current (mA)	Input Threshold Voltage (V)		Output ON Resistance (Ω)	Package
					H Level	L Level		
BD62210AEFV	8.0 to 28.0	1.0	1.5	2.5	2.0	0.8	1.9	HTSSOP-B28
BD62220AEFV	8.0 to 28.0	2.0	2.8	2.5	2.0	0.8	0.65	HTSSOP-B28
BD63130AFM	8.0 to 46.2	3.0	5.0	2.5	2.0	0.8	0.55	HSOP-M36
BD63150AFM	8.0 to 46.2	5.0	6.0	2.5	2.0	0.8	0.3	HSOP-M36

Bipolar Stepper Motor Drivers for Paper Feed/Carriage

There are other stepper motor drivers that can be used in industrial equipment and printers.

Part No.	Power Supply (V)	Output Current (A)	Circuit Current (mA)	Input Threshold Voltage (V)		Output ON Resistance (Ω)	Package
				High Level	Low Level		
BD63801EFV	19.0 to 28.0	0.8	2.7	2.0	0.8	2.8	HTSSOP-B24
BD68715EFV	19.0 to 28.0	1.5	2.0	2.0	0.8	0.95	HTSSOP-B28
BD63715AEFV	19.0 to 28.0	1.5	2.0	2.0	0.8	0.95	HTSSOP-B28

3-Phase Brushless Motor Pre-Drivers for Paper Feed For LBP, PPC

Part No.	V_{CC} (V)	Power Supply (V)	Operating Temperature (°C)	Circuit Current (mA)	Input Threshold Voltage (V)		External Threshold Voltage (V)	PWM Frequency (kHz)	Package
					H Level	L Level			
BD6761FS	36	16.0 to 28.0	-35 to +75	15.0	2.2	0.8	$V_{CC}+6$	10.5	SSOP-A32
BD6762FV	36	16.0 to 28.0	-25 to +75	17.0	2.2	0.8	$V_{CC}+6.8$	10.8	SSOP-B40

System Motor Driver with Built-in Switching Regulators (H Bridge + SWREG 2ch)

Part No.	V_{CC} (V)	Motor Rated Output Current	H Bridge ch	SW REG1 Output Current Range (A)	SW REG2 Output Current Range (A)	Standby Current (μA) (Max)	Package
BD64547MUV	50	2.0 A/Phase	2	0 to 2.0	0 to 1.4	100	VQFN048V7070
BD64008MUV	50	2.0 A/Phase	1 (2ch parallel use)	0 to 2.0	0 to 1.4	100	VQFN048V7070

Motor Drivers with Brush for Printers: The BD62210AEFV and BD62220AEFV are all pin-compatible.

Drivers for Camera

Single and Dual-Channel Lens Drivers for SLRs (Single Lens Reflex)

Part No.	ch	Supply Voltage (V)	Driver Output Max Current (A)	Drive Method Examples of Actuator (Driven Motor, Driving System, and Output ON Resistance (Ω))					Turn on Time	Turn off Time (ns)	Control Frequency (kHz) (Max)	Package (mm)
				Cleaner	AF	Zoom	Iris	Shutter				
BD65492MUV	2	1.8 to 16.0	1.0	e.g.	-	STM (2ch) FULL ON 0.9	-	-	200ns (Including 80ns to Prevent from overlap current.)	80	500	VQFN024V4040 4.0x4.0, H=Max 1.0
BD6735FV	2	2.0 to 8.0	1.0	e.g.	-	-	-	STM (2ch) FULL ON 1.0	300ns (Including 90ns to Prevent from overlap current.)	100	100	SSOP-B20 6.5x6.4, H=Max 1.25
BD6376GUL	1	2.0 to 9.0	1.0	e.g.	-	-	DCM (1ch) FULL ON 0.45	-	200ns (Including 80ns to Prevent from overlap current.)	60	200	VCSP50L1 1.6x1.6, H=Max 0.55
BD65491FV	1	1.8 to 16.0	1.2 Peak 4.0	e.g.	-	-	-	Plunger (1ch) FULL ON 0.35	150ns (Including 80ns to Prevent from overlap current.)	50	500	SSOP-B16 6.5x5.0, H=Max 1.25
BD6736FV	1	2.0 to 9.0	1.0 Peak 3.2	e.g.	-	-	-	Plunger (1ch) FULL ON 0.35	1000ns (Including 800ns to Prevent from overlap current.)	100	100	SSOP-B20 6.5x6.4, H=Max 1.25
BD65499MUV	1	4.0 to 27.0	0.5 Peak 2.0	e.g.	Piezo (1ch) FULL ON 0.6	-	-	-	150ns (Including 80ns to Prevent from overlap current.)	50	300	VQFN028V5050 5.0x5.0, H=Max 1.0
BD65494MUV	1	2.0 to 9.0	1.0 Peak 2.5	e.g.	-	-	-	Plunger (1ch) FULL ON 0.55	200ns (Including 80ns to Prevent from overlap current.)	60	200	VQFN016V3030 3.0x3.0, H=Max 1.0
BD65496MUV	1	1.8 to 16.0	1.2 Peak 5.0	e.g.	-	-	-	Plunger (1ch) FULL ON 0.35	150ns (Including 80ns to Prevent from overlap current.)	50	500	VQFN024V4040 4.0x4.0, H=Max 1.0

STM: Stepping motor, DCM: DC motor ("Drive method examples of actuator" are the recommendations. Other types may be evaluated.)

μ-step System Lens Drivers for Cameras

Part No.	Supply Voltage (V)	Driver Output Max Current (A)	Drive Method Examples of Actuator (Driven Motor, Driving System, and Output ON Resistance (Ω))						Input I/F	μ-step Resolution	Package (mm)
			AF		Zoom		Iris		Shutter	Others	
BU24020GU	2.7 to 3.6 (Logic) 2.7 to 5.5 (Driver)	0.5	e.g. 1	STM (1, 2ch) μ-step (class-D) 1.5	STM (3, 4ch) μ-step (class-D) 1.5	—	—	—	3-wire serial	1024	VCSP85H2 2.6x2.6, H=Max 1.0
			e.g. 2		DCM (3ch) FULL ON (PWM) 1.5	VCM (4ch) FULL ON (PWM) 1.5	—	—			
BU24033GW	1.62 to 3.6 (Io) 2.7 to 3.6 (Logic) 2.7 to 5.5 (Driver)	0.5/0.6	e.g. 1	STM (1, 2ch) μ-step (class-D) 1.5	STM (3, 4ch) μ-step (class-D) 1.5	VCM (5ch) FULL ON (PWM) 1.0	VCM (6ch) constant current 1.0	—	3-wire serial	1024	UCSP75M3 3.0x3.0, H=Max 0.85
			e.g. 2		DCM (5ch) FULL ON (PWM+Speed control) 1.0	VCM (3ch) FULL ON (PWM) 1.5		DCM (4ch) FULL ON (PWM) 1.5			
BU24035GW	2.7 to 3.6 (Logic) 2.7 to 5.5 (Driver)	0.5/0.6	e.g. 1	STM (1, 2ch) μ-step (class-D) 1.5	DCM (5ch) FULL ON (PWM+Speed control) 1.0	STM (3, 4ch) μ-step (class-D) 1.5	VCM (6ch) constant current 1.0	—	3-wire serial	1024	UCSP75M3 3.1x3.1, H=Max 0.85
			e.g. 2		DCM (3ch) FULL ON (PWM+Speed control) 1.5	VCM (5ch) FULL ON (PWM)/ constant current 1.0		VCM (4ch) FULL ON (PWM) 1.5			
BU24036MWV	2.7 to 3.6 (Logic) 2.7 to 5.5 (Driver)	0.5/0.6	e.g. 1	STM (1, 2ch) μ-step (class-D) 2.0	DCM (5ch) FULL ON (PWM+Speed control) 1.0	STM (3, 4ch) μ-step (class-D) 1.5	VCM (6ch) constant current 1.0	—	3-wire serial	1024	UQFN040V5050 5.0x5.0, H=Max 1.0
			e.g. 2		DCM (3ch) FULL ON (PWM+Speed control) 1.5	VCM (5ch) FULL ON (PWM)/ constant current 1.0		VCM (4ch) FULL ON (PWM) 1.5			

STM: Stepping motor, DCM: DC motor, VCM: Voice Coil Motor ("Drive method examples of actuator" are the recommendations. Other types may be evaluated.)

Mobile Phone Module Drivers

2-wire Serial (I ² C-compatible) Interface Lens Drivers for Uni-directional Voice Coil Motors														
Part No.	Supply Voltage (V)	Applications	ch	Drive System	Driver Output Max Current (mA)	Driver Output Low Voltage (V)	Input I/F	Ringing Compensation	Temperature Protection	Back side coating	Package (mm)			
BU64292GWZ	2.5 to 3.6	Drive AF using voice coil motor	0.25	Constant current ($\pm 5\%$)	125	0.28 ($V_{DD}=3V$, $I_0=100mA$)	I ² C Fm+ compatible	ISRC	✓	without	UCSP25L1 0.68x1.08, H=Max 0.30			
BU64982GWZ	2.5 to 3.6	Drive AF using voice coil motor	0.25	Constant current ($\pm 5\%$)	125	0.28 ($V_{DD}=3V$, $I_0=100mA$)	I ² C Fm+ compatible	ISRC	✓	with	UCSP30L1A 0.68x1.08, H=Max 0.33			
2-wire Serial (I ² C-compatible) Interface Lens Driver for Bi-directional Voice Coil Motors														
Part No.	Supply Voltage (V)	Applications	ch	Drive System	Driver Output Max Current (A)	Driver Output ON Resistance (Ω)	Input I/F	Ringing Compensation	Temperature Protection	Back side coating	Package (mm)			
BU64253GWZ	2.5 to 4.5	Drive AF using voice coil motor	1	Constant current ($\pm 5\%$)	± 100	3.2 ($V_{DD}=3V$)	I ² C Fm+ compatible	ISRC	✓	with	UCSP30L1A 0.72x1.13, H=Max 0.33			
2-wire Serial (I ² C-compatible) Interface Lens Driver for Piezo Actuators														
Part No.	Supply Voltage (V)	Applications		ch	Drive System	Driver Output Max Current (mA)	Driver Output ON Resistance (Ω)	Input I/F	Base Clock	Temperature Protection	Power Save Function	Back side coating	Package (mm)	
BU64562GWZ	2.3 to 4.8	e.g. 1	Drive AF using piezo actuator	1	FULL ON	500	1.4 ($V_{CC}=3V$)	I ² C Fm compatible	Built-in 15MHz	✓	✓	without	UCSP30L1 1.90x0.77, H=Max 0.33	
		e.g. 2	Drive Zoom using piezo actuator											
Parallel Interface Lens Driver for Stepping Motors														
Part No.	Supply Voltage (V)	Applications		ch	Drive System	Driver Output Max Current (mA)	Driver Output ON Resistance (Ω)	Input I/F	Input Mode Selection Terminal	Built-In Wave Sloping Comparator	Temperature Protection	Power Save Function	Back side coating	Package (mm)
BD6360GUL	2.3 to 5.5	e.g. 1	Drive AF using piezo actuator	2	FULL ON	500	1.0 ($V_{CC}=3V$, $I_0=0.4A$)	Parallel	✓	✓	✓	✓	with	VCSP50L2 2.1x2.1, H=Max 0.55
		e.g. 2	Drive Zoom using piezo actuator											

LED Drivers

LED Drivers

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LED Drivers

Boost Converter LED Drivers

White LED Drivers with External FET

Part No.	Supply Voltage (V)	Number of LEDs	Output Voltage (V)	Switching Frequency (MHz)	Primary Brightness Control Method	Control Interface	Package (mm)
BD6583MUV-A	2.7 to 22.0	Max 72 12seriesx6strings in parallel (V _F restrictions exist)	Max 43.0	1	PWM signal from the PWMPOW/PWMDRV terminal Resistance switching at the ISET terminal	Pin logic setting	VQFN024V4040
BD9486F	9 to 18	Max About 120 120seriesx1string in parallel	Max About 400	0.05 to 0.80	PWM signal Analog signal	Pin logic setting	SOP16
BD9411F	9 to 35	Max About 120 120seriesx1string in parallel	Max About 400	0.05 to 1.00	PWM signal Analog signal	Pin logic setting	SOP18
BD9413F	9 to 35	Max About 120 120seriesx1string in parallel	Max About 400	0.05 to 1.00	PWM signal Analog signal	Pin logic setting	SOP18
BD9483F	11 to 35	Max About 240 120seriesx2strings in parallel	Max About 400	0.05 to 0.80	PWM signal Analog signal	Pin logic setting	SOP24
BD9483FV	11 to 35	Max About 240 120seriesx2strings in parallel	Max About 400	0.05 to 0.80	PWM signal Analog signal	Pin logic setting	SSOP-B24
BD9416FS	9 to 35	Max About 240 120seriesx2strings in parallel	Max About 400	0.05 to 1.00	PWM signal Analog signal	Pin logic setting	SSOP-A24
BD9479FV	9 to 35	Max About 96 12seriesx8strings in parallel	Max About 40	0.1 to 0.8	PWM signal Analog signal	Pin logic setting	SSOP-B40
BD9408FV	9 to 35	Max About 120 120seriesx1string in parallel	Max About 400	0.05 to 2.00	PWM signal Analog signal	Pin logic setting	SSOP-B14
BD9409F	11.5 to 35.0	Max About 120 120seriesx1string in parallel	Max About 400	0.05 to 1.00	PWM signal Analog signal	Pin logic setting	SOP16
BD9420F	9 to 35	Max 72 12seriesx6strings in parallel (V _F restrictions exist)	Max About 40	0.1 to 0.8	PWM signal Analog signal	Pin logic setting	SOP28

White LED Drivers with Integrated FET

Part No.	Supply Voltage (V)	Number of LEDs	Output Voltage (V)	Switching Frequency (MHz)	Primary Brightness Control Method	Control Interface	Package (mm)
BD60A00NUX	2.7 to 5.5	Max 10 10seriesx1string in parallel	Max 40.0	0.6	PWM signal Resistance switching at the ISET terminal	Pin logic setting	VSON008X2030
BD60A60NUX	2.7 to 5.5	Max 6 6seriesx1string in parallel	Max 26.0	0.6	PWM signal Resistance switching at the ISET terminal	Pin logic setting	VSON008X2030
BD65B60GWL	2.7 to 5.5	Max 16 8seriesx2strings in parallel	Max 28.5	1.1/0.6	I ^c BUS PWM signal Resistance switching at the ISET terminal	I ^c BUS + PWM	UCSP50L1 1.4x1.8, H=Max 0.55
BD6586MUV	2.7 to 5.5	Max 24 6seriesx4strings in parallel	Max 24.0	1	PWM signal Resistance switching at the ISET terminal	Pin logic setting	VQFN024V4040
BD65D00MUV	6 to 27	Max 40 10seriesx4strings in parallel	Internal FET Max 40.0 External FET Max 80.0	0.6 to 1.6	PWM signal Resistance switching at the ISET terminal Analog voltage control	Pin logic setting	VQFN028V5050
BD6142AMUV	4.2 to 27	Max 80 10seriesx8strings in parallel	Max 41.0	0.6 to 1.6	PWM signal Resistance switching at the ISET terminal Analog voltage control	Pin logic setting	VQFN024V4040
BD9394EFV	9 to 35	Max 72 18seriesx4strings in parallel	Max 60.0	0.1 to 0.8	PWM signal Analog signal	Pin logic setting	HTSSOP-B24
BD93942F	9 to 35	Max 72 18seriesx4strings in parallel	Max 60.0	0.1 to 0.8	PWM signal Analog signal	Pin logic setting	SOP16
BD9470AFM	9 to 35	Max 72 18seriesx4strings in parallel	Max 40.0	0.1 to 0.5	PWM signal	Pin logic setting	HSOP-M28
BD9397EFV	9 to 35	Max 84 14seriesx6strings in parallel	Max 50.0	0.10 to 1.25	PWM signal Analog signal	Pin logic setting	HTSSOP-B40
BD9422EFV	9 to 35	Max 84 14seriesx6strings in parallel	Max 60.0	0.10 to 1.25	PWM signal Analog signal	Pin logic setting I ^c	HTSSOP-B40

Synchronous White LED Driver with Integrated FET

Part No.	Supply Voltage (V)	Number of LEDs	Output Voltage (V)	Switching Frequency (MHz)	Primary Brightness Control Method	Control Interface	Package (mm)
BD6071HFN	2.7 to 5.5	Max 3 3seriesx1string in parallel	Max 14.0	1	PWM signal from EN terminal	—	HSON8

LED Camera Flash Driver

Part No.	Supply Voltage (V)	Number of LED	Output Voltage (V)	Output Current	Switching Frequency (MHz)	Control Interface	Package (mm)
BD7757MWX	2.7 to 5.0	Max 2 1 to 2seriesx1string in parallel (V _F restrictions exist) (large current LED)	Max 5.1	0 to 1.5A	2	UPIC [‡]	USON014X3020

LED Drivers for LCD Backlight

Part No.	Power Supply (V)	Boost FET	ch	Output Voltage (V)	Output Current (mA)	Switching Frequency (MHz)	PWM Dimming Ratio	Operating Temperature (°C)	Package	ComfySIL™ Functional Safety ^{*1}	Automotive Grade AEC-Q100
BD83A04EFV-M	4.5 to 48.0	Internal	4	Max 50	Max 120/ch	0.2 to 2.42	20,000 : 1@100Hz	-40 to +125	HTSSOP-B24	FSs	YES
BD83A24MUF-M	4.5 to 48.0	Internal	4	Max 50	Max 120/ch	0.2 to 2.42	20,000 : 1@100Hz	-40 to +125	VQFN24FV4040	FSs	YES
BD83A14EFV-M	4.5 to 48.0	External	4	Max 50	Max 150/ch	0.2 to 2.42	20,000 : 1@100Hz	-40 to +125	HTSSOP-B24	FSs	YES
BD83A14MUF-M	4.5 to 48.0	External	4	Max 50	Max 150/ch	0.2 to 2.42	20,000 : 1@100Hz	-40 to +125	VQFN24FV4040	FSs	YES
Nano BD82A26MUF-M	3.0 to 48.0	External	6	Max 50	Max 150/ch	0.2 to 2.42	20,000 : 1@100Hz	-40 to +125	VQFN32FBV050	FSs	YES

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*1 For more information about "ComfySIL™ Functional Safety", please refer to the reverse side of the cover.

*2 UPIC: Uni-Pot Interface Control

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LED Driver for Automotive Lamps

Buck Converter LED Drivers

Part No.	Supply Voltage (V)	Application	ch	Output Voltage (V)	Output Current (A)	Communication Control	Oscillation Frequency (kHz)	Package	ComfySIL™ Functional Safety*1	Automotive Grade AEC-Q100
BD18395EFV-M	4.5 to 70.0	High/Low Beam, DRL/Position, Turn, Fog	1	Max 70	2	Standalone	0.1 to 1.0	HTSSOP-B20	FSs	YES
New BD18397EUV-M	5 to 65	High/Low Beam, DRL/Position, Turn, Fog	2	Max 60	Total 2.7 Max 2.0/ch	SPI	0.2 to 2.25	HTSSOP-C48	FSp	YES
New BD18397RUV-M		High/Low Beam, DRL/Position, Turn, Fog	2	Max 60	Total 3.2 Max 2.0/ch	SPI	0.2 to 2.25	HTSSOP-C48R	FSp	YES
New BD18398EUV-M		High/Low Beam, DRL/Position, Turn, Fog	3	Max 60	Total 2.7 Max 2.0/ch	SPI	0.2 to 2.25	HTSSOP-C48	FSp	YES
New BD18398RUV-M		High/Low Beam, DRL/Position, Turn, Fog	3	Max 60	Total 4.8 Max 2.0/ch	SPI	0.2 to 2.25	HTSSOP-C48R	FSp	YES

Boost Converter LED Drivers

Part No.	Supply Voltage (V)	Application	ch	Output Voltage (V)	Output Current	Dimmer Mode	Operating Temperature (°C)	Package	ComfySIL™ Functional Safety*1	Automotive Grade AEC-Q100
BD18351EFV-M	4.5 to 65.0	High/Low Beam, DRL/Position, Turn, Fog	1	Max 65	Depend on Extra parts	PWM/DC	-40 to +125	HTSSOP-B24	FSs	YES
BD18353EFV-M	PWM/DC					HTSSOP-B20		FSs	YES	
BD18353MUF-M	1, 2					VQFN20FV3535		FSs	YES	

Buck-Boost LED Driver

Part No.	Supply Voltage (V)	Application	ch	Output Voltage (V)	Output Current	Dimmer Mode	Operating Temperature (°C)	Package	ComfySIL™ Functional Safety*1	Automotive Grade AEC-Q100
BD8381AEFV-M	5 to 30	High/Low Beam/ DRL	1	Max 50	Depend on Extra parts	PWM/DC	-40 to +125	HTSSOP-B28	FSs	YES

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*1 For more information about "ComfySIL™ Functional Safety", please refer to the reverse side of the cover.

Buck Converter LED Drivers

Buck Converter LED Drivers for DC-DC Converter type

Part No.	Supply Voltage (V)	Switching Terminal Voltage (V)	Ron (Ω)	Operating Frequency (kHz)	Over-Current Protection	Package
BM531Q11	9 to 35	250	0.93 (Typ)	Max 440	✓	DIP7AK
BD94062F	10.5 to 35.0	—	—	Max 800	✓	SOP16

White LED Driver for PFC Direct Connection Current Resonance type

Part No.	Supply Voltage (V)	Drive Method	Oscillation Frequency Variable (kHz)	Primary Brightness Control Method	Control Interface	Package
BD92111F	8 to 18	Half Bridge	30 to 200	PWM signal	Pin logic setting	SOP18

Buck-Boost LED Drivers

LED Drivers for LCD Backlight

Part No.	Power Supply (V)	Boost FET	ch	Output Voltage (V)	Output Current (mA)	Switching Frequency (MHz)	PWM Dimming Ratio	Operating Temperature (°C)	Package	ComfySIL™ Functional Safety*1	Automotive Grade AEC-Q100
BD81A24EFV-M	4.5 to 35.0	Internal	4	Max 40	Max 120/ch	0.2 to 2.2	10,000 : 1@100Hz	-40 to +125	HTSSOP-B28	FSs	YES
BD81A24MUV-M								-40 to +125	VQFN28SV5050	FSs	YES
BD81A24MUF-M								-40 to +125	VQFN28FV5050	FSs	YES
Nano BD82A24MUF-M	3.0 to 48.0	External	6	Max 50	Max 150/ch	0.2 to 2.42	20,000 : 1@100Hz	-40 to +125	VQFN32FBV050	FSs	YES
BD81A44EFV-M	4		Max 40	Max 120/ch	0.2 to 2.2	10,000 : 1@100Hz	-40 to +125	HTSSOP-B28	FSs	YES	
BD81A44MUV-M							-40 to +125	VQFN28SV5050	FSs	YES	
BD81A74EFV-M							-40 to +125	HTSSOP-B28	FSs	YES	
BD81A74MUV-M							-40 to +125	VQFN28SV5050	FSs	YES	
BD81A76EFV-M	6						-40 to +125	HTSSOP-B30	FSs	YES	

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  Nano Cap is a product using Nano Pulse Control™ technology, Nano Energy™ technology or Nano Cap™ technology. ROHM's innovative "Nano" power supply technologies achieve breakthrough energy savings and miniaturization.

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LED Drivers for Lighting

AC-DC Controller ICs for LED Lighting

Part No.	Supply Voltage (V)	Input AC Voltage (Vac)	Built-in PFC Function	Built-in MOSFET	LED Average Current (mA)	Switching Frequency (kHz)	Package
BM520Q15F	8.9 to 26.0	80 to 275	—	✓	up to 200	20 to 200	SOP8
BM521Q25F	8.9 to 25.0	80 to 275	✓	✓	up to 200	20 to 300	SOP8
BD521GOFJ	8.9 to 25.0	80 to 275	✓	—	—	20 to 300	SOP-J8

Inductorless (Charge Pump) LED Drivers

White LED Drivers

Part No.	Supply Voltage (V)	No. of LEDs	Charge Pump Step-up Circuit			Primary Brightness Control Method	Control Interface	Package
			Output Voltage (V)	Output Current (mA)	Pump Frequency			
BD1604MUV	2.7 to 5.5	1 to 4	Max 4.5	120	1MHz	PWM control via EN terminal Resistance switching at ISET terminal	Pin logic setting	VQFN016V3030
BD2606MVV		1 to 6	Max 4.7	120	250kHz/1kHz	Built-in 64-step current DAC (0.5 to 32.0mA)	I ² C BUS	SQFN016V4040

LED Driver for CIS

3ch Linear LED Driver for CIS Sensor

Part No.	Supply Voltage (V)	ch	Output Voltage (V)	Output Current (mA)	Current Control	Operating Temperature (°C)	Package
New BD2801MUV	3.3	3	6.6	Max 100	8-step	0 to +70	VQFN016V3030

Dynamic Indicator LED Bypass Switch (Matrix LED Controller)

Sequential lighting controller

Part No.	Supply Voltage (V)	ch	Bypass Switch ON Resistance (mΩ)	Max Current (A)	Maximum Channel Voltage	Maximum LED String Voltage (V)	Maximum Number of IC Serial Connections	Lighting Mode	Operating Temperature (°C)	Package	ComfySIL™ Functional Safety*1	Automotive Grade AEC-Q100
BD18362EFV-M	5.5 to 60.0	8	230	1	9	48	2	Sequential/Hazard	-40 to +125	HTSSOP-B28	FSs	YES
BD18364EFV-M	5.5 to 45.0	8	300	0.8	13.5	depend on VIN voltage	1	Sequential/Hazard/Animation	-40 to +125	HTSSOP-B30	FSs	YES

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Constant Current/Serial-in Parallel-out LED Drivers

Parallel-out LED Drivers

Part No.	Supply Voltage (V)	Number of LEDs	Constant Current Driver					Control Interface	Package
			Max Current Setting Method	Max Current	Channel-to-Channel Matching	Brightness Control			
BD1754HFN	2.7 to 5.5	1 to 4 (Parallel Connection)	Resistance change at ISET terminal	32mA (at an ISET resistance of 120kΩ)	Max 3% (at 1V LED pin voltage)	Built-in 64-step current DAC	UPIC*2	HSON8	
BD2802GU		6 (RGB 2ch)	Resistance change at ISET terminal	30.48mA (at an ISET resistance of 120kΩ)	Max 10% (at 1V LED pin voltage)	Built-in 128-step current DAC	I ² C BUS	VCSP85H2	
BD2812GU		6 (RGB 2ch)	Resistance change at ISET terminal	30.48mA (at an ISET resistance of 120kΩ)	Max 10% (at 1V LED pin voltage)	Built-in 128-step current DAC/Inductorless (Charge Pump)	I ² C BUS	VCSP85H3	

Parallel Output LED Drivers for Automotive

Part No.	Supply Voltage (V)	Output Voltage (V)	Number of Output (ch)	Output Method	Max LED Current	Each Output Format	Other	Control Method	Max Clock Frequency	Package	ComfySIL™ Functional Safety*1	Automotive Grade AEC-Q100
Nano BD18330EFV-M	4.5 to 40.0	40	24	Constant Current	125mA/ch	8bit PWM Dimming Function and 8bit Local DC Dimming Function	4bit Delay Function/Built-in DC-DC Control Function	UART	1Mbps	HTSSOP-B54	FSs	YES
Nano BD18332EUV-M		40	24	Constant Current	125mA/ch	8bit PWM Dimming Function and 8bit Local DC Dimming Function	4bit Delay Function/Built-in Feedback Output Function for DC-DC Control		1Mbps	HTSSOP-C48	FSs	YES
Nano BD18333EUV-M		40	24	Constant Current	125mA/ch	8bit PWM Dimming Function and 8bit Local DC Dimming Function	4bit Delay Function	UART	1Mbps	HTSSOP-C48	FSp	YES
New BD94130EFV-M	3.0 to 5.5	20	24	Constant Current	80mA/ch	4/6/8-line Switch Controllers	Built-in 4096-step PWM control for all channels	SPI	20MHz	HTSSOP-B54	FSs	YES
New BD94130MUF-M		20	24	Constant Current	80mA/ch	4/6/8-line Switch Controllers	Built-in 4096-step PWM control for all channels	SPI	20MHz	VQFN56FCV080	FSs	YES
BD12801MUF-M		20	16	Constant Current	130mA/ch	Built-in 256-step current DAC	Built-in 8192-step PWM control for all channels	SPI	5MHz	VQFN48FAV070	FSs	YES
BD2808MUV-M		20	RGBx8 (24ch)	Constant Current	50mA/ch	Built-in 64-step current DAC for RGB	Built-in 256-step PWM control for all channels	2-Wire Serial	1MHz	VQFN48MCV070	FSs	YES
BD83812EFV-M		35	12	Open Drain	50mA/ch	ON/OFF	—		1.25MHz	HTSSOP-B20	FSs	YES
BD83816EFV-M		35	16	Open Drain	50mA/ch	ON/OFF	—	SPI	1.25MHz	HTSSOP-B24	FSs	YES
BD8388FV-M		40	8	Open Drain	50mA/ch	ON/OFF	—	SPI	1.25MHz	SSOP-B16	FSs	YES
BD8389FV-M		40	12	Open Drain	50mA/ch	ON/OFF	—	SPI	1.25MHz	SSOP-B20	FSs	YES

Dot Matrix LED Drivers

Part No.	Supply Voltage (V)	LED Matrix		Max LED Current	Built-in Pattern		Matrix Data RAM	Mobile Light	PWM Dimming (step)	Current Setting (step)	Interface	Max Clock Frequency	Package (mm)
					Scroll	Slope							
BD26503GUL	2.7 to 5.5	7x17 119dots		30mA/Line	✓	✓	2pages	—	64	16	I ² C BUS/SPI (2 address/—)	400kHz/13MHz	VCSP50L3 3.6x3.6, H=Max 0.55
BD26503KS2		7x17 119dots		30mA/Line	✓	✓	2pages	—	64	16	I ² C BUS/SPI (2 address/—)	400kHz/13MHz	SQFP-T52
BU16501KS2		8x16 128dots		42.5mA/Line	—	—	1page	—	64	16	I ² C BUS/SPI (2 address/—)	400kHz/13MHz	SQFP-T52

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*2 UPIC: Uni-Port Interface Control

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Constant Current/Serial-in Parallel-out LED Drivers

LED Source Drivers for Automotive

Part No.	Supply Voltage (V)	Application	ch	Driver	Maximum Input Voltage (V)	Maximum Output Current (mA)	Dimmer Mode	Accuracy of Current (%)	ISINK Terminal LED Open Detection Voltage (V)	Disable LED Open Detection Voltage (V)	Energy Sharing Control Voltage (Typ) (V)	Operating Temperature (°C)	Package	ComfySIL™ Functional Safety*1	Automotive Grade AEC-Q100
BD18340FV-M	4.5 to 19.0	DRL/Position/FOG/Turn/Rear	1 to 10	Controller (External PNP)	70	Total 1,000	PWM/DC ($\pm 5\%$)	± 3 ($T_a=25$ to 125°C)	—	variable	—	-40 to +125	SSOP-B16	FSs	YES
BD18341FV-M	4.5 to 19.0	DRL/Position/FOG/Turn/Rear	1 to 10	Controller (External PNP)	70	Total 1,000	PWM/DC ($\pm 12\%$)	± 3 ($T_a=25$ to 125°C)	—	variable	—	-40 to +125	SSOP-B16	FSs	YES
BD18342FV-M	4.5 to 19.0	DRL/Position/FOG/Turn/Rear	1 to 10	Controller (External PNP)	70	Total 1,000	PWM	± 3 ($T_a=25$ to 125°C)	—	variable	—	-40 to +125	SSOP-B16	FSs	YES
BD18343FV-M	4.5 to 19.0	DRL/Position/FOG/Turn/Rear	1 to 10	Controller (External PNP)	70	Total 1,000	External PWM signal	± 3 ($T_a=25$ to 125°C)	—	variable	—	-40 to +125	SSOP-B16	FSs	YES
BD18345EFV-M	4.5 to 19.0	DRL/Position/FOG/Turn/Rear	1 to 10	Controller (External PNP)	70	Total 1,000	PWM/DC	± 3 ($T_a=25$ to 125°C)	—	variable	—	-40 to +125	HTSSOP-B20	FSs	YES
BD18326NUF-M	5.5 to 20.0	DRL/Position/FOG/Turn/Rear	1	Internal	40	400mA (DC) 600mA (ON Duty: 50%)	PWM/DC	± 10 (Output current: 100 to 240mA) ($T_a=-40$ to $+150^\circ\text{C}$) ± 5 (Output current: 240 to 600mA) ($T_a=-40$ to $+150^\circ\text{C}$)	5.8	11.0	—	-40 to +150	VSON10FV3030	FSs	YES
BD18336NUF-M	5.5 to 20.0	DRL/Position/FOG/Turn/Rear	1	Internal	40	400mA (DC) 600mA (ON Duty: 50%)	PWM/DC	± 10 (Output current: 100 to 240mA) ($T_a=-40$ to $+150^\circ\text{C}$) ± 5 (Output current: 240 to 600mA) ($T_a=-40$ to $+150^\circ\text{C}$)	4.1	11.0	—	-40 to +150	VSON10FV3030	FSs	YES
BD18337EFV-M	5.5 to 20.0	DRL/Position/FOG/Turn/Rear	4	Internal	40	150mA/ch	PWM	± 10 (Output current: 50 to 100mA) ($T_a=-40$ to $+125^\circ\text{C}$) ± 5 (Output current: 100 to 150mA) ($T_a=-40$ to $+125^\circ\text{C}$)	—	11.0	2.0	-40 to +125	HTSSOP-B16	FSs	YES
BD18347AEFV-M	5.5 to 20.0	DRL/Position/FOG/Turn/Rear	4	Internal	40	150mA/ch	PWM	± 10 (Output current: 50 to 100mA) ($T_a=-40$ to $+125^\circ\text{C}$) ± 5 (Output current: 100 to 150mA) ($T_a=-40$ to $+125^\circ\text{C}$)	—	7.65	1.5	-40 to +125	HTSSOP-B16	FSs	YES
BD18347EFV-M	5.5 to 20.0	DRL/Position/FOG/Turn/Rear	4	Internal	40	150mA/ch	PWM	± 10 (Output current: 50 to 100mA) ($T_a=-40$ to $+125^\circ\text{C}$) ± 5 (Output current: 100 to 150mA) ($T_a=-40$ to $+125^\circ\text{C}$)	—	7.65	2.0	-40 to +125	HTSSOP-B16	FSs	YES
BD18327EFV-M	6.0 to 18.0	2 wheeler Turn Indicator	1	Internal	50	1.5A	PWM	Load Switch Controller	—	—	—	-40 to +125	HTSSOP-B20	FSs	YES
BD8372UEFJ-M	5.5 to 40.0	DRL/Position/FOG/Turn/Rear	1	Internal	50	200	High Current/Low Current	± 3 ($T_a=25^\circ\text{C}$)	—	—	—	-40 to +125	HTSOP-J8	FSs	YES
BD8372HFP-M	5.5 to 40.0	DRL/Position/FOG/Turn/Rear	1	Internal	50	200	High Current/Low Current	± 3 ($T_a=25^\circ\text{C}$)	—	—	—	-40 to +125	HRP7	FSs	YES
BD8374EFJ-M	4.5 to 42.0	DRL/Position/FOG/Turn/Rear	1	Internal	50	500	PWM	± 3 ($T_a=25^\circ\text{C}$)	—	—	—	-40 to +125	HTSOP-J8	FSs	YES
BD8374HFP-M	4.5 to 42.0	DRL/Position/FOG/Turn/Rear	1	Internal	50	500	PWM	± 3 ($T_a=25^\circ\text{C}$)	—	—	—	-40 to +125	HRP7	FSs	YES
BD83732HFP-M	4.5 to 42.0	DRL/Position/FOG/Turn/Rear	1	Internal	50	500	PWM/DC	± 3 ($T_a=25^\circ\text{C}$)	—	7.65	—	-40 to +125	HRP7	FSs	YES
BD83733HFP-M	4.5 to 42.0	DRL/Position/FOG/Turn/Rear	1	Internal	50	500	PWM/DC	± 3 ($T_a=25^\circ\text{C}$)	—	11.0	—	-40 to +125	HRP7	FSs	YES
BD83740HFP-M	4.5 to 42.0	DRL/Position/FOG/Turn/Rear	1	Internal	50	500	PWM	± 3 ($T_a=25^\circ\text{C}$)	—	—	—	-40 to +125	HRP7	FSs	YES

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Display Drivers

TN/STN LCD Driver 

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TN/STN LCD Driver

LCD Segment Drivers

Low Duty LCD Segment Drivers																
Part No.	Display (dots)	Outputs		Operating Voltage (V)		Operating Temperature (°C)	Duty	Bias	I/F	EVR	GPO	Independent Blink	LED Driver (port)	PWM Gen.	Keyscan	Package
		seg.	com.	I/F Power Supply (V _{DD})	LCD Power Supply (VLCD)											
BU9796AMUV	48	12	4	2.5 to 5.5		-40 to +85	1/4	1/3, 1/2	2wire	-	-	-	-	-	-	VQFN024V4040
BU9796AFS	80	20	4	2.5 to 5.5		-40 to +85	1/4	1/3, 1/2	2wire	-	-	-	-	-	-	SSOP-A32
BU97941FV	104	26	4	1.8 to 3.6	2.7 to 5.5	-40 to +85	1/4, 1/3, Static	1/3	3wire	-	-	-	4	-	-	SSOP-B40
BU9795AFV	108	27	4	2.5 to 5.5		-40 to +85	1/4	1/3, 1/2	3wire	-	-	-	-	-	-	SSOP-B40
BU97930MUV	108	27	4	1.8 to 3.6	2.7 to 5.5	-40 to +85	1/4, 1/3, Static	1/3	3wire	-	4port	✓	1	1ch 8bit	-	VQFN040V6060
BU97931FV	112	28	4	1.8 to 3.6	2.7 to 5.5	-40 to +85	1/4, 1/3, Static	1/3	3wire	-	5port	✓	1	1ch 8bit	-	SSOP-B40
BU97960MUV	120	15	8	2.5 to 6.0	2.5 to 6.0	-40 to +85	1/8, 1/4	1/4, 1/3	2wire	✓	-	-	-	-	-	VQFN028V5050
BU9795BKV	140	35	4	2.5 to 5.5		-40 to +85	1/4	1/3, 1/2	3wire	-	-	-	-	-	-	VQFP48C
BU9795ZKS2	140	35	4	2.5 to 5.5		-40 to +85	1/4	1/3, 1/2	3wire	-	-	-	-	-	-	SQFP-T52
BU9797AFUV	144	36	4	2.5 to 5.5		-40 to +85	1/4	1/3	2wire	-	-	-	-	-	-	TSSOP-C48V
BU97981MUV	168	42	4	1.8 to 3.6	3.3 to 5.5	-30 to +75	1/4, 1/3, Static	1/3	3wire	-	27port	✓	3	2ch 12bit	-	VQFN56AV8080
BU97981KV	196	49	4	1.8 to 3.6	3.3 to 5.5	-30 to +75	1/4, 1/3, Static	1/3	3wire	-	31port	✓	3	2ch 12bit	-	VQFP64
BU97981GU	196	49	4	1.8 to 3.6	3.3 to 5.5	-30 to +75	1/4, 1/3, Static	1/3	3wire	-	31port	✓	3	2ch 12bit	-	VBGA064T050A
BU9794AKV	200	50	4	2.5 to 5.5	2.5 to 5.5	-40 to +85	1/4	1/3, 1/2	3wire	-	-	-	-	-	-	VQFP64
BU9799KV	200	50	4	2.5 to 5.5	2.5 to 5.5	-40 to +85	1/4	1/3, 1/2	2wire	✓	-	-	-	-	-	VQFP64
BU97501KV	204	51	4	2.7 to 6.0	4.5 to 6.0	-40 to +85	1/4, 1/3	1/3, 1/2	3wire+KEYOUT	-	4port	-	-	-	5x6 Max 30Key	VQFP64
BU97950AFUV	280	35	8	2.5 to 6.0	2.5 to 6.0	-40 to +85	1/8, 1/4	1/4, 1/3	2wire	✓	-	-	-	-	-	TSSOP-C48V
BU97530KVT	445	89	5	2.7 to 6.0		-40 to +85	1/5, 1/4, 1/3, Static	1/3, 1/2	3wire+KEYOUT	✓	9port (0ch PWM)	-	-	9ch 8bit	5x6 Max 30Key	TQFP100V

LCD Segment Drivers

Low Duty LCD Segment Drivers for Automotive Application

Part No.	Display (dots)	Outputs seg. com.	Operating Voltage (V) I/F Power Supply (V _{I/F})	Operating Voltage (V) LCD Power Supply (VLCD)	Operating Temperature (°C)	Duty	Bias	I/F	EVR	GPO	Independent Blink	LED Driver	PWM Gen.	Keyscan	Package	ComfySIL™ Functional Safety*1	Automotive Grade AEC-Q100
BU97601FV-M	116	29 4	2.7 to 6.0	-40 to +85	1/4, 1/3, 1/2, Static	1/3, 1/2	3wire +KEYOUT	✓	16port (16ch PWM)	-	-	6ch 9bit	4x5 Max 20Key	SSOP-B40	FSs	YES	
BU9797FUV-M	144	36 4	2.5 to 5.5	-40 to +85	1/4	1/3, 1/2	2wire	-	-	-	-	-	-	TSSOP-C48V	FSs	YES	
BU97510CKV-M	216	54 4	2.7 to 6.0	-40 to +85	1/4, 1/3	1/3, 1/2	3wire	-	6port (6ch PWM)	-	-	6ch 6bit	-	VQFP64	FSs	YES	
BU97520AKV-M	276	69 4	2.7 to 6.0	-40 to +85	1/4, 1/3	1/3, 1/2	3wire +KEYOUT	-	6port (6ch PWM)	-	-	6ch 8bit	5x6 Max 30Key	VQFP80	FSs	YES	
BU97540KV-M	335	67 5	2.7 to 6.0	-40 to +85	1/5, 1/4, 1/3, Static	1/3, 1/2	3wire +KEYOUT	✓	9port (9ch PWM)	-	-	9ch 9bit	5x6 Max 30Key	VQFP80	FSs	YES	
BU97530KVT-M	445	89 5	2.7 to 6.0	-40 to +85	1/5, 1/4, 1/3, Static	1/3, 1/2	3wire +KEYOUT	✓	9port (9ch PWM)	-	-	9ch 8bit	5x6 Max 30Key	TQFP100V	FSs	YES	
BU97550KV-M	528	66 8	2.7 to 6.0	-40 to +85	1/8, 1/7, 1/5, 1/4, 1/3, Static	1/4, 1/3, 1/2	3wire +KEYOUT	✓	9port (9ch PWM)	-	-	9ch 9bit	5x6 Max 30Key	VQFP80	FSs	YES	
BU91795MUF-M	48	12 4	2.5 to 6.0	-40 to +105	1/4	1/3	2wire	-	-	-	-	-	-	VQFN24FV4040	FSs	YES	
BU91796BMUF-M	80	20 4	2.5 to 6.0	-40 to +105	1/4	1/3	2wire	-	-	-	-	-	-	VQFN32FBV050	FSs	YES	
BU91796FS-M	80	20 4	2.5 to 6.0	-40 to +105	1/4	1/3	2wire	-	-	-	-	-	-	SSOP-A32	FSs	YES	
BU91600FV-M	116	29 4	2.7 to 6.0	-40 to +105	1/4, 1/3, 1/2, Static	1/3, 1/2	3wire +KEYOUT	✓	16port (16ch PWM)	-	-	6ch 9bit	4x5 Max 20Key	SSOP-B40	FSs	YES	
BU91797MUF-M	144	36 4	2.5 to 6.0	-40 to +105	1/4	1/3	2wire	-	-	-	-	-	-	VQFN48FV7070	FSs	YES	
BU91797FUV-M	144	36 4	2.5 to 6.0	-40 to +105	1/4	1/3	2wire	-	-	-	-	-	-	TSSOP-C48V	FSs	YES	
BU91600FUV-M	148	37 4	2.7 to 6.0	-40 to +105	1/4, 1/3, 1/2, Static	1/3, 1/2	3wire +KEYOUT	✓	16port (16ch PWM)	-	-	6ch 9bit	4x5 Max 20Key	TSSOP-C48V	FSs	YES	
BU91799KV-M	200	50 4	2.5 to 6.0	2.5 to 6.0	-40 to +105	1/4	1/3	2wire	✓	-	-	-	-	VQFP64	FSs	YES	
BU91501KV-M	204	51 4	2.7 to 6.0	4.5 to 6.0	-40 to +105	1/4, 1/3	1/3, 1/2	3wire +KEYOUT	-	4port	-	-	-	5x6 Max 30Key	VQFP64	FSs	YES
BU91510KV-M	216	54 4	2.7 to 6.0	-40 to +105	1/4, 1/3	1/3, 1/2	3wire	-	6port (6ch PWM)	-	-	6ch 6bit	-	VQFP64	FSs	YES	
BU91520KV-M	276	69 4	2.7 to 6.0	-40 to +105	1/4, 1/3	1/3, 1/2	3wire +KEYOUT	-	6port (6ch PWM)	-	-	6ch 8bit	5x6 Max 30Key	VQFP80	FSs	YES	
BU91530KVT-M	445	89 5	2.7 to 6.0	-40 to +105	1/5, 1/4, 1/3, Static	1/3, 1/2	3wire +KEYOUT	✓	9port (9ch PWM)	-	-	9ch 8bit	5x6 Max 30Key	TQFP100V	FSs	YES	
BU91R63CH-M	176	44 4	2.7 to 6.0	2.7 to 6.0	-40 to +105	1/4, 1/3, 1/2, Static	1/3, 1/2	2wire	✓	-	-	-	-	Au Bump Chip	FSs	YES	
BU91R64CH-M	320	80 4	2.7 to 6.0	2.7 to 6.0	-40 to +105	1/4, 1/3, 1/2, Static	1/3, 1/2	2wire/ 3wire	✓	-	✓	-	-	Au Bump Chip	FSs	YES	
BU91R65CH-M	640	160 4	2.7 to 6.0	2.7 to 6.0	-40 to +105	1/4, 1/3, 1/2, Static	1/3, 1/2	2wire/ 3wire	✓	-	✓	-	-	Au Bump Chip	FSs	YES	

Low Duty LCD Segment Drivers for Industrial Application

Part No.	Display (dots)	Outputs seg. com.	Operating Voltage (V) I/F Power Supply (V _{I/F})	Operating Voltage (V) LCD Power Supply (VLCD)	Operating Temperature (°C)	Duty	Bias	Interface	EVR	GPO	Independent Blink	LED Driver (port)	PWM Gen.	Keyscan	Package
BU97941FV-LB	104	26 4	1.8 to 3.6	2.7 to 5.5	-40 to +85	1/4, 1/3, Static	1/3	3wire	-	-	-	4	-	-	SSOP-B40
BU9795AFV-LB	108	27 4	2.5 to 5.5	-40 to +85	1/4	1/3, 1/2	3wire	-	-	-	-	-	-	-	SSOP-B40
BU97931FV-LB	112	28 4	1.8 to 3.6	2.7 to 5.5	-40 to +85	1/4, 1/3, Static	1/3	3wire	-	5port	✓	1	1ch 8bit	-	SSOP-B40

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*1 For more information about "ComfySIL™ Functional Safety", please refer to the reverse side of the cover.

Sensors & MEMS

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Hall ICs

Omnipolar Detection Hall IC Detects S- or N-pole Magnetic Fields and Turns the Output ON (active Low)

Part No.	Supply Voltage (V)	Operate Point (mT)		Pulse Drive Period (ms)	Supply Current (Avg.) (μA)	Output	Operating Temperature (°C)	Package
		S-pole	N-pole					
BD7411G	4.5 to 5.5	+3.4	-3.4	—	2.0 (mA)	CMOS	-40 to +85	SSOP5

Omnipolar Detection Hall ICs with Polarity Discrimination (Polarity Detection for Both S and N Features Dual Outputs)

Features 2 Outputs to Discriminate Between N- and S-pole Detection

Part No.	Supply Voltage (V)	Operate Point (mT)		Pulse Drive Period (ms)	Supply Current (Avg.) (μA)	Output	Operating Temperature (°C)	Package (mm)
		S-pole	N-pole					
BU52272NUZ	1.65 to 3.60	+2.4	-2.4	50	4.4	CMOS (2 Outputs: S, N pole)	-40 to +85	VSON04Z1114A 1.1x1.4, H=Max 0.4
BU52072GWZ	1.65 to 3.60	+2.4	-2.4	50	4.4	CMOS (2 Outputs: S, N pole)	-40 to +85	UCSP35L1 0.8x0.8, H=Max 0.4
BU52073GWZ	1.65 to 3.60	+4.1	-4.1	50	4.4	CMOS (2 Outputs: S, N pole)	-40 to +85	UCSP35L1 0.8x0.8, H=Max 0.4
BU52074GWZ	1.65 to 3.60	+6.3	-6.3	50	4.4	CMOS (2 Outputs: S, N pole)	-40 to +85	UCSP35L1 0.8x0.8, H=Max 0.4
BU52075GWZ	1.65 to 3.60	+9.5	-9.5	50	5.0	CMOS (2 Outputs: S, N pole)	-40 to +85	UCSP35L1 0.8x0.8, H=Max 0.4
BU52737GWZ	2.5 to 4.5	+15.0	+15.0	50	0.8	CMOS (2 Outputs: S, N pole)	-40 to +85	UCSP35L1 0.8x0.8, H=Max 0.4
BU52077GWZ	1.65 to 3.60	+15.0	-15.0	50	5.0	CMOS (2 Outputs: S, N pole)	-40 to +85	UCSP35L1 0.8x0.8, H=Max 0.4
BU52078GWZ	1.65 to 3.60	+24.0	-24.0	50	5.0	CMOS (2 Outputs: S, N pole)	-40 to +85	UCSP35L1 0.8x0.8, H=Max 0.4

Industrial Equipment Latch Type Hall IC

Part No.	Supply Voltage (V)	Operate Point (mT)		Magnetic Signal Input Frequency (Hz)	Supply Current (μA)	Output	Operating Temperature (°C)	Package (mm)
		S-pole	N-pole					
BD54132G-LBZ	2.5 to 38	2.7	-2.7	20k	1.3	Nch Open Drain	-40 to +150	SSOP3A 2.92x2.4, H=Max 1.12

Automotive Unipolar Hall ICs

Part No.	Supply Voltage (V)	Operate Point (mT)		Magnetic Signal Input Frequency (Hz)	Supply Current (μA)	Output	Operating Temperature (°C)	Package (mm)	Automotive Grade AEC-Q100
		S-pole	N-pole						
BD53103G-CZ	2.7 to 38	3.5	—	10k	1.3	Nch Open Drain	-40 to +150	SSOP3A 2.92x2.4, H=Max 1.12	YES
BD53104G-CZ	2.7 to 38	7.5	—	10k	1.3	Nch Open Drain	-40 to +150	SSOP3A 2.92x2.4, H=Max 1.12	YES
BD53105G-CZ	2.7 to 38	10.0	—	10k	1.3	Nch Open Drain	-40 to +150	SSOP3A 2.92x2.4, H=Max 1.12	YES
BD53106G-CZ	2.7 to 38	12.5	—	10k	1.3	Nch Open Drain	-40 to +150	SSOP3A 2.92x2.4, H=Max 1.12	YES
BD53107G-CZ	2.7 to 38	18.0	—	10k	1.3	Nch Open Drain	-40 to +150	SSOP3A 2.92x2.4, H=Max 1.12	YES
BD53108G-CZ	2.7 to 38	28.0	—	10k	1.3	Nch Open Drain	-40 to +150	SSOP3A 2.92x2.4, H=Max 1.12	YES

Automotive Latch Type Hall ICs

Part No.	Supply Voltage (V)	Operate/Release Point (mT)		Magnetic Signal Input Frequency (Hz)	Supply Current (μA)	Output	Operating Temperature (°C)	Package (mm)	Automotive Grade AEC-Q100
		Bop	Brp						
BD54102G-CZ	2.7 to 38	2.0	-2.0	10k	1.3	Nch Open Drain	-40 to +150	SSOP3A 2.92x2.4, H=Max 1.12	YES
BD54103G-CZ	2.7 to 38	5.0	-5.0	10k	1.3	Nch Open Drain	-40 to +150	SSOP3A 2.92x2.4, H=Max 1.12	YES
BD54104G-CZ	2.7 to 38	7.5	-7.5	10k	1.3	Nch Open Drain	-40 to +150	SSOP3A 2.92x2.4, H=Max 1.12	YES
BD54105G-CZ	2.7 to 38	10.0	-10.0	10k	1.3	Nch Open Drain	-40 to +150	SSOP3A 2.92x2.4, H=Max 1.12	YES
BD54107G-CZ	2.7 to 38	15.0	-15.0	10k	1.3	Nch Open Drain	-40 to +150	SSOP3A 2.92x2.4, H=Max 1.12	YES

Geomagnetic Sensor IC

3-Axis Digital Magnetometer IC

Part No.	Supply Voltage (V)	Magnetic Measurement (μT)	Magnetic Sensitivity ($\mu\text{T}/\text{LSB}$)	Current Consumption (μA)	I/F	Operating Temperature ($^{\circ}\text{C}$)	Package (mm)
BM1423GMV	1.7 to 3.6	$\pm 1,200$	0.042	150	I ² C	-40 to +85	MLGA010V020A 2.0x2.0, H=Max 1.0

Current Sensor ICs

Contactless Current Sensor IC

Part No.	Supply Voltage (V)	Magnetic Measurement (μT)	Magnetic Sensitivity ($\mu\text{T}/\text{LSB}$)	Current Consumption (μA)	I/F	Operating Temperature ($^{\circ}\text{C}$)	Package (mm)
BM14270AMUV-LB	2.7 to 5.5	± 280	0.045	70	I ² C	-40 to +125	VQFN20QV3535 3.5x3.5, H=Max 1.0

Current Sense Amplifier ICs

Part No.	Ch	Supply Voltage (V)	Quiescent Current (μA)	Common Mode Voltage (V)	Gain (V/V)	Gain Accuracy (%)	Operating Temperature ($^{\circ}\text{C}$)	Package (mm)
BD14210G-LA	1	2.7 to 5.5	170	-0.2 to +26	20	± 1 (Max)	-40 to +125	SSOP6 2.9x2.8, H=Max 1.25
New BD14211G-LA	1	2.7 to 5.5	170	-0.2 to +26	50	± 1 (Max)	-40 to +125	SSOP6 2.9x2.8, H=Max 1.25
New BD14215FVJ-LA	2	2.7 to 5.5	310	-0.2 to +26	20	± 1 (Max)	-40 to +125	TSSOP-B8J 3.0x4.9, H=Max 1.10

Ambient Light Sensor ICs

Analog Current Output type Ambient Light Sensor ICs

Part No.	Supply Voltage (V)	Sensitivity Variations (%)	Detection Range (lx)	Sensitivity ($\mu\text{A}/\text{lx}$)	IR Cut	I/F	Operating Temperature ($^{\circ}\text{C}$)	Package
BH1603FVC	2.4 to 5.5	± 15	0 to 100,000	0.6	—	Linear Current Output (Source)	-40 to +85	WSOF6
BH1620FVC	2.4 to 5.5	± 15	0 to 100,000	0.6	—	Linear Current Output (Source)	-40 to +85	WSOF5
BH1680FVC	2.4 to 5.5	± 15	0 to 50,000	6	✓	Linear Current Output (Source)	-40 to +85	WSOF5
BH1682FVC	2.3 to 5.5	$\pm 3\mu\text{A}$	1 to 55,000	—	✓	Logarithmic Current Output (Source)	-40 to +85	WSOF5

Digital 16bit Serial Output type Ambient Light Sensor ICs

Part No.	Supply Voltage (V)	Sensitivity Variations (%)	Detection Range (lx)	Sensitivity (at 100ms) (lx/count)	IR Cut	I/F	Operating Temperature ($^{\circ}\text{C}$)	Package
BH1721FVC	2.4 to 3.6	± 15	0 to 65,000	1	—	I ² C	-40 to +85	WSOF5
BH1730FVC	2.4 to 3.6	± 15	0 to 65,000	0.007	—	I ² C	-40 to +85	WSOF6
BU27034ANUC	1.7 to 2.0	± 15	0 to 20,000	0.000016	✓	I ² C	-40 to +85	WSON008X2120

Color Sensor IC

Digital 16bit Serial Output type Color Sensor IC

Part No.	Supply Voltage (V)	λ_p (nm)				Illuminance Measurement (lx)	High Sensitivity	IR Cut	Fricker detection	I/F	Operating Temperature ($^{\circ}\text{C}$)	Package (mm)
		Red	Green	Blue	IR							
BU27006MUC-Z	1.7 to 3.6	630	540	460	825	0 to 50,000	✓	✓	✓	I ² C	-40 to +85	WQFN12X2520A 2.5x2.0, H=Max 0.55

Pressure Sensor IC

Digital Pressure Sensor ICs with Built-in Temperature Compensation Function

Part No.	Supply Voltage (V)	Pressure Range (hPa)	Relative Pressure Accuracy (hPa)	Absolute Pressure Accuracy (hPa)	I/F	Operating Temperature (°C)	Waterproof	Package (mm)
BM1390GLV-Z	1.7 to 3.6	300 to 1,300	±0.06	±1	I ² C	-40 to +85	✓	RLGA10VG020T 2.0×2.0, H=Max 1.0

Temperature Sensor ICs

Analog Output Temperature Sensor IC

Part No.	Supply Voltage (V)	Temperature Accuracy (°C)		Temperature Sensitivity (mV/°C)	Output Voltage (V) (T _a =+30°C, V _{DD} =3V)	Supply Current (μA)	Operating Temperature (°C)	Package
		T _a =+30°C	T _a =-30, +100°C					
BD1020HFV	2.4 to 5.5	±1.5	±2.5	-8.2	1.3	4.0	-30 to +100	HVSOF5

Digital Output Temperature Sensor IC

Part No.	Supply Voltage (V)	Temperature Accuracy (°C) T _a =-20 to +85°C	Current Consumption (μA)	I/F	Operating Temperature (°C)	Package
BH1900NUX	2.7 to 3.6	±3	75	I ² C	-30 to +95	VSON008X2030

Shock Sensor Amplifier

Shock Sensor Amplifier

Part No.	Supply Voltage (V)	Current Consumption (mA)	Notch Frequency (kHz)	Notch Attenuation Rate (dB)	Operating Temperature (°C)	Package
BD3852MUZ-Z	1.6 to 2.3	1.6 to 4.5	31.0	-23.0	-40 to +85	VQFN16Z3030A

Accelerometers

3-Axis Accelerometers

Part No.	Acceleration Range (±g)	Mechanical Signal Bandwidth (Hz)	I/F	Operating Temperature (°C)	Size, No. of Pins, Package	Features
New KX022ACR-Z	2, 4, 8, 16	800	I ² C/SPI	-40 to +85	2x2x1mm, 12pin, LGA	Wake-up and Back-to-sleep Function, 86sets (8bit) or 43sets (16bit) Buffer
New KX132ACR-LBZ	2, 4, 8, 16	4,200 (XY) 2,900 (Z)	I ² C/SPI	-40 to +105	2x2x1mm, 12pin, LGA	Up to +105°C Operating Temperature, Up to 25.6kHz Output Data Rate, 86sets (8bit) or 43sets (16bit) Buffer
New KX134ACR-LBZ	8, 16, 32, 64	8,200 (X) 8,500 (Y) 5,600 (Z)	I ² C/SPI	-40 to +105	2x2x1mm, 12pin, LGA	Up to +105°C Operating Temperature, Up to 25.6kHz Output Data Rate, Wide Mechanical Signal Bandwidth, 86sets (8bit) or 43sets (16bit) Buffer

Wireless LSIs

Sub-GHz LSIs

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RFID LSIs

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Sub-GHz LSIs

(LAPIS Technology products)

Sub-GHz LSIs

Part No.	Support Standard	Frequency Band	Tx Power (dBm)	Max. Data Rate (kbps)	Modulation Method	RF Function	Communication Mode	CPU core	Memory resources	Operating Temperature (°C)	Package
ML7386	ARIB STD-T67 RCR STD-30	400 (426)	10	7.2	2-FSK*1	—	DIO (Tx only)	—	—	-25 to +85	P-WQFN28-0404-0.40-63
ML7386B			1/10		2-FSK MSK						P-WQFN28-0404-0.40-63
ML7396D	ARIB STD-T108 EN300-220 IEEE802.15.4g	920 (900 to 960)	1/10/13	400	2-FSK	Antenna Diversity FEC (IEEE802.15.4g)	Packet (SPI), DIO	—	—	-40 to +85	P-WQFN40-0606-0.50-63
ML7344J	ARIB STD-T67 RCR STD-30	160, 400 (160 to 510)	1/10/13	15	2-FSK	Antenna Diversity		—	—		P-WQFN32-0505-0.50-A63
ML7406	EN300-220 EN13757-4: 2011 IEEE802.15.4g	860, 920 (750 to 960)	1/10/13	500	2-FSK	Antenna Diversity		—	—		P-WQFN32-0505-0.50-A63
ML7345	ARIB STD-T67 ARIB STD-T108 RCR STD-30 EN300-220	160, 400, 860, 920 (160 to 960)	1/10/13	100	2-FSK 4-FSK	Antenna Diversity		—	—		P-WQFN32-0505-0.50-A63
ML7345D	EN13757-4: 2013 IEEE802.15.4g	400, 860, 920 (315 to 960)	1/10/13	100		Antenna Diversity		—	—		P-WQFN32-0505-0.50-A63
ML7404	Sigfox ARIB STD-T67 ARIB STD-T108 RCR STD-30 EN300-220 EN13757-4: 2013 IEEE802.15.4k IEEE802.15.4g	400, 860, 920 (315 to 960)	1/10/13	100 (FSK) 25 (DSSS)	2-FSK 4-FSK BPSK (DSSS)	Antenna Diversity FEC (IEEE802.15.4k)		—	—		P-WQFN32-0505-0.50-A63
New ML7425	Sigfox ARIB STD-T67 ARIB STD-T108 RCR STD-30 EN300-220 EN13757-4: 2013 IEEE802.15.4g/15.4aa	160, 400, 860, 920 (145 to 1020)	1/10/13	1200	2-FSK 4-FSK BPSK (TX only)	Antenna Diversity		—	—	-40 to +105	P-WQFN32-0505-0.50-A63

Sub-GHz SoCs

Part No.	Support Standard	Frequency Band	Tx Power (dBm)	Max. Data Rate (kbps)	Modulation Method	RF Function	Communication Mode	CPU core	Memory resources	Operating Temperature (°C)	Package
ML7416N	ARIB STD-T108 IEEE802.15.4g	920 (750 to 960)	1/10/13	400	2-FSK	Antenna Diversity FEC (IEEE802.15.4g)	Packet (SPI), DIO	Cortex®-M0+ (to 40MHz)	FLASH512KB, RAM64KB	-40 to +85	P-LFBGA81-1010-1.00-1-MC
ML7436N	ARIB STD-T66 ARIB STD-T67 ARIB STD-T108 EN300-220 FCC part15 IEEE802.15.4g	400, 860, 920, 2400 (400 to 960, 2400)	1/10/13	300	2-FSK 4-FSK	Antenna Diversity FEC (IEEE802.15.4g)		Cortex®-M3 (to 81MHz)	FLASH1024KB, RAM256KB		P-TQFP48-0707-0.50-Z9K6-MC
ML7456N	Sigfox ARIB STD-T108 EN300-220 EN13757-4: 2013 IEEE802.15.4g	860, 920 (315 to 960)	1/10/13	100	2-FSK 4-FSK BPSK (TX only)	Antenna Diversity FEC (IEEE802.15.4g)		nX-U16 (to 24MHz)	FLASH64KB, RAM8KB		P-WQFN48-0606-0.40-T63-MC

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*1 No Gaussian filter.

RFID LSIs

(LAPIS Technology products)

Sensor LSIs

Part No.	Support Standard	Frequency Band (MHz)	Passive Sensitivity (dBm)	Sensor	Measurement Range (pF)	Accuracy	Resolution (pF)	Sensor control (EPC command)	Memory (bit)	Operating Temperature (°C)	I/F	Package
★MR7930	ISO/IEC 18000-63	860 to 960	READ: -9.5 WRITE: -8.5 SENSOR: -8.5	Capacitive	Low Range: 5 to 25 High Range: 15 to 100	±5%	Low Range: 0.01 High Range: 0.02 to 0.20	READ, WRITE (mandatory)	EPC: 96 USER: 144	-40 to +65	—	Au bump Wafer
New MR793200	EPC Gen2*1										SPI Slave	P-WQFN24-0404-0.50-A63

*1 EPC Gen2 means EPCglobal Class1 Generation2. EPC means Electric Product Code.

★: Under Development

Audio & Video

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Audio Amplifiers

Automotive Speaker amplifiers

1.2W Monaural Class-AB Speaker Amplifiers

Part No.	Supply Voltage (V)	Quiescent Current (mA)	Standby Current (μA)	Voltage Gain (dB)	Output Power (W)	Input Impedance Z_{in} (kΩ)	Built-in Amplifier Resistance		Distortion (%)	Output Noise Voltage (μVrms)	Package	ComfySIL™ Functional Safety*1	Automotive Grade AEC-Q100
							Ri (kΩ)	Rf (kΩ)					
BD78306EFJ-M	4.0 to 5.5	2.5	0.1	6.0 ($P_o=0.5W$)	1.2 (THD+N=1%)	45	90	90	0.05 ($P_o=1W$)	15	HTSOP-J8	FSs	YES
BD78310EFJ-M				10.0 ($P_o=0.5W$)		35	70	110	0.06 ($P_o=1W$)	17	HTSOP-J8	FSs	YES
BD78326EFJ-M				26.0 ($P_o=0.5W$)		8	16	164	0.20 ($P_o=1W$)	50	HTSOP-J8	FSs	YES

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*1 For more information about "ComfySIL™ Functional Safety", please refer to the reverse side of the cover.

Speaker Amplifiers

Portable Amplifier 1.9W+1.9W Stereo Speaker Amplifier

Part No.	Supply Voltage (V)	Power Dissipation (W)	Quiescent Current (mA)	Standby Current (μA)	Voltage Gain (dB)	Output Power (W)	Distortion (%)	Output Noise Voltage (μVrms)	Package
BD7836EFV	4.5 to 5.5	1.0	5	0.1	6/10/15.6/21.6	1.9 ($V_{DD}=5V$, $R_L=4\Omega$, THD+N=1%)	0.1	16	HTSSOP-B20

Portable Amplifier 1.1W to 1.5W Monaural Speaker Amplifier

Part No.	Supply Voltage (V)	Power Dissipation (W)	Quiescent Current (mA)	Standby Current (μA)	Voltage Gain (dB)	Output Power ($R_L=8\Omega$, THD=10%)		Distortion (%)	Output Noise Voltage (dBV)	Package
						$V_{CC}=3.6V$	$V_{CC}=5.0V$			
BD7830NUV	2.4 to 5.5	0.53	3.2	0	0 to 20	0.77W	1.5W	0.1	-100	VSON008V2030

Portable Amplifiers Analog Input Monaural Class-D Speaker Amplifiers

Part No.	Supply Voltage (V)	Power Dissipation (W)	Quiescent Current (mA)	Voltage Gain (dB)	Output Power (W)		Distortion (%)	Output Noise Voltage (μVrms)	ALC Circuit	Package (mm)		
BD5460GUL	2.5 to 5.5	0.69	2.0 ($V_{DD}=3.6V$)	6	2.5 ($V_{DD}=5V$, $R_L=4\Omega$)	0.85 ($V_{DD}=3.6V$, $R_L=8\Omega$)	0.3 ($V_{DD}=3.6V$)	30	—	VCSP50L1 1.6x1.6, H=0.55Max		
BD5461GUL		0.69	2.0 ($V_{DD}=3.6V$)	12	2.5 ($V_{DD}=5V$, $R_L=4\Omega$)	0.85 ($V_{DD}=3.6V$, $R_L=8\Omega$)						
BD27400GUL		0.69	2.9 ($V_{DD}=3.6V$)	External Variable	2.5 ($V_{DD}=5V$, $R_L=4\Omega$)	0.85 ($V_{DD}=3.6V$, $R_L=8\Omega$)						
BD5632NUX		0.52	2.7 ($V_{DD}=3.6V$)	6	2.5 ($V_{DD}=5V$, $R_L=4\Omega$)	0.85 ($V_{DD}=3.6V$, $R_L=8\Omega$)						
BD5634NUX		0.52	2.7 ($V_{DD}=3.6V$)	12	2.5 ($V_{DD}=5V$, $R_L=4\Omega$)	0.85 ($V_{DD}=3.6V$, $R_L=8\Omega$)						
BD5638NUX		0.52	2.7 ($V_{DD}=3.6V$)	18	2.5 ($V_{DD}=5V$, $R_L=4\Omega$)	0.85 ($V_{DD}=3.6V$, $R_L=8\Omega$)						
BD5465GUL		0.69	3.3 ($V_{DD}=3.6V$)	12	0.6 ($V_{DD}=3.4$ to $5.5V$, $R_L=8\Omega$)				✓	VCSP50L1 1.8x1.8, H=0.55Max		
BD5466GUL		0.69	3.0 ($V_{DD}=3.6V$)	18	1.5 ($V_{DD}=5V$, $R_L=4\Omega$)	0.5 ($V_{DD}=3.6V$, $R_L=8\Omega$)						
BD5467GUL		0.69	3.0 ($V_{DD}=3.6V$)	13	1.5 ($V_{DD}=5V$, $R_L=4\Omega$)	0.5 ($V_{DD}=3.6V$, $R_L=8\Omega$)						
BD5468GUL		0.69	3.0 ($V_{DD}=3.6V$)	13	1.5 ($V_{DD}=5V$, $R_L=4\Omega$)	0.5 ($V_{DD}=3.6V$, $R_L=8\Omega$)						
BD5469GUL		0.69	3.0 ($V_{DD}=3.6V$)	13	0.88 ($V_{DD}=4.2V$, $R_L=8\Omega$)	0.64 ($V_{DD}=3.6V$, $R_L=8\Omega$)						

Portable Amplifier Analog Input Stereo Class-D Speaker Amplifier

Part No.	Supply Voltage (V)	Power Dissipation (W)	Quiescent Current (mA)	Voltage Gain (dB)	Output Power (W)			Distortion (%)	Output Noise Voltage (μ Vrms)	Max LDO Current (mA)	Package	
BD28412MUV	4.5 to 13.0	3.20	16 ($V_{cc}=11V$)	20/26/ 32/36	18 ($V_{cc}=12V, R_L=4\Omega$) ($THD+N=10\%, PBTL$)			9 ($V_{cc}=12V, R_L=8\Omega$) ($THD+N=10\%$)	0.03 ($V_{cc}=11V$)	100	—	VQFN032V5050

Mid./High-Power Amplifier Class-D Speaker Amplifier for Digital Input with Built-in DSP

Part No.	Supply Voltage (V)	Power Dissipation (W)	Quiescent Current (mA)	Output Power (W)	Distortion (%)	Output Noise Voltage (μ Vrms)	DSP					Package	
							Volume	DC Cut HPF	Hard Clipper	Parametric EQ	DRC		
BM28723AMUV	10 to 24	4.56 (4-Layer Board)	45 ($V_{cc}=18V$)	10 ($V_{cc}=13V, R_L=8\Omega$)	17 ($V_{cc}=18V, R_L=8\Omega$)	0.08	150	✓	✓	✓	✓ (12 Band)	✓ (3 Band)	VQFN032V5050

Mid./High-Power Amplifier Class-D Speaker Amplifier for Digital Input

Part No.	Supply Voltage (V)	Power Dissipation (W)	Quiescent Current (mA)	Output Power (W)			Distortion (%)	Output Noise Voltage (μ Vrms)	Power Limiter Function	Package
BD28623MUV	8.5 to 24.0	3.56 (4-Layer Board) 2.21 (2-Layer Board)	40 ($V_{cc}=18V$)	—		15 ($V_{cc}=16V, R_L=8\Omega$)	0.08	150	✓ (GAIN)	VQFN024V4040

Mid./High-Power Amplifiers Analog Input/BTL Output Class-D Speaker Amplifiers

Part No.	Supply Voltage (V)	Power Dissipation (W)	Quiescent Current (mA)	Voltage Gain (dB)	Output Power (W)			Distortion (%)	Output Noise Voltage (μ Vrms)	Power Limiter Function	Package
BD5424EFS	10.0 to 18.0	4.5 (4-Layer Board) 2.0 (2-Layer Board)	30 ($V_{cc}=12V$)	28	10 ($V_{cc}=12V, R_L=8\Omega$)	20 ($V_{cc}=17V, R_L=8\Omega$)	0.1	80	✓ (Power Limitter)	HTSSOP-A44	
BD5423AEFS	10.0 to 16.5	4.5 (4-Layer Board) 2.0 (2-Layer Board)	25 ($V_{cc}=12V$)	28	10 ($V_{cc}=12V, R_L=8\Omega$)	17 ($V_{cc}=12V, R_L=4\Omega$)	0.1	80	✓ (Power Limitter)	HTSSOP-A44	
BD5426EFS	10.0 to 16.5	4.5 (4-Layer Board) 2.0 (2-Layer Board)	25 ($V_{cc}=12V$)	28	9 ($V_{cc}=12V, R_L=8\Omega$)	10 ($V_{cc}=13V, R_L=8\Omega$)	0.1	80	✓ (Power Limitter)	HTSSOP-A44	
BD5413EFV	6.0 to 10.5	2.8 (4-Layer Board) 1.1 (2-Layer Board)	12 ($V_{cc}=9V$)	30	4 ($V_{cc}=9V, R_L=8\Omega$)	5 ($V_{cc}=9V, R_L=6\Omega$)	0.2	90	—	HTSSOP-B24	

Headphone Amplifiers**Ultra-Compact Coupling Capacitorless Headphone Amplifiers**

Part No.	Supply Voltage (V)	Quiescent Current (mA)	Gain (V/V)	Maximum Output Power (mW)	Distortion (%)		Output Noise Voltage (μ Vrms)	Ripple Rejection (dB)	Note	Package (mm)
BD88200GUL	2.4 to 5.5	2	Variable Gain with external resistor	80 ($V_{DD}=3.3V, R_L=16\Omega$)	0.006 ($V_{DD}=3.3V, R_L=16\Omega$)	10 (f=217Hz)	—80 (f=217Hz)	—80 (f=217Hz)	Virtual ground based	VCSP50L2 2.1x2.1
BD88210GUL			-1.0						Virtual ground based	VCSP50L2 2.1x2.1
BD88215GUL			-1.5						Virtual ground based	VCSP50L2 2.1x2.1
BD88220GUL			-2.0						Virtual ground based	VCSP50L2 2.1x2.1
BD88400GUL			Variable Gain with external resistor						Ground based	VCSP50L2 2.1x2.1
BD88400FJ			Variable Gain with external resistor						Ground based	SOP-J14
BD88410GUL			-1.0						Ground based	VCSP50L2 2.1x2.1
BD88415GUL			-1.5						Ground based	VCSP50L2 2.1x2.1
BD88420GUL			-2.0						Ground based	VCSP50L2 2.1x2.1

Headphone Amplifier Designed for 0.93V Low Voltage Operation

Part No.	Supply Voltage (V)	Quiescent Current (mA)	Maximum Output Power (mW)		Distortion (%)		Output Noise Voltage (μ Vrms)	Package
			Single-ended (16Ω)	BTL (8Ω)	Single-ended (16Ω)	BTL (8Ω)		
BU7150NUV	0.93 to 3.50 ($T_a=0^\circ C$ or more)	1	14 ($V_{DD}=1.5V$)	85 ($V_{DD}=1.5V$)	0.1 ($P_o=5mW$)	0.2 ($P_o=25mW$)	10	VSON010V3030

Standard Headphone Amplifiers

Part No.	Supply Voltage (V)	Quiescent Current (mA)	Voltage Gain (dB)	Maximum Output Power (mW) $R_L=16\Omega$	Distortion (%)	Ripple Rejection (dB)	Package
BH3544F	2.8 to 6.5	7.0	6	62	0.02	57	SOP8
BH3547F	4.5 to 6.5	3.7	6	77	0.05	57	SOP8
BH3548F	4.0 to 5.5	6.5	6	62 (120@ $R_L=8\Omega$)	0.02	57	SOP8

Others**Line Amplifiers (Output Coupling Capacitor-less)**

Part No.	Supply Voltage (V)	Circuit Current (mA)	ch	Voltage Gain (dB)	Maximum Output Voltage (VRms)	Distortion (%)	Output Noise Voltage (μVRms)	Channel Separation (dB)	Ripple Rejection (dB)	Charge Pump	Package
BD8876FV	3.0 to 5.5	3.2	2	6 or 9	3.5	0.003	8	80	65	✓	SSOP-B14
BD8878FV	3.0 to 5.5	3.2	2	6.7	3.0	0.003	10	65	65	✓	SSOP-B14

Isolation Amplifiers

Part No.	Supply Voltage (V)	Operating Temperature (°C)	Circuit	Circuit Current (mA)	Voltage Gain (dB)	CMRR (dB)	Common-mode Input Voltage Range (V) V _{CC} =8V	THD (%)	Output Noise Voltage (μVRms)	Channel Separation (dB)	Slew Rate (V/μs)	Input Resistance (kΩ)	Package
BA3121F	4.0 to 18.0	-30 to +85	2	9.0	-0.04	57	3.75	0.002	3.5	82	2.0	55	SOP8
BA3123F	4.0 to 18.0	-40 to +85	2	9.0	-0.04	57	3.75	0.002	3.5	82	2.0	55	SOP8

Power Supply ICs for Audio

Power Supply ICs for High Fidelity Audio

*The following products are belonging to ICs. (Refer P.42) Please ensure that minimum Input Voltage always exceeds the sum of Output Voltage and drop out voltage for the device.

Power Supply ICs for High Fidelity Audio

Part No.	Output Current (A)	Input Voltage (V)	Output Voltage (V)	Reference Voltage Accuracy (%)	Dropout Voltage (mV)	Noise Level (μVRms)	PSRR (dB)	Over-Current Protection	Thermal Protection	Package
MUS-IC BD37201NUX	0.5	2.7 to 5.5	Variable 1.0 to 4.5	±1	200	3.3	90 (f=1kHz) 55 (f=1MHz)	✓	✓	VSON008X2030

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Audio Processors

Analog Audio Processors**6ch/8ch Sound Processors with Built-in Micro-step Volume**

Part No.	Supply Voltage (V)	Circuit Current (mA)	Output Noise Voltage (μVRms)	Distortion (%)	Selector	Main Volume (dB)	ch	Zone Volume (dB)		Tone Control	Serial Control	Package
								ch	ch			
MUS-IC BD34704KS2	±6.5 to ±7.5	±32	1.2	0.0004	18	+32 to -95 0.5/Step	8	+7.5 to -91.5 0.5/Step	2	-	2Wire	SQFP-T80C
MUS-IC BD34705KS2	±6.5 to ±7.5	±32	1.2	0.0004	12	+32 to -95 0.5/Step	8	+6 to -16 1/Step, -16 to -56 2/Step	2	-	2Wire	SQFP-T64
BD34701KS2	±6.5 to ±7.5	±22	1.5	0.0004	8	+32 to -95 0.5/Step	8	-	-	-	2Wire	SQFP-T52
BD3474KS2	±6.5 to ±7.5	±30	1.5	0.0004	12	+32 to -95 0.5/Step	6	-	-	Bass, Treble	2Wire	SQFP-T80C

2ch/4ch/6ch Sound Processors

Part No.	Supply Voltage (V)	Circuit Current (mA)	Output Noise Voltage (μVRms)	Distortion (%)	Selector	Main Volume (dB)	ch	Zone Volume (dB)		Tone Control	Serial Control	Package
								ch	ch			
BD3814FV	±5.0 to ±7.3	±7	1.0	0.001	-	0 to -95 1/Step	6	-	-	Bass, Treble	2Wire	SSOP-B40
BD34700FV	±6.5 to ±7.5	±22	1.5	0.0004	-	+32 to -95 0.5/Step	4	-	-	-	2Wire	SSOP-B40
BD3812F	±5.0 to ±7.3	±2	1.2	0.0050	-	0,6 to 18 2/Step, 0 to -103 1/Step	2	-	-	-	2Wire	SOP14

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6ch/9ch Stereo Input Selector ICs Maximum Input Voltage: 4.2V

Part No.	Supply Voltage (V)	Current Consumption (mA)	Output Noise Voltage (μ Vrms)	Distortion (%)	Selector	Serial Control	Package
BD3843FS	± 4.0 to ± 7.3	± 3	1.0	0.004	6	2Wire	SSOP-A24
BD3841FS	± 5.0 to ± 7.3	± 3	1.0	0.004	9	2Wire	SSOP-A32

Sound Processors with Built-in 2-band Equalizer

Part No.	Supply Voltage (V)	Current Consumption (mA)	Selector		Input Gain (dB)	Volume (dB)	Fader		Parametric EQ	Loudness	LPF for Sub Woofer	Option	Serial Control	Output Noise Voltage (μ Vrms)	Distortion (%)	Package
			Single	Diff.			(dB)	Output								
BD37503FV	7.0 to 9.5	20	3	1	0 to +20	0 to -36, $-\infty$	0 to -63, $-\infty$	4	-	\checkmark^*	-	Anti-aliasing Filter*	I ² C BUS	5.8	0.001	SSOP-B20
BD37511FS	7.0 to 9.5	15	3	-	0 to +20	0 to -40	0 to -62, $-\infty$	4	-	-	-	-	I ² C BUS	6.0	0.005	SSOP-A20
BD37512FS	7.0 to 9.5	15	3	1	0 to +20	0 to -40	0 to -62, $-\infty$	4	-	-	-	-	I ² C BUS	6.0	0.005	SSOP-A20
BD37513FS	7.0 to 9.5	38	3	1	0 to +20	+15 to -79, $-\infty$	0 to -79, $-\infty$	4	-	\checkmark	-	-	I ² C BUS	3.8	0.001	SSOP-A20
BD37514FS	7.0 to 9.5	38	3	1	0 to +20	+15 to -79, $-\infty$	0 to -79, $-\infty$	5	\checkmark	\checkmark	-	-	I ² C BUS	3.8	0.001	SSOP-A20
BD37515FS	7.0 to 9.5	38	3	1	0 to +20	+15 to -79, $-\infty$	+15 to -79, $-\infty$	5	\checkmark	\checkmark	\checkmark	-	I ² C BUS	3.8	0.001	SSOP-A20
BD37521FS	7.0 to 9.5	38	3	1	0 to +20	+15 to -79, $-\infty$	0 to -79, $-\infty$	4	-	EXT	-	-	I ² C BUS	3.8	0.001	SSOP-A24
BD37522FS	7.0 to 9.5	38	4	1	0 to +20	+15 to -79, $-\infty$	0 to -79, $-\infty$	4	\checkmark	\checkmark	-	-	I ² C BUS	3.8	0.001	SSOP-A24
BD37523FS	7.0 to 9.5	38	4	1	0 to +20	+15 to -79, $-\infty$	+15 to -79, $-\infty$	5	\checkmark	\checkmark	\checkmark	-	I ² C BUS	3.8	0.001	SSOP-A24
BD3870FS	4.5 to 9.5	8	3	-	0/6/12/18	0 to -87, $-\infty$	-	2	EXT	-	-	Surround	2Wire	4.5	0.01	SSOP-A24
BD3871FS	4.5 to 9.5	8	3	-	24/26/28	0 to -87, $-\infty$	-	2	EXT	-	-	Surround	2Wire	40 (Gv=24dB)	0.01	SSOP-A24
BD3490FV	4.75 to 9.50	7	4	-	0/2/4/6/8/ 12/16/20	0 to -87 (2ch Independent control), $-\infty$	-	2	EXT	-	-	Bass Boost, Surround	I ² C BUS	5.0	0.002	SSOP-B28
BD3491FS	4.75 to 9.50	7	6	-	0/2/4/6/8/ 12/16/20	0 to -87 (2ch Independent control), $-\infty$	-	2	EXT	-	-	Bass Boost, Surround	I ² C BUS	5.0	0.002	SSOP-A32

Sound Processors with Built-in 2-band Equalizer: Built-in Bass and Treble control *Loudness and Anti-aliasing Filter can be used exclusively.

EXT: Set by external components

BD37511FS and BD37512FS are pin-compatible. BD37513FS, BD37514FS and BD37515FS are pin-compatible. BD37522FS and BD37523FS are pin-compatible.

Analog Audio Processors

Sound Processors with Built-in 3-band Equalizer

Part No.	Supply Voltage (V)	Current Consumption (mA)	Selector		Input Gain (dB)	Volume (dB)	Fader		Parametric EQ	Loudness	LPF/HPF for Sub Woofer	Mixing	Level Meter	Option	Serial Control	Output Noise Voltage (µVRms)	Distortion (%)	Package	ComfySIL™ Functional Safety*1	Automotive Grade AEC-Q100	
			Single	Diff.			(dB)	Outputs													
BD37524FS	7.0 to 9.5	38	4	1	0 to +20	+15 to -79, -∞	+15 to -79, -∞	6	✓	✓	LPF	—	—	✓	—	I ² C BUS	3.8	0.001	SSOP-A24	—	—
BD37531FV	7.0 to 9.5	38	2/3/5	3/2/1	0 to +20	+15 to -79, -∞	+15 to -79, -∞	6	✓	✓	—	—	—	—	—	I ² C BUS	3.8	0.001	SSOP-B28	—	—
BD37532FV	7.0 to 9.5	38	2/3/5	3/2/1	0 to +20	+15 to -79, -∞	+15 to -79, -∞	6	✓	✓	LPF	—	—	—	—	I ² C BUS	3.8	0.001	SSOP-B28	—	—
BD37533FV	7.0 to 9.5	38	2/3/5	3/2/1	0 to +20	+15 to -79, -∞	+15 to -79, -∞	6	✓	✓	LPF	✓	✓	—	—	I ² C BUS	3.8	0.001	SSOP-B28	—	—
BD37534FV	7.0 to 9.5	38	2/3/5	3/2/1	0 to +20	+15 to -79, -∞	+15 to -79, -∞	6	✓	✓	LPF	✓	✓	✓	—	I ² C BUS	3.8	0.001	SSOP-B28	—	—
BD37541FS	7.0 to 9.5	38	2/3/5	3/2/1	0 to +20	+15 to -79, -∞	0 to -79, -∞	6	✓	EXT	—	✓	—	—	—	I ² C BUS	3.8	0.001	SSOP-B28	—	—
BD37542FS	7.0 to 9.5	38	2/3/5	3/2/1	0 to +20	+15 to -79, -∞	+15 to -79, -∞	6	✓	EXT	LPF	✓	✓	—	—	I ² C BUS	3.8	0.001	SSOP-A32	—	—
BD37543FS	7.0 to 9.5	38	2/3/5	3/2/1	0 to +20	+15 to -79, -∞	+15 to -79, -∞	6	✓	EXT	LPF+HPF	✓	✓	✓	—	I ² C BUS	3.8	0.001	SSOP-A32	—	—
BD37544FS	7.0 to 9.5	38	1/3/4	3/2/1	0 to +20	+15 to -79, -∞	+15 to -79, -∞	6	✓	—	LPF+HPF	✓	✓	—	Super Bass	I ² C BUS	3.8	0.001	SSOP-A32	—	—
BD37033FV-M	7.0 to 9.5	31	3/5	2/1	0 to +16	+15 to -79, -∞	+15 to -79, -∞	6	✓	✓	LPF	✓	✓	✓	—	I ² C BUS	5.5	0.002	SSOP-B28	FSs	YES
BD37034FV-M	7.0 to 9.5 V _{CC} L to 13	36	3/5	2/1	0 to +16	+15 to -79, -∞	+15 to -79, -∞	6	✓	✓	LPF+HPF	✓	✓	✓	High Voltage Output	I ² C BUS	6.0	0.002	SSOP-B28	FSs	YES
BD3883FS	6.5 to 9.5	8	5	—	0/6/12/16/20/23/26/29	0 to -87, -∞	0/-10	2	EXT	—	—	—	—	—	Surround	2Wire	4.0	0.01	SSOP-A32	—	—
BD3403FV	6.5 to 9.5	16	5	—	0 to +26 (2/Step)	0 to -30 (2/Step)	0 to -59, -∞	2	EXT	—	—	—	—	—	Surround	2Wire	8.0	0.02	SSOP-B40	—	—

General-Purpose Electronic Volume with Built-in Advanced Switch

Part No.	Supply Voltage (V)	Current Consumption (mA)	Selector		Input Gain (dB)	Fader Volume (dB)	Outputs	Mixing		Post Filter	High-Voltage Output (dB)	Serial Control	Output Noise Voltage (µVRms)	Distortion (%)	Package	ComfySIL™ Functional Safety*1	Automotive Grade AEC-Q100
			Single	Diff.				ch	ATT (dB)								
BD3464FV	7.0 to 9.5	25	—	—	—	+23 to -79, -∞ (1/Step)	4	—	—	—	—	I ² C BUS	1.9	0.0004	SSOP-B20	—	—
BD3465FV	7.0 to 9.5	25	—	—	—	+23 to -79, -∞ (1/Step)	4	3	+0 to -64, -∞ (8/Step)	—	—	I ² C BUS	1.9	0.0004	SSOP-B20	—	—
BD3460FS	7.0 to 9.5	25	—	—	—	+23 to -79, -∞ (1/Step)	6	—	—	—	—	I ² C BUS	1.9	0.0004	SSOP-A24	—	—
BD3461FS	7.0 to 9.5	25	—	—	—	+23 to -79, -∞ (1/Step)	6	3	+0 to -64, -∞ (8/Step)	—	—	I ² C BUS	1.9	0.0004	SSOP-A24	—	—
MUS-IC BD34602FS-M	7.0 to 9.5	35	—	—	—	+23 to -79, -∞ (1/Step)	6	3	+0 to -79, -∞ (1/Step)	—	—	I ² C BUS	1.3	0.0004	SSOP-A24	FSs	YES
BD37067FV-M	7.0 to 9.5	37	2/3/4/5	4/3/2/1	+23 to -15 (1/Step)	+23 to -79, -∞ (1/Step)	6	1	—	✓	—	I ² C BUS	8	0.003	SSOP-B40	FSs	YES
BD37068FV-M	7.0 to 9.5 V _{CC} L to 17.8	30/7	1/2/3/4/5	5/4/3/2/1	+23 to -15 (1/Step)	+23 to -79, -∞ (1/Step)	6	1	—	✓	0/8.3	I ² C BUS (High-Voltage Mode)	23	0.003	SSOP-B40	FSs	YES
BD37069FV-M	7.0 to 9.5 V _{CC} L to 17.8	30/7	2/3/4/5	4/3/2/1	+23 to -15 (1/Step)	+23 to -79, -∞ (1/Step)	6	1	—	✓	2/4.6/8.3	I ² C BUS (High-Voltage Mode)	23	0.003	SSOP-B40	FSs	YES

Sound Processors with Built-in 3-band Equalizer: EXT: Set by external components

BD37531FV, BD37532FV, BD37533FV and BD37534FV are pin-compatible.

BD37541FS, BD37542FS and BD37543FS are pin-compatible. BD37033FV-M and BD37034FV-M are pin-compatible.

General-Purpose Electronic Volume with Built-in Advanced Switch: BD3464FS and BD3465FS are pin-compatible. BD3461FS and BD34602FS-M are pin-compatible. BD37067FV-M and BD37068FV-M are pin-compatible.

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*1 For more information about "ComfySIL™ Functional Safety", please refer to the reverse side of the cover.

Media Decoders

AAC/WMA/MP3/WAV+SD Memory Card+CD-ROM																	
Part No.	Supply Voltage (V)	USB	SD	iPod	Serial I/F	Display Information	MP3	WMA	AAC	CD-ROM Mode	CD-ROM File System	MP3 Recording Format	File Search	Audio Output		Package	
														Analog	Digital		
BU94605AKV	3.0 to 3.6	USB2.0 Full Speed	MMC SD, miniSD, microSD, SDHC	—	I ² C BUS	Folder number, File number, Play time, Folder name, File name, TAG (Artist, Album, Title)	MPEG1, 2, 2.5 LAYER1, 2, 3	WMA9 Standard	MPEG4 AAC-LC	Mode1, Mode2, form1/2, Romeo, Joliet	ISO 9660 Level1, 2	—	Search during the playback	Line	I ² S SPDIF	VQFP80	
AAC/WMA/MP3/WAV+SD Memory Card+CD-ROM+MP3 Record																	
Part No.	Supply Voltage (V)	USB	SD	iPod	Serial I/F	Display Information	MP3	WMA	AAC	CD-ROM Mode	CD-ROM File System	MP3 Recording Format	File Search	Audio Output		Package	
														Analog	Digital		
BU94702AKV	3.0 to 3.6	USB2.0 Full Speed	MMC SD, miniSD, microSD, SDHC	—	I ² C BUS	Folder number, File number, Play time, Folder name, File name, TAG (Artist, Album, Title)	MPEG1, 2, 2.5 LAYER1, 2, 3	WMA9 Standard	MPEG4 AAC-LC	Mode1, Mode2, form1/2, Romeo, Joliet	ISO 9660 Level1, 2	MPEG1 Layer3 Sample Rate: 32, 44.1, 48kHz Bit Rate: 32, 64, 128, 192, 256, 320kHz	Search during the playback	Line	I ² S SPDIF	VQFP80	

Audio Converters**Audio Codec**

Part No.	Supply Voltage (V)	ADC		DAC		Microphone Input	Speaker Output		Headphone Output	Filter		ALC	Package
		ch/bit	ch/bit	ch/bit	ch/bit		Type	Monaural/Stereo		EQ	Notch		
		HV _{DD} 2.7 to 5.5 LV _{DD} 2.7 to 3.6	1ch/24bit	2ch/24bit	1		AB/D	Monaural	Stereo	✓	✓	✓	VQFN040V6060
BU26154MUV	HV _{DD} 2.7 to 5.5 LV _{DD} 2.7 to 3.6	1ch/24bit	2ch/24bit	1	AB/D	Monaural	Stereo	✓	✓	✓	✓	VQFN040V6060	
BU26156RFS	HV _{DD} 2.7 to 5.5 LV _{DD} 2.7 to 3.6	2ch/24bit	2ch/24bit	2	AB/D	Stereo	Stereo	✓	✓	✓	✓	HTSSOP-A44R	

Audio DAC

PCM 768kHz/32bit, DSD 22.4MHz Stereo Audio D/A Converters												
Part No.	Supply Voltage			Output Channels	Peak Output Current (mApp)	Resolution (Bit)	SNR (dB)	THD+N (dB)	Dynamic Range (dB)	Sampling Frequency (kHz)	DSD Clock (MHz)	Package
	AVCC (V)	DVDD (V)	DVDDIO (V)									
MUS-IC BD34301EKV	4.5 to 5.5	1.4 to 1.6	3.0 to 3.6	2	9.8	32	130	-115	130	32 to 768	2.8, 5.6, 11.2, 22.4	HTQFP64BV
BD34352EKV	4.5 to 5.5	1.4 to 1.6	3.0 to 3.6	2	6.25	32	126	-112	126	32 to 768	2.8, 5.6, 11.2, 22.4	HTQFP64BV

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Video Amplifiers

Composite Video Amplifiers

Ultra-compact (WL-CSP) Output Capacitor-less 1ch Video Drivers													
Part No.	Supply Voltage (V)	Circuit Current (mA)	Amplifier Gain (dB)	Freq. Chara.1 (dB)	Freq. Chara.2 (dB)	Input type	LPF	Mute (Standby) (µA)	Output Capa-less	Max Output Level (V _{P-P})	Video Out→In Change Mode	Package (mm)	
BH76906GU	2.5 to 3.45	15	6	-0.2 (4.5MHz)	-26 (18MHz)	Bias (150kΩ)	8th order 4.5MHz	0	✓	5.2	—	VCSP85H 1.6x1.6, H=1.0 Max	
BH76912GU		15	12	-0.2 (4.5MHz)	-26 (18MHz)	Bias (150kΩ)	8th order 4.5MHz	0	✓	5.2	—	VCSP85H 1.6x1.6, H=1.0 Max	
BH76916GU		15	16.5	-0.2 (4.5MHz)	-26 (18MHz)	Bias (150kΩ)	8th order 4.5MHz	0	✓	5.2	—	VCSP85H 1.6x1.6, H=1.0 Max	
Output Capacitor-less 1ch Video Drivers													
Part No.	Supply Voltage (V)	Circuit Current (mA)	Amplifier Gain (dB)	Freq. Chara.1 (dB)	Freq. Chara.2 (dB)	Input type	LPF	Mute (Standby) (µA)	Output Capa-less	Max Output Level (V _{P-P})		Package	
BH76806FVM	2.5 to 3.45	16	6	-0.45 (4.5MHz)	-51 (23.5MHz)	Bias (150kΩ)	8th order 4.5MHz	0	✓	5.2		MSOP8	
BH76809FVM		16	9	-0.45 (4.5MHz)	-51 (23.5MHz)	Bias (150kΩ)	8th order 4.5MHz	0	✓	5.2		MSOP8	
BH76812FVM		15	12	-0.45 (4.5MHz)	-51 (23.5MHz)	Bias (150kΩ)	8th order 4.5MHz	0	✓	5.2		MSOP8	
BH76816FVM		15	16.5	-0.45 (4.5MHz)	-51 (23.5MHz)	Bias (150kΩ)	8th order 4.5MHz	0	✓	5.2		MSOP8	
Compact Low Current 1ch Video Drivers													
Part No.	Supply Voltage (V)	Circuit Current (mA)	Amplifier Gain (dB)	Freq. Chara.1 (dB)	Freq. Chara.2 (dB)	Input type	LPF	Mute (Standby) (µA)	Output Capa-less	Max Output Level (V _{P-P})	Video Out→In Change Mode	Package	
BH76106HFV	2.6 to 5.5	7	6	0.1 (4.5MHz)	-45 (19MHz)	Clamp	8th order 4.5MHz	0	✓	2.6	—	HVSOF6	
BH76109HFV		7	9	0.1 (4.5MHz)	-45 (19MHz)	Clamp	8th order 4.5MHz	0	✓	2.6	—	HVSOF6	
BH76112HFV		7	12	0.1 (4.5MHz)	-45 (19MHz)	Clamp	8th order 4.5MHz	0	✓	2.6	—	HVSOF6	
BH76206HFV		8	6	-0.3 (6MHz)	-40 (27MHz)	Clamp	8th order 6MHz	0	✓	2.6	—	HVSOF6	
1ch Video Drivers Built-in Video Switch													
Part No.	Supply Voltage (V)	Circuit Current (mA)	Amplifier Gain (dB)	Freq. Chara. (dB)	Switchers	Input type	Video Driver	Mute	Output Capa-less	Max Output Level (V _{P-P})	Package		
BH76330FVM	2.8 to 5.5	10	6	0 (10MHz)	3 input-1 output	Clamp	✓	✓ (Standby)	✓	2.7	4.6	MSOP8	
BH76331FVM		10	6	0 (10MHz)	3 input-1 output	Bias	✓	✓ (Standby)	—	2.8	4.6	MSOP8	
BH76360FV		12	6	0 (10MHz)	6 input-1 output	Clamp	✓	✓ (Standby)	✓	2.7	4.6	SSOP-B16	
BH76361FV		12	6	0 (10MHz)	6 input-1 output	Bias	✓	✓ (Standby)	—	2.8	4.6	SSOP-B16	
Video Switches													
1ch Video Switches (Wide Band-width)													
Part No.	Supply Voltage (V)	Circuit Current (mA)	Amplifier Gain (dB)	Freq. Chara. (dB)	Switchers	Input type	Video Driver	Mute	Output Capa-less	Max Output Level (V _{P-P})	Package		
BH76332FVM	2.8 to 5.5	9	0	0 (30MHz)	3 input-1 output	Clamp	—	✓ (Standby)	-65 (4.43MHz)	1.8	3.8	MSOP8	
BH76333FVM		8	0	0 (30MHz)	3 input-1 output	Bias	—	✓ (Standby)	-65 (4.43MHz)	1.9	3.4	MSOP8	
BH76362FV		11	0	0 (30MHz)	6 input-1 output	Clamp	—	✓ (Standby)	-65 (4.43MHz)	1.8	3.8	SSOP-B16	
BH76363FV		11	0	0 (30MHz)	6 input-1 output	Bias	—	✓ (Standby)	-65 (4.43MHz)	1.9	3.4	SSOP-B16	
Video and Audio Signal Switch													
Part No.	Supply Voltage (V)	Video Circuit Current (mA)	Audio Circuit Current (mA)	Video Freq. Chara.1 (dB)	Video Freq. Chara.2 (dB)	Video Amplifier Gain (dB)	Audio Freq. Chara.1 (dB)	Audio Freq. Chara.2 (dB)	Audio Amplifier Gain (dB)	Residual Noise (µVrms)		Package	
BH7649KS2	7.5 to 9.5	34	23	0 (6.75MHz)	-30	-3/-6/0/+3/+6	-0.5 (24kHz)	-26 (96kHz)	-6/0	20		SQFP-T52	

Others

Isolation Amplifier											
Part No.	Supply Voltage (V)	Circuit Current (mA)	Amplifier Gain (dB)	Freq. Chara. (dB)	ch	Input type	Video Driver	Input Impedance (kΩ)	CMRR (dB)	Max Output Level (V _{P-P})	Package
BH7673G	4.5 to 5.5	4.8	0	0 (10MHz)	1	Bias	—	150	60	3.8	SSOP5

Image Correction

Image Correction IC for Panel

Part No.	Supply Voltage (V)			Image Data Size	Control I/F	Input/Output Digital I/F	Image Adjustment	PWM Output	LVDS Transmitter	Package	Automotive Grade AEC-Q100
	V _{DD} Core	V _{DD} I/O	V _{DD} LVDS								
BU1523KV	1.65 to 1.95	3.0 to 3.6	3.0 to 3.6	Supports up to WVGA+ (864x480)	I ² C BUS	24bit RGB Interface 8bit YUV=4 : 2 : 2 ITU-R BT.656	✓	-	✓	VQFP100	Preparing
Video Encoders Built-in Image Correction											
Part No.	Supply Voltage (V)			Image Data Size	Control I/F	Input/Output Digital I/F	Fog Reduction	Video Encoder	Package	Automotive Grade AEC-Q100	
	V _{DD} Core	V _{DD} I/O	A _{VDD}								
BU6521KV	1.4 to 1.6	2.7 to 3.6	2.7 to 3.6	ITU-R BT.656	I ² C BUS Serial EEPROM Interface	8bit YUV=4 : 2 : 2 ITU-R BT.656	✓	✓	VQFP48C	YES	

Video LSIs

Video Decoders

(LAPIS Technology products)

CVBS/S-video Input type

Part No.	Supply Voltage (V)	Input (Analog)		Output (Digital)	Feature	Operating Temperature (°C)	Package	Automotive Grade ^{*1}
		Terminal	Type					
ML86101A	3.3/1.5	CVBSx4 or CVBSx2+S-videox1 or S-videox2	NTSC PAL SECAM	ITU-R BT.656 YUV 8bit	Simple, small	-40 to +85	P-TQFP48 -0707-0.50-ZK6	YES
ML86112	3.3/1.2	CVBSx4 or differentialx2	NTSC PAL	MIPI CSI-2 (YUV422-8bit) ITU-R BT.656	Simple, small MIPI output I/P conversion	-40 to +105	P-WQFN32 -0505-0.50-W66	YES
ML86V7668A	3.3/2.5	CVBSx4 or CVBSx1+S-videox3	NTSC PAL SECAM	ITU-R BT.656 YUV 8/16bit RGB 18bit	RGB output	-40 to +85	P-TQFP100 -1414-0.50-ZK6	YES
☆ML86160	3.3/1.2	CVBSx4 or differentialx2	NTSC PAL High Definition Analog	ITU-R BT.656 MIPI CSI-2 (RGB888, YUV422-8bit) (T.B.D)	High Definition Analog Decoder HD-ACT ^{*2}	-40 to +105 (T.B.D)	P-WQFN36 -0606-0.50-xxx (T.B.D)	YES

CVBS/S-video/Component/RGB Input type

Part No.	Supply Voltage (V)	Input (Analog)		Output (Digital)	Feature	Operating Temperature (°C)	Package	Automotive Grade ^{*1}
		Terminal	Type					
ML86V7675	3.3/1.5	CVBSx4 +(Comp or S-video)x1 +Compx1	NTSC PAL SECAM	ITU-R BT.656 YUV 8bit	WVGA, EGA analog RGB supported	-40 to +85	P-TQFP64 -1010-0.50-ZK6	YES

^{*1} Please inquire to the sales for AEC-Q100.

☆: Under Development

^{*2} HD-ACT (High Definition-Analog Composite Transport) Analog video is displayed clearly by original high definition technology.

Video Encoders

(LAPIS Technology products)

CVBS Output type

Part No.	Supply Voltage (V)	Input (Digital)	Output (Analog)		Feature	Operating Temperature (°C)	Package	Automotive Grade ^{*1}
			Terminal	Type				
ML86V76580	3.3/1.8	ITU-R BT.656 YUV 8bit	CVBS	NTSC PAL	75Ω drive	-40 to +85	P-TQFP48 -0707-0.50-ZK6	YES
ML86640	3.3	ITU-R BT.656 YUV 8/16/24bit RGB 24bit	CVBS	NTSC PAL	75Ω drive P/I conversion	-40 to +105	P-TQFP48 -0707-0.50-ZK6	YES
☆ML86660	3.3 (1.8)/1.2	ITU-R BT.656 YUV 8bit MIPI CSI-2 (RGB565/888, YUV422-8bit) (T.B.D)	CVBS	NTSC PAL High Definition Analog	High Definition Analog Encoder HD-ACT ^{*2}	-40 to +105 (T.B.D)	WQFN40 -0606-0.50-xxx (T.B.D)	YES

^{*1} Please inquire to the sales for AEC-Q100.

☆: Under Development

^{*2} HD-ACT (High Definition-Analog Composite Transport) Analog video is displayed clearly by original high definition technology.

Video Interface

(LAPIS Technology products)

LVDS/MIPI/eDP Input/Output type

Part No.	Supply Voltage (V)	Input	Output	Feature	Operating Temperature (°C)	Package	Automotive Grade ^{*1}
☆ML86797	3.3/1.2	Single LVDS (RGB666/888) MIPI CSI-2 (RGB565/666/888 YUV422-8bit) MIPI DSI (RGB88)	Single/Dual LVDS (RGB666/888)	MIPI CSI-2/DSI to LVDS	-40 to +105 (T.B.D)	P-WQFN64 -0909-0.50-63 (T.B.D)	YES
☆ML86798	3.3/1.2	MIPI CSI-2 (RGB565/666/888 YUV422-8bit) MIPI DSI (RGB565/666/888 YUV422-8bit)	MIPI CSI-2 (RGB565/666/888 YUV422-8bit) eDP (RGB565/666/888)	MIPI CSI-2/DSI to eDP MIPI DSI to MIPI CSI-2	-40 to +105 (T.B.D)	P-WQFN64 -0909-0.50-63 (T.B.D)	YES
☆ML86799	3.3/1.2	Single/Dual LVDS (RGB666/888)	eDP (RGB565/666/888)	LVDS to eDP	-40 to +105 (T.B.D)	P-WQFN64 -0909-0.50-63 (T.B.D)	YES

^{*1} Please inquire to the sales for AEC-Q100.

☆: Under Development

Speech Synthesis LSIs

Speech Synthesis LSIs with Automotive Grade P.92

Speech Synthesis LSIs with Long-time Playback P.92

Speech Synthesis LSIs with Short-time Playback P.93

Speech Synthesis LSIs with External Memory P.93

Click on the icon to access the product page on ROHM's website. Please check the website for the latest updates.

Speech Synthesis LSIs with Automotive Grade (LAPIS Technology products)

Internal Flash Memory type														
Part No.	Operating Voltage (V)	Operating Frequency (MHz)	Oscillator	Operating Temperature (°C)	ROM Capacity (bit)	Number of Phrases	Maximum Playback Time	CPU I/F	SP Amplifier Output (W)/Class	Number of Mixing (Internal) (ch)	Others	Package	Automotive Grade	AEC-Q100 standard
ML22Q532	2.7 to 3.6 or 3.3 to 5.5	4.096 4.000	Built-in External	Flash 2M	4,096	99sec*2	I ² C/ Clock synchronous serial	1.0/ AB-class	4	Rewrite Flash from MCU*/ Serial Audio Interface/ Failure detection	P-TQFP48 -0707-0.50-Z6K6-MC	YES	✓	
ML22Q533											P-TQFP48 -0707-0.50-Z6K6-MC	YES	✓	
ML22Q274	2.0 to 5.5	4.096	Built-in	Flash 4M	30/62	202sec*2	Clock synchronous serial	1.0/ D-class	1	Disconnect and short circuit detection function	P-TSSOP20 -0225-0.65-TK6	YES	✓	
ML22Q284											P-TSSOP20 -0225-0.65-TK6	YES	✓	
ML22Q294											P-TSSOP20 -0225-0.65-TK6	YES	✓	
External Memory type														
Part No.	Operating Voltage (V)	Operating Frequency (MHz)	Oscillator	Operating Temperature (°C)	ROM Capacity (bit)	Number of Phrases	Maximum Playback Time	CPU I/F	SP Amplifier Output (W)/Class	Number of Mixing (Internal) (ch)	Others	Package	Automotive Grade	AEC-Q100 standard
New ML22120	2.7 to 3.6	4.096 4.000	Built-in External	-40 to +105 (+125*)	External maximum 128M	64	17min*6	I ² C/ Clock synchronous serial	—	4	Pitch and volume control 5band Equalizer Serial Audio Interface Failure detection	P-TQFP32 -0707-0.80-ZK6 P-WQFN24 -0404-0.50-A63	YES	—*8
ML22530	2.7 to 3.6 or 3.3 to 5.5	4.096 4.000	Built-in External	-40 to +105	External maximum 128M	4,096	109min*7	I ² C/ Clock synchronous serial	1.0/ AB-class	4	Rewrite Flash from MCU*/Serial Audio Interface/Failure detection	P-TQFP48 -0707-0.50-Z6K6	YES	✓

Ky's Technology HQ-ADPCM: A high quality sound compression technology developed by Ky's. Ky's is a registered trademark of Kyushu Institute of Technology.

*1 When 30 phrases are selected. When 62 phrases are selected, 688 Kbit.

*2 Maximum playback time when the sampling frequency is 6.4kHz in HQ-ADPCM.

*3 Maximum playback time when the sampling frequency is 6.4kHz in ADPCM2.

*4 While using it clock synchronization serial.

*5 Key interlocking application.

*6 With an external memory module (Max 128Mbit). Maximum playback time when the sampling frequency is 8kHz in 16bit PCM.

*7 With an external memory module (Max 128Mbit). Maximum playback time when the sampling frequency is 6.4kHz in HQ-ADPCM.

*8 Scheduled to be compliant with AEC-Q100.

Speech Synthesis LSIs with Long-time Playback (LAPIS Technology products)

Internal Flash Memory type														
Part No.	Operating Voltage (V)	Operating Frequency (MHz)	Oscillator	Operating Temperature (°C)	ROM Capacity (bit)	Number of Phrases	Maximum Playback Time*1	CPU I/F	SP Amplifier Output (W)/Class	Number of Mixing (Internal) (ch)	Others	Package	Automotive Grade	Industrial Grade
ML22Q623	2.7 to 3.6 or 3.3 to 5.5	4.096 4.000	Built-in External	-40 to +70	Flash 4M	4,096	202sec	Clock synchronous serial	1.0/ AB-class, D-class	4	Rewrite Flash from MCU/ Failure detection	P-TQFP32 -0707-0.80-Z6K6-MC P-WQFN32 -0505-0.50-A63-MC	—	✓
ML22Q624												P-TQFP32 -0707-0.80-Z6K6-MC P-WQFN32 -0505-0.50-A63-MC	—	✓
ML22Q625												P-TQFP32 -0707-0.80-Z6K6-MC P-WQFN32 -0505-0.50-A63-MC	—	✓
ML22Q626												P-TQFP32 -0707-0.80-Z6K6-MC P-WQFN32 -0505-0.50-A63-MC	—	✓
ML22Q663												P-TQFP32 -0707-0.80-Z6K6-MC P-WQFN32 -0505-0.50-A63-MC	—	✓
ML22Q664												P-TQFP32 -0707-0.80-Z6K6-MC P-WQFN32 -0505-0.50-A63-MC	—	✓
ML22Q665												P-TQFP32 -0707-0.80-Z6K6-MC P-WQFN32 -0505-0.50-A63-MC	—	✓
ML22Q666												P-TQFP32 -0707-0.80-Z6K6-MC P-WQFN32 -0505-0.50-A63-MC	—	✓

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*1 Maximum playback time when the sampling frequency is 6.4kHz in HQ-ADPCM.

Speech Synthesis LSIs with Short-time Playback (LAPIS Technology products)

Internal D-class Speaker Amplifier type														
Part No.	Operating Voltage (V)	Operating Frequency (MHz)	Oscillator	Operating Temperature (°C)	ROM Capacity (bit)	Number of Phrases	Maximum Playback Time	CPU I/F	SP Amplifier Output (W)/Class	Number of Mixing (Internal) (ch)	Others	Package	Automotive Grade	Industrial Grade
ML22Q234	2.0 to 5.5	8.192	Built-in	-40 to +85	Flash 676K*1	30/62	34sec*3	Clock synchronous serial	1.0/D-class	1	Disconnection and short circuit detection function	P-TSSOP20 -0225-0.65-TK6	—	✓
ML22Q244					Flash 692K*2			Stand-alone				P-TSSOP20 -0225-0.65-TK6	—	✓
ML22Q254					Flash 676K*1			I²C				P-TSSOP20 -0225-0.65-TK6	—	✓

Ky's HQ-ADPCM: A high quality sound compression technology developed by Ky's. Ky's is a registered trademark of Kyushu Institute of Technology.

*1 When 30 phrases are selected. When 62 phrases are selected, 676 Kbit.

*2 When 30 phrases are selected. When 62 phrases are selected, 688 Kbit.

*3 Maximum playback time when the sampling frequency is 6.4kHz in HQ-ADPCM.

Speech Synthesis LSIs with External Memory (LAPIS Technology products)

Internal AB-class/D-class Speaker Amplifier type														
Part No.	Operating Voltage (V)	Operating Frequency (MHz)	Oscillator	Operating Temperature (°C)	ROM Capacity (bit)	Number of Phrase	Maximum Playback Time	CPU I/F	SP Amplifier Output (W)/Class	Number of Mixing (Internal) (ch)	Others	Package	Automotive Grade	Industrial Grade
ML22620	2.7 to 3.6 or 3.3 to 5.5	4.096	Built-in External	-40 to +85	External maximum 128M	4,096	109min*1	Clock synchronous serial	1.0/AB-class, D-class	4	Rewrite Flash from MCU/ Failure detection	P-TQFP32 -0707-0.80-Z6K6 P-WQFN32 -0505-0.50-A63	—	✓
ML22660								I²C				P-TQFP32 -0707-0.80-Z6K6 P-WQFN32 -0505-0.50-A63	—	✓
Internal AB-class Speaker Amplifier type														
Part No.	Operating Voltage (V)	Operating Frequency (MHz)	Oscillator	Operating Temperature (°C)	ROM Capacity (bit)	Number of Phrase	Maximum Playback Time	CPU I/F	SP Amplifier Output (W)/Class	Number of Mixing (Internal) (ch)	Others	Package	Automotive Grade	Industrial Grade
ML22420	2.7 to 5.5	4.096	External	-40 to +85	External maximum 128M	1,024	87min*2	Clock synchronous serial	0.7/AB-class	4	—	P-SSOP30 -56-0.65-ZK6	—	✓
ML22460								I²C				P-SSOP30 -56-0.65-ZK6	—	✓

Ky's HQ-ADPCM: A high quality sound compression technology developed by Ky's. Ky's is a registered trademark of Kyushu Institute of Technology.

*1 With an external memory module (Max 128Mbit). Maximum playback time when the sampling frequency is 6.4kHz in HQ-ADPCM.

*2 With an external memory module (Max 128Mbit). Maximum playback time when the sampling frequency is 6.4kHz in ADPCM2.

Microcontrollers (MCUs)

General-Purpose MCUs (16bit)	For Multiple Uses	ML62Q1000 series (U16*)		P.94
General-Purpose MCUs (16bit)	Low Power Consumption	ML62Q2000 series/ML62Q2500 group (U16*)		P.102
General-Purpose MCUs (16bit)	Build-in Speech Playback Function	ML62Q2000 series/ML62Q2700 group (U16*)		P.102
Switching Power Supply Control MCUs (16bit)	For Power Supply Control	ML62Q20xx group (U16*)		P.104
Speech Playback MCUs (8bit)	Build-in High-Output Speaker Amplifier	ML610Q300 group (U8*)		P.106
USB/Security MCUs (32bit)	For USB Data Loggers	ML630Q400 group (Arm® Cortex®-M0+)		P.108

*1 U16: 16bit RISC CPU nX-U16/100 Core

*2 U8: 8bit RISC CPU nX-U8/100 Core

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General-Purpose MCUs (16bit)

For Multiple Uses ML62Q1000 series (U16*)

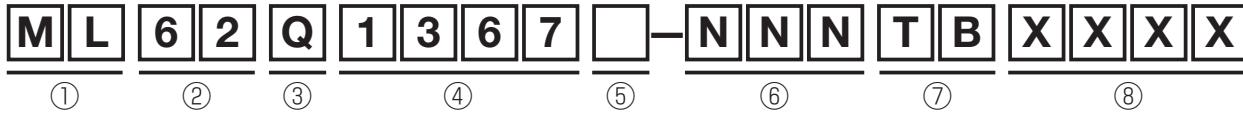
ML62Q1300 group ROM Capacity: 16KB to 64KB Pin Number: 16pin to 32pin

Part No.	Operating Voltage (V)	ROM type	ROM Capacity (Byte)	Data Flash Capacity (Byte)	RAM Capacity (Byte)	Port			Operating Frequency (Max)		Minimum Instruction Execution Time	Current Consumption (Typ@HALT)	Operating Temperature (°C)	
						Input	Output	Input/Output	High Speed	Low Speed				
ML62Q1323	1.6 to 5.5	Flash	16K	2K	2K	—	—	12	24MHz (PLL oscillation)	32.768kHz (Internal RC oscillation)	41ns/30.5μs	4.3μA (Internal RC oscillation)	-40 to +105	
ML62Q1324			24K											
ML62Q1325			32K											
ML62Q1333	1.6 to 5.5	Flash	16K	2K	2K	—	—	16	24MHz (PLL oscillation)	32.768kHz (Internal RC oscillation)	41ns/30.5μs	4.3μA (Internal RC oscillation)	-40 to +105	
ML62Q1334			24K											
ML62Q1335			32K											
ML62Q1345	1.6 to 5.5	Flash	32K	2K	4K	—	—	20	24MHz (PLL oscillation)	32.768kHz (Internal RC oscillation)	41ns/30.5μs	4.3μA (Internal RC oscillation)	-40 to +105	
ML62Q1346			48K											
ML62Q1347			64K											
ML62Q1365	1.6 to 5.5	Flash	32K	2K	4K	—	—	28	24MHz (PLL oscillation)	32.768kHz (Internal RC oscillation)	41ns/30.5μs	4.3μA (Internal RC oscillation)	-40 to +105	
ML62Q1366			48K											
ML62Q1367			64K											

*1 U16: 16bit RISC CPU nX-U16/100 Core

*2 For use of industrial equipment, please inquire to the sales.

ML62Q1000 series Part Number Explanation



Part Number

①Device type

ML: Bipolar Logic

②CPU Core type

62: 16bit CPU nX-U16/100

③ROM type

Q: Flash ROM

④Part Code

13xx: ML62Q1300 group

2x: 16pin

3x: 20pin

4x: 24pin

6x: 32pin

x3: ROM 16KB

x4: ROM 24KB

x5: ROM 32KB

x6: ROM 48KB

x7: ROM 64KB

⑤Option Code

None to x: Set for Product

⑥ROM Code

NNN : Blank

001 to xxx: Custom Code Number

⑦Package Code

GD: WQFN

MB: SSOP

TD: TSSOP

TB: TQFP

GA: QFP

⑧Company's Code

15xx: ML62Q1500 group

3x: 48pin

4x: 52pin

5x: 64pin

6x: 80pin

7x: 100pin

17xx: ML62Q1700 group (Built-in LCD Driver)

0x: 48pin

1x: 52pin

2x: 64pin

3x: 80pin

4x: 100pin

18xx: ML62Q1800 group

5x: 64pin

6x: 80pin

7x: 100pin

x8: ROM 384KB

x9: ROM 512KB

x0: ROM 32KB

x1: ROM 48KB

x2: ROM 64KB

x3: ROM 96KB

x4: ROM 128KB

x5: ROM 160KB

x6: ROM 192KB

x7: ROM 256KB

x0: ROM 32KB

x1: ROM 48KB

x2: ROM 64KB

x3: ROM 96KB

x4: ROM 128KB

x5: ROM 160KB

x6: ROM 192KB

x7: ROM 256KB

x8: ROM 384KB

x9: ROM 512KB

(LAPIS Technology products)

	16bit Timer	16bit Multi Functions Timer	WDT	ADC (method)	DAC	Serial Port			Supply Voltage Detection	LCD Driver	External Interrupt Sources	Others	Package	Industrial Grade*2
						I²C	SSIO	UART						
	4 (8bit×8)	4 (TMR, PWM, Capture)	1	10bit×6 (SA type)	—	Master/ Slave×1, Master×1	UART Full Duplex/ SSIO×2	VLS×1	—	8	Safety function, Multiplier/Divider, Comparator×1, DMA	P-SSOP16-0225-0.65-TK6 P-WQFN16-0404-0.50-63	✓	
	4 (8bit×8)	4 (TMR, PWM, Capture)	1	10bit×8 (SA type)	—	Master/ Slave×1, Master×1	UART Full Duplex/ SSIO×2	VLS×1	—	8	Safety function, Multiplier/Divider, Comparator×1, DMA	P-SSOP16-0225-0.65-TK6 P-WQFN16-0404-0.50-63	✓	
	6 (8bit×12)	4 (TMR, PWM, Capture)	1	10bit×8 (SA type)	8bit×1	Master/ Slave×1, Master×1	UART Full Duplex/ SSIO×2	VLS×1	—	8	Safety function, Multiplier/Divider, Comparator×1, DMA	P-TSSOP20-0225-0.65-TK6 P-TSSOP20-0225-0.65-TK6 P-TSSOP20-0225-0.65-TK6	✓ ✓ ✓	
	6 (8bit×12)	4 (TMR, PWM, Capture)	1	10bit×8 (SA type)	8bit×1	Master/ Slave×1, Master×1	UART Full Duplex/ SSIO×2	VLS×1	—	8	Safety function, Multiplier/Divider, Comparator×1, DMA	P-WQFN24-0404-0.50-A63 P-WQFN24-0404-0.50-A63 P-WQFN24-0404-0.50-A63	✓ ✓ ✓	
												P-WQFN32-0505-0.50-A63 P-TQFP32-0707-0.80-ZK6 P-WQFN32-0505-0.50-A63 P-TQFP32-0707-0.80-ZK6 P-WQFN32-0505-0.50-A63 P-TQFP32-0707-0.80-ZK6	✓ ✓ ✓ ✓ ✓ ✓	

General-Purpose MCUs (16bit)

For Multiple Uses ML62Q1000 series (U16^{*1})

ML62Q1500 group ROM Capacity: 32KB to 256KB Pin Number: 48pin to 100pin

Part No.	Operating Voltage (V)	ROM type	ROM Capacity (Byte)	Data Flash Capacity (Byte)	RAM Capacity (Byte)	Port			Operating Frequency (Max)		Minimum Instruction Execution Time	Current Consumption (Typ@HALT)	Operating Temperature (°C)								
						Input	Output	Input/Output	High Speed	Low Speed											
ML62Q1530	1.6 to 5.5	Flash	32K	4K	8K	2	—	42	24MHz (PLL oscillation)	32.768kHz (Internal RC oscillation/ Crystal oscillation)	41ns/ 30.5μs	4.7/3.0μA (Internal RC oscillation/ Crystal oscillation)	-40 to +105								
ML62Q1531			48K																		
ML62Q1532			64K																		
ML62Q1533			96K																		
ML62Q1534			128K																		
ML62Q1540	1.6 to 5.5	Flash	32K	4K	8K	2	—	46	24MHz (PLL oscillation)	32.768kHz (Internal RC oscillation/ Crystal oscillation)	41ns/ 30.5μs	4.7/3.0μA (Internal RC oscillation/ Crystal oscillation)	-40 to +105								
ML62Q1541			48K																		
ML62Q1542			64K																		
ML62Q1543			96K																		
ML62Q1544			128K																		
ML62Q1550	1.6 to 5.5	Flash	32K	4K	8K	2	—	58	24MHz (PLL oscillation)	32.768kHz (Internal RC oscillation/ Crystal oscillation)	41ns/ 30.5μs	4.7/3.0μA (Internal RC oscillation/ Crystal oscillation)	-40 to +105								
ML62Q1551			48K																		
ML62Q1552			64K																		
ML62Q1553			96K																		
ML62Q1554			128K																		
ML62Q1555			160K		16K	2															
ML62Q1556			192K																		
ML62Q1557			256K																		
ML62Q1563	1.6 to 5.5	Flash	96K	4K	16K	2	—	72	24MHz (PLL oscillation)	32.768kHz (Internal RC oscillation/ Crystal oscillation)	41ns/ 30.5μs	5.5/4.5μA (Internal RC oscillation/ Crystal oscillation)	-40 to +105								
ML62Q1564			128K																		
ML62Q1565			160K																		
ML62Q1566			192K																		
ML62Q1567			256K																		
ML62Q1573	1.6 to 5.5	Flash	96K	4K	16K	2	—	92	24MHz (PLL oscillation)	32.768kHz (Internal RC oscillation/ Crystal oscillation)	41ns/ 30.5μs	5.5/4.5μA (Internal RC oscillation/ Crystal oscillation)	-40 to +105								
ML62Q1574			128K																		
ML62Q1575			160K																		
ML62Q1576			192K																		
ML62Q1577			256K																		
ML62Q1543C	1.6 to 5.5	Flash	96K	4K	8K	2	—	46	24MHz (PLL oscillation)	32.768kHz (Internal RC oscillation/ Crystal oscillation)	41ns/ 30.5μs	4.3/3.0μA (Internal RC oscillation/ Crystal oscillation)	-40 to +105								
ML62Q1544C			128K																		
ML62Q1553C	1.6 to 5.5	Flash	96K	4K	8K	2	—	58	24MHz (PLL oscillation)	32.768kHz (Internal RC oscillation/ Crystal oscillation)	41ns/ 30.5μs	4.3/3.0μA (Internal RC oscillation/ Crystal oscillation)	-40 to +105								
ML62Q1554C			128K																		
ML62Q1563C	1.6 to 5.5	Flash	96K	4K	8K	2	—	74	24MHz (PLL oscillation)	32.768kHz (Internal RC oscillation/ Crystal oscillation)	41ns/ 30.5μs	4.3/3.0μA (Internal RC oscillation/ Crystal oscillation)	-40 to +105								
ML62Q1564C			128K																		

^{*1} U16: 16bit RISC CPU nx-U16/100 Core^{*2} For use of industrial equipment, please inquire to the sales.

(LAPIS Technology products)

	16bit Timer	16bit Multi Functions Timer	WDT	ADC (method)	DAC	Serial Port			Supply Voltage Detection	LCD Driver	External Interrupt Sources	Others	Package	Industrial Grade ^{#2}
						I ² C	SSIO	UART						
6 (8bit×12)	6 (TMR, PWM, Capture)	1	10bit×12 (SA type)	8bit×1	Master/ Slavex1, Masterx2	UART Full Duplex/ SSIO×2	VLSx1	—	10	Safety function, Multiplier/Divider, Comparator×2, DMA	P-TQFP48-0707-0.50-ZK6	✓		
											P-TQFP48-0707-0.50-ZK6	✓		
											P-TQFP48-0707-0.50-ZK6	✓		
											P-TQFP48-0707-0.50-ZK6	✓		
											P-TQFP48-0707-0.50-ZK6	✓		
6 (8bit×12)	6 (TMR, PWM, Capture)	1	10bit×12 (SA type)	8bit×1	Master/ Slavex1, Masterx2	UART Full Duplex/ SSIO×2	VLSx1	—	10	Safety function, Multiplier/Divider, Comparator×2, DMA	P-TQFP52-1010-0.65-ZK6	✓		
											P-TQFP52-1010-0.65-ZK6	✓		
											P-TQFP52-1010-0.65-ZK6	✓		
											P-TQFP52-1010-0.65-ZK6	✓		
											P-TQFP52-1010-0.65-ZK6	✓		
6 (8bit×12)	6 (TMR, PWM, Capture)	1	10bit×12 (SA type)	8bit×1	Master/ Slavex1, Masterx2	UART Full Duplex/ SSIO×2	VLSx1	—	10	Safety function, Multiplier/Divider, Comparator×2, DMA	P-TQFP64-1010-0.50-ZK6	✓		
											P-QFP64-1414-0.80-ZK6	✓		
											P-TQFP64-1010-0.50-ZK6	✓		
											P-QFP64-1414-0.80-ZK6	✓		
											P-TQFP64-1010-0.50-ZK6	✓		
											P-QFP64-1414-0.80-ZK6	✓		
											P-TQFP64-1010-0.50-ZK6	✓		
											P-QFP64-1414-0.80-ZK6	✓		
8 (8bit×16)	8 (TMR, PWM, Capture)	1	10bit×16 (SA type)	8bit×2	Master/ Slavex1, Masterx2	UART Full Duplex/ SSIO×6	VLSx1	—	12	Safety function, Multiplier/Divider, Comparator×2, DMA	P-QFP80-1414-0.65-ZK6	✓		
											P-QFP80-1414-0.65-ZK6	✓		
											P-QFP80-1414-0.65-ZK6	✓		
											P-QFP80-1414-0.65-ZK6	✓		
											P-QFP80-1414-0.65-ZK6	✓		
8 (8bit×16)	8 (TMR, PWM, Capture)	1	10bit×16 (SA type)	8bit×2	Master/ Slavex1, Masterx2	UART Full Duplex/ SSIO×6	VLSx1	—	12	Safety function, Multiplier/Divider, Comparator×2, DMA	P-TQFP100-1414-0.50-ZK6	✓		
											P-QFP100-1420-0.65-BK6	✓		
											P-TQFP100-1414-0.50-ZK6	✓		
											P-QFP100-1420-0.65-BK6	✓		
											P-TQFP100-1414-0.50-ZK6	✓		
6 (8bit×12)	6 (TMR, PWM, Capture)	1	10bit×12 (SA type)	8bit×1	Master/ Slavex1, Masterx2	UART Full Duplex/ SSIO×3	VLSx1	—	10	Safety function, Multiplier/Divider, Comparator×2, DMA	P-TQFP52-1010-0.65-ZK6	✓		
											P-TQFP52-1010-0.65-ZK6	✓		
											P-TQFP64-1010-0.50-ZK6	✓		
6 (8bit×12)	6 (TMR, PWM, Capture)	1	10bit×12 (SA type)	8bit×1	Master/ Slavex1, Masterx2	UART Full Duplex/ SSIO×4	VLSx1	—	10	Safety function, Multiplier/Divider, Comparator×2, DMA	P-TQFP64-1010-0.50-ZK6	✓		
											P-QFP64-1414-0.80-ZK6	✓		
6 (8bit×12)	6 (TMR, PWM, Capture)	1	10bit×12 (SA type)	8bit×1	Master/ Slavex1, Masterx2	UART Full Duplex/ SSIO×4	VLSx1	—	12	Safety function, Multiplier/Divider, Comparator×2, DMA	P-QFP80-1414-0.65-ZK6	✓		
											P-QFP80-1414-0.65-ZK6	✓		

General-Purpose MCUs (16bit)

For Multiple Uses ML62Q1000 series (U16^{*1})

Built-In LCD Driver ML62Q1700 group ROM Capacity: 32KB to 512KB Pin Number: 48pin to 100pin

Part No.	Operating Voltage (V)	ROM type	ROM Capacity (Byte)	Data Flash Capacity (Byte)	RAM Capacity (Byte)	Port			Operating Frequency (Max)		Minimum Instruction Execution Time	Current Consumption (Typ@HALT)	Operating Temperature (°C)										
						Input	Output	Input/Output	High Speed	Low Speed													
ML62Q1700	1.6 to 5.5	Flash	32K	4K	8K	2	—	37	24MHz (PLL oscillation)	32.768kHz (Internal RC oscillation/ Crystal oscillation)	41ns/ 30.5μs	4.9/3.3μA (Internal RC oscillation/ Crystal oscillation)	-40 to +105										
ML62Q1701			48K																				
ML62Q1702			64K																				
ML62Q1703			96K																				
ML62Q1704			128K																				
ML62Q1710	1.6 to 5.5	Flash	32K	4K	8K	2	—	41	24MHz (PLL oscillation)	32.768kHz (Internal RC oscillation/ Crystal oscillation)	41ns/ 30.5μs	4.9/3.3μA (Internal RC oscillation/ Crystal oscillation)	-40 to +105										
ML62Q1711			48K																				
ML62Q1712			64K																				
ML62Q1713			96K																				
ML62Q1714			128K																				
ML62Q1720	1.6 to 5.5	Flash	32K	4K	8K	2	—	53	24MHz (PLL oscillation)	32.768kHz (Internal RC oscillation/ Crystal oscillation)	41ns/ 30.5μs	4.9/3.3μA (Internal RC oscillation/ Crystal oscillation)	-40 to +105										
ML62Q1721			48K																				
ML62Q1722			64K																				
ML62Q1723			96K																				
ML62Q1724			128K																				
ML62Q1725			160K		16K								5.7/4.5μA (Internal RC oscillation/ Crystal oscillation)										
ML62Q1726			192K																				
ML62Q1727			256K										6.0/4.5μA (Internal RC oscillation/ Crystal oscillation)										
ML62Q1728			384K	8K	32K																		
ML62Q1729			512K																				
ML62Q1733	1.6 to 5.5	Flash	96K	4K	16K	2	—	67	24MHz (PLL oscillation)	32.768kHz (Internal RC oscillation/ Crystal oscillation)	41ns/ 30.5μs	5.7/4.5μA (Internal RC oscillation/ Crystal oscillation)	-40 to +105										
ML62Q1734			128K																				
ML62Q1735			160K																				
ML62Q1736			192K																				
ML62Q1737			256K										6.0/4.5μA (Internal RC oscillation/ Crystal oscillation)										
ML62Q1738			384K	8K	32K																		
ML62Q1739			512K																				
ML62Q1743	1.6 to 5.5	Flash	96K	4K	16K	2	—	87	24MHz (PLL oscillation)	32.768kHz (Internal RC oscillation/ Crystal oscillation)	41ns/ 30.5μs	5.7/4.5μA (Internal RC oscillation/ Crystal oscillation)	-40 to +105										
ML62Q1744			128K																				
ML62Q1745			160K																				
ML62Q1746			192K										6.0/4.5μA (Internal RC oscillation/ Crystal oscillation)										
ML62Q1747			256K																				
ML62Q1748			384K	8K	32K								6.0/4.5μA (Internal RC oscillation/ Crystal oscillation)										
ML62Q1749			512K																				
ML62Q1713C	1.6 to 5.5	Flash	96K	4K	8K	2	—	41	24MHz (PLL oscillation)	32.768kHz (Internal RC oscillation/ Crystal oscillation)	41ns/ 30.5μs	4.3/3.0μA (Internal RC oscillation/ Crystal oscillation)	-40 to +105										
ML62Q1714C			128K																				
ML62Q1723C	1.6 to 5.5	Flash	96K	4K	8K	2	—	53	24MHz (PLL oscillation)	32.768kHz (Internal RC oscillation/ Crystal oscillation)	41ns/ 30.5μs	4.3/3.0μA (Internal RC oscillation/ Crystal oscillation)	-40 to +105										
ML62Q1724C			128K																				
ML62Q1733C	1.6 to 5.5	Flash	96K	4K	8K	2	—	69	24MHz (PLL oscillation)	32.768kHz (Internal RC oscillation/ Crystal oscillation)	41ns/ 30.5μs	4.3/3.0μA (Internal RC oscillation/ Crystal oscillation)	-40 to +105										
ML62Q1734C			128K																				

*1 U16: 16bit RISC CPU nX-U16/100 Core

*2 For use of industrial equipment, please inquire to the sales.

(LAPIS Technology products)

	16bit Timer	16bit Multi Functions Timer	WDT	ADC (method)	DAC	Serial Port			Supply Voltage Detection	LCD Driver	External Interrupt Sources	Others	Package	Industrial Grade ²
						I²C	SSIO	UART						
6 (8bit×12)	6 (TMR, PWM, Capture)	1	10bit×12 (SA type)	8bit×1	Master/ Slavex1, Masterx2	UART Full Duplex/ SSIO×2	VLSx1	Max 192dot 24segx 8com	10	Safety function, Multiplier/Divider, Comparatorx2, DMA			P-TQFP48-0707-0.50-ZK6	✓
													P-TQFP48-0707-0.50-ZK6	✓
													P-TQFP48-0707-0.50-ZK6	✓
													P-TQFP48-0707-0.50-ZK6	✓
													P-TQFP48-0707-0.50-ZK6	✓
													P-TQFP52-1010-0.65-ZK6	✓
6 (8bit×12)	6 (TMR, PWM, Capture)	1	10bit×12 (SA type)	8bit×1	Master/ Slavex1, Masterx2	UART Full Duplex/ SSIO×2	VLSx1	Max 216dot 27segx 8com	10	Safety function, Multiplier/Divider, Comparatorx2, DMA			P-TQFP52-1010-0.65-ZK6	✓
													P-TQFP52-1010-0.65-ZK6	✓
													P-TQFP52-1010-0.65-ZK6	✓
													P-TQFP52-1010-0.65-ZK6	✓
													P-TQFP52-1010-0.65-ZK6	✓
													P-TQFP64-1010-0.50-ZK6	✓
6 (8bit×12)	6 (TMR, PWM, Capture)	1	10bit×12 (SA type)	8bit×1	Master/ Slavex1, Masterx2	UART Full Duplex/ SSIO×2	VLSx1	Max 280dot 35segx 8com	10	Safety function, Multiplier/Divider, Comparatorx2, DMA			P-QFP64-1414-0.80-ZK6	✓
													P-TQFP64-1010-0.50-ZK6	✓
													P-QFP64-1414-0.80-ZK6	✓
													P-TQFP64-1010-0.50-ZK6	✓
													P-QFP64-1414-0.80-ZK6	✓
													P-TQFP64-1010-0.50-ZK6	✓
													P-QFP64-1414-0.80-ZK6	✓
													P-TQFP64-1010-0.50-ZK6	✓
													P-QFP64-1414-0.80-ZK6	✓
													P-TQFP64-1010-0.50-ZK6	✓
8 (8bit×16)	8 (TMR, PWM, Capture)	1	10bit×16 (SA type)	8bit×2	Master/ Slavex1, Masterx2	UART Full Duplex/ SSIO×6	VLSx1	Max 360dot 45segx 8com	12	Safety function, Multiplier/Divider, Comparatorx2, DMA			P-QFP80-1414-0.65-ZK6	✓
													P-QFP80-1414-0.65-ZK6	✓
													P-QFP80-1414-0.65-ZK6	✓
													P-QFP80-1414-0.65-ZK6	✓
													P-QFP80-1414-0.65-ZK6	✓
													P-QFP80-1414-0.65-ZK6	✓
													P-QFP80-1414-0.65-ZK6	✓
													P-QFP80-1414-0.65-ZK6	✓
8 (8bit×16)	8 (TMR, PWM, Capture)	1	10bit×16 (SA type)	8bit×2	Master/ Slavex1, Masterx2	UART Full Duplex/ SSIO×6	VLSx1	Max 480dot 60segx 8com	12	Safety function, Multiplier/Divider, Comparatorx2, DMA			P-TQFP100-1414-0.50-ZK6	✓
													P-QFP100-1420-0.65-BK6	✓
													P-TQFP100-1414-0.50-ZK6	✓
													P-QFP100-1420-0.65-BK6	✓
													P-TQFP100-1414-0.50-ZK6	✓
													P-QFP100-1420-0.65-BK6	✓
													P-TQFP100-1414-0.50-ZK6	✓
													P-QFP100-1420-0.65-BK6	✓
6 (8bit×12)	6 (TMR, PWM, Capture)	1	10bit×12 (SA type)	8bit×1	Master/ Slavex1, Masterx2	UART Full Duplex/ SSIO×3	VLSx1	Max 216dot 27segx 8com	10	Safety function, Multiplier/Divider, Comparatorx2, DMA			P-TQFP52-1010-0.65-ZK6	✓
													P-TQFP52-1010-0.65-ZK6	✓
6 (8bit×12)	6 (TMR, PWM, Capture)	1	10bit×12 (SA type)	8bit×1	Master/ Slavex1, Masterx2	UART Full Duplex/ SSIO×4	VLSx1	Max 280dot 35segx 8com	10	Safety function, Multiplier/Divider, Comparatorx2, DMA			P-TQFP64-1010-0.50-ZK6	✓
													P-QFP64-1414-0.80-ZK6	✓
6 (8bit×12)	6 (TMR, PWM, Capture)	1	10bit×12 (SA type)	8bit×1	Master/ Slavex1, Masterx2	UART Full Duplex/ SSIO×4	VLSx1	Max 360dot 45segx 8com	12	Safety function, Multiplier/Divider, Comparatorx2, DMA			P-QFP80-1414-0.65-ZK6	✓
													P-QFP80-1414-0.65-ZK6	✓

General-Purpose MCUs (16bit)

For Multiple Uses ML62Q1000 series (U16^{*1})

ML62Q1800 group ROM Capacity: 384KB to 512KB Pin Number: 64pin to 100pin

Part No.	Operating Voltage (V)	ROM type	ROM Capacity (Byte)	Data Flash Capacity (Byte)	RAM Capacity (Byte)	Port			Operating Frequency (Max)		Minimum Instruction Execution Time	Current Consumption (Typ@HALT)	Operating Temperature (°C)	
						Input	Output	Input/Output	High Speed	Low Speed				
ML62Q1858	1.6 to 5.5	Flash	384K	8K	32K	2	—	58	24MHz (PLL oscillation)	32.768kHz (Internal RC oscillation/ Crystal oscillation)	41ns/ 30.5μs	6.0/4.5μA (Internal RC oscillation/ Crystal oscillation)	-40 to +105	
ML62Q1859			512K											
ML62Q1868	1.6 to 5.5	Flash	384K	8K	32K	2	—	72	24MHz (PLL oscillation)	32.768kHz (Internal RC oscillation/ Crystal oscillation)	41ns/ 30.5μs	6.0/4.5μA (Internal RC oscillation/ Crystal oscillation)	-40 to +105	
ML62Q1869			512K											
ML62Q1878	1.6 to 5.5	Flash	384K	8K	32K	2	—	92	24MHz (PLL oscillation)	32.768kHz (Internal RC oscillation/ Crystal oscillation)	41ns/ 30.5μs	6.0/4.5μA (Internal RC oscillation/ Crystal oscillation)	-40 to +105	
ML62Q1879			512K											

*1 U16: 16bit RISC CPU nX-U16/100 Core

*2 For use of industrial equipment, please inquire to the sales.

(LAPIS Technology products)

	16bit Timer	16bit Multi Functions Timer	WDT	ADC (method)	DAC	Serial Port			Supply Voltage Detection	LCD Driver	External Interrupt Sources	Others	Package	Industrial Grade ^{#2}
						I ² C	SSIO	UART						
	6 (8bit×12)	6 (TMR, PWM, Capture)	1	10bit×12 (SA type)	8bit×1	Master/ Slave×1, Master×2	UART Full Duplex/ SSIO×2	VLS×1	—	10	Safety function, Multiplier/Divider, Comparator×2, DMA	P-TQFP64-1010-0.50-ZK6 P-QFP64-1414-0.80-ZK6	✓	
	8 (8bit×16)	8 (TMR, PWM, Capture)	1	10bit×16 (SA type)	8bit×2	Master/ Slave×1, Master×2	UART Full Duplex/ SSIO×6	VLS×1	—	12	Safety function, Multiplier/Divider, Comparator×2, DMA	P-QFP80-1414-0.65-ZK6	✓	
	8 (8bit×16)	8 (TMR, PWM, Capture)	1	10bit×16 (SA type)	8bit×2	Master/ Slave×1, Master×2	UART Full Duplex/ SSIO×6	VLS×1	—	12	Safety function, Multiplier/Divider, Comparator×2, DMA	P-TQFP100-1414-0.50-ZK6 P-QFP100-1420-0.65-BK6	✓	

General-Purpose MCUs (16bit)

Low Power Consumption ML62Q2000 series/ML62Q2500

ROM Capacity: 64KB to 128KB Pin Number: 32pin to 48pin

Part No.	Operating Voltage (V)	ROM type	ROM Capacity (Byte)	Data Flash Capacity (Byte)	RAM Capacity (Byte)	Port			Operating Frequency (Max)		Minimum Instruction Execution Time	Current Consumption (Typ@HALT*) ²	Operating Temperature (°C)
						Input	Output	Input/Output	High Speed	Low Speed			
ML62Q2502	1.8 to 5.5	Flash	64K	4K	8K	3	—	24	24MHz (PLL oscillation)	32.768kHz (Internal RC oscillation/External oscillation)	41ns/30.5μs	0.6μA (Internal RC oscillation)	-40 to +105
ML62Q2504			128K										
ML62Q2522	1.8 to 5.5	Flash	64K	4K	8K	3	—	32	24MHz (PLL oscillation)	32.768kHz (Internal RC oscillation/External oscillation)	41ns/30.5μs	0.6μA (Internal RC oscillation)	-40 to +105
ML62Q2524			128K										
ML62Q2532	1.8 to 5.5	Flash	64K	4K	8K	3	—	40	24MHz (PLL oscillation)	32.768kHz (Internal RC oscillation/External oscillation)	41ns/30.5μs	0.6μA (Internal RC oscillation)	-40 to +105
ML62Q2534			128K										

*1 U16: 16bit RISC CPU nX-U16/100 Core

*2 HALT-D mode.

*3 For use of industrial equipment, please inquire to the sales.

General-Purpose MCUs (16bit)

Build-in Speech Playback Function ML62Q2000 series/

Built-In LCD Driver ROM Capacity: 64KB to 256KB Pin Number: 48pin to 100pin

Part No.	Operating Voltage (V)	ROM type	ROM Capacity (Byte)	Data Flash Capacity (Byte)	RAM Capacity (Byte)	Port			Operating Frequency (Max)		Minimum Instruction Execution Time	Current Consumption (Typ@HALT*) ²	Operating Temperature (°C)
						Input	Output	Input/Output	High Speed	Low Speed			
New ML62Q2702	1.8 to 5.5	Flash	64K	4K	8K	3	—	35	24MHz (PLL oscillation)	32.768kHz (Internal RC oscillation/Crystal oscillation)	41ns/30.5μs	0.7μA (Internal RC oscillation)	-40 to +105
New ML62Q2703			96K										
New ML62Q2712	1.8 to 5.5	Flash	64K	4K	8K	3	—	39	24MHz (PLL oscillation)	32.768kHz (Internal RC oscillation/Crystal oscillation)	41ns/30.5μs	0.7μA (Internal RC oscillation)	-40 to +105
New ML62Q2713			96K										
New ML62Q2722	1.8 to 5.5	Flash	64K	4K	8K	3	—	51	24MHz (PLL oscillation)	32.768kHz (Internal RC oscillation/Crystal oscillation)	41ns/30.5μs	0.7μA (Internal RC oscillation)	-40 to +105
New ML62Q2723			96K										
New ML62Q2725	1.8 to 5.5	Flash	160K	4K	16K	3	—	51	24MHz (PLL oscillation)	32.768kHz (Internal RC oscillation/Crystal oscillation)	41ns/30.5μs	0.9μA (Internal RC oscillation)	-40 to +105
New ML62Q2726			192K										
New ML62Q2727			256K										
New ML62Q2735	1.8 to 5.5	Flash	160K	4K	16K	3	—	65	24MHz (PLL oscillation)	32.768kHz (Internal RC oscillation/Crystal oscillation)	41ns/30.5μs	0.9μA (Internal RC oscillation)	-40 to +105
New ML62Q2736			192K										
New ML62Q2737			256K										
New ML62Q2745	1.8 to 5.5	Flash	160K	4K	16K	3	—	85	24MHz (PLL oscillation)	32.768kHz (Internal RC oscillation/Crystal oscillation)	41ns/30.5μs	0.9μA (Internal RC oscillation)	-40 to +105
New ML62Q2746			192K										
New ML62Q2747			256K										

*1 U16: 16bit RISC CPU nX-U16/100 Core

*2 HALT-D mode.

*3 For use of industrial equipment, please inquire to the sales.

ML62Q2000 series Part Number Explanation

25xx: ML62Q2500 group
0x: 32pin
2x: 40pin
3x: 48pinx2: ROM 64KB
x4: ROM 128KB0x: 48pin
1x: 52pin
2x: 64pin
3x: 80pin4x: 100pin
x2: ROM 64KB
x3: ROM 96KB
x5: ROM 160KB
x6: ROM 192KB
x7: ROM 256KB

group (U16^{*1})

(LAPIS Technology products)

	16bit Timer	16bit Multi Functions Timer	WDT	ADC (method)	DAC	Serial Port			Supply Voltage Detection	LCD Driver	External Interrupt Sources	Others	Package	Industrial Grade ^{*3}
						I ² C	SSIO	UART						
	6	2 (TMR, PWM, Capture)	1	12bitx14 (SA type)	—	Master/ Slave ^{x1} , Master ^{x1}	2	Full Duplex x3	VLSx1	—	8	Safety function, Multiplier/Divider	P-TQFP32-0707-0.80-ZK6 P-WQFN32-0505-0.50-A63 P-TQFP32-0707-0.80-ZK6 P-WQFN32-0505-0.50-A63	✓ ✓
	6	2 (TMR, PWM, Capture)	1	12bitx14 (SA type)	—	Master/ Slave ^{x1} , Master ^{x1}	2	Full Duplex x3	VLSx1	—	8	Safety function, Multiplier/Divider	P-WQFN40-0606-0.50-63 P-WQFN40-0606-0.50-63	✓ ✓
	6	2 (TMR, PWM, Capture)	1	12bitx14 (SA type)	—	Master/ Slave ^{x1} , Master ^{x1}	2	Full Duplex x3	VLSx1	—	8	Safety function, Multiplier/Divider	P-TQFP48-0707-0.50-ZK6 P-WQFN48-0707-0.50-63 P-TQFP48-0707-0.50-ZK6 P-WQFN48-0707-0.50-63	✓ ✓

ML62Q2700 group (U16^{*1})

(LAPIS Technology products)

	16bit Timer	16bit Multi Functions Timer	WDT	ADC (method)	DAC	Serial Port			Supply Voltage Detection	LCD Driver	External Interrupt Sources	Others	Package	Industrial Grade ^{*3}
						I ² C	SSIO	UART						
	6	6 (TMR, PWM, Capture)	1	12bitx12 (SA type)	—	Master/ Slave ^{x1} , Master ^{x2}	3	Full Duplex x2	VLSx1	Max 192dot 24segx 8com	9	Safety function, Multiplier/ Divider, Speech playback function/ ADPCM2 decoder	P-TQFP48-0707-0.50-ZK6 P-WQFN48-0707-0.50-63 P-TQFP48-0707-0.50-ZK6 P-WQFN48-0707-0.50-63	✓ ✓
	6	6 (TMR, PWM, Capture)	1	12bitx12 (SA type)	—	Master/ Slave ^{x1} , Master ^{x2}	3	Full Duplex x2	VLSx1	Max 216dot 27segx 8com	9	Safety function, Multiplier/ Divider, Speech playback function/ ADPCM2 decoder	P-TQFP52-1010-0.65-ZK6 P-TQFP52-1010-0.65-ZK6	✓ ✓
	6	6 (TMR, PWM, Capture)	1	12bitx12 (SA type)	—	Master/ Slave ^{x1} , Master ^{x2}	3	Full Duplex x2	VLSx1	Max 280dot 35segx 8com	9	Safety function, Multiplier/ Divider, Speech playback function/ ADPCM2 decoder	P-QFP64-1414-0.80-ZK6 P-TQFP64-1010-0.50-ZK6 P-QFP64-1414-0.80-ZK6 P-TQFP64-1010-0.50-ZK6 P-QFP64-1414-0.80-ZK6 P-TQFP64-1010-0.50-ZK6 P-QFP64-1414-0.80-ZK6 P-TQFP64-1010-0.50-ZK6 P-QFP64-1414-0.80-ZK6 P-TQFP64-1010-0.50-ZK6 P-QFP64-1414-0.80-ZK6 P-TQFP64-1010-0.50-ZK6	✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓
	8	8 (TMR, PWM, Capture)	1	12bitx12 (SA type)	—	Master/ Slave ^{x1} , Master ^{x2}	7	Full Duplex x6	VLSx1	Max 280dot 35segx 8com	9	Safety function, Multiplier/ Divider, Speech playback function/ ADPCM2 decoder	P-QFP64-1414-0.80-ZK6 P-TQFP64-1010-0.50-ZK6 P-QFP64-1414-0.80-ZK6 P-TQFP64-1010-0.50-ZK6 P-QFP64-1414-0.80-ZK6 P-TQFP64-1010-0.50-ZK6 P-QFP64-1414-0.80-ZK6 P-TQFP64-1010-0.50-ZK6 P-QFP64-1414-0.80-ZK6 P-TQFP64-1010-0.50-ZK6 P-QFP64-1414-0.80-ZK6 P-TQFP64-1010-0.50-ZK6	✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓
	8	8 (TMR, PWM, Capture)	1	12bitx16 (SA type)	—	Master/ Slave ^{x1} , Master ^{x2}	7	Full Duplex x6	VLSx1	Max 360dot 45segx 8com	9	Safety function, Multiplier/ Divider, Speech playback function/ ADPCM2 decoder	P-QFP80-1414-0.65-ZK6 P-TQFP80-1010-0.50-ZK6 P-QFP80-1414-0.65-ZK6 P-TQFP80-1010-0.50-ZK6 P-QFP80-1414-0.65-ZK6 P-TQFP80-1010-0.50-ZK6	✓ ✓ ✓ ✓ ✓ ✓
	8	8 (TMR, PWM, Capture)	1	12bitx16 (SA type)	—	Master/ Slave ^{x1} , Master ^{x2}	7	Full Duplex x6	VLSx1	Max 480dot 60segx 8com	9	Safety function, Multiplier/ Divider, Speech playback function/ ADPCM2 decoder	P-QFP100-1420-0.65-BK6 P-TQFP100-1014-0.50-ZK6 P-QFP100-1420-0.65-BK6 P-TQFP100-1014-0.50-ZK6 P-QFP100-1420-0.65-BK6 P-TQFP100-1014-0.50-ZK6	✓ ✓ ✓ ✓ ✓ ✓

Switching Power Supply Control MCUs (16bit)

For Power Supply Control ML62Q20xx group (U16^{*1})

ROM Capacity: 16KB to 48KB Pin Number: 20pin to 48pin

Part No.	Operating Voltage (V)	ROM type	ROM Capacity (Byte)	Data Flash Capacity (Byte)	RAM Capacity (Byte)	Port			Operating Frequency (Max)		Minimum Instruction Execution Time	Current Consumption (Typ@HALT)	Operating Temperature ^{*2} (°C)
						Input	Output	Input/Output	High Speed	Low Speed			
New ML62Q2033	4.5 to 5.5	Flash	16K	4K	2K	1	—	16	16MHz (PLL oscillation)	32.768kHz (Internal RC oscillation)	62.5ns/30.5μs	90μA (Internal RC oscillation)	-40 to +115
New ML62Q2035			32K										
New ML62Q2043	4.5 to 5.5	Flash	16K	4K	2K	1	—	20	16MHz (PLL oscillation)	32.768kHz (Internal RC oscillation)	62.5ns/30.5μs	90μA (Internal RC oscillation)	-40 to +115
New ML62Q2045			32K										
☆ML62Q2055	4.5 to 5.5	Flash	32K	8K	4K	1	—	28	16MHz (PLL oscillation)	32.768kHz (Internal RC oscillation)	62.5ns/30.5μs	TBD (Internal RC oscillation)	-40 to +125
☆ML62Q2056			48K										
☆ML62Q2065	4.5 to 5.5	Flash	32K	8K	4K	1	—	44	16MHz (PLL oscillation)	32.768kHz (Internal RC oscillation)	62.5ns/30.5μs	TBD (Internal RC oscillation)	-40 to +125
☆ML62Q2066			48K										

*1 U16: 16bit RISC CPU nX-U16/100 Core

*2 Operating temperature (Chip-Junction)

*3 For use of industrial equipment, please inquire to the sales.

☆: Under Development. The contents are subject to change without notice for improvement.

Switching Power Supply Control MCUs (16bit) Part Number Explanation



Part Number

①Device type
ML: Bipolar Logic⑤Option Code
None to x: Set for Product⑦Package Code
GD: WQFN
TD: TSSOP
TB: TQFP②CPU Core type
62: 16bit CPU nX-U16/100⑥ROM Code
NNN: Blank
001 to xxx: Custom Code Number

⑧Company's Code

③ROM type
Q: Flash ROM④Part Code
20xx: ML62Q20xx group

3x: 20pin	x3: ROM 16KB
4x: 24pin	x5: ROM 32KB
5x: 32pin	x6: ROM 48KB
6x: 48pin	

(LAPIS Technology products)

	16bit Timer	Operational timer (16bit timer)	Operational timer (8bit timer)	WDT	ADC (method)	DAC	Serial Port			Supply Voltage Detection	LCD Driver	External Interrupt Sources	Others	Package	Industrial Grade*3
							I ^C	SSIO	UART						
	1	CH: 6/ OUTPUT: 10 (PWM, Capture)	—	1	12bit×5 (SA type)	8bit×2	Master/ Slave×1	—	Full Duplex/ Half Duplex×2	LLDx1	—	4	Safety function, Multiplier/Divider, Programable-Gain-Amp×1, Analog comparator×3	P-TSSOP20-0225-0.65-TK6	✓
														P-TSSOP20-0225-0.65-TK6	✓
	1	CH: 6/ OUTPUT: 13 (PWM, Capture)	—	1	12bit×5 (SA type)	8bit×2	Master/ Slave×1	—	Full Duplex/ Half Duplex×2	LLDx1	—	4	Safety function, Multiplier/Divider, Programable-Gain-Amp×1, Analog comparator×3	P-WQFN24-0404-0.50-A63	✓
														P-WQFN24-0404-0.50-A63	✓
	1	CH: 6/ OUTPUT: 13 (PWM, Capture)	CH: 6/ OUTPUT: 15 (PWM, Capture)	1	12bit×13 (SA type)	8bit×2 9bit×2	Master/ Slave×1	—	Full Duplex/ Half Duplex×3	LLDx1	—	6	Safety function, Multiplier/Divider, Programable-Gain-Amp×2, Analog comparator×4	P-TQFP32-0707-0.80-ZK6	✓
														P-TQFP32-0707-0.80-ZK6	✓
	1	CH: 6/ OUTPUT: 20 (PWM, Capture)	CH: 6/ OUTPUT: 24 (PWM, Capture)	1	12bit×13 (SA type)	8bit×2 9bit×2	Master/ Slave×1	—	Full Duplex/ Half Duplex×3	LLDx1	—	6	Safety function, Multiplier/Divider, Programable-Gain-Amp×2, Analog comparator×4	P-TQFP48-0707-0.50-ZK6	✓
														P-TQFP48-0707-0.50-ZK6	✓

Speech Playback MCUs (8bit)

Build-in High-Output Speaker Amplifier ML610Q300

ROM Capacity: 96KB to 256KB Pin Number: 32pin to 64pin

Part No.	Operating Voltage (V)	ROM type	ROM Capacity (Byte)	Data Flash Capacity (Byte)	Memory for Sound	RAM Capacity (Byte)	Port			Operating Frequency (Max)		Minimum Instruction Execution Time	Current Consumption (Typ@HALT)	Operating Temperature (°C)	
							Input	Output	Input/Output	High Speed	Low Speed				
ML610Q305	2.0 to 5.5	Flash	96K	2K	Flash ROM	1K	1	3	12	8.192MHz	32.768kHz (Internal RC oscillation)	0.122μs/ 30.5μs	2.0μA	-40 to +85	
ML610Q306									15						
ML610Q327	2.0 to 5.5	Flash	192K	2K	Flash ROM	4K	—	6	26	8.192MHz	32.768kHz (Internal RC oscillation)	0.122μs/ 30.5μs	2.0μA	-40 to +85	
ML610Q338	2.0 to 5.5	Flash	256K	2K	Flash ROM	4K	—	6	30	8.192MHz	32.768kHz (Internal RC oscillation)	0.122μs/ 30.5μs	2.0μA	-40 to +85	
ML610Q339									42						

 Ky's Technology HQ-ADPCM: A high quality sound compression technology developed by Ky's. Ky's is a registered trademark of Kyushu Institute of Technology.

*1 U8: 8bit RISC CPU nX-U8/100 Core

*2 For use of industrial equipment, please inquire to the sales.

ML610Q300 group Part Number Explanation

①Device type
ML: Bipolar Logic

④Part Code
3xx: Built-in Speech Playback function

⑦Package Code
GD: WQFN
TB: TQFP

②CPU Core type
610: 8bit CPU nX-U8/100

⑤Option Code
None to x: Set for Product

⑧Company's Code

③ROM type
Q: Flash ROM

⑥ROM Code
NNN: Blank
001 to xxx: Custom Code Number

group (U8^{*1})

(LAPIS Technology products)

	8bit Timer	PWM	WDT	ADC (method)	Serial Port			Supply Voltage Detection	LCD Driver	External Interrupt Sources	SP Amp Output (W)/ Class	Others	Package	Industrial Grade ^{*2}
					I²C	SSIO	UART							
	4 (16bit×2)	—	1	10bit×3 (SA type)	Master/ Slavex1	2	Half Duplex x1	LLDx1	—	9	1.0 (@5V)/ D class	Speech playback function/ ADPCM2 HQ-ADPCM decoder/ Built-in speaker Amplifier	P-WQFN32-0505-0.50-A63 P-TQFP32-0707-0.80-ZK6	✓
				10bit×4 (SA type)			P-WQFN36-0606-0.50-A63						✓	
	4 (16bit×2)	3	1	10bit×8 (SA type)	Master/ Slavex1	2	Half Duplex x2	LLDx1	—	8	1.0 (@5V)/ D class	Speech playback function/ ADPCM2 HQ-ADPCM decoder/ Built-in speaker Amplifier	P-TQFP48-0707-0.50-ZK6	✓
	4 (16bit×2)	3	1	10bit×8 (SA type)	Master/ Slavex1	2	Half Duplex x2	LLDx1	—	8	1.0 (@5V)/ D class	Speech playback function/ ADPCM2 HQ-ADPCM decoder/ Built-in speaker Amplifier	P-TQFP52-1010-0.65-ZK6	✓
													P-TQFP64-1010-0.50-ZK6	✓

USB/Security MCUs (32bit)

For USB Data Loggers ML630Q400 group

Built-In LCD Driver ROM Capacity: 64KB to 128KB Pin Number: 100pin

Part No.	Operating Voltage (V)	ROM type	ROM Capacity (Byte)	Data Flash Capacity (Byte)	RAM Capacity (Byte)	Port			Operating Frequency (Max)		Minimum Instruction Execution Time	Current Consumption (Typ@HALT)	Operating Temperature (°C)	Co-processor for Multiplication and Division	8bit Timer	16bit Multi Functions Timer	
						Input	Output	Input/Output	High Speed	Low Speed							
ML630Q464	1.8 to 3.6	Flash	64K	2K	8K	—	—	38	16MHz (Internal RC oscillation) 24MHz (PLL oscillation)	32.768kHz (Internal RC oscillation/ Crystal oscillation)	41.7ns/ 30.5μs	0.8μA (Crystal oscillation)	−40 to +85	32bit multiplier	8 (16bit×4)	4	
ML630Q466			128K		16K												

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*1 For use of industrial equipment, please inquire to the sales.

ML630Q400 group Part Number Explanation



Part Name

①Device type
ML: Bipolar Logic

④Part Code
4xx: Low Power

⑦Package Code
TB: TQFP

②CPU Core type
630: 32bit CPU Arm® Cortex®-M0+

⑤Option Code
None to x: Set for Product

⑧Company's Code

③ROM type
Q: Flash ROM

⑥ROM Code
NNN: Blank
001 to xxx: Custom Code Number

(Arm® Cortex®-M0+)

(LAPIS Technology products)

	PWM	Capture	WDT	ADC (method)	Serial Port				Supply Voltage Detection	LCD Driver	External Interrupt Sources	Others	Package	Industrial Grade*1
					I²C	SSIO (SPI)	UART	USB						
	16bit×4 (use 16bit Timer)	16bit×4 (use 16bit Timer)	1	24bit×2 (RC type) 12bit×12 (SA type)	Master/ Slave x2	2	Full Duplex x2	1	VLSx1, LLDx1	Max 400dot 50segx 8com	8	AES 128bit HW accelerator (CBC, CTR, CTR), Random generator, DMA, RTC, Analog comparator×2, 1kHz Timer	P-TQFP100-1414-0.50-ZK6	✓
													P-TQFP100-1414-0.50-ZK6	✓

ROHM Packages

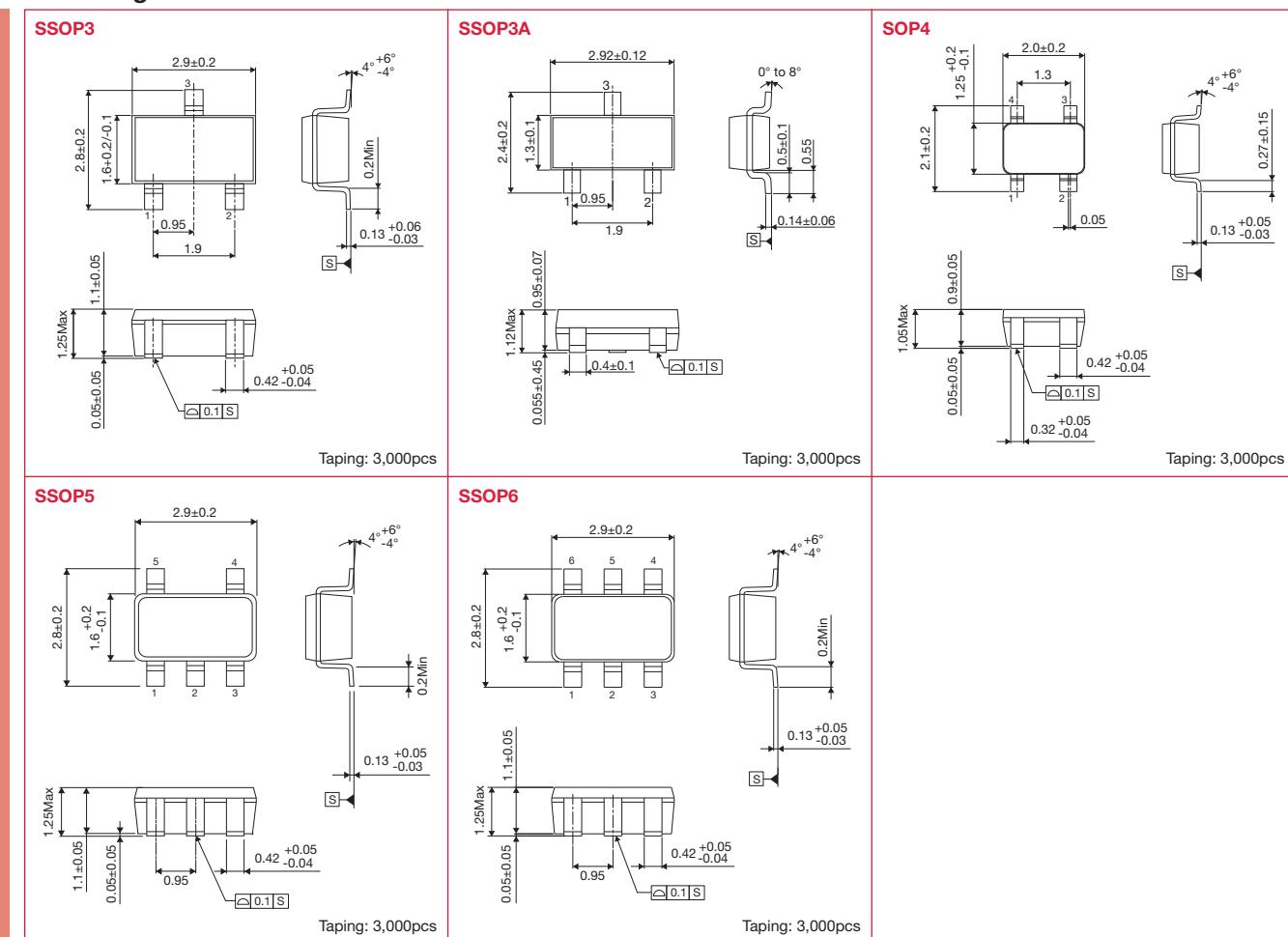
Small Packages	P.110
SOP Packages	P.111
HSOP Packages	P.111
HTSOP Packages	P.111
SOP Special Packages	P.112
Non-lead Packages	P.113
Optical Non-lead Packages	P.114
MMP Packages	P.114

SON Packages	P.115
SON Special Packages	P.115
QFP Packages	P.115
QFN Packages	P.116
BGA Packages	P.117
Special Packages	P.117
WL-CSP Packages	P.118
Power Packages	P.119

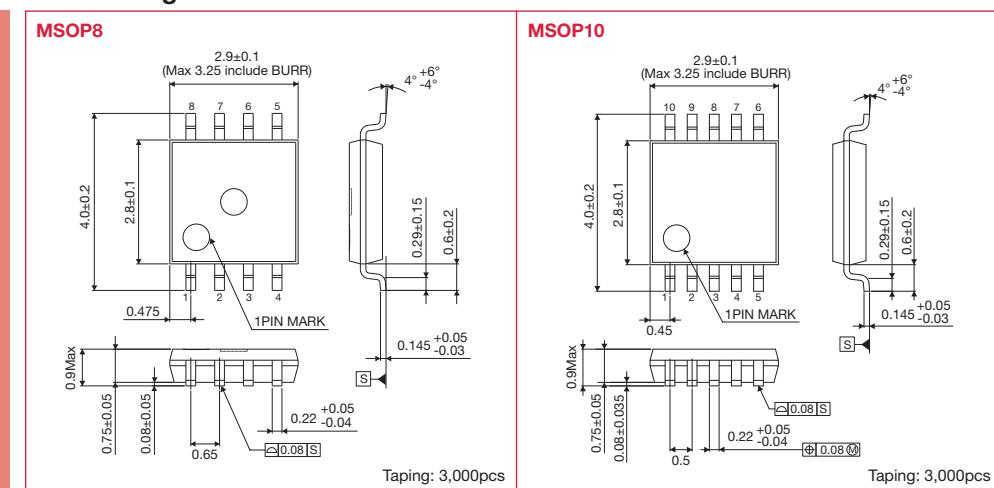
Small Packages

(Unit: mm)

SOP Packages



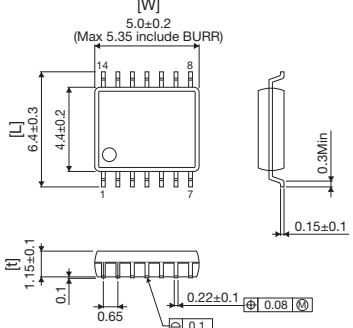
MSOP Packages



Note: Please refer package from "LSI Packages (LAPIS Technology products)".

SOP Packages

SSOP Package (for SSOP-B14)

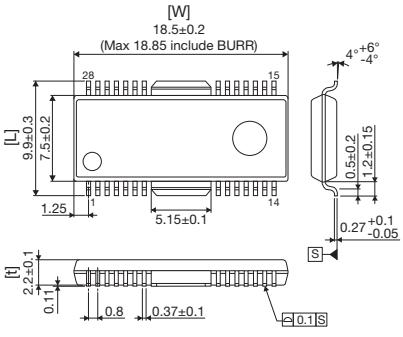


	Package	Pin Number (pin)	Length [L] (mm)	Width [W] (mm)	Thickness [t] (mm)	Package (pcs) taping
SOP Package Pin Pitch: 1.27mm	SOP8	8	6.2	5.0	1.61	2,500
	SOP-JW8		6.0	4.9	1.65	2,500
	SOP14	14	6.2	8.7	1.61	2,500
	SOP-J14		6.0	8.65	1.65	2,500
SSOP-A Package Pin Pitch: 0.8mm	SOP16	16	6.2	10.0	1.61	2,500
	SOP-J16A		6.0	9.9	1.55	2,500
	SOP18	18	7.8	11.2	1.91	2,000
	SOP20A	20	10.3	12.8	2.5	1,500
	SOP24	24	7.8	15.0	1.91	2,000
	SOP28	28	9.9	18.5	2.31	1,500
	SOP-J8	8	6.0	4.9	1.55	2,500
	SSOP-A16	16	6.2	6.6	1.61	2,500
SSOP-B Package Pin Pitch: 0.65mm	SSOP-A20	20	7.8	8.7	1.91	2,000
	SSOP-A24	24	7.8	10.0	1.9	2,000
	SSOP-A32	32	7.8	13.6	1.91	2,000
	SSOP-B8	8	6.4	3.0	1.25	2,500
	SSOP-B10W	10	10.2	3.5	1.9	1,500
	SSOP-B14	14	6.4	5.0		2,500
	SSOP-B16	16	6.4	5.0	1.25	2,500
	SSOP-B20	20	6.4	6.5		2,500
TSSOP-B Package Pin Pitch: 0.65mm	SSOP-B20W		8.1	6.5	1.81	2,000
	SSOP-B24	24	7.6	7.8		2,000
	SSOP-B28	28	7.6	10.0	1.25	2,000
	SSOP-B28W		10.4	9.2		1,500
TSSOP-C Package Pin Pitch: 0.5mm	SSOP-B40	40	7.8	13.6	1.9	2,000
	TSSOP-B8	8	6.4	3.0	1.2	3,000
	TSSOP-B8J		4.9	3.0	1.1	2,500
TSSOP-C48V	TSSOP-B14J	14	6.4	5.0	1.2	2,500
	TSSOP-C48V	48	8.1	12.5	1.0	2,000

Note: Please check the ROHM's website for detailed dimensions.

HSOP Packages (Heat sink on both side)

HSOP Package (for HSOP-M28)

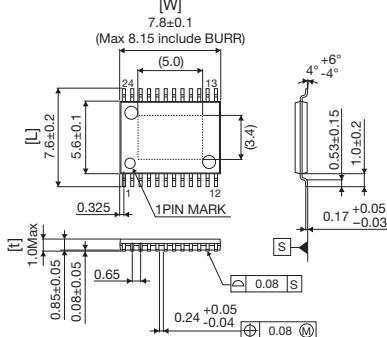


	Package	Pin Number (pin)	Length [L] (mm)	Width [W] (mm)	Thickness [t] (mm)	Package (pcs) taping
HSOP Package Pin Pitch: 1.27mm	HSOP20	20	7.8	14.9	2.1	2,000
HSOP Package Pin Pitch: 0.8mm	HSOP25	25	7.8	13.6	2.01	2,000
HSOP-M Package Pin Pitch: 0.8mm	HSOP-M28	28	9.9	18.5	2.31	1,500
	HSOP-M36	36	9.9	18.5	2.4	1,500

Note: Please check the ROHM's website for detailed dimensions.

HTSOP Packages (With back heat sink)

HTSSOP Package (for HTSSOP-B24)



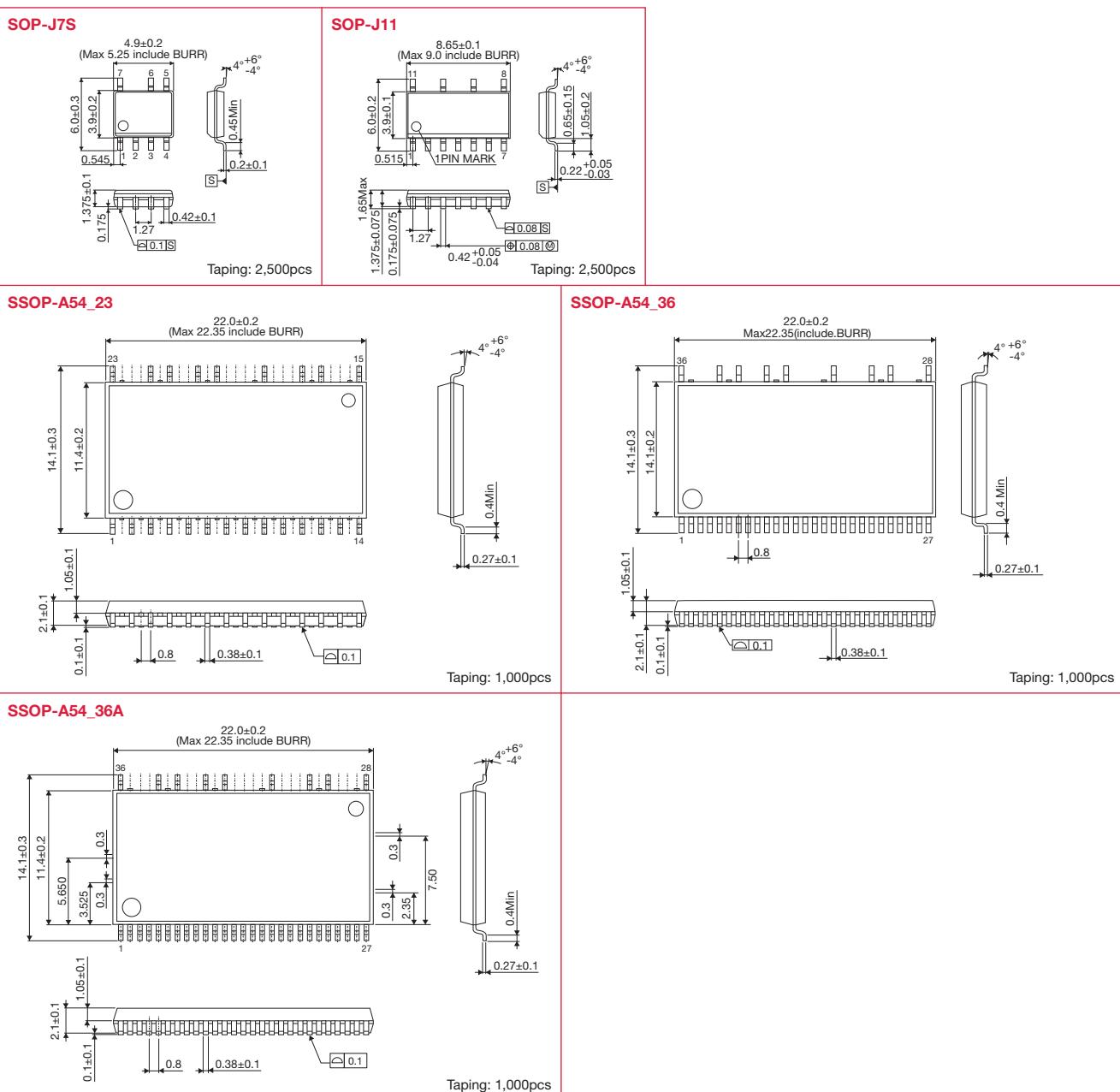
	Package	Pin Number (pin)	Length [L] (mm)	Width [W] (mm)	Thickness [t] (mm)	back heat sink (mm)	Package (pcs) taping
HTSOP Package Pin Pitch: 1.27mm	HTSOP-J8	8	6.0	4.9	1.0	2.4x3.2	2,500
	HTSOP-J8ES	8	6.0	4.9		1.8x2.2	2,500
HTSSOP-A Package Pin Pitch: 0.8mm	HTSSOP-A44	44	9.5	18.5	1.0	5.0x6.0	1,500
	HTSSOP-A44R		9.5	18.5		5.0x6.0 (surface)	1,500
HTSSOP-B Package Pin Pitch: 0.65mm	HTSSOP-B16	16	6.4	5.0	1.0	2.4x3.0	2,500
	HTSSOP-B20	20	6.4	6.5		2.4x4.0	2,500
	HTSSOP-B24	24	7.6	7.8		3.4x5.0	2,000
	HTSSOP-B28	28	6.4	9.7		2.9x5.5	2,500
	HTSSOP-B30	30	7.6	10.0		3.7x5.8	2,000
	HTSSOP-B40	40	7.8	13.6		3.4x8.4	2,000
	HTSSOP-B54	54	9.5	18.5		5.0x6.0	1,500
HTSSOP-C Package Pin Pitch: 0.5mm	HTSSOP-C48	48	8.1	12.5	1.0	4.2x5.0	2,000
	HTSSOP-C48R	48	8.1	12.5		4.2x5.0 (surface)	2,000
	HTSSOP-C64	64	8.1	17.2		3.05x4.45	2,000
HSSOP-C Package Pin Pitch: 0.5mm	HSSOP-C16	16	6.0	4.9	1.7	about 2.5x4.12	2,500

Note: Please check the ROHM's website for detailed dimensions.

Note: Please refer package from "LSI Packages (LAPIS Technology products)".

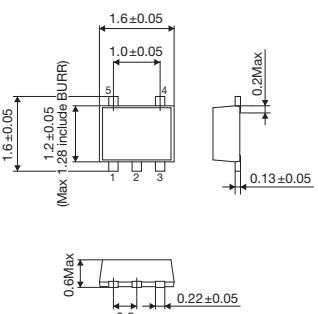
SOP Special Packages

(Unit: mm)

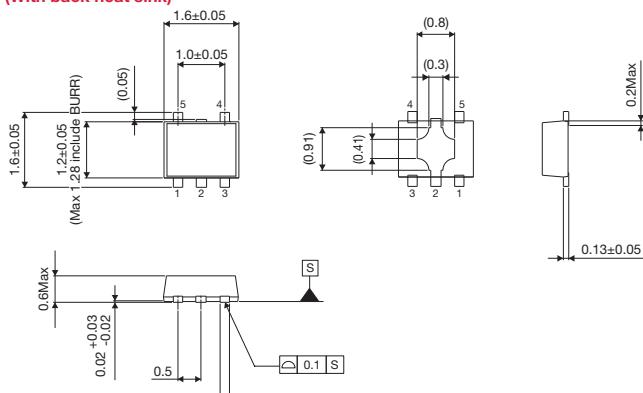


Note: Please refer package from "LSI Packages (LAPIS Technology products)".

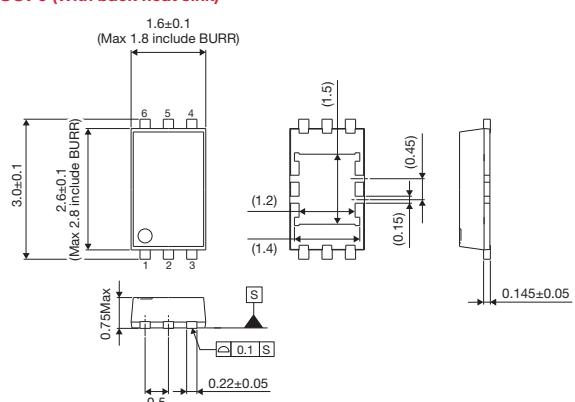
(Unit: mm)

Non-lead Packages**VSOF Packages****VSOF5**

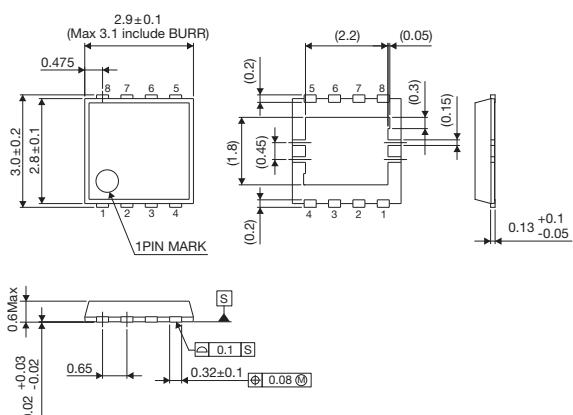
Taping: 3,000pcs

HVSOF5 (With back heat sink)

Taping: 3,000pcs

HVSOF6 (With back heat sink)

Taping: 3,000pcs

HSOT Package (With back heat sink)**HSOT8**

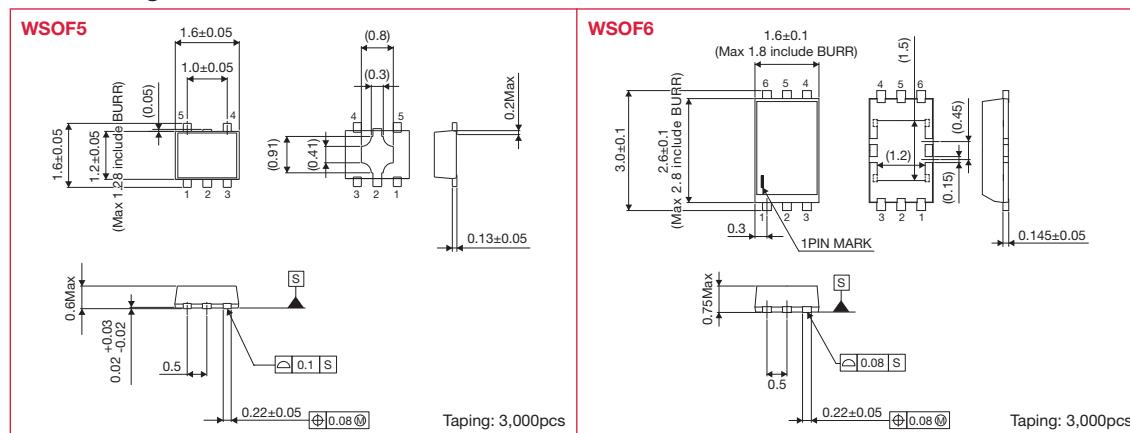
Taping: 3,000pcs

Note: Please refer package from "LSI Packages (LAPIS Technology products)".

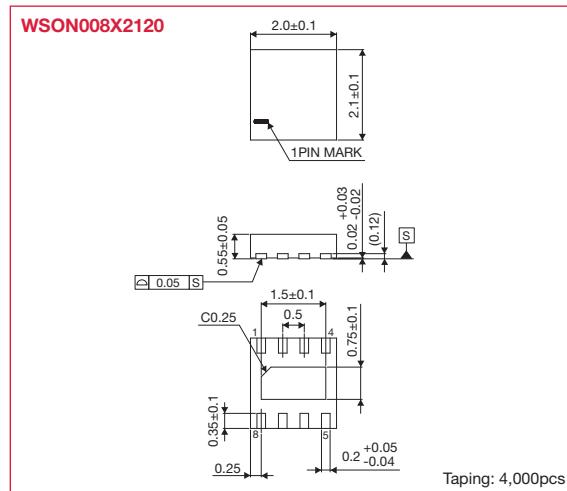
Optical Non-lead Packages (With back heat sink)

(Unit: mm)

WSOF Packages



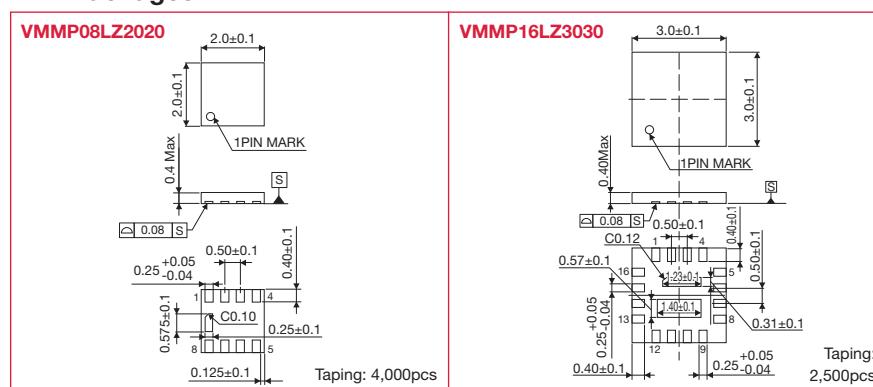
WSON Package



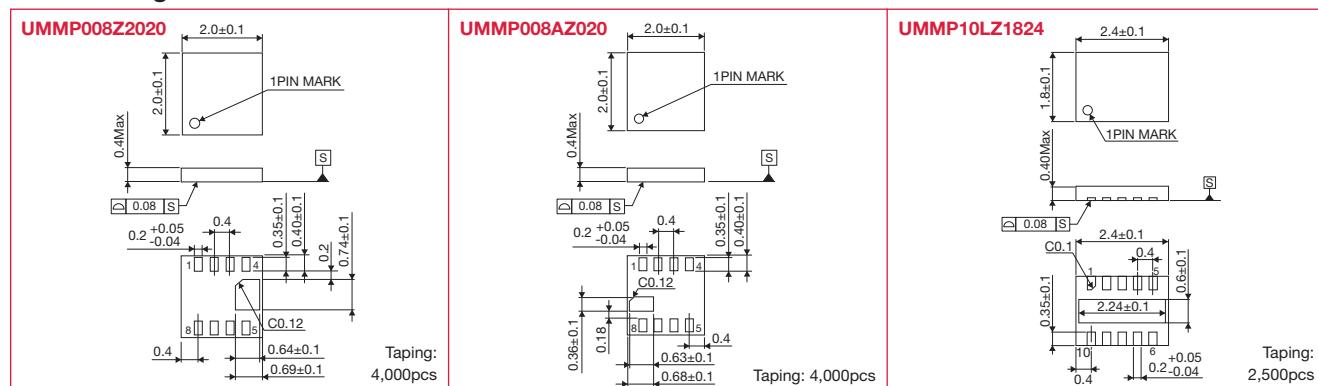
MMP Packages

(Unit: mm)

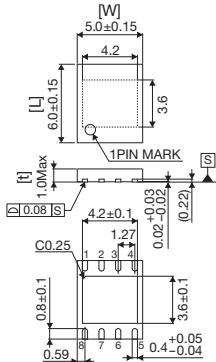
VMMP Packages



UMMP Packages

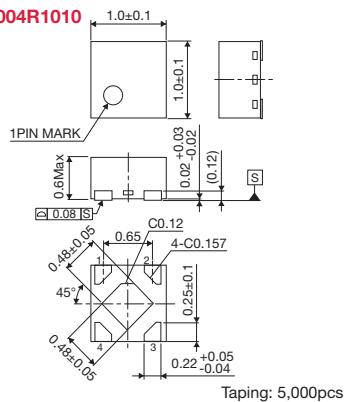
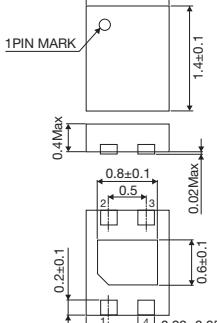


Note: Please refer package from "LSI Packages (LAPIS Technology products)".

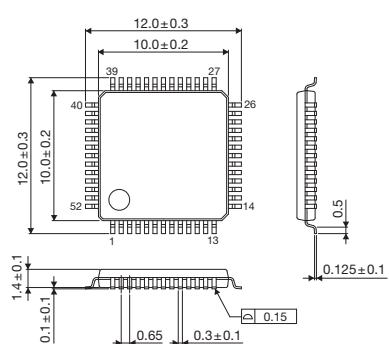
SON Packages (With back heat sink)**SON Package (for SON008V5060)**

	Package	Pin Number (pin)	Length [L] (mm)	Width [W] (mm)	Thickness [t] (mm)	back heat sink (mm)	Package (pcs) taping
SON Package Pin Pitch: 1.27mm	SON008V5060	8	6.0	5.0	1.0	3.6×4.2	2,000
S SON Package Pin Pitch: 0.65mm	S SON004X1010	4	1.0	1.0	0.6	0.48×0.48	5,000
	S SON004X1216		1.6	1.2		0.8×0.75	5,000
U SON Package Pin Pitch: 0.4mm	USON014X3020	14	2.0	3.0	0.6	0.8×2.5	4,000
	USON016X3315		1.5	3.3		0.6×2.9	4,000
V SON Package Pin Pitch: 0.5mm	VSON008V2030	8	3.0	2.0	1.0	1.4×1.5	3,000
	VSON008X2020		2.0	2.0	0.6	0.8×1.5	4,000
	VSON008X2030		3.0	2.0		1.4×1.5	4,000
	VSON08AX2030		3.0	2.0		1.4×1.5	4,000
	VSON010V3030	10	3.0	3.0	1.0	1.2×2.0	3,000
	VSON010X3020		2.0	3.0	0.6	0.64×2.0	4,000
	VSON010X3030		3.0	3.0		1.2×2.0	4,000
	VSON10FV3030		3.0	3.0	1.0	1.2×2.0	3,000

Note: Please check the ROHM's website for detailed dimensions.

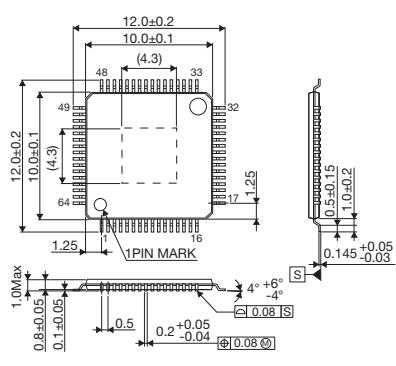
SON Special Packages (With back heat sink)**S SON004R1010****VSON04Z1114A**

Taping: 5,000pcs

QFP Packages**SQFP Package (for SQFP-T52)**

	Package	Pin Number (pin)	Length [L] (mm)	Width [W] (mm)	Thickness [t] (mm)	Package (pcs)	
						Tray	Taping
SQFP-T Package Pin Pitch: 0.65mm	SQFP-T52	52	12.0	12.0	1.5	1,000	1,000
	SQFP-T64	64	14.0	14.0		1,000	—
	SQFP-T80C	80	16.0	16.0		500	—
TQFP Package Pin Pitch: 0.5mm	TQFP48V	48	9.0	9.0	1.2	1,000	1,500
	TQFP64V	64	12.0	12.0		1,000	1,000
	TQFP100V	100	16.0	16.0		500	500
VQFP Package Pin Pitch: 0.5mm	VQFP48C	48	9.0	9.0	1.6	1,000	1,500
	VQFP64	64	12.0	12.0		1,000	1,000
	VQFP80	80	14.0	14.0		1,000	1,000
	VQFP100	100	16.0	16.0		500	500

Note: Please check the ROHM's website for detailed dimensions.

QFP Packages (With back heat sink)**HTQFP Package (for HTQFP64AV)**

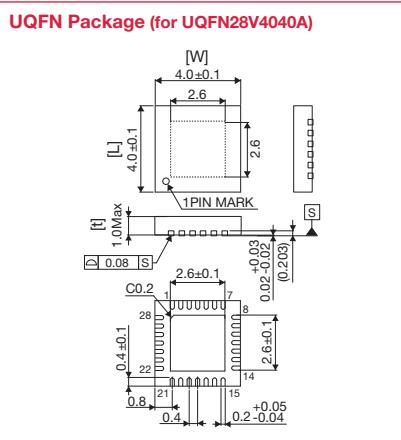
	Package	Pin Number (pin)	Length [L] (mm)	Width [W] (mm)	Thickness [t] (mm)	back heat sink (mm)	Package (pcs)	
						Tray	Taping	
HTQFP Package Pin Pitch: 0.5mm	HTQFP48V	48	9.0	9.0	1.0	4.4×4.4	—	1,500
	HTQFP64AV	64	12.0	12.0		4.3×4.3	—	1,000
	HTQFP64BV		12.0	12.0		6.5×6.5	—	1,000
HTQFP Package Pin Pitch: 0.4mm	HTQFP128UA	128	16.0	16.0	1.2	6.6×6.6	—	900
HQFP Package Pin Pitch: 0.5mm	HQFP144VM	144	22.0	22.0	1.6	6.0×6.0	—	60

Note: Please check the ROHM's website for detailed dimensions.

Note: Please refer package from "LSI Packages (LAPIS Technology products)".

QFN Packages (With back heat sink)

(Unit: mm)

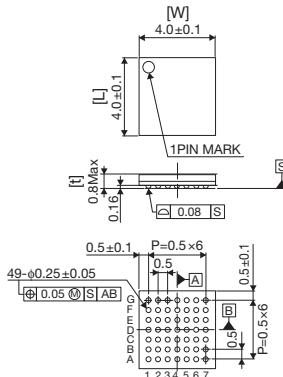


	Package	Pin Number (pin)	Length [L] (mm)	Width [W] (mm)	Thickness [t] (mm)	back heat sink (mm)	Package (pcs) taping
SQFN Package Pin Pitch: 0.65mm	SQFN016V4040	16	4.0	4.0	1.0	2.1×2.1	2,500
	UQFN28V4040A	28	4.0	4.0		2.6×2.6	2,500
	UQFN036V5050	36	5.0	5.0		2.7×2.7	2,500
	UQFN040V5050	40	5.0	5.0		3.3×3.3	2,500
	UQFN056V7070	56	7.0	7.0		4.7×4.7	1,500
	UQFN56BV7070		7.0	7.0		4.0×4.0	1,500
	UQFN68CV8080	68	8.0	8.0		4.3×4.3	1,000
	UQFN88MV0100	88	10.0	10.0		7.8×7.8	1,000
UQFN Package Pin Pitch: 0.4mm	VQFN11X3535A	11	3.5	3.5	0.6	—	2,500
	VQFN016V3030		3.0	3.0		1.4×1.4	3,000
	VQFN16FV3030		3.0	3.0	1.0	1.4×1.4	3,000
	VQFN16KV3030		3.0	3.0		1.4×1.4	3,000
	VQFN16Z3030A		3.0	3.0	0.4	1.8×1.8	4,000
VQFN Package Pin Pitch: 0.5mm	VQFN20		4.2	4.2	0.95	—	2,500
	VQFN20FV3535		3.5	3.5		2.05×2.05	2,500
	VQFN20FV4040		4.0	4.0		2.1×2.1	2,500
	VQFN20PV3535		3.5	3.5		2.05×2.05	2,500
	VQFN20QV3535		3.5	3.5		2.05×2.05	2,500
VQFN Package Pin Pitch: 0.4mm	VQFN020V4040		4.0	4.0		2.1×2.1	2,500
	VQFN24FV4040		4.0	4.0		2.4×2.4	2,500
	VQFN24SV4040		4.0	4.0		2.4×2.4	2,500
	VQFN024V4040		4.0	4.0		2.4×2.4	2,500
	VQFN28FV5050		5.0	5.0		2.7×2.7	2,500
VQFN Package Pin Pitch: 0.5mm	VQFN28SV5050		5.0	5.0		2.7×2.7	2,500
	VQFN028V5050		5.0	5.0		2.7×2.7	2,500
	VQFN32FBV050		5.0	5.0		3.4×3.4	2,500
	VQFN32FAV050		5.0	5.0		3.4×3.4	2,500
	VQFN32SV5050		5.0	5.0		3.4×3.4	2,500
VQFN Package Pin Pitch: 0.6mm	VQFN032V5050		5.0	5.0		3.4×3.4	2,500
	VQFN36	36	6.2	6.2	0.95	—	2,500
	VQFN036V6060		6.0	6.0	1.0	3.6×3.6	2,000
	VQFN40W6060A		6.0	6.0	0.8	4.5×4.5	2,000
	VQFN040V6060		6.0	6.0		3.7×3.7	2,000
VQFN Package Pin Pitch: 0.4mm	VQFN40FV6060		6.0	6.0	1.0	4.4×4.4	2,000
	VQFN046V8080	46	8.0	8.0		6.1×3.85	1,000
	VQFN48V7070A		7.0	7.0	0.9	5.3×5.3	1,500
	VQFN48MCV070		7.0	7.0		5.6×5.6	1,500
	VQFN48FV7070		7.0	7.0		3.2×3.2	1,500
VQFN Package Pin Pitch: 0.5mm	VQFN048V7070		7.0	7.0		4.7×4.7	1,500
	VQFN56FCV080		8.0	8.0		4.5×4.5	1,000
	VQFN56AV8080		8.0	8.0		3.4×3.4	1,000
	VQFN56FV8080		8.0	8.0		5.5×5.5	1,000
	WQFN Package Pin Pitch: 0.5mm	WQFN12X2520A	12	2.5	2.0	0.5	—

Note: Please check the ROHM's website for detailed dimensions.

BGA Packages

(Unit: mm)

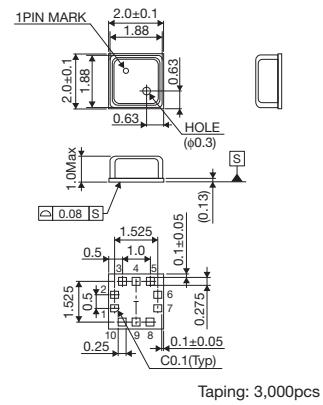
VBGA Package (for VBGA049W040A)

	Package	Pin Number (pin)	Length [L] (mm)	Width [W] (mm)	Thickness [t] (mm)	Package (pcs) taping
SBGA Package Pin Pitch: 0.65mm	SBGA072T070A	72	7.0	7.0	1.2	1,500
VBGA Package Pin Pitch: 0.5mm	VBGA048W040	48	4.0	4.0	0.9	2,500
	VBGA049W040A	49	4.0	4.0	0.8	2,500
	VBGA064T050A	64	5.0	5.0	1.2	2,500
	VBGA099W060	99	6.0	6.0	0.9	2,000

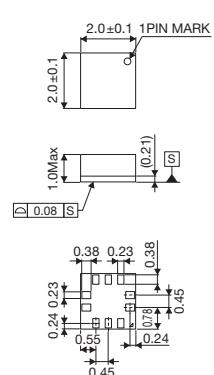
Note: Please check the ROHM's website for detailed dimensions.

Special Packages

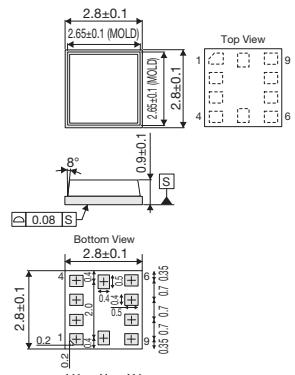
(Unit: mm)

CLGA10V020A

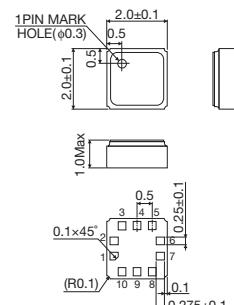
Taping: 3,000pcs

MLGA010V020A

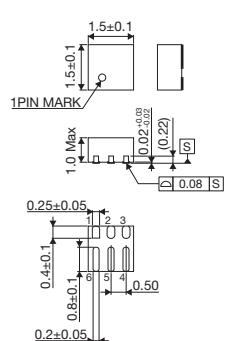
Taping: 2,500pcs

WLGA010V28

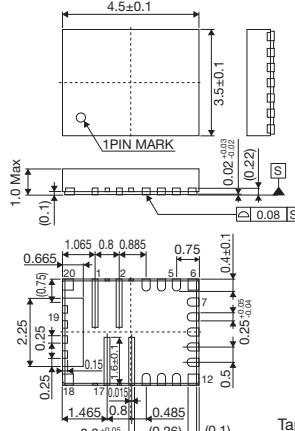
Taping: 3,000pcs

RLGA10VG020T

Taping: 3,000pcs

VFN006V1515A

Taping: 3,000pcs

VFN20FV4535

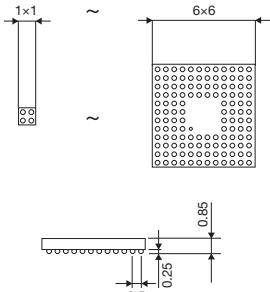
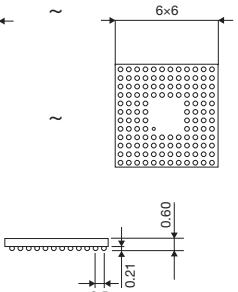
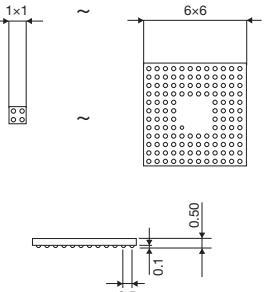
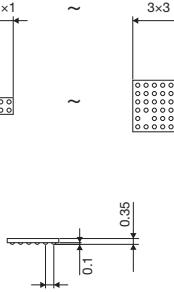
Taping: 2,500pcs

Note: Please refer package from "LSI Packages (LAPIS Technology products)".

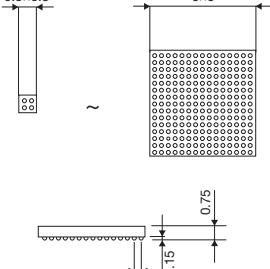
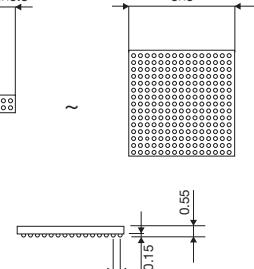
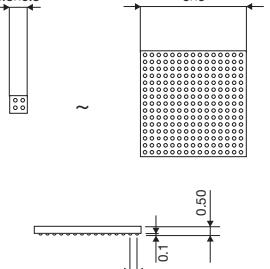
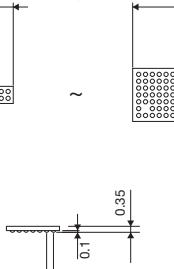
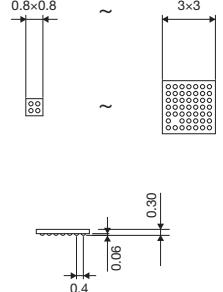
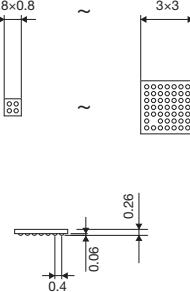
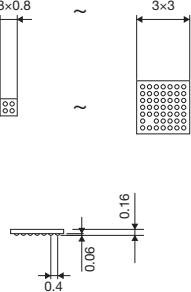
WL-CSP Packages

(Unit: mm)

VCSP <Pin Pitch: 0.5mm>

VCSP85H	VCSP60N	VCSP50L	VCSP35L
 <p>2.8mm square size less than: 3,000pcs 2.81mm square size or more: 2,500pcs</p>	 <p>2.8mm square size less than: 3,000pcs 2.81mm square size or more: 2,500pcs</p>	 <p>2.8mm square size less than: 3,000pcs 2.81mm square size or more: 2,500pcs</p>	 <p>2.8mm square size less than: 3,000pcs 2.81mm square size or more: 2,500pcs Embossed carrier tape: 3,000pcs</p>

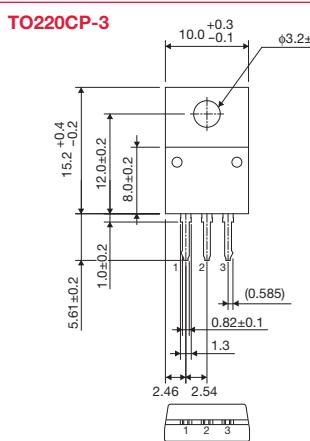
UCSP <Pin Pitch: 0.4mm>

UCSP75M	UCSP55M	UCSP50L	UCSP35L
 <p>2.8mm square size less than: 3,000pcs 2.81mm square size or more: 2,500pcs</p>	 <p>2.8mm square size less than: 3,000pcs 2.81mm square size or more: 2,500pcs</p>	 <p>2.8mm square size less than: 3,000pcs 2.81mm square size or more: 2,500pcs</p>	 <p>2.8mm square size less than: 3,000pcs 2.81mm square size or more: 2,500pcs Embossed carrier tape: 3,000pcs</p>
UCSP30L	UCSP25L	UCSP16X	
 <p>2.8mm square size less than: 3,000pcs 2.81mm square size or more: 2,500pcs Embossed carrier tape: 3,000pcs</p>	 <p>Embossed carrier tape: 3,000pcs</p>	 <p>Embossed carrier tape: 3,000pcs</p>	

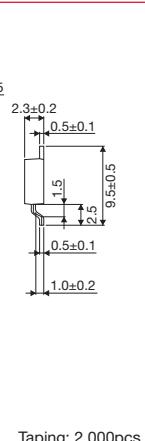
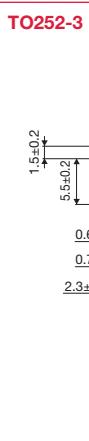
Power Packages

(Unit: mm)

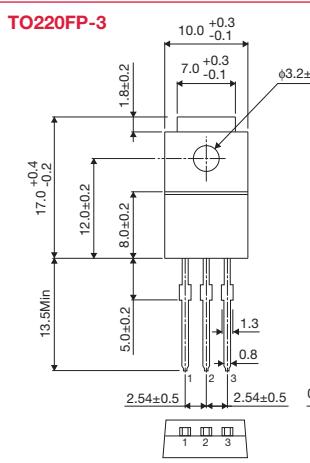
Power-3pin



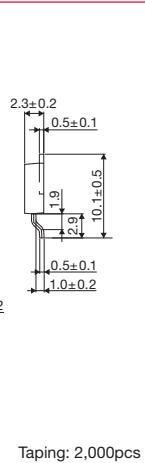
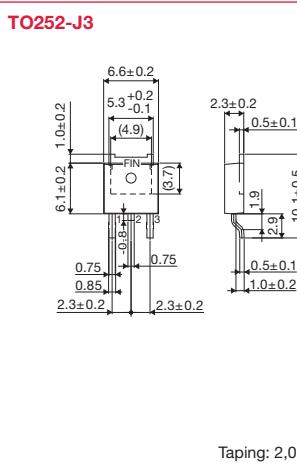
Taping: 500pcs



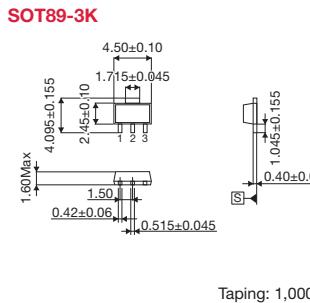
Taping: 2,000pcs



Container tube: 500pcs

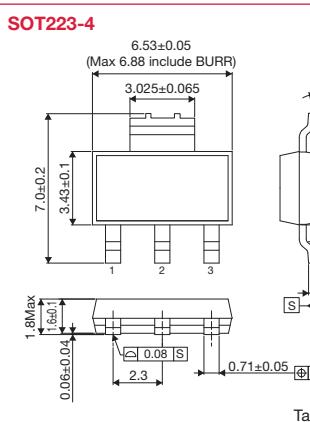


Taping: 500pcs



Taping: 1,000pcs

Power-4pin



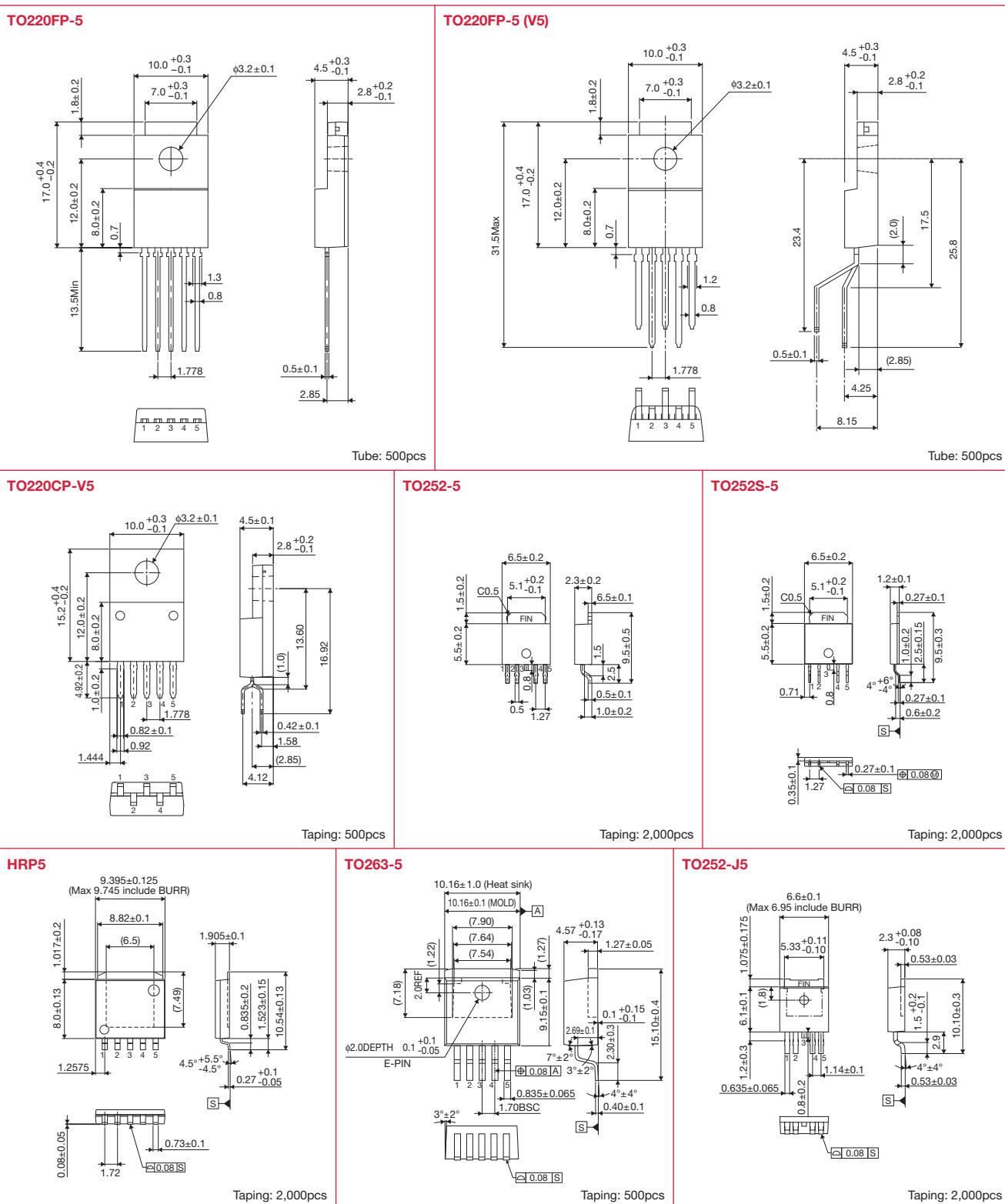
Taping: 2,000pcs

Note: Please refer package from "LSI Packages (LAPIS Technology products)".

Power Packages

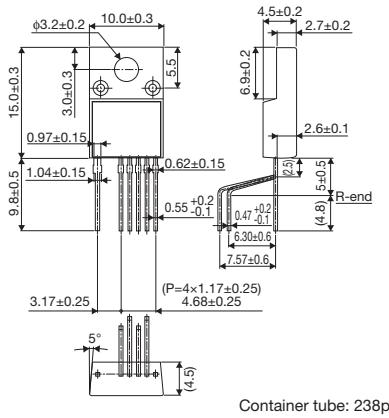
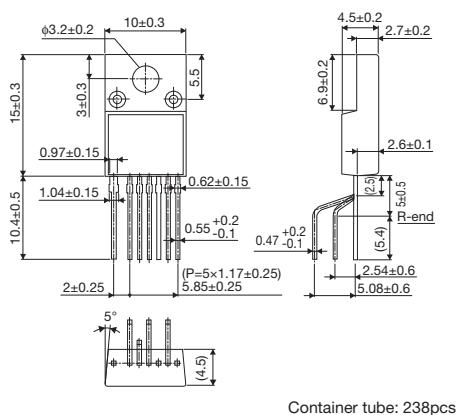
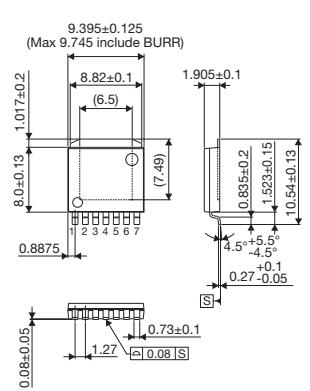
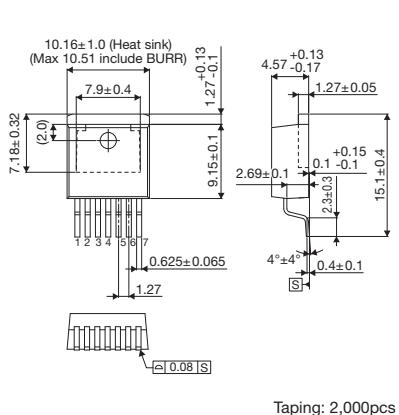
(Unit: mm)

Power-5pin



Note: Please refer package from "LSI Packages (LAPIS Technology products)".

(Unit: mm)

Power Packages**Power-6pin****TO220-6M****Power-7pin****TO220-7M****HRP7****TO263-7**

Note: Please refer package from "LSI Packages (LAPIS Technology products)".

LAPIS Technology product Packages

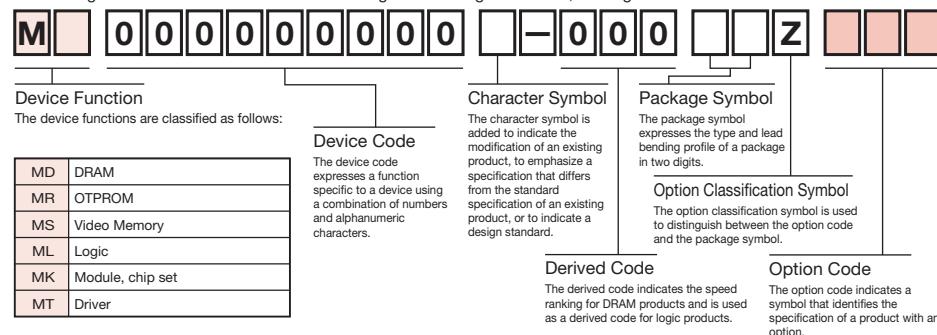
Part No. Explanation	P.122
SOP Packages	P.122
QFP Packages	P.123
QFN Packages	P.124

WSON Packages	P.126
BGA Packages	P.126
WL-CSP Packages	P.127

These package size are an example. For details, please inquire to the sales.

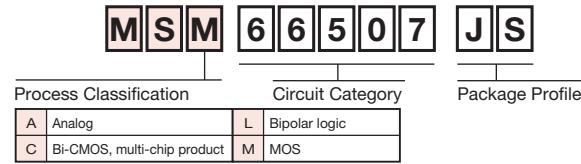
LAPIS Technology LSI Part No. Explanation

Product names are assigned to our semiconductor devices using the following convention, starting with the character "M".



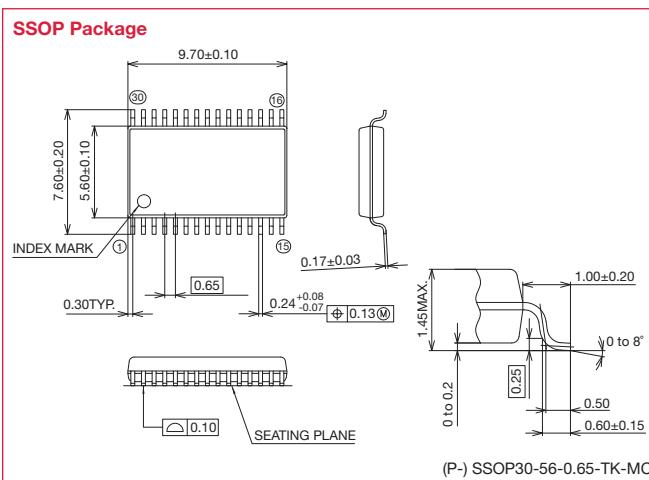
The following shows the convention of item name assignment for conventional products.

• The actual package profile is not shown here.



SOP Packages

(Unit: mm)



	Package	Pin Number (pin)	Length [L] (mm)	Width [W] (mm)	Thickness [t] (mm)	TRAY (pcs)	T&R (pcs)
SSOP Package Pin Pitch: 1mm	SSOP32-430-1.00-XXX	32	12.0	15.95	2.50	1,280	1,000
SSOP Package Pin Pitch: 0.65mm	(P-) SSOP16-0225-0.65-XXX	16	6.4	5.0	1.15	4,760	2,500
		30	7.6	9.7	1.45	2,000	2,000
	(P-) SSOP30-56-0.65-XXX	30	7.6	9.7	1.85	2,000	2,000
TSSOP Package Pin Pitch: 0.65mm	(P-) TSSOP20-0225-0.65-XXX	20	6.4	6.5	1.10	4,160	2,000
VSSOP Package Pin Pitch: 0.65mm	P-VSSOP8-0150-0.65-XXX	8	4.0	2.9	0.90	—	3,000

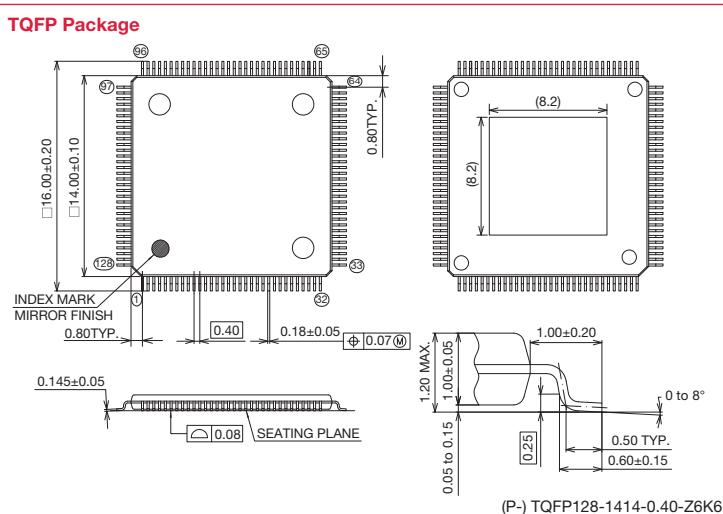
Note1: Please check the ROHM's website for detailed dimensions.

Note2: For suffix shown as "XXX" in every package profile, suitable optional code should be filled in with, for example on the grounds of the difference of production hub and the difference of internal structure, etc. Please inquire to the sales for details.

These package size are an example. For details, please inquire to the sales.

QFP Packages

(Unit: mm)

**QFP**

	Package	Pin Number (pin)	Length [L] (mm)	Width [W] (mm)	Thickness [t] (mm)	TRAY (pcs)	T&R (pcs)
QFP Package Pin Pitch: 0.8mm	QFP44-P-910-0.80-XXX	44	13.5	14.5	2.25	1,440	1,000
	(P-) QFP64-1414-0.80-XXX	64	17.2	17.2	2.80	840	—
	(P-) QFP80-1420-0.80-XXX	80	19.0	25.0	2.50	600	—
QFP Package Pin Pitch: 0.65mm	(P-) QFP56-910-0.65-XXX	56	13.5	14.5	2.25	1,400	1,000
	(P-) QFP80-1414-0.65-XXX	80	17.2	17.2	3.05	840	—
	(P-) QFP100-1420-0.65-XXX	100	19.0	25.0	2.50	600	—

Note1: Please check the ROHM's website for detailed dimensions.

Note2: For suffix shown as "-XXX" in every package profile, suitable optional code should be filled in with, for example on the grounds of the difference of production hub and the difference of internal structure, etc. Please inquire to the sales for details.

LQFP

	Package	Pin Number (pin)	Length [L] (mm)	Width [W] (mm)	Thickness [t] (mm)	TRAY (pcs)	T&R (pcs)
LQFP Package Pin Pitch: 0.8mm	(P-) LQFP32-0707-0.80-XXX	80	9.0	9.0	1.600	2,500	1,000
LQFP Package Pin Pitch: 0.50mm	(P-) LQFP144-2020-0.50-XXX	50	22.0	22.0	1.600	600	—

Note1: Please check the ROHM's website for detailed dimensions.

Note2: For suffix shown as "-XXX" in every package profile, suitable optional code should be filled in with, for example on the grounds of the difference of production hub and the difference of internal structure, etc. Please inquire to the sales for details.

TQFP

	Package	Pin Number (pin)	Length [L] (mm)	Width [W] (mm)	Thickness [t] (mm)	TRAY (pcs)	T&R (pcs)
TQFP Package Pin Pitch: 0.80mm	(P-) TQFP32-0707-0.80-XXX	32	9.0	9.0	1.20	2,500	1,000
	(P-) TQFP44-1010-0.80-XXX	44	12.0	12.0	1.20	1,600	1,000
TQFP Package Pin Pitch: 0.65mm	(P-) TQFP52-1010-0.65-XXX	52	12.0	12.0	1.20	1,600	1,000
TQFP Package Pin Pitch: 0.5mm	(P-) TQFP48-0707-0.50-XXX	48	9.0	9.0	1.20	2,500	1,000
	(P-) TQFP64-1010-0.50-XXX	64	12.0	12.0	1.20	1,600	1,000

Note1: Please check the ROHM's website for detailed dimensions.

Note2: For suffix shown as "-XXX" in every package profile, suitable optional code should be filled in with, for example on the grounds of the difference of production hub and the difference of internal structure, etc. Please inquire to the sales for details.

These package size are an example. For details, please inquire to the sales.

QFP Packages

(Unit: mm)

TQFP

	Package	Pin Number (pin)	Length [L] (mm)	Width [W] (mm)	Thickness [t] (mm)	TRAY (pcs)	T&R (pcs)
TQFP Package Pin Pitch: 0.5mm	(P-) TQFP80-1212-0.50-XXX	80	14.0	14.0	1.20	1,190	—
	(P-) TQFP100-1414-0.50-XXX	100	16.0	16.0	1.20	900	—
TQFP Package Pin Pitch: 0.40mm	(P-) TQFP80-1010-0.40-XXX	80	12.0	12.0	1.20	1,600	—
	(P-) TQFP120-1414-0.40-XXX	120	16.0	16.0	1.20	900	—
	(P-) TQFP128-1414-0.40-XXX	128	16.0	16.0	1.20	900	—

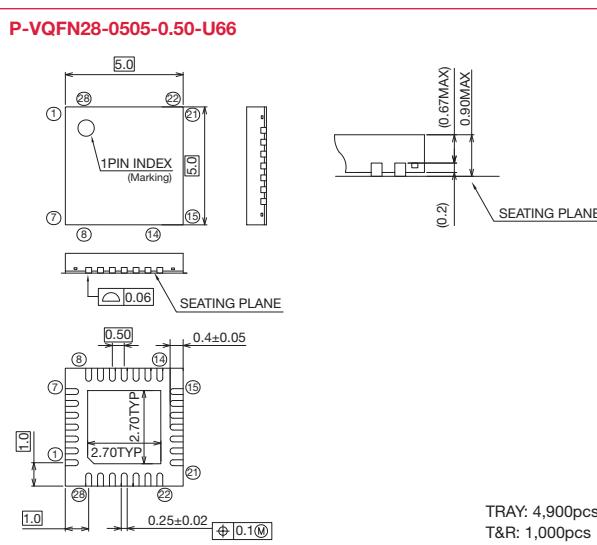
Note1: Please check the ROHM's website for detailed dimensions.

Note2: For suffix shown as "XXX" in every package profile, suitable optional code should be filled in with, for example on the grounds of the difference of production hub and the difference of internal structure, etc. Please inquire to the sales for details.

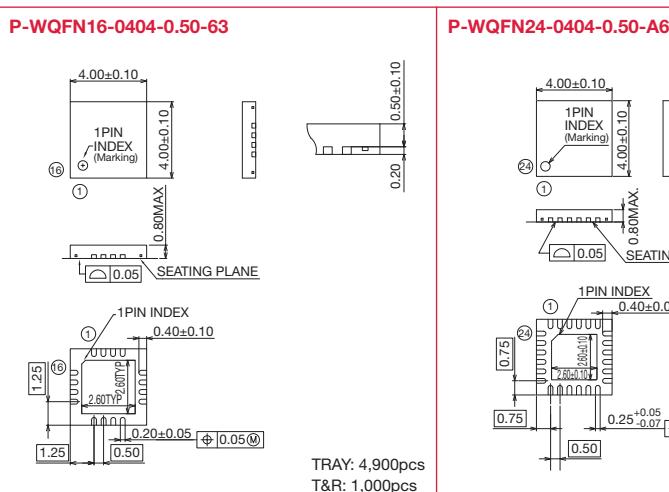
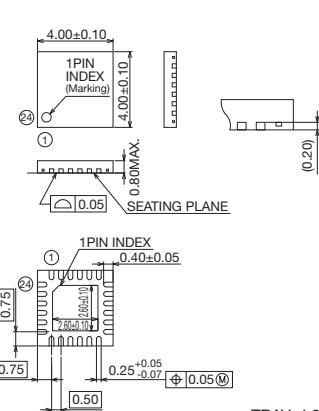
QFN Packages

(Unit: mm)

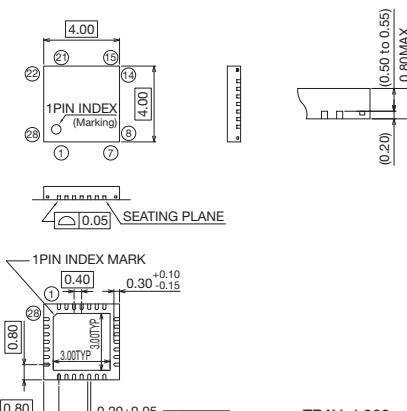
VQFN



WQFN

**P-WQFN24-0404-0.50-A63**

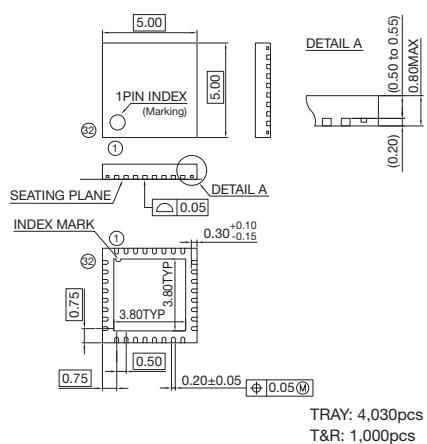
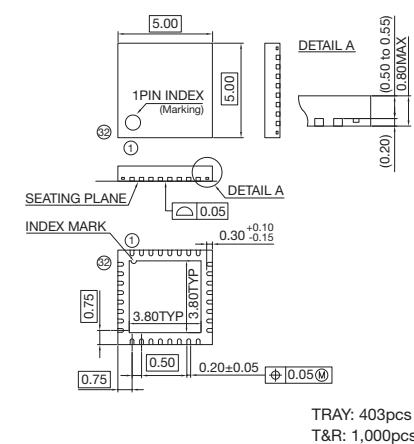
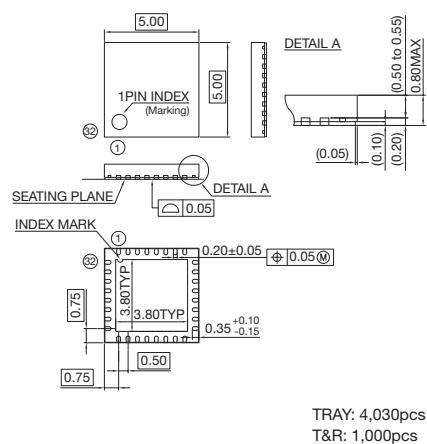
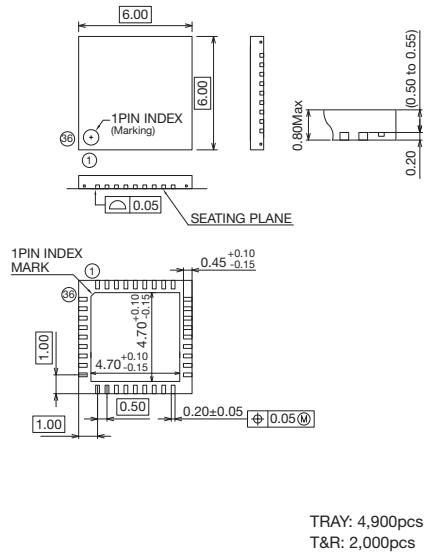
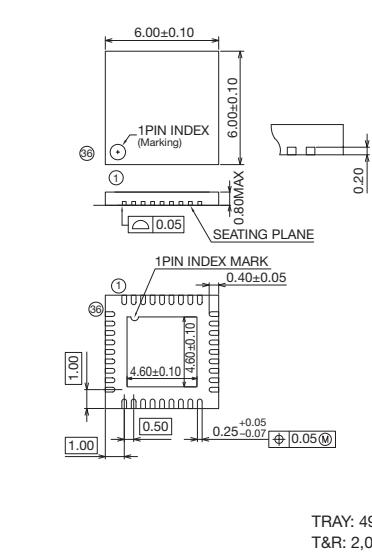
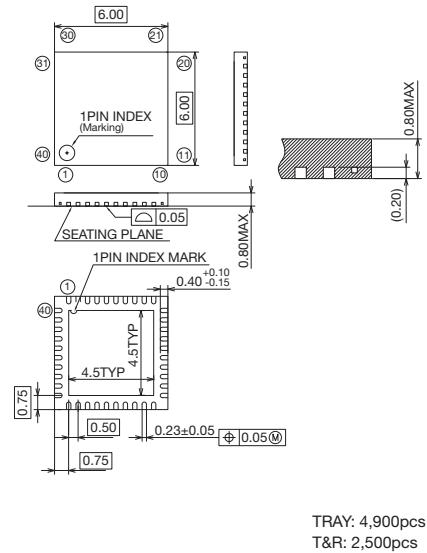
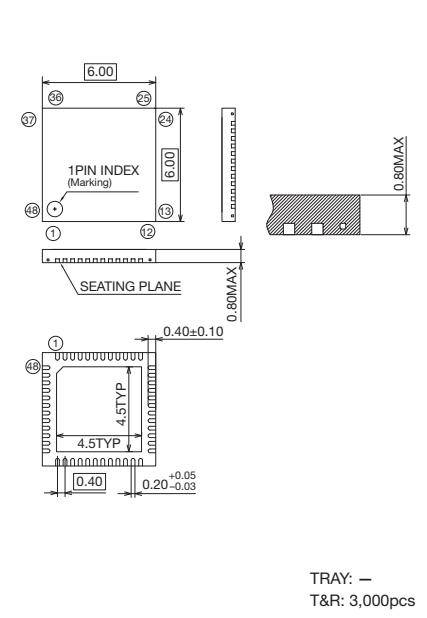
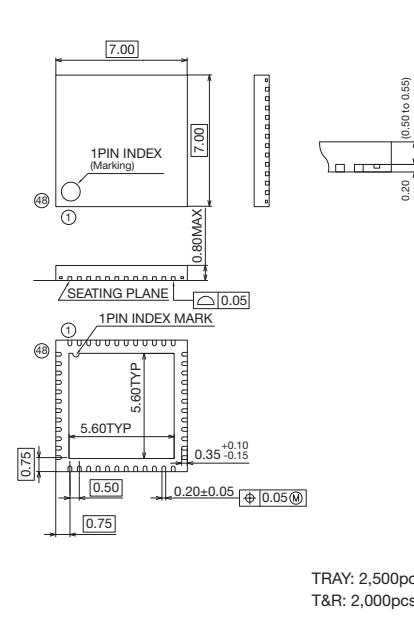
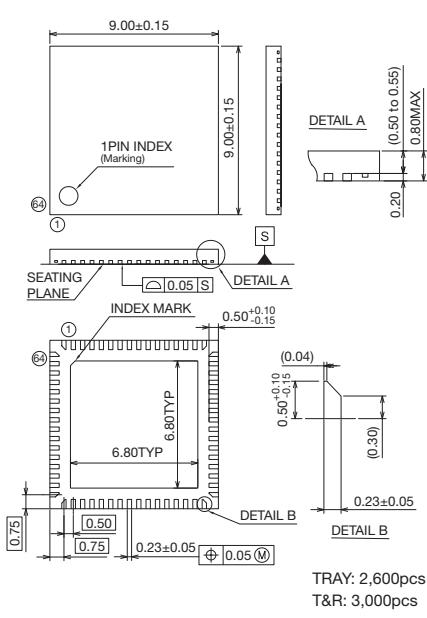
TRAY: 4,900pcs
T&R: 1,000pcs

P-WQFN28-0404-0.40-63

These package size are an example. For details, please inquire to the sales.

QFN Packages

(Unit: mm)

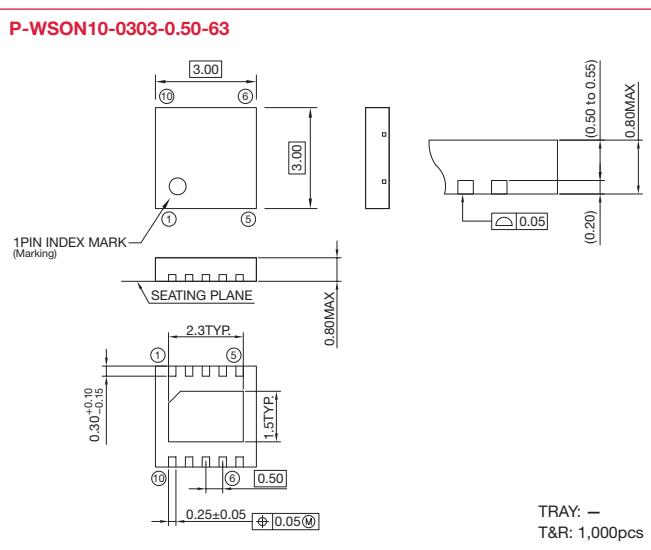
WQFN**P-WQFN32-0505-0.50-A63****P-WQFN32-0505-0.50-A63-MC****P-WQFN32-0505-0.50-W66****WQFN36-0606-0.50-A63****P-WQFN36-0606-0.50-T63****P-WQFN40-0606-0.50-63****P-WQFN48-0606-0.40-T63-MC****P-WQFN48-0707-0.50-63****P-WQFN64-0909-0.50-63**

These package size are an example. For details, please inquire to the sales.

WSON Packages

(Unit: mm)

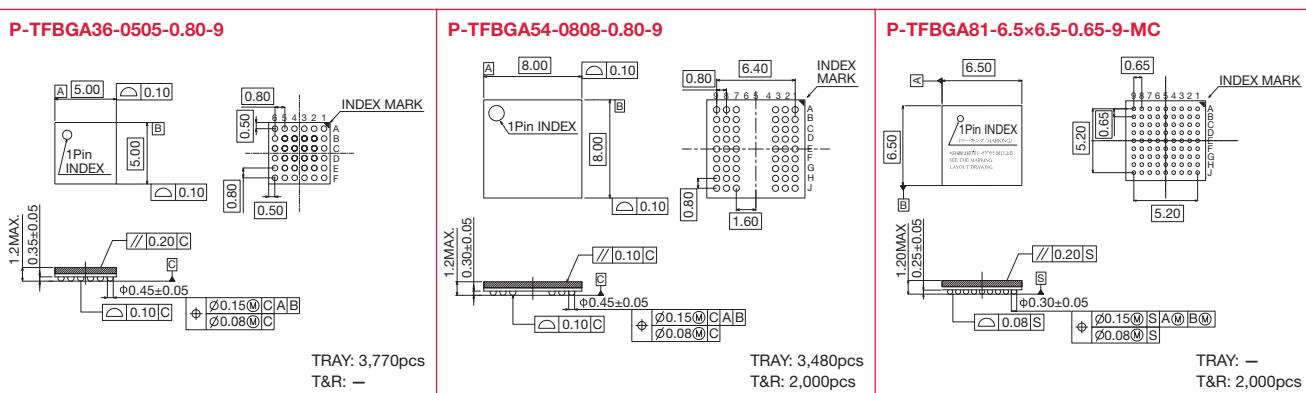
WSON



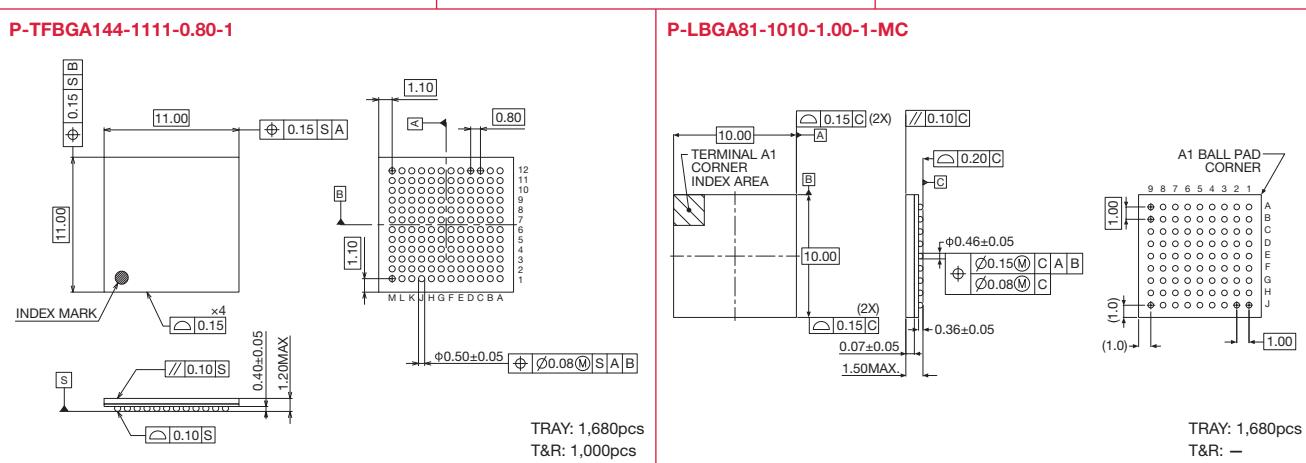
BGA Packages

(Unit: mm)

TFBGA



P-LBGA81-1010-1.00-1-MC



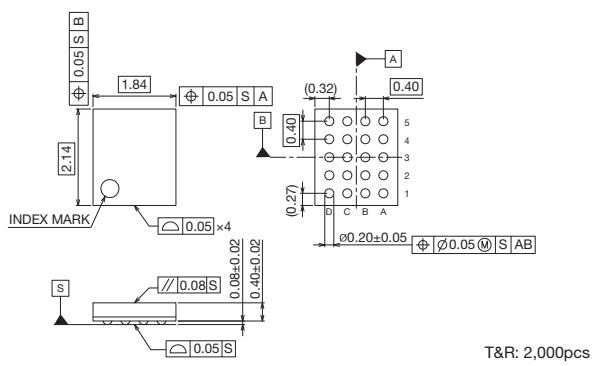
These package size are an example. For details, please inquire to the sales.

WL-CSP Packages

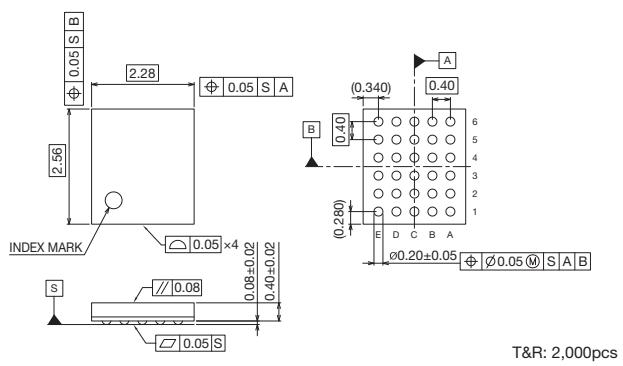
(Unit: mm)

WCSP

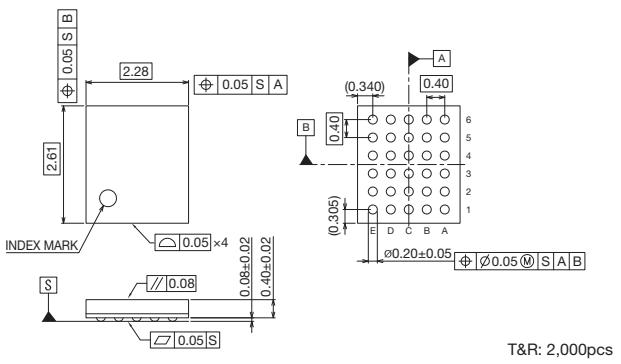
S-UFLGA20-1.84x2.14-0.40-W



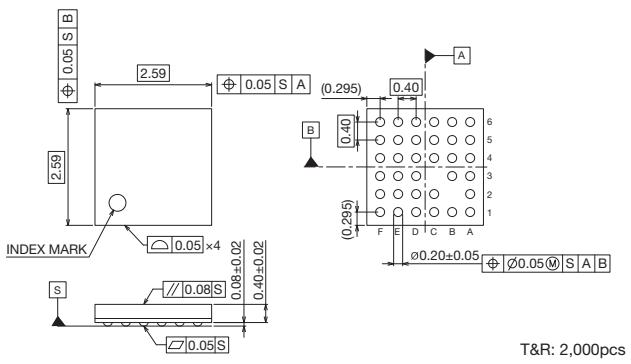
S-UFLGA30-2.28x2.56-0.40-W



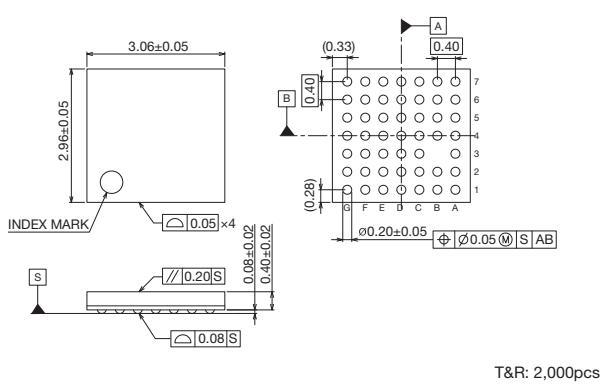
S-UFLGA30-2.28x2.61-0.40-W



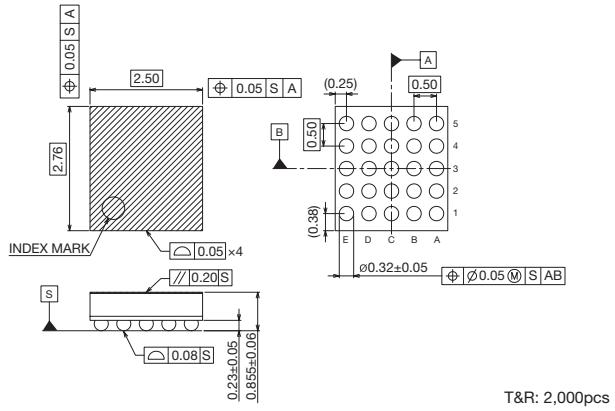
S-UFLGA34-2.59x2.59-0.40-W



S-UFLGA48-3.06x2.96-0.40-W



S-VFBGA25-2.76x2.50-0.50-W



SiC Schottky Barrier Diodes

SiC Schottky Barrier Diodes 

P.128

 Click on the icon to access the product page on ROHM's website. Please check the website for the latest updates.

SiC Schottky Barrier Diodes

●Quick Reference for SiC Schottky Barrier Diodes

V _{RM} (V)	I _F (A)	Leaded type				Surface Mounted type			
		TO-220AC (TO-220ACGE)	TO-220AC (TO-220ACG)	TO-220FM (TO-220-2LGE)	TO-247 (TO-247N)	TO-263AB (LPTL)			
650	4	SCS304AG	20		SCS304AM	27	SCS304AJ	13	
	6	SCS306AG	21	SCS206AG	40	SCS306AM	28	SCS206AJ SCS206AJH SCS306AJ	1 7 14
	8	SCS308AG	22	SCS208AG	41	SCS308AM	29	SCS208AJ SCS208AJH SCS308AJ	2 8 15
	10	SCS310AG	23	SCS210AG	42	SCS310AM	30	SCS210AJ SCS210AJH SCS310AJ	3 9 16
	12	SCS312AG	24	SCS212AG	43	SCS312AM	31	SCS212AJ SCS212AJH SCS312AJ	4 10 17
	15	SCS315AG	25	SCS215AG	44	SCS315AM	32	SCS215AJ SCS215AJH SCS315AJ	5 11 18
	20	SCS320AG	26	SCS220AG	45	SCS320AM	33	SCS220AE2 SCS220AE2HR	34 37
	30							SCS230AE2 SCS230AE2HR	35 38
	40							SCS240AE2 SCS240AE2HR	36 39
1,200	5			SCS205KG	54				
	10			SCS210KG	55			SCS210KE2 SCS210KE2HR	46 50
	15			SCS215KG	56				
	20			SCS220KG	57			SCS220KE2 SCS220KE2HR	47 51
	30							SCS230KE2 SCS230KE2HR	48 52
	40							SCS240KE2 SCS240KE2HR	49 53

Note: Package is JEDEC code. (): ROHM Packages.

SiC Schottky Barrier Diodes

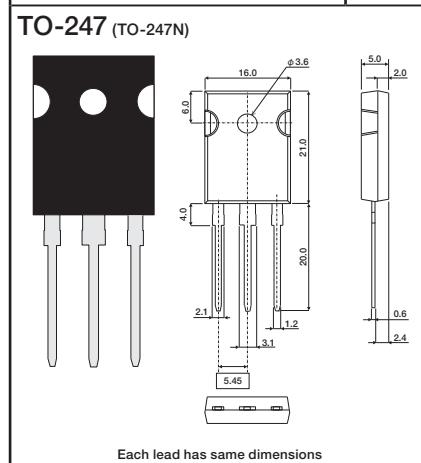
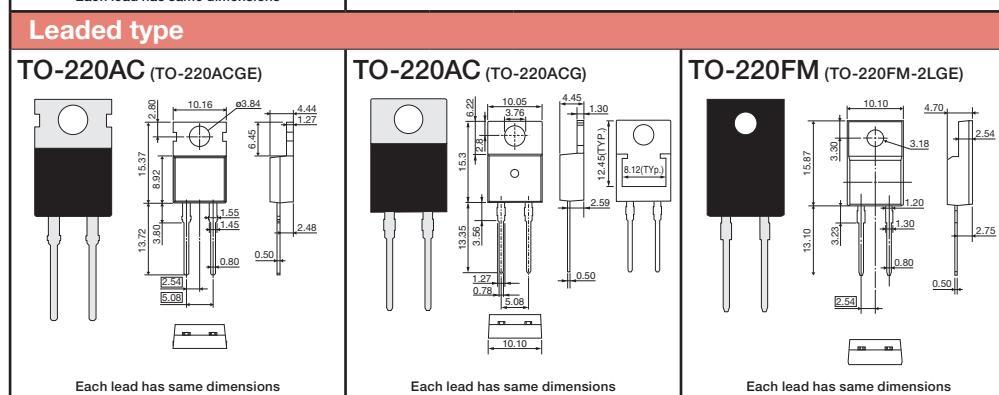
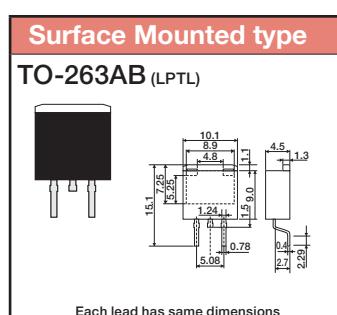
No.	Part No.	Absolute Maximum Ratings ($T_j=25^\circ\text{C}$)				Electrical Characteristics ($T_j=25^\circ\text{C}$)				Package	Equivalent Circuit Diagram	Automotive Grade AEC-Q101
		V_{RM} (V)	V_R (V)	I_F (A)	I_{F50} (A) 10ms	V_F (V) Typ	I_F (A)	I_R (μA) Max	V_R (V)			
1	SCS206AJ	650	650	6	23	1.35	6	120	600	TO-263AB (LPTL)		-
2	SCS208AJ	650	650	8	30	1.35	8	160	600			-
3	SCS210AJ	650	650	10	38	1.35	10	200	600			-
4	SCS212AJ	650	650	12	43	1.35	12	240	600			-
5	SCS215AJ	650	650	15	52	1.35	15	300	600			-
6	SCS220AJ	650	650	20	68	1.35	20	400	600			-
7	SCS206AJHR	650	650	6	23	1.35	6	120	600			YES
8	SCS208AJHR	650	650	8	30	1.35	8	160	600			YES
9	SCS210AJHR	650	650	10	38	1.35	10	200	600			YES
10	SCS212AJHR	650	650	12	43	1.35	12	240	600			YES
11	SCS215AJHR	650	650	15	52	1.35	15	300	600			YES
12	SCS220AJHR	650	650	20	68	1.35	20	400	600			YES
13	SCS304AJ	650	650	4	27	1.35	4	20	650	TO-220AC (TO-220ACGE)		-
14	SCS306AJ	650	650	6	47	1.35	6	30	650			-
15	SCS308AJ	650	650	8	67	1.35	8	40	650			-
16	SCS310AJ	650	650	10	82	1.35	10	50	650			-
17	SCS312AJ	650	650	12	96	1.35	12	60	650			-
18	SCS315AJ	650	650	15	112	1.35	15	75	650			-
19	SCS320AJ	650	650	20	123	1.35	20	100	650			-
20	SCS304AG	650	650	4	27	1.35	4	20	650			-
21	SCS306AG	650	650	6	47	1.35	6	30	650			-
22	SCS308AG	650	650	8	67	1.35	8	40	650			-
23	SCS310AG	650	650	10	82	1.35	10	50	650	TO-220FM (TO-220FM-2LGE)		-
24	SCS312AG	650	650	12	96	1.35	12	60	650			-
25	SCS315AG	650	650	15	112	1.35	15	75	650			-
26	SCS320AG	650	650	20	123	1.35	20	100	650			-
27	SCS304AM	650	650	4	27	1.35	4	20	650			-
28	SCS306AM	650	650	6	47	1.35	6	30	650			-
29	SCS308AM	650	650	8	67	1.35	8	40	650			-
30	SCS310AM	650	650	10	82	1.35	10	50	650			-
31	SCS312AM	650	650	12	96	1.35	12	60	650			-
32	SCS315AM	650	650	15	112	1.35	15	75	650			-
33	SCS320AM	650	650	20	123	1.35	20	100	650	TO-247 (TO-247N)		-
34	SCS220AE2	650	650	10/20*	38/76*	1.35	10	200	600			-
35	SCS230AE2	650	650	15/30*	52/104*	1.35	15	300	600			-
36	SCS240AE2	650	650	20/40*	67/130*	1.35	20	400	600			-
37	SCS220AE2HR	650	650	10/20*	38/76*	1.35	10	200	600			YES
38	SCS230AE2HR	650	650	15/30*	52/100*	1.35	15	300	600			YES
39	SCS240AE2HR	650	650	20/40*	67/130*	1.35	20	400	600			YES
40	SCS206AG	650	650	6	23	1.35	6	120	600	TO-220AC (TO-220ACG)		-
41	SCS208AG	650	650	8	30	1.35	8	160	600			-
42	SCS210AG	650	650	10	38	1.35	10	200	600			-
43	SCS212AG	650	650	12	43	1.35	12	240	600			-
44	SCS215AG	650	650	15	52	1.35	15	300	600			-
45	SCS220AG	650	650	20	68	1.35	20	400	600			-
46	SCS210KE2	1,200	1,200	5/10*	22/45*	1.4	5	100	1,200			-
47	SCS220KE2	1,200	1,200	10/20*	42/84*	1.4	10	200	1,200			-
48	SCS230KE2	1,200	1,200	15/30*	62/120*	1.4	15	300	1,200			-
49	SCS240KE2	1,200	1,200	20/40*	78/150*	1.4	20	400	1,200	TO-247 (TO-247N)		-
50	SCS210KE2HR	1,200	1,200	5/10*	22/45*	1.4	5	100	1,200			YES
51	SCS220KE2HR	1,200	1,200	10/20*	42/84*	1.4	10	200	1,200			YES
52	SCS230KE2HR	1,200	1,200	15/30*	62/120*	1.4	15	300	1,200			YES
53	SCS240KE2HR	1,200	1,200	20/40*	78/150*	1.4	20	400	1,200			YES
54	SCS205KG	1,200	1,200	5	23	1.4	5	100	1,200	TO-220AC (TO-220ACG)		-
55	SCS210KG	1,200	1,200	10	42	1.4	10	200	1,200			-
56	SCS215KG	1,200	1,200	15	62	1.4	15	300	1,200			-
57	SCS220KG	1,200	1,200	20	79	1.4	20	400	1,200			-

Note: Package is JEDEC code. () : ROHM Packages.

*1 (Per Leg/Device)

SiC Schottky Barrier Diodes

● Dimensions (Unit: mm)



Note: Package is JEDEC code. () : ROHM Packages.

● Part No. Explanation

• SiC Schottky Barrier Diode Part No. Explanation

S	C	S	2	1	0	A	J	H	R
(1)	(2)	(3)	(4)	(5)	(6)	(7)			

- ① SiC Discrete Device
- ② S → Schottky Barrier Diode
- ③ Generation
- ④ Rated Current[A]
Example 05 → 5A
10 → 10A
- ⑤ Rated Voltage
Example A → 650V
K → 1,200V
- ⑥ Package
Example J → TO-263AB (LPTL)
E → TO-247 (TO-247N)
E2 → TO-247 (Dual Chip)
G → TO-220AC (TO-220ACGE)
TO-220AC (TO-220ACG)
- ⑦ Automotive Grade

● Packaging type

Package	Code	Packaging Style	Basic Ordering Unit (pcs)
TO-263AB (LPTL)	TLL	Embossed Tape	1,000
TO-220AC (TO-220ACGE)	C16	Tube	50
TO-220AC (TO-220ACG)	C17	Tube	50
TO-220FM (TO-220FM-2LGE)	C7G	Tube	50
TO-247 (TO-247N)	C11	Tube	30

Note: Package is JEDEC code. () : ROHM Packages.

SiC MOSFETs

SiC MOSFETs

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SiC MOSFETs

● Quick Reference for SiC MOSFETs

V _{DSS} (V)	R _{DS(on)} (mΩ)	Leaded type				Surface Mounted type		
		TO-247 (TO-247N)	TO-247-4L	TO-3PFM	TO-263-7L	TO-263-7LA		
650	17	SCT3017AL SCT3017ALHR	10 36					
	22	SCT3022AL SCT3022ALHR	11 37					
	30	SCT3030AL SCT3030ALHR	12 38	SCT3030AR SCT3030ARHR	22 48	SCT3030AW7	28	
	60	SCT3060AL SCT3060ALHR	13 39	SCT3060AR SCT3060ARHR	23 49	SCT3060AW7	29	
	80	SCT3080AL SCT3080ALHR	14 40	SCT3080AR SCT3080ARHR	24 50	SCT3080AW7	30	
	120	SCT3120AL <i>New</i> SCT3120ALHR	15 41			SCT3120AW7	31	
750	13	SCT4013DE	55	SCT4013DR	61	SCT4013DW7	67	
	26	SCT4026DE SCT4026DEHR	56 76	SCT4026DR SCT4026DRHR	62 80	SCT4026DW7 SCT4026DW7HR	68 84	<i>New</i> SCT4026DWA <i>New</i> SCT4026DWAHR
	45	SCT4045DE SCT4045DEHR	57 77	SCT4045DR SCT4045DRHR	63 81	SCT4045DW7 SCT4045DW7HR	69 85	<i>New</i> SCT4045DWA <i>New</i> SCT4045DWAHR
1,200	18	SCT4018KE	58	SCT4018KR	64	SCT4018KW7	70	
	22	SCT3022KL SCT3022KLHR	16 42					
	30	SCT3030KL SCT3030KLHR	17 43					
	36	SCT4036KE SCT4036KEHR	59 78	SCT4036KR SCT4036KRHR	65 82	SCT4036KW7	71	
	40	SCT3040KL SCT3040KLHR	18 44	SCT3040KR SCT3040KRHR	25 51	SCT3040KW7	32	
	62	SCT4062KE SCT4062KEHR	60 79	SCT4062KR SCT4062KRHR	66 83	SCT4062KW7 SCT4062KW7HR	72 86	<i>New</i> SCT4062KWA <i>New</i> SCT4062KWAHR
	80	SCT2080KE SCT2080KEHR SCT3080KL SCT3080KLHR	1 6 19 45	SCT3080KR SCT3080KRHR	26 52	SCT3080KW7	33	
	105	SCT3105KL SCT3105KLHR	20 46	SCT3105KR SCT3105KRHR	27 53	SCT3105KW7	34	
	160	SCT2160KE SCT2160KEHR SCT3160KL <i>New</i> SCT3160KLHR	2 7 21 47			SCT3160KW7 <i>New</i> SCT3160KW7HR	35 54	
	280	SCT2280KE SCT2280KEHR	3 8					
	450	SCT2450KE SCT2450KEHR	4 9					
1,700	1,150			SCT2H12NZ	5			

Note: Package is JEDEC code. (): ROHM Package.

SiC MOSFETs

2nd Generation (Planar type)

No.	Part No.	Polarity (ch)	V _{DSS} (V)	I _D (A)	P _D (W) (T _C =25°C)	R _{DS(on)} Typ (mΩ)	Q _g Typ (nC)		Package	Automotive Grade AEC-Q101
						V _{GS} =18V	V _{GS} =18V	Drive Voltage (V)		
1	SCT2080KE	N	1,200	40	262	80	106	18	TO-247 (TO-247N)	—
2	SCT2160KE	N		22	165	160	62	18		—
3	SCT2280KE	N		14	108	280	36	18		—
4	SCT2450KE	N		10	85	450	27	18		—
5	SCT2H12NZ	N	1,700	3.7	35	1,150	14	18	TO-3PFM	—
6	SCT2080KEHR	N	1,200	40	262	80	106	18	TO-247 (TO-247N)	YES
7	SCT2160KEHR	N		22	165	160	62	18		YES
8	SCT2280KEHR	N		14	108	280	36	18		YES
9	SCT2450KEHR	N		10	85	450	27	18		YES

3rd Generation (Trench type)

10	SCT3017AL	N	650	118	427	17	172	18	TO-247 (TO-247N)	—
11	SCT3022AL	N		93	339	22	133	18		—
12	SCT3030AL	N		70	262	30	104	18		—
13	SCT3060AL	N		39	165	60	58	18		—
14	SCT3080AL	N		30	134	80	48	18		—
15	SCT3120AL	N		21	103	120	38	18		—
16	SCT3022KL	N	1,200	95	427	22	178	18	TO-247 (TO-247N)	—
17	SCT3030KL	N		72	339	30	131	18		—
18	SCT3040KL	N		55	262	40	107	18		—
19	SCT3080KL	N		31	165	80	60	18		—
20	SCT3105KL	N		24	134	105	51	18		—
21	SCT3160KL	N		17	103	160	42	18		—
22	SCT3030AR	N	650	70	262	30	104	18	TO-247-4L	—
23	SCT3060AR	N		39	165	60	58	18		—
24	SCT3080AR	N		30	134	80	48	18		—
25	SCT3040KR	N	1,200	55	262	40	107	18	TO-247-4L	—
26	SCT3080KR	N		31	165	80	60	18		—
27	SCT3105KR	N		24	134	105	51	18		—
28	SCT3030AW7	N	650	70	267	30	104	18	TO-263-7L	—
29	SCT3060AW7	N		38	159	60	58	18		—
30	SCT3080AW7	N		29	125	80	48	18		—
31	SCT3120AW7	N		21	100	120	38	18		—
32	SCT3040KW7	N	1,200	56	267	40	107	18	TO-263-7L	—
33	SCT3080KW7	N		30	159	80	60	18		—
34	SCT3105KW7	N		23	125	105	51	18		—
35	SCT3160KW7	N		17	100	160	42	18		—
36	SCT3017ALHR	N	650	118	427	17	172	18	TO-247 (TO-247N)	YES
37	SCT3022ALHR	N		93	339	22	133	18		YES
38	SCT3030ALHR	N		70	262	30	104	18		YES
39	SCT3060ALHR	N		39	165	60	58	18		YES
40	SCT3080ALHR	N		30	134	80	48	18		YES
41	New SCT3120ALHR	N		21	103	120	38	18		YES
42	SCT3022KLHR	N	1,200	95	427	22	178	18	TO-247 (TO-247N)	YES
43	SCT3030KLHR	N		72	339	30	131	18		YES
44	SCT3040KLHR	N		55	262	40	107	18		YES
45	SCT3080KLHR	N		31	165	80	60	18		YES
46	SCT3105KLHR	N		24	134	105	51	18		YES
47	New SCT3160KLHR	N		17	103	160	42	18		YES
48	SCT3030ARHR	N	650	70	262	30	104	18	TO-247-4L	YES
49	SCT3060ARHR	N		39	165	60	58	18		YES
50	SCT3080ARHR	N		30	134	80	48	18		YES
51	SCT3040KRHR	N	1,200	55	262	40	107	18	TO-247-4L	YES
52	SCT3080KRHR	N		31	165	80	60	18		YES
53	SCT3105KRHR	N		24	134	105	51	18		YES
54	New SCT3160KW7HR	N		17	100	160	42	18		YES

Note: Package is JEDEC code. () : ROHM Package.

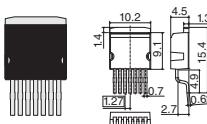
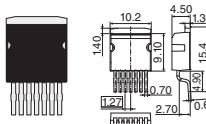
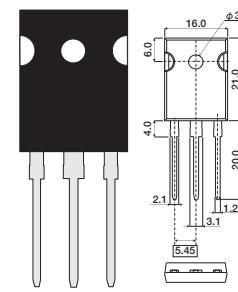
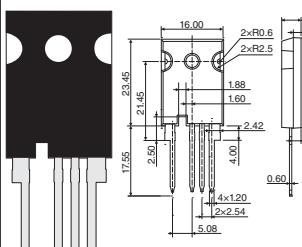
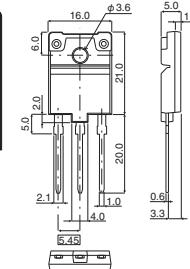
4th Generation (Trench type)

No.	Part No.	Polarity (ch)	V _{DSS} (V)	I _D (A)	P _D (W) (T _C =25°C)	R _{DS(on)} Typ (mΩ)	Qg Typ (nC)		Package	Automotive Grade AEC-Q101
							V _{GS} =18V	V _{GS} =18V		
55	SCT4013DE	N	750	105	312	13	170	15 to 18	TO-247 (TO-247N)	—
56	SCT4026DE	N		56	176	26	94	15 to 18		—
57	SCT4045DE	N		34	115	45	63	15 to 18		—
58	SCT4018KE	N		81	312	18	170	15 to 18		—
59	SCT4036KE	N		43	176	36	91	15 to 18		—
60	SCT4062KE	N		26	115	62	64	15 to 18		—
61	SCT4013DR	N	750	105	312	13	170	15 to 18	TO-247-4L	—
62	SCT4026DR	N		56	176	26	94	15 to 18		—
63	SCT4045DR	N		34	115	45	63	15 to 18		—
64	SCT4018KR	N		81	312	18	170	15 to 18		—
65	SCT4036KR	N		43	176	36	91	15 to 18		—
66	SCT4062KR	N		26	115	62	64	15 to 18		—
67	SCT4013DW7	N	750	98	267	13	170	15 to 18	TO-263-7L	—
68	SCT4026DW7	N		51	150	26	94	15 to 18		—
69	SCT4045DW7	N		31	93	45	63	15 to 18		—
70	SCT4018KW7	N		75	267	18	170	15 to 18		—
71	SCT4036KW7	N		40	150	36	91	15 to 18		—
72	SCT4062KW7	N		24	93	62	64	15 to 18		—
73	New SCT4026DWA	N	750	51	150	26	94	15 to 18	TO-263-7LA	—
74	New SCT4045DWA	N		31	93	45	63	15 to 18		—
75	New SCT4062KWA	N	1,200	24	93	62	64	15 to 18	TO-247 (TO-247N)	—
76	SCT4026DEHR	N	750	56	176	26	94	15 to 18		YES
77	SCT4045DEHR	N		34	115	45	63	15 to 18		YES
78	SCT4036KEHR	N	1,200	43	176	36	91	15 to 18		YES
79	SCT4062KEHR	N		26	115	62	64	15 to 18		YES
80	SCT4026DRHR	N	750	56	176	26	94	15 to 18	TO-247-4L	YES
81	SCT4045DRHR	N		34	115	45	63	15 to 18		YES
82	SCT4036KRHR	N	1,200	43	176	36	91	15 to 18		YES
83	SCT4062KRHR	N		26	115	62	64	15 to 18		YES
84	SCT4026DW7HR	N	750	51	150	26	94	15 to 18	TO-263-7L	YES
85	SCT4045DW7HR	N		31	93	45	63	15 to 18		YES
86	SCT4062KW7HR	N	1,200	24	93	62	64	15 to 18		YES
87	New SCT4026DWAHR	N	750	51	150	26	94	15 to 18	TO-263-7LA	YES
88	New SCT4045DWAHR	N		31	93	45	63	15 to 18		YES
89	New SCT4062KWAHR	N	1,200	24	93	62	64	15 to 18		YES

Note: Package is JEDEC code. () : ROHM Package.

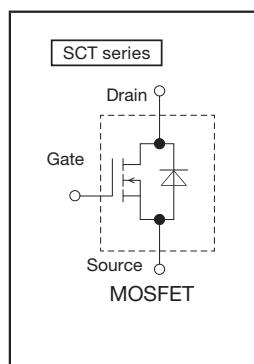
SiC MOSFETs

● Dimensions (Unit: mm)

Surface Mounted type		
TO-263-7L	TO-263-7LA	
		
Each lead has same dimensions		
Leaded type		
TO-247 (TO-247N)	TO-247-4L	TO-3PFM
		
Each lead has same dimensions		
Each lead has same dimensions		
Each lead has same dimensions		

Note: Package is JEDEC code. () : ROHM Package. < > is Packing code.

● Internal Circuit



● Part No. Explanation

• MOSFET Part No. Explanation

S	C	T	3	0	3	0	A	L	H	R
①	②	③	④	⑤	⑥	⑦				

- ① SiC Discrete Device
- ② T → MOSFET
- ③ Generation
- ④ ON-resistance[mΩ]
080=80mΩ
H12=1.2Ω

- ⑤ Rated Voltage A → 650V
D → 750V
K → 1,200V
N → 1,700V
- ⑥ Package E, L → TO-247 (TO-247N)
Z → TO-3PFM
R → TO-247-4L
W7 → TO-263-7L
WA → TO-263-7LA
- ⑦ Automotive Grade

● Packing Specifications

Package	Code	Packaging Style	Basic Ordering Unit (pcs)
TO-263-7L TO-263-7LA	TL	Embossed Tape	1,000
TO-247 (TO-247N)	C11	Tube	30
TO-247-4L	C15	Tube	30
TO-3PFM	C11	Tube	30

Note: Package is JEDEC code. () : ROHM Package.

Full SiC Power Modules

Full SiC Power Modules

P.135

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Full SiC Power Modules

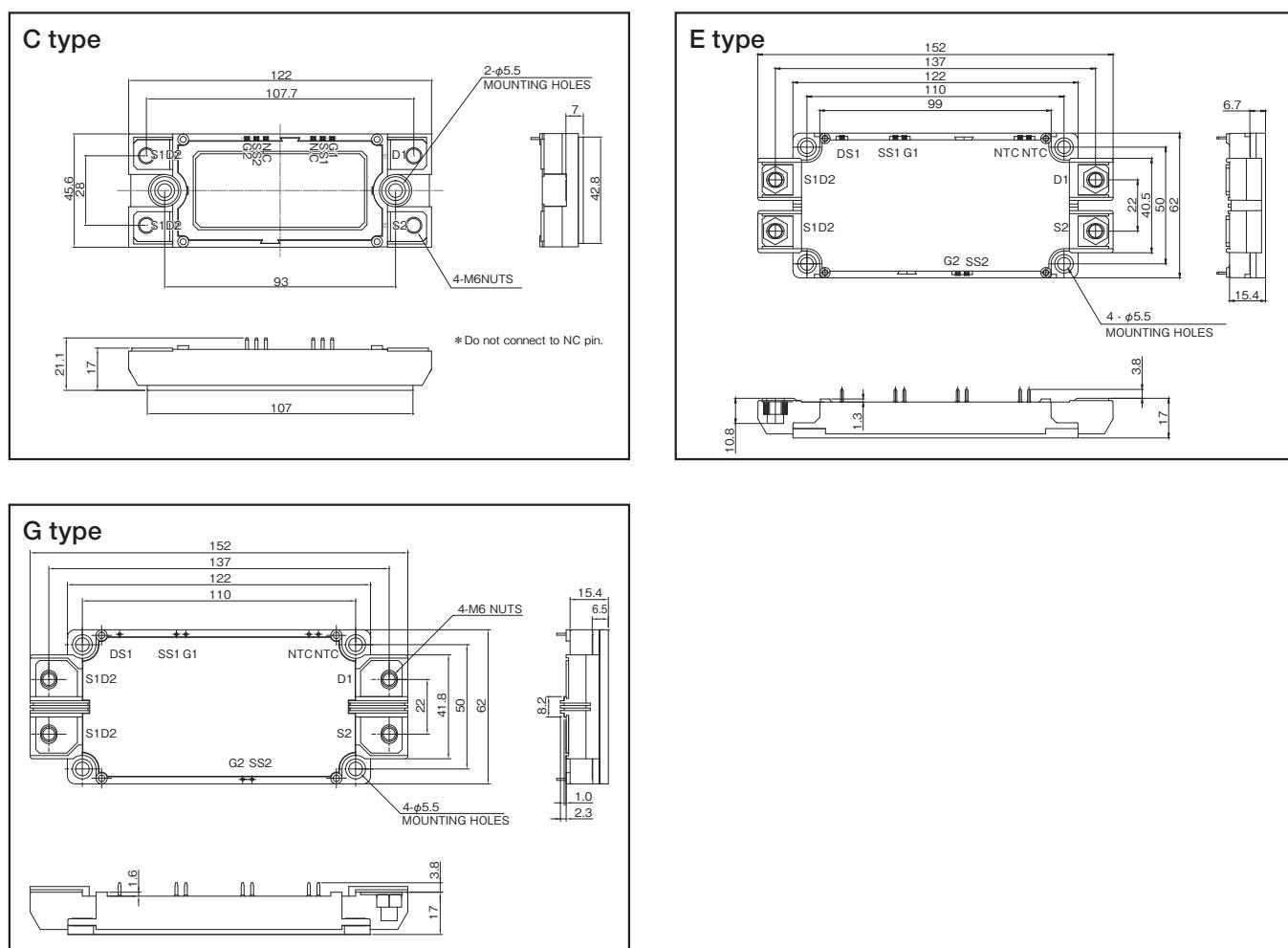
●Quick Reference for Full SiC Power Modules

V_{DSS} (V)	$R_{DS(on)}$ (mΩ)	Case type		
		C type	E type	G type
1,200	34	BSM080D12P2C008	9	
	20	BSM120D12P2C005	10	
		BSM120C12P2C201	1	
	12.8	BSM180D12P2C101	8	
	12.2		BSM180C12P2E202	3
	10	BSM180D12P3C007	11	
		BSM180C12P3C202	2	
	7.3		BSM300D12P2E001	16
	6.3		BSM300C12P3E201	4
	5.75		BSM300C12P3E301	7
	5.55		BSM300D12P3E005	17
	4.5			BSM400D12P2G003
	4			BSM400D12P3G002
	3.3			BSM400C12P3G202
	3			BSM300D12P4G101
	2.7			BSM450D12P4G102
1,700	8		BSM250D17P2E004	21

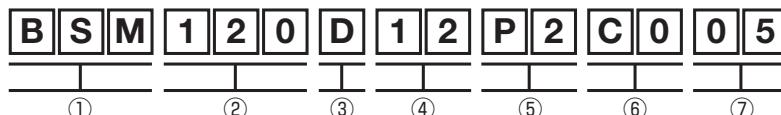
Full SiC Power Modules								
No.	Part No.	Absolute Maximum Ratings ($T_j=25^\circ\text{C}$)						Internal Circuit
		V_{DSS} (V)	$R_{DS(on)}$ (mΩ)	I_D (A)	T_j (°C)	T_{stg} (°C)	Visol (V) AC 1min	
Boost chopper/Step down chopper type								
1	BSM120C12P2C201	1,200	20	120	-40 to +175	-40 to +125	2,500	
2	BSM180C12P3C202		10	180	-40 to +175	-40 to +125	2,500	
3	BSM180C12P2E202		12.2	180	-40 to +175	-40 to +125	2,500	
4	BSM300C12P3E201		6.3	300	-40 to +175	-40 to +125	2,500	
5	BSM400C12P3G202		4.5	400	-40 to +175	-40 to +125	2,500	
6	BSM600C12P3G201		3	600	-40 to +175	-40 to +125	2,500	
7	BSM300C12P3E301		6.3	300	-40 to +175	-40 to +125	2,500	
Half bridge type								
8	BSM180D12P2C101	1,200	12.8	180	-40 to +175	-40 to +125	2,500	
9	BSM080D12P2C008		34	80	-40 to +175	-40 to +125	2,500	
10	BSM120D12P2C005		20	120	-40 to +175	-40 to +125	2,500	
11	BSM180D12P3C007		10	180	-40 to +175	-40 to +125	2,500	
12	BSM300D12P4G101		4	300	-40 to +175	-40 to +125	2,500	
13	BSM450D12P4G102		3.3	450	-40 to +175	-40 to +125	2,500	
14	BSM600D12P4G103		2.7	600	-40 to +175	-40 to +125	2,500	
15	BSM180D12P2E002		12.2	180	-40 to +175	-40 to +125	2,500	
16	BSM300D12P2E001		7.3	300	-40 to +175	-40 to +125	2,500	
17	BSM300D12P3E005		5.55	300	-40 to +175	-40 to +125	2,500	
18	BSM400D12P2G003		5.75	400	-40 to +175	-40 to +125	2,500	
19	BSM400D12P3G002		4.5	400	-40 to +175	-40 to +125	2,500	
20	BSM600D12P3G001		3	600	-40 to +175	-40 to +125	2,500	
21	BSM250D17P2E004	1,700	8	250	-40 to +175	-40 to +125	3,400	

Full SiC Power Modules

●Dimensions (Unit: mm)



●Part No. Explanation



- ① SiC Power Module
- ② Rated Current
- ③ C → Entering 1 circuit
D → Entering 2 circuit
- ④ Breakdown Voltage
Example 12 → 1,200V
17 → 1,700V
- ⑤ Device type
P2 2nd generation SiC MOSFET
P3 3rd generation SiC MOSFET
P4 4th generation SiC MOSFET
- ⑥ Case type
- ⑦ Additional Number

IGBT

Field Stop Trench IGBT

P.137

Ignition IGBT

P.141

Field Stop Trench IGBT Bare Die

P.142

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Field Stop Trench IGBT**●Quick Reference for Field Stop Trench IGBT
Standard type**

Series	V _{GES} (V)	I _C (A) T _c = 100°C	Package							
			TO-247N/TO-247GE				TO-3PFM			
			IGBT Single		Built-in Diode*		IGBT Single		Built-in FRD	
			20	RGTH40TS65	13	RGTH40TS65D	46	RGTH40TK65	22	RGTH40TK65D
RGTH series (High speed switching)	650	25	RGTH50TS65	14	RGTH50TS65D	47	RGTH50TK65	23	RGTH50TK65D	64
		30	RGTH60TS65	15	RGTH60TS65D	48	RGTH60TK65	24	RGTH60TK65D	65
		40	RGTH80TS65	16	RGTH80TS65D	49	RGTH80TK65	25	RGTH80TK65D	66
		50	RGTH00TS65	17	RGTH00TS65D	50	RGTH00TK65	26	RGTH00TK65D	67
		30	New RGWS60TS65	18	New RGWS60TS65D	51				
RGWS series (High speed SW, cost effective)	650	40	New RGWS80TS65	19	New RGWS80TS65D	52				
		50	New RGWS00TS65	20	New RGWS00TS65D	53				
		60	New RGWSX2TS65	21	New RGWSX2TS65D	54				
		20	RGW40TS65	5	RGW40TS65D	55	RGW40TK65	27	RGW40TK65D	68
RGW series (Ultra High speed switching)	650	25	RGW50TS65	6	RGW50TS65D	56	RGW50TK65	28	RGW50TK65D	69
		30	RGW60TS65HR RGW60TS65	1 7	RGW60TS65CHR RGW60TS65DHR RGW60TS65EHR RGW60TS65D	34 37 38 57	RGW60TK65	29	RGW60TK65D	70
		40	RGW80TS65HR RGW80TS65	2 8	RGW80TS65CHR RGW80TS65DHR RGW80TS65EHR RGW80TS65D	35 39 40 58	RGW80TK65	30	RGW80TK65D RGW80TK65E	71 72
		50	RGW00TS65HR RGW00TS65	3 9	RGW00TS65CHR RGW00TS65DHR RGW00TS65EHR RGW00TS65D	36 41 42 59	RGW00TK65	31	RGW00TK65D	73
		75	RGWX5TS65HR RGWX5TS65	4 10	RGWX5TS65DHR RGWX5TS65EHR RGWX5TS65D	43 44 60				
		30	RGCL60TS60	11	RGCL60TS60D	61	RGCL60TK60	32	RGCL60TK60D	74
RGCL series (Low V _{CE(sat)})	600	40	RGCL80TS60	12	RGCL80TS60D	62	RGCL80TK60	33	RGCL80TK60D	75
		1,800	40		RGC80TSX8R	45				

Note1: Package is JEDEC code.

Note2: *RGW60TS65CHR, RGW80TS65CHR and RGW00TS65CHR are Built-in SiC Schottky Barrier Diode. The other products are Built-in Fast Recovery Diode.

Field Stop Trench IGBT

●Quick Reference for Field Stop Trench IGBT SCSOA Guaranteed type

Series	V _{CES} (V)	I _C (A) T _G = 100°C	Package										
			TO-252		TO-263S (LPDS)/ TO-262		TO-263L (LPDL)		TO-220NFM		TO-247N/TO-247GE		
			Built-in FRD	Built-in FRD	IGBT Single	Built-in FRD	Built-in FRD	IGBT Single	Built-in FRD	IGBT Single	Built-in FRD	IGBT Single	
RGTV series (tsc 2μsec Min)	650	30							RGTV60TS65	87	RGTV60TS65D	128	
		40							RGTV80TS65	88	RGTV80TS65D	129	
		50							RGTV00TS65	89	RGTV00TS65D	130	
		60							RGTVX2TS65	90	RGTVX2TS65D	131	
		80							RGTVX6TS65	91	RGTVX6TS65D	132	
RGT series (tsc 5μsec Min)	650	4	RGT8BM65D	95	RGT8NS65D	97		RGT8NL65D	103	RGT8TM65D	109		
		8	RGT16BM65D	96	RGT16NS65D	98		RGT16NL65D	104	RGT16TM65D	110		
		10		RGT20NS65D	99	RGT20NL65	76	RGT20NL65D	105	RGT20TM65D	111		
		15		RGT30NS65D	100		RGT30NL65D	106	RGT30TM65D	112			
		20		RGT40NS65D	101		RGT40NL65D	107	RGT40TM65D	113		RGT40TS65D	133
		25		RGT50NS65D	102		RGT50NL65D	108	RGT50TM65D	114		RGT50TS65D	134
		30										RGT60TS65D	135
		40										RGT80TS65D	136
		50										RGT00TS65D	137
RGS series (tsc 8μsec Min)	650	30							RGS60TS65HR	77	RGS60TS65DHR	115	
		40							RGS80TS65HR	78	RGS80TS65DHR	116	
		50							RGS00TS65HR	79	RGS00TS65DHR	117	
		75							RGSX5TS65HR	80	RGSX5TS65DHR	119	
RGS series (tsc 10μsec Min)	1,200	15							RGS30TSX2HR	81	RGS30TSX2DHR	122	
		25							RGS30TSX2	82	RGS30TSX2D	123	
		40							RGS50TSX2HR	83	RGS50TSX2DHR	124	
									RGS50TSX2	84	RGS50TSX2D	125	
Note: Package is JEDEC code. () : ROHM Packages.													

Field Stop Trench IGBT

Standard type

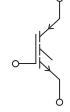
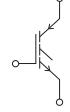
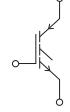
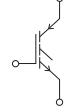
Field Stop Trench IGBT															
IGBT Single type															
No.	Part No.	V _{CES} (V)	I _C (A)		P _D (W)	V _{CE} (sat)		tsc Min (μsec)	I _F (Diode) (A)		V _F (Diode)		Package	Equivalent Circuit Diagram	Automotive Grade AEC-Q101
			T _c =25°C	T _c =100°C		Typ (V)	I _C (A)		T _c =25°C	T _c =100°C	Typ (V)	I _F (A)			
1	RGW60TS65HR	650	60	30	178	1.5	30	—	—	—	—	—	TO-247N		YES
2	RGW80TS65HR	650	78	40	214	1.5	40	—	—	—	—	—	TO-247N		YES
3	RGW00TS65HR	650	96	50	254	1.5	50	—	—	—	—	—	TO-247N		YES
4	RGWX5TS65HR	650	132	75	348	1.5	75	—	—	—	—	—	TO-247N		YES
5	RGW40TS65	650	40	20	136	1.5	20	—	—	—	—	—	TO-247N		—
6	RGW50TS65	650	50	25	156	1.5	25	—	—	—	—	—	TO-247N		—
7	RGW60TS65	650	60	30	178	1.5	30	—	—	—	—	—	TO-247N		—
8	RGW80TS65	650	78	40	214	1.5	40	—	—	—	—	—	TO-247N		—
9	RGW00TS65	650	96	50	254	1.5	50	—	—	—	—	—	TO-247N		—
10	RGWX5TS65	650	132	75	348	1.5	75	—	—	—	—	—	TO-247N		—
11	RGCL60TS60	600	48	30	111	1.4	30	—	—	—	—	—	TO-247GE		—
12	RGCL80TS60	600	65	40	148	1.4	40	—	—	—	—	—	TO-247GE		—
13	RGTH40TS65	650	40	20	144	1.6	20	—	—	—	—	—	TO-247GE		—
14	RGTH50TS65	650	50	25	174	1.6	25	—	—	—	—	—	TO-247GE		—
15	RGTH60TS65	650	58	30	194	1.6	30	—	—	—	—	—	TO-247GE		—
16	RGTH80TS65	650	70	40	234	1.6	40	—	—	—	—	—	TO-247GE		—
17	RGTH00TS65	650	85	50	277	1.6	50	—	—	—	—	—	TO-247GE		—
18	New RGWS60TS65	650	51	32	156	1.6	30	—	—	—	—	—	TO-247GE		—
19	New RGWS80TS65	650	71	43	202	1.6	40	—	—	—	—	—	TO-247GE		—
20	New RGWS00TS65	650	88	54	245	1.6	50	—	—	—	—	—	TO-247GE		—
21	New RGWSX2TS65	650	104	64	288	1.6	60	—	—	—	—	—	TO-247GE		—
22	RGTH40TK65	650	23	14	56	1.6	20	—	—	—	—	—	TO-3PFM		—
23	RGTH50TK65	650	26	16	59	1.6	25	—	—	—	—	—	TO-3PFM		—
24	RGTH60TK65	650	28	17	61	1.6	30	—	—	—	—	—	TO-3PFM		—
25	RGTH80TK65	650	31	19	66	1.6	40	—	—	—	—	—	TO-3PFM		—
26	RGTH00TK65	650	35	21	72	1.6	50	—	—	—	—	—	TO-3PFM		—
27	RGW40TK65	650	27	16	61	1.5	20	—	—	—	—	—	TO-3PFM		—
28	RGW50TK65	650	30	18	67	1.5	25	—	—	—	—	—	TO-3PFM		—
29	RGW60TK65	650	33	20	72	1.5	30	—	—	—	—	—	TO-3PFM		—
30	RGW80TK65	650	39	23	81	1.5	40	—	—	—	—	—	TO-3PFM		—
31	RGW00TK65	650	45	26	89	1.5	50	—	—	—	—	—	TO-3PFM		—
32	RGCL60TK60	600	30	18	54	1.4	30	—	—	—	—	—	TO-3PFM		—
33	RGCL80TK60	600	35	21	57	1.4	40	—	—	—	—	—	TO-3PFM		—
Built-in SiC Schottky Barrier Diode type															
No.	Part No.	V _{CES} (V)	I _C (A)		P _D (W)	V _{CE} (sat)		tsc Min (μsec)	I _F (Diode) (A)		V _F (Diode)		Package	Equivalent Circuit Diagram	Automotive Grade AEC-Q101
			T _c =25°C	T _c =100°C		Typ (V)	I _C (A)		T _c =25°C	T _c =100°C	Typ (V)	I _F (A)			
34	RGW60TS65CHR	650	64	39	178	1.5	30	—	39	25	1.35	20	TO-247N		YES
35	RGW80TS65CHR	650	81	48	214	1.5	40	—	39	25	1.35	20	TO-247N		YES
36	RGW00TS65CHR	650	96	58	254	1.5	50	—	39	25	1.35	20	TO-247N		YES
Built-in Fast Recovery Diode type															
No.	Part No.	V _{CES} (V)	I _C (A)		P _D (W)	V _{CE} (sat)		tsc Min (μsec)	I _F (Diode) (A)		V _F (Diode)		Package	Equivalent Circuit Diagram	Automotive Grade AEC-Q101
			T _c =25°C	T _c =100°C		Typ (V)	I _C (A)		T _c =25°C	T _c =100°C	Typ (V)	I _F (A)			
37	RGW60TS65DHR	650	60	30	178	1.5	30	—	40	20	1.45	20	TO-247N		YES
38	RGW60TS65EHR	650	60	30	178	1.5	30	—	56	33	1.45	30	TO-247N		YES
39	RGW80TS65DHR	650	78	40	214	1.5	40	—	40	20	1.45	20	TO-247N		YES
40	RGW80TS65EHR	650	78	40	214	1.5	40	—	73	43	1.45	40	TO-247N		YES
41	RGW00TS65DHR	650	96	50	254	1.5	50	—	56	30	1.45	30	TO-247N		YES
42	RGW00TS65EHR	650	96	50	254	1.5	50	—	84	50	1.45	50	TO-247N		YES
43	RGWX5TS65DHR	650	132	75	348	1.5	75	—	73	43	1.45	40	TO-247N		YES
44	RGWX5TS65EHR	650	132	75	348	1.5	75	—	127	80	1.45	75	TO-247N		YES
45	RGC80TSX8R	1,800	80	40	535	2.2	40	—	80	40	1.80	40	TO-247GE		—
46	RGTH40TS65D	650	40	20	144	1.6	20	—	35	20	1.45	20	TO-247GE		—
47	RGTH50TS65D	650	50	25	174	1.6	25	—	35	20	1.45	20	TO-247GE		—
48	RGTH60TS65D	650	58	30	194	1.6	30	—	40	20	1.35	20	TO-247GE		—
49	RGTH80TS65D	650	70	40	234	1.6	40	—	40	20	1.35	20	TO-247GE		—
50	RGTH00TS65D	650	85	50	277	1.6	50	—	50	30	1.45	30	TO-247GE		—
51	New RGWS60TS65D	650	51	32	156	1.6	30	—	23	13	1.45	10	TO-247GE		—
52	New RGWS80TS65D	650	71	43	202	1.6	40	—	23	13	1.45	10	TO-247GE		—
53	New RGWS00TS65D	650	88	54	245	1.6	50	—	23	13	1.45	10	TO-247GE		—
54	New RGWSX2TS65D	650	104	64	288	1.6	60	—	23	13	1.45	10	TO-247GE		—
55	RGW40TS65D	650	40	20	136	1.5	20	—	40	20	1.45	20	TO-3PFM		—
56	RGW50TS65D	650	50	25	156	1.5	25	—	40	20	1.45	20	TO-3PFM		—
57	RGW60TS65D	650	60	30	178	1.5	30	—	40	20	1.45	20	TO-3PFM		—
58	RGW80TS65D	650	78	40	214	1.5	40	—	40	20	1.45	20	TO-3PFM		—
59	RGW00TS65D	650	96	50	254	1.5	50	—	56	30	1.45	30	TO-3PFM		—
60	RGXW5TS65D	650	132	75	348	1.5	75	—	73	40	1.45	40	TO-3PFM		—
61	RGCL60TS60D	600	48	30	111	1.4	30	—	35	20	1.45	20	TO-3PFM		—
62	RGCL80TS60D	600	65	40	148	1.4	40	—	35	20	1.45	20	TO-3PFM		—
63	RGTH40TK65D	650	23	14	56	1.6	20	—	26	15	1.45	20	TO-3PFM		—
64	RGTH50TK65D	650	26	16	59	1.6	25	—	26	15	1.45	20	TO-3PFM		—
65	RGTH60TK65D	650	28	17	61	1.6	30	—	28	16	1.35	20	TO-3PFM		—
66	RGTH80TK65D	650	31	19	66	1.6	40	—	28	16	1.35	20	TO-3PFM		—
67	RGTH00TK65D	650	35	21	72										

Field Stop Trench IGBT

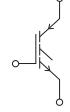
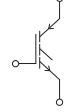
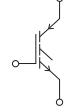
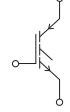
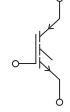
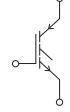
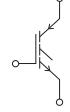
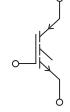
SCSOA Guaranteed type

Field Stop Trench IGBT

IGBT Single type

No.	Part No.	V_{CES} (V)	I_C (A)		P_D (W)	V_{CE} (sat)		tsc Min (usec)	I_F (Diode) (A)		V_F (Diode)		Package	Equivalent Circuit Diagram	Automotive Grade AEC-Q101
			Tc=25°C	Tc=100°C		Typ (V)	I_C (A)		Tc=25°C	Tc=100°C	Typ (V)	I_F (A)			
76	RGT20NL65	650	20	10	106	1.65	10	5	—	—	—	—	TO-263L (LPDL)		—
77	RGS60TS65HR		56	30	223	1.65	30	8	—	—	—	—			YES
78	RGS80TS65HR		73	40	272	1.65	40	8	—	—	—	—			YES
79	RGS00TS65HR		88	50	326	1.65	50	8	—	—	—	—			YES
80	RGSX5TS65HR		114	75	404	1.70	75	8	—	—	—	—			YES
81	RGS30TSX2HR	1,200	30	15	267	1.70	15	10	—	—	—	—	TO-247N		YES
82	RGS30TSX2		30	15	267	1.70	15	10	—	—	—	—			—
83	RGS50TSX2HR		50	25	395	1.70	25	10	—	—	—	—			YES
84	RGS50TSX2		50	25	395	1.70	25	10	—	—	—	—			—
85	RGS80TSX2HR		80	40	555	1.70	40	10	—	—	—	—			YES
86	RGS80TSX2		80	40	555	1.70	40	10	—	—	—	—			—
87	RGTV60TS65		60	30	194	1.50	30	2	—	—	—	—			—
88	RGTV80TS65	650	78	40	234	1.50	40	2	—	—	—	—	TO-247GE		—
89	RGTV00TS65		95	50	276	1.50	50	2	—	—	—	—			—
90	RGTVX2TS65		111	60	319	1.50	60	2	—	—	—	—			—
91	RGTVX6TS65		144	80	404	1.50	80	2	—	—	—	—			—
92	RGTV60TK65		33	20	76	1.50	30	2	—	—	—	—			—
93	RGTV80TK65	650	39	23	85	1.50	40	2	—	—	—	—	TO-3PFM		—
94	RGTV00TK65		45	26	94	1.50	50	2	—	—	—	—			—

Built-in Fast Recovery Diode type

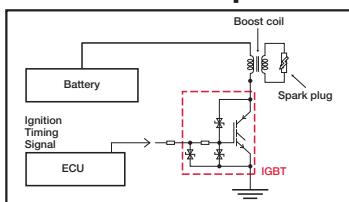
No.	Part No.	V_{CES} (V)	I_C (A)		P_D (W)	V_{CE} (sat)		tsc Min (usec)	I_F (Diode) (A)		V_F (Diode)		Package	Equivalent Circuit Diagram	Automotive Grade AEC-Q101
			Tc=25°C	Tc=100°C		Typ (V)	I_C (A)		Tc=25°C	Tc=100°C	Typ (V)	I_F (A)			
95	RGT8BM65D	650	8	4	62	1.65	4	5	7	4	1.45	4	TO-252		—
96	RGT16BM65D		16	8	94	1.65	8	5	16	8	1.40	8			—
97	RGT8NS65D		8	4	65	1.65	4	5	7	4	1.45	4			—
98	RGT16NS65D		16	8	94	1.65	8	5	16	8	1.40	8			—
99	RGT20NS65D		20	10	106	1.65	10	5	16	8	1.40	8			—
100	RGT30NS65D	650	30	15	133	1.65	15	5	26	15	1.50	15	TO-263S (LPDS)/ TO-262		—
101	RGT40NS65D		40	20	161	1.65	20	5	35	20	1.45	20			—
102	RGT50NS65D		48	25	194	1.65	25	5	35	20	1.45	20			—
103	RGT8NL65D		8	4	65	1.65	4	5	7	4	1.45	4			—
104	RGT16NL65D		16	8	94	1.65	8	5	16	8	1.40	8			—
105	RGT20NL65D		20	10	106	1.65	10	5	16	8	1.40	8			—
106	RGT30NL65D		30	15	133	1.65	15	5	26	15	1.50	15			—
107	RGT40NL65D	650	40	20	161	1.65	20	5	35	20	1.45	20	TO-263L (LPDL)		—
108	RGT50NL65D		48	25	194	1.65	25	5	35	20	1.45	20			—
109	RGT8TM65D		5	3	16	1.65	4	5	5	3	1.45	4			—
110	RGT16TM65D		9	5	22	1.65	8	5	13	7	1.40	8			—
111	RGT20TM65D		10	6	25	1.65	10	5	13	7	1.40	8			—
112	RGT30TM65D	650	14	8	32	1.65	15	5	17	9	1.50	15	TO-220NFM		—
113	RGT40TM65D		17	10	39	1.65	20	5	22	13	1.45	20			—
114	RGT50TM65D		21	13	47	1.65	25	5	22	13	1.45	20			—
115	RGS60TS65DHR		56	30	223	1.65	30	8	56	30	1.45	30	TO-247N		YES
116	RGS80TS65DHR		73	40	272	1.65	40	8	56	30	1.45	30			YES
117	RGS00TS65DHR		88	50	326	1.65	50	8	56	30	1.45	30			YES
118	RGS50TS65EHR		88	50	326	1.65	50	8	84	50	1.45	50			YES
119	RGSX5TS65DHR		114	75	404	1.70	75	8	84	50	1.45	50			YES
120	RGSX5TS65EHR		114	75	404	1.70	75	8	127	75	1.45	75			YES
121	RGSX5TS65E		114	75	404	1.70	75	8	127	75	1.45	75			—
122	RGS30TSX2DHR	1,200	30	15	267	1.70	15	10	30	15	1.65	15	TO-247GE		YES
123	RGS30TSX2D		30	15	267	1.70	15	10	30	15	1.65	15			—
124	RGS50TSX2DHR		50	25	395	1.70	25	10	50	25	1.65	25			YES
125	RGS50TSX2D		50	25	395	1.70	25	10	50	25	1.65	25			—
126	RGS80TSX2DHR		80	40	555	1.70	40	10	80	40	1.65	40			YES
127	RGS80TSX2D		80	40	555	1.70	40	10	80	40	1.65	40			—
128	RGTV60TS65D	650	60	30	194	1.50	30	2	56	30	1.45	30	TO-247GE		—
129	RGTV80TS65D		78	40	234	1.50	40	2	73	40	1.45	40			—
130	RGTV00TS65D		95	50	276	1.50	50	2	84	50	1.45	50			—
131	RGTVX2TS65D		111	60	319	1.50	60	2	98	60	1.45	60			—
132	RGTVX6TS65D		144	80	404	1.50	80	2	127	80	1.45	80			—
133	RGT40TS65D		40	20	144	1.65	20	5	35	20	1.45	20			—
134	RGT50TS65D		48	25	174	1.65	25	5	35	20	1.45	20			—
135	RGT60TS65D		55	30	194	1.65	30	5	40	20	1.35	20			—
136	RGT80TS65D		70	40	234	1.65	40	5	40	20	1.35	20			—
137	RGT00TS65D		85	50	277	1.65	50	5	50	30	1.45	30			—
138	RGT60TK65D	650	33	20	76	1.50	30	2	34	19	1.45	30	TO-3PFM		—
139	RGT80TK65D		39	23	85	1.50	40	2	40	23	1.45	40			—
140	RGT00TK65D		45	26	94	1.50	50	2	46	26	1.45	50			—

Note: Package is JEDEC code. () : ROHM Packages.

*Built-in Fast Recovery Diodes

Ignition IGBT

● Circuit Example for Ignition IGBT

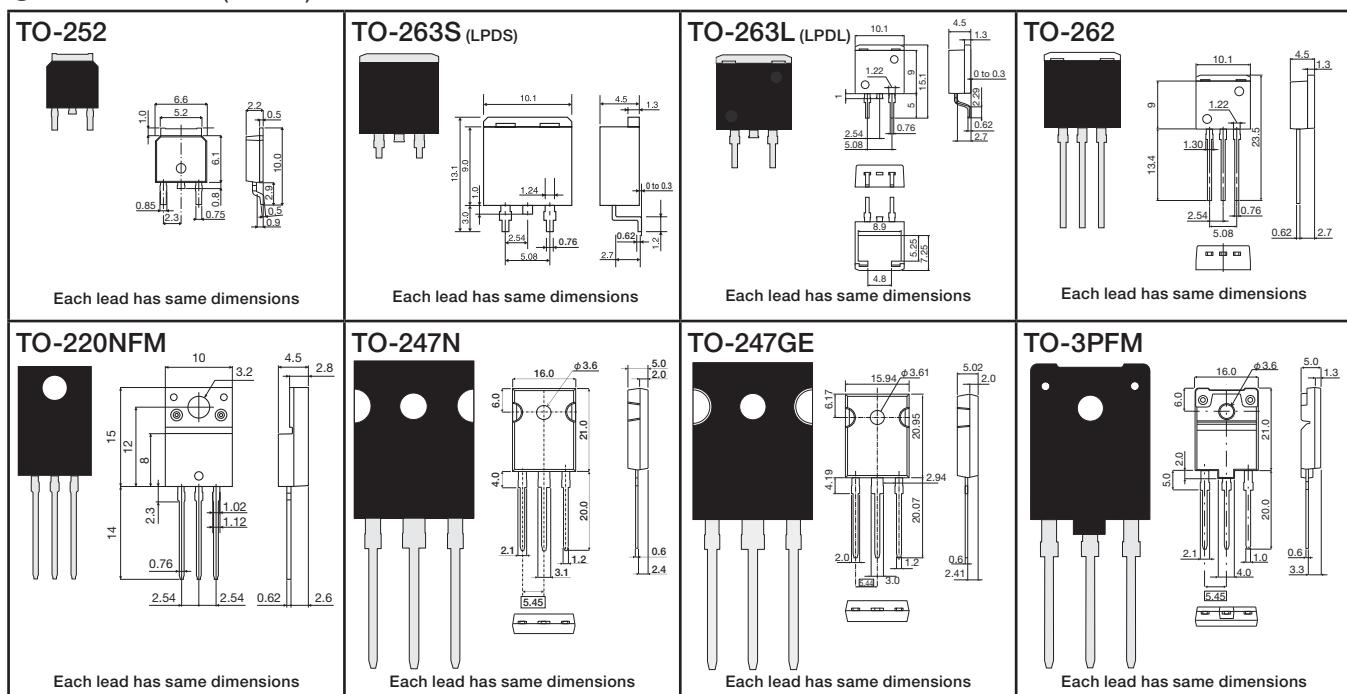


Ignition IGBT								
Part No.	V _{CES} (V)	V _{GES} (V)	I _c (A)	P _D (W)	E _{as} (mJ)	V _{CE(sat)} Typ (V)	Package	Equivalent Circuit Diagram
RGPZ10BM40FH	430±30	±10	20	107	250	1.6	TO-252	
☆ RGPZ30BM56HR	560±30	±10	30	166	300	1.4	TO-252	
RGPR10BM40FH	430±30	±10	20	107	250	1.6	TO-252	
☆ RGPR20BM36HR	360±30	±10	20	107	250	1.6	TO-252	
RGPR20NS43HR	430±30	±10	20	107	250	1.6	TO-263S (LPDS)	
RGPR20NL43HR	430±30	±10	20	107	250	1.6	TO-263L (LPDL)	
☆ RGPR30BM56HR	560±30	±10	30	166	300	1.4	TO-252	
RGPR30BM40HR	400±30	±10	30	125	300	1.6	TO-252	
RGPR30NS40HR	400±30	±10	30	125	300	1.6	TO-263S (LPDS)	
RGPR50NL45HRB	450±30	±10	45	187	500	1.6	TO-263L (LPDL)	

Note: Package is JEDEC code. (): ROHM Packages.

☆: Under Development

● Dimensions (Unit: mm)



Note: Package is JEDEC code. (): ROHM Packages.

● Product No. Explanation

R	G	W	()	8	0	T	S	6	5	D	H	R
①	②	③	④	⑤	⑥	⑦						

- ① IGBT
- ② Series Name
e.g. BM → TO-252
- ③ I_c<T_c=100°C>
e.g. 8 → 4A
16 → 8A
30 → 15A
00 → 50A
X2 → 60A
X6 → 80A
- ④ Package
e.g. NS → TO-263S (LPDS)/ NL → TO-263L (LPDL)
TO-262
TO-220NFM
TM → TO-247N/TO-247GE
TS → TO-3PFM
TK → TO-247GE
- ⑤ V_{CES}
e.g. 65 → 650V
- ⑥ Built-in Diode
C → Built-in SiC Schottky Barrier Diode
D/E → Built-in Fast Recovery Diode
R → Built-in Diode (RC-IGBT)
- ⑦ Automotive Grade

● Packaging type

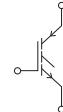
Package	Code	Packaging Style	Basic Ordering Unit (pcs)
TO-252	TL	Embossed tape	2,500
TO-263S (LPDS)	TL	Embossed tape	1,000
TO-263L (LPDL)	TL	Embossed tape	1,000
TO-262	C9	Tube	50
TO-220NFM	C9	Tube	50
TO-247N	C11	Tube	30
TO-247GE	C13	Tube	30
TO-3PFM	C11	Tube	30

Note: Package is JEDEC code. (): ROHM Packages

Field Stop Trench IGBT Bare Die

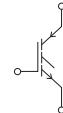
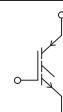
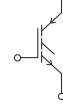
Standard type

Currently, production is being transferred from the Miyazaki factory to the Shiga factory, and in the future all production will be done at the Shiga factory. We are also transitioning the wafer size from 6 inch to 8 inch. For product specifications, please refer to "Product No. Explanation" on page 145.

Field Stop Trench IGBT Bare Die								
High speed fast SW series								
Part No.	V _{CES} (V)	I _C (Nominal) (A)	V _{CE(sat)} (Typ) (V)	V _{GE(th)} (Typ) (V)	tsc (Min) (μs)	Operating Temperature (°C)	Equivalent Circuit Diagram	Chip Size (mm)
MG6306WZ	650	20	1.5	6	—	-40 to +175		3.10x3.10
MG6307WZ	650	25	1.5	6	—	-40 to +175		3.35x3.35
MG6303WZ	650	30	1.5	6	—	-40 to +175		3.60x3.60
MG6304WZ	650	40	1.5	6	—	-40 to +175		4.00x4.00
MG6305WZ	650	50	1.5	6	—	-40 to +175		4.40x4.40
MG6308WZ	650	75	1.5	6	—	-40 to +175		5.25x5.25
Low V _{CE(sat)} series								
Part No.	V _{CES} (V)	I _C (Nominal) (A)	V _{CE(sat)} (Typ) (V)	V _{GE(th)} (Typ) (V)	tsc (Min) (μs)	Operating Temperature (°C)	Equivalent Circuit Diagram	Chip Size (mm)
MG7902WZ	600	30	1.4	5.5	—	-40 to +175		2.78x2.78
MG7901WZ	600	40	1.4	5.5	—	-40 to +175		3.26x3.26
Reverse Conducting series								
Part No.	V _{CES} (V)	I _C (Nominal) (A)	V _{CE(sat)} (Typ) (V)	V _{GE(th)} (Typ) (V)	tsc (Min) (μs)	Operating Temperature (°C)	Equivalent Circuit Diagram	Chip Size (mm)
MG7405WZ	1,800	40	2.2	6	—	-40 to +175		8.20x6.00

SCSOA Guaranteed type

Currently, production is being transferred from the Miyazaki factory to the Shiga factory, and in the future all production will be done at the Shiga factory. We are also transitioning the wafer size from 6 inch to 8 inch. For product specifications, please refer to "Product No. Explanation" on page 145.

Field Stop Trench IGBT Bare Die								
For inverter (tsc 8-10μs) series								
Part No.	V _{CES} (V)	I _C (Nominal) (A)	V _{CE(sat)} (Typ) (V)	V _{GE(th)} (Typ) (V)	tsc (Min) (μs)	Operating Temperature (°C)	Equivalent Circuit Diagram	Chip Size (mm)
MG7107WZ	650	15	1.65	6	8	-40 to +175		3.20x3.20
MG7108WZ	650	20	1.65	6	8	-40 to +175		3.50x3.50
MG7109WZ	650	25	1.65	6	8	-40 to +175		3.80x3.80
MG7104WZ	650	30	1.65	6	8	-40 to +175		4.10x4.10
MG7106WZ	650	40	1.65	6	8	-40 to +175		4.30x4.86
MG7102WZ	650	50	1.65	6	8	-40 to +175		4.30x5.92
New SG7110WN	650	75	1.7	6	8	-40 to +175		5.70x5.70
MG7110WZ	650	75	1.7	6	8	-40 to +175		5.70x5.70
MG7211WZ	1,200	15	1.7	6	10	-40 to +175		6.20x3.50
MG7210WZ	1,200	25	1.7	6	10	-40 to +175		5.79x5.79
MG7209WZ	1,200	40	1.7	6	10	-40 to +175		6.95x7.00
MG7212WZ	1,200	50	1.7	6	10	-40 to +175		8.60x7.00
MG7213WZ	1,200	75	1.7	6	10	-40 to +175		9.20x9.20
New MG7214WZ	1,200	100	1.7	6	10	-40 to +175		10.40x10.40
New MG7215WZ	1,200	150	1.7	6	10	-40 to +175		12.50x12.50
New MG7216WZ	1,200	200	1.7	6	10	-40 to +175		14.30x14.30
For inverter (tsc 5μs) series								
Part No.	V _{CES} (V)	I _C (Nominal) (A)	V _{CE(sat)} (Typ) (V)	V _{GE(th)} (Typ) (V)	tsc (Min) (μs)	Operating Temperature (°C)	Equivalent Circuit Diagram	Chip Size (mm)
New SG6610WN	650	20	1.65	6	5	-40 to +175		3.20x3.20
SG6612WN	650	50	1.65	6	5	-40 to +175		4.60x4.60
For inverter (tsc 2μs) series								
Part No.	V _{CES} (V)	I _C (Nominal) (A)	V _{CE(sat)} (Typ) (V)	V _{GE(th)} (Typ) (V)	tsc (Min) (μs)	Operating Temperature (°C)	Equivalent Circuit Diagram	Chip Size (mm)
MG6401WZ	650	30	1.5	6	2	-40 to +175		3.40x4.20
MG6404WZ	650	40	1.5	6	2	-40 to +175		4.20x4.20
MG6402WZ	650	50	1.5	6	2	-40 to +175		4.60x4.60
MG6405WZ	650	60	1.5	6	2	-40 to +175		5.00x5.00
MG6403WZ	650	80	1.5	6	2	-40 to +175		5.70x5.70

Monolithic Body Diode compatible with Field Stop Trench IGBT Bare Die

Currently, production is being transferred from the Miyazaki factory to the Shiga factory, and in the future all production will be done at the Shiga factory. We are also transitioning the wafer size from 6 inch to 8 inch. For product specifications, please refer to "Product No. Explanation" on page 145.

Monolithic Body Diode						
Fast recovery diode series						
Part No.	V _{RM} (V)	I _F (Nominal) (A)	V _F (Typ) (V)	Operating Temperature (°C)	Equivalent Circuit Diagram	Chip Size (mm)
New SH2104WN	650	20	1.45	-40 to +175		2.50×2.50
MH2104WZ	650	20	1.45	-40 to +175		2.50×2.50
MH2101WZ	650	30	1.45	-40 to +175		3.00×3.00
MH2106WZ	650	40	1.45	-40 to +175		3.40×3.40
SH2102WN	650	50	1.45	-40 to +175		3.70×3.70
MH2102WZ	650	50	1.45	-40 to +175		3.70×3.70
MH2107WZ	650	60	1.45	-40 to +175		4.00×4.00
New SH2103WN	650	80	1.45	-40 to +175		4.50×4.50
MH2103WZ	650	80	1.45	-40 to +175		4.50×4.50
MH2203WZ	1,200	15	1.65	-40 to +175		3.20×3.20
MH2201WZ	1,200	25	1.65	-40 to +175		3.80×3.80
MH2204WZ	1,200	40	1.65	-40 to +175		3.15×6.64
MH2205WZ	1,200	50	1.65	-40 to +175		4.20×6.00
MH2206WZ	1,200	75	1.65	-40 to +175		4.30×8.20
MH2207WZ	1,200	100	1.65	-40 to +175		5.00×9.00
MH2208WZ	1,200	150	1.65	-40 to +175		6.00×11.00
MH2209WZ	1,200	200	1.65	-40 to +175		6.50×13.00

● Product No. Explanation

M	G	7	2	1	4	W	Z
①	②	③	④	⑤			

- ① Manufacturing plant
M: Miyazaki
S: Siga
- ② G: IGBT Bare Die
H: Fast Recovery Diode
Bare Die
- ③ Production No.
④ Metal specifications
W: General use type
- ⑤ Wafer Size
Z: 6 inch
N: 8 inch

M	H	2	1	0	4	W	Z
①	②	③	④	⑤			

- ① Manufacturing plant
M: Miyazaki
S: Siga
- ② G: IGBT Bare Die
H: Fast Recovery Diode
Bare Die
- ③ Production No.
④ Metal specifications
W: General use type
- ⑤ Wafer Size
Z: 6 inch
N: 8 inch

Intelligent Power Modules

IGBT-IPM

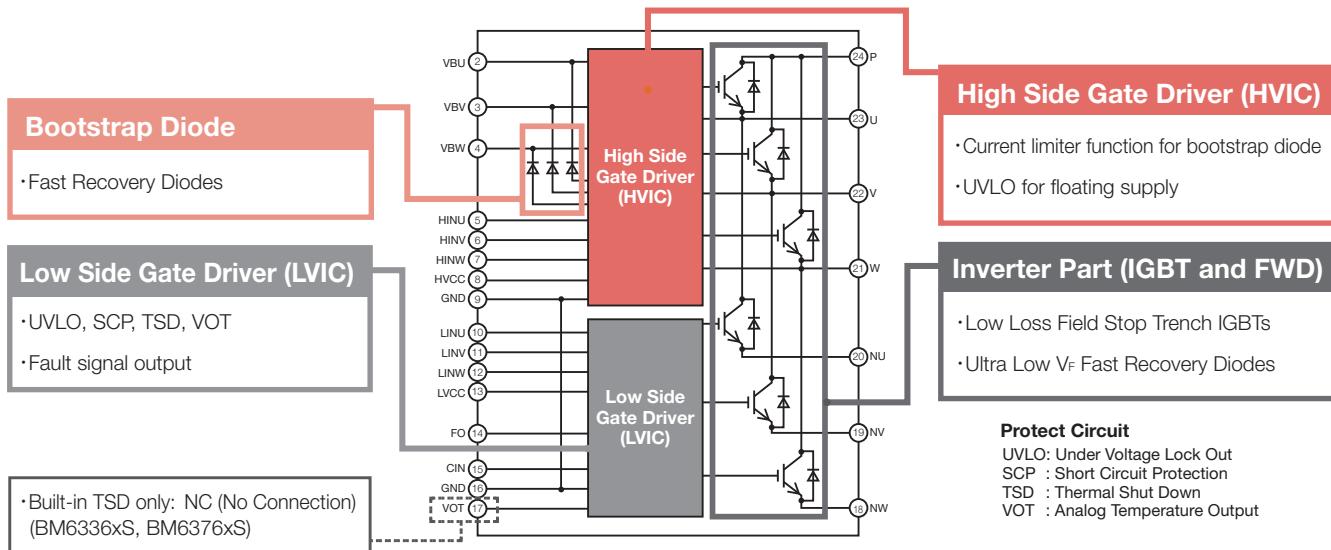
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Click on the icon to access the product page on ROHM's website. Please check the website for the latest updates.

Intelligent Power Modules

● Block Diagram

IGBT-IPM



● Quick Reference for Intelligent Power Modules

V_{DSS}/V_{CES} (V)	I_D/I_C (A)	IGBT-IPM			
		Gen.2		Gen.3	
		HSDIP25	HSDIP25-VC	HSDIP25	HSDIP25-VC
		Thermal Protective Function*		Thermal Protective Function*	
		TSD	VOT	TSD & VOT	VOT
600	10	BM63363S-VA BM63363S-VC BM63763S-VA BM63763S-VC	BM63563S-VA BM63563S-VC BM63963S-VA BM63963S-VC	BM63373S-VA BM63373S-VC	BM63573S-VA BM63573S-VC
	15	BM63364S-VA BM63364S-VC BM63764S-VA BM63764S-VC	BM63564S-VA BM63564S-VC BM63964S-VA BM63964S-VC	BM63374S-VA BM63374S-VC BM64374S-VA	BM63574S-VA BM63574S-VC
	20			BM63375S-VA BM63375S-VC BM64375S-VA	BM63575S-VA BM63575S-VC
	30	BM63767S-VA BM63767S-VC	BM63967S-VA BM63967S-VC	BM63377S-VA BM63377S-VC BM64377S-VA	BM63577S-VA BM63577S-VC
	35			BM64378S-VA	

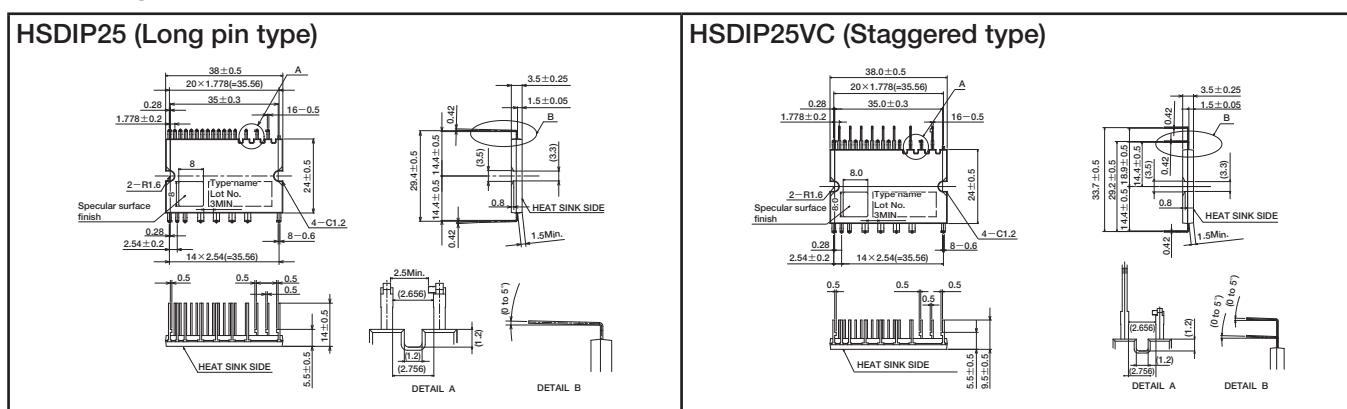
*TSD: Thermal Shut Down, VOT: Analog Temperature Output

Intelligent Power Modules

IGBT-IPM									
Generation	Part No.	Power Device	V _{CES} (V)	I _C (A)	PWM Input Frequency (kHz)	Isolation Voltage*1 (Vrms)	Thermal Protective Function*2		
							TSD VOT		
Gen.2	BM63363S-VA	IGBT	600	10	up to 6	1,500	✓	HSDIP25	
	BM63363S-VC						✓	HSDIP25VC	
	BM63563S-VA			15	up to 20		✓	HSDIP25	
	BM63563S-VC						✓	HSDIP25VC	
	BM63763S-VA			30	up to 6		✓	HSDIP25	
	BM63763S-VC						✓	HSDIP25VC	
	BM63963S-VA			15	up to 6		✓	HSDIP25	
	BM63963S-VC						✓	HSDIP25VC	
	BM63364S-VA			30	up to 20		✓	HSDIP25	
	BM63364S-VC						✓	HSDIP25VC	
	BM63564S-VA			15	up to 6		✓	HSDIP25	
	BM63564S-VC						✓	HSDIP25VC	
	BM63764S-VA			30	up to 20		✓	HSDIP25	
	BM63764S-VC						✓	HSDIP25VC	
	BM63964S-VA			15	up to 6		✓	HSDIP25	
	BM63964S-VC						✓	HSDIP25VC	
	BM63767S-VA			30	up to 20		✓	HSDIP25	
	BM63767S-VC						✓	HSDIP25VC	
	BM63967S-VA			15	up to 6		✓	HSDIP25	
	BM63967S-VC						✓	HSDIP25VC	
Gen.3	BM63373S-VA	IGBT	600	10	up to 20	1,500	✓	HSDIP25	
	BM63373S-VC						✓	HSDIP25VC	
	BM63573S-VA			15	up to 20		✓	HSDIP25	
	BM63573S-VC						✓	HSDIP25VC	
	BM63374S-VA			20	up to 20		✓	HSDIP25	
	BM63374S-VC						✓	HSDIP25VC	
	BM63574S-VA			30	up to 20		✓	HSDIP25	
	BM63574S-VC						✓	HSDIP25VC	
	BM64374S-VA			15	up to 20		✓	HSDIP25	
	BM64374S-VC						✓	HSDIP25VC	
	BM63375S-VA			30	up to 20		✓	HSDIP25	
	BM63375S-VC						✓	HSDIP25VC	
	BM63575S-VA			35	up to 20		✓	HSDIP25	
	BM63575S-VC						✓	HSDIP25VC	
	BM64375S-VA			20	up to 20		✓	HSDIP25	
	BM64375S-VC						✓	HSDIP25VC	
	BM63377S-VA			30	up to 20		✓	HSDIP25	
	BM63377S-VC						✓	HSDIP25VC	
	BM63577S-VA			35	up to 20		✓	HSDIP25	
	BM63577S-VC						✓	HSDIP25VC	
	BM64377S-VA			30	up to 20		✓	HSDIP25	
	BM64377S-VC						✓	HSDIP25VC	

*1 AC60Hz, 1 minutes, Corresponds to isolation voltage 2,500Vrms in the case the convex-shaped heat sink. *2 TSD: Thermal Shut Down, VOT: Analog Temperature Output

● Packages (Unit: mm)



● Part No. Explanation

B	M	6	3	3	6	S	-xx
Part No.				Package			
S				Packing specification			
VA				Tube, Long pin type (HSDIP25)			
VC				Tube, Staggered type (control side) (HSDIP25VC)			

Transistors

MOSFETs	P.146	Bipolar Transistors	P.163
Digital Transistors	P.174	Packages	P.190
Product No. Explanation	P.193		

Click on the icon to access the product page on ROHM's website. Please check the website for the latest updates.

Small Signal MOSFET

Small Signal MOSFET series																					
Package	Product No.		Polarity (ch)	V _{DSS} (V)	I _D (A)	P _O (W) (T _A =25°C)	R _{DS(on)} (Ω)														
	Part No.	Packing code					V _{GSS} =10V	V _{GSS} =4.5V	V _{GSS} =4.0V	V _{GSS} =2.5V	V _{GSS} =1.8V	V _{GSS} =1.5V	V _{GSS} =1.2V	V _{GSS} =0.9V							
DFN0604-3 (VML0604) ◆ 0604 size	RV3C002UN	T2CL	N	20	0.15	0.10	—	—	1.40	2.00	—	—	1.70	2.60	—	—	2.70	5.40	—	—	—
	RV3CA01ZP*1	T2CL	P	-20	-0.10	0.10	—	—	2.50	3.80	—	—	3.40	5.10	—	—	6.00	13.20	—	—	—
DFN0806-3 (VML0806) ◆ 0806 size	RV1C002UN	T2CL	N	20	0.15	0.10	—	—	1.40	2.00	—	—	1.70	2.60	—	—	2.70	5.40	3.80	11.40	—
	RV1C001ZP	T2CL	P	-20	-0.10	0.10	—	—	2.50	3.80	—	—	3.40	5.10	—	—	6.00	13.20	10.00	40.00	—
DFN1006-3 (VML1006) ◆ 1006 size	RV2C010UN	T2L	N	20	1.00	0.40	—	—	0.34	0.47	—	—	0.40	0.56	—	—	0.54	0.81	0.70	1.05	—
	RV2C002UN	T2L		20	0.18	0.10	—	—	1.40	2.00	—	—	1.70	2.60	—	—	2.70	5.40	3.80	11.40	—
	RV2E014AJ	T2CL		30	1.40*2	0.6*2	—	—	0.17	0.29	—	—	0.225	0.38	—	—	—	—	—	—	—
	RV2C014BC	T2CL	P	-20	-1.40*2	0.60*2	—	—	0.22	0.30	—	—	0.28	0.39	0.37	0.70	—	—	—	—	—
	RV2C001ZP	T2L		-20	-0.10	0.10	—	—	2.50	3.80	—	—	3.40	5.10	—	—	6.00	13.20	10.00	40.00	—
DSN1006-3 (SMM1006) 1006 size	RA1C030LD	T5CL	N	20	3.0	1.0	—	—	0.08	0.14	—	—	0.13	0.19	0.20	—	—	—	—	—	—
DFN1212-3 (DFN1212-3) 1212 size	New RV7E040AJ	TCR1	N	30	4.0	1.1	—	—	0.041	0.055	—	—	0.054	0.073	—	—	—	—	—	—	—
	New RV7L020GN	TCR1		60	2.0	1.1	0.123	0.164	0.172	0.281	—	—	—	—	—	—	—	—	—	—	—
	New RV7C040BC	TCR1	P	-20	-4.0	1.1	—	—	0.053	0.063	—	—	0.065	0.079	0.089	0.106	—	—	—	—	—
	New RV7E035AT	TCR1		-30	-3.5	1.1	0.065	0.080	0.091	0.113	—	—	—	—	—	—	—	—	—	—	—
SOT-723 (VMT3) 1212 size	RUM002N02	T2L	N	20	0.20	0.15	—	—	—	—	—	—	0.80	1.20	—	—	1.20	2.40	1.60	4.80	—
	RUM001L02	T2CL		20	0.10	0.15	—	—	2.50	3.50	—	—	3.00	4.20	—	—	4.50	9.00	6.00	18.00	—
	RYM002N05	T2CL		50	0.20	0.15	—	—	1.60	2.20	—	—	1.70	2.40	—	—	2.00	2.80	2.20	3.30	3.00
	RUM002N05	T2L		50	0.20	0.15	—	—	1.60	2.20	—	—	1.70	2.40	—	—	2.00	4.00	2.40	7.20	—
	RSM002N06	T2L	P	60	0.25	0.15	1.70	2.40	2.10	3.00	2.30	3.20	3.00	12.00	—	—	—	—	—	—	—
	RZM002P02	T2L		-20	-0.20	0.15	—	—	0.80	1.20	—	—	1.00	1.50	—	—	1.60	3.50	2.40	9.60	—
	RZM001P02	T2L		-20	-0.10	0.15	—	—	2.50	3.80	—	—	3.40	5.10	—	—	6.00	13.20	10.00	40.00	—
	RSM002P03	T2L		-30	-0.20	0.15	0.90	1.40	1.40	2.10	1.60	2.40	—	—	—	—	—	—	—	—	—
DFN1616-6 (DFN1616-6) 1616 size	RV5A040AP	TCR1	P	-12	-4.00	1.50	—	—	0.044	0.062	—	—	0.055	0.077	0.075	0.110	0.090	0.180	—	—	—
	RV5C040AP	TCR1		-20	-4.00	1.50	—	—	0.060	0.085	—	—	0.065	0.095	0.095	0.155	0.130	0.260	—	—	—
SOT-416FL (EMT3F) 1616 size	RE1C002UN	TCL	N	20	0.20	0.15	—	—	—	—	—	—	0.80	1.20	—	—	1.20	2.40	1.60	4.80	—
	RE1C001UN	TCL		20	0.10	0.20	—	—	2.50	3.50	—	—	3.00	4.20	—	—	4.50	9.00	6.00	18.00	—
	RE1J002YN	TCL		50	0.20	0.15	—	—	1.60	2.20	—	—	1.70	2.40	—	—	2.00	2.80	2.20	3.30	3.00
	RE1L002SN	TL		60	0.25	0.15	1.70	2.40	2.10	3.00	2.30	3.20	3.00	12.00	—	—	—	—	—	—	—
	RE1C002ZP	TL	P	-20	-0.20	0.15	—	—	0.80	1.20	—	—	1.00	1.50	—	—	1.60	3.50	2.40	9.60	—
	RE1C001ZP	TL		-20	-0.10	0.20	—	—	2.50	3.80	—	—	3.40	5.10	—	—	6.00	13.20	10.00	40.00	—
	RE1E002SP	TCL		-30	-0.25	0.20	0.90	1.40	1.40	2.10	1.60	2.40	—	—	—	—	—	—	—	—	—
SOT-323 2021 size	BSS138BKW	T106	N	60	0.38	0.30	0.50	0.70	0.60	0.84	—	—	1.00	4.00	—	—	—	—	—	—	—
	BSS138W	T106	N	60	0.31	0.30	1.70	2.40	2.10	3.00	—	—	3.00	12.00	—	—	—	—	—	—	—
	BSS84W	T106	P	-60	-0.21	0.30	2.80	5.30	3.50	6.40	—	—	—	—	—	—	—	—	—	—	—
SOT-323FL (UMT3F) 2021 size	RU1C002UN	TCL	N	20	0.20	0.20	—	—	—	—	—	—	0.80	1.20	—	—	1.20	2.40	1.60	4.80	—
	RU1C001UN	TCL		20	0.10	0.20	—	—	2.50	3.50	—	—	3.00	4.20	—	—	4.50	9.00	6.00	18.00	—
	RU1J002YN	TCL		50	0.20	0.20	—	—	1.60	2.20	—	—	1.70	2.40	—	—	2.00	2.80	2.20	3.30	3.00
	RU1L002SN	TL		60	0.25	0.20	1.70	2.40	2.00	3.00	2.30	3.20	3.00	12.00	—	—	—	—	—	—	—
	RU1C002ZP	TCL	P	-20	-0.20	0.20	—	—	0.80	1.20	—	—	1.00	1.50	—	—	1.60	3.50	2.40	9.60	—
	RU1C001ZP	TL		-20	-0.10	0.20	—	—	2.50	3.80	—	—	3.40	5.10	—	—	6.00	13.20	10.00	40.00	—
	RU1E002SP	TCL		-30	-0.25	0.20	0.90	1.40	1.40	2.10	1.60	2.40	—	—	—	—	—	—	—	—	—

Note1: () : ROHM Packages at package site.
Note2: *1 For overvoltage protection *2 P_W≤5s

Small Signal MOSFET series

Package	Product No.		Polarity (ch)	V _{DSS} (V)	I _D (A)	P _D (W) (T _a =25°C)	R _{DS(on)} (Ω)																	
	Part No.	Packing code					V _{GS} =10V	V _{GS} =4.5V	V _{GS} =4.0V	V _{GS} =2.5V	V _{GS} =1.8V	V _{GS} =1.5V	V _{GS} =1.2V	V _{GS} =0.9V										
TO-236AB SOT-23 (SST3)	RYC002N05	T316	N	50	0.20	0.20	—	—	1.60	2.20	—	—	1.70	2.40	—	—	2.00	2.80	2.20	3.30	3.00	9.00		
	RUC002N05	T116		50	0.20	0.20	—	—	1.60	2.20	—	—	1.70	2.40	—	—	2.00	4.00	2.40	7.20	—	—		
	BSS670	T116		60	0.65	0.35	0.50	0.65	0.60	0.82	—	—	1.00	4.00	—	—	—	—	—	—	—	—	—	
	BSS138BK	T116		60	0.40	0.35	0.50	0.70	0.60	0.84	—	—	1.00	4.00	—	—	—	—	—	—	—	—	—	
	RK7002BM	T116		60	0.25	0.20	1.70	2.40	2.10	3.00	2.30	3.20	3.00	12.00	—	—	—	—	—	—	—	—	—	
	RSC002P03	T316	P	-30	-0.25	0.20	0.90	1.40	1.40	2.10	1.60	2.40	—	—	—	—	—	—	—	—	—	—	—	
	BSS84	T116		-60	-0.23	0.35	3.60	5.30	4.30	6.40	—	—	—	—	—	—	—	—	—	—	—	—	—	
SOT-563 (EMT6) 1616 size	EM6K6	T2R	N+N	20	0.30	0.15	—	—	—	—	0.70	1.00	0.80	1.20	1.00	1.40	—	—	—	—	—	—	—	
	EM6K7	T2CR		20	0.20	0.15	—	—	—	—	—	—	0.80	1.20	—	—	1.20	2.40	1.60	4.80	—	—	—	
	EM6K33	T2R		50	0.20	0.15	—	—	1.60	2.20	—	—	1.70	2.40	—	—	2.00	4.00	2.40	7.20	—	—	—	
	EM6K34	T2CR	N+P	50	0.20	0.15	—	—	1.60	2.20	—	—	1.70	2.40	—	—	2.00	2.80	2.20	3.30	3.00	9.00	—	
	EM6K31	T2R		60	0.25	0.15	1.70	2.40	2.10	3.00	2.30	3.20	3.00	12.00	—	—	—	—	—	—	—	—	—	—
	EM6J1	T2R	P+P	-20	-0.20	0.15	—	—	0.80	1.20	—	—	1.00	1.50	—	—	1.60	3.50	2.40	9.60	—	—	—	
	EM6M2	T2R	N+P	20	0.20	0.15	—	—	—	—	0.70	1.00	0.80	1.20	1.00	1.40	1.20	2.40	1.60	4.80	—	—	—	
SOT-363 (UMT6) 2021 size	UM6K34N	TCN	N+N	50	0.20	0.15	—	—	1.60	2.20	—	—	1.70	2.40	—	—	2.00	2.80	2.20	3.30	3.00	9.00	—	
	UM6K33N	TN		50	0.20	0.15	—	—	1.60	2.20	—	—	1.70	2.40	—	—	2.00	4.00	2.40	7.20	—	—	—	
	UM6K31N	TN	P+P	60	0.25	0.15	1.70	2.40	2.10	3.00	2.30	3.20	3.00	12.00	—	—	—	—	—	—	—	—	—	—
	UM6J1N	TN		-30	-0.20	0.15	0.90	1.40	1.40	2.10	1.60	2.40	—	—	—	—	—	—	—	—	—	—	—	—

Note1: () : ROHM Packages at package site.

Power MOSFETs

Package	Product No.		Polarity (ch)	V _{DSS} (V)	I _D (A)	P _D (W) (T _a =25°C)	R _{DS(on)} (mΩ)								Q _G (nC) (V _{GS} =4.5V)		
	Part No.	Packing code					V _{GS} =10V	V _{GS} =4.5V	V _{GS} =4.0V	V _{GS} =2.5V	V _{GS} =1.5V	Typ	Max	Typ	Max		
SOT-323T (TUMT3) 2021 size	RUF025N02	TL	N	20	2.5	0.8	—	—	39	54	—	—	49	68	80	160	5
	RUF020N02	TL		20	2	0.8	—	—	75	105	—	—	95	135	170	240	2
	RUF015N02	TL		20	1.5	0.8	—	—	130	180	—	—	170	240	220 ^{**1}	310 ^{**1}	1.8
	RTF025N03	TL		30	2.5	0.8	—	—	48	67	50	70	70	98	—	—	3.7
	RSF014N03	TL		30	1.4	0.8	170	240	250	350	270	380	—	—	—	—	1.4 ^{**2}
	RTF016N05	TL		45	1.6	0.8	—	—	140	190	150	210	200	280	—	—	2.3
	RSF015N06	TL		60	1.5	0.8	210	290	240	330	255	350	—	—	—	—	2 ^{**2}
SOT-363T (UMT6) 2021 size	RAF040P01	TCL	P	-12	-4	0.8	—	—	22	30	—	—	27	38	40	68	37
	RZF030P01	TL		-12	-3	0.8	—	—	28	39	—	—	39	54	72	144	18
	RZF020P01	TL		-12	-2	0.8	—	—	75	105	—	—	105	145	200	400	6.5
	RZF013P01	TL		-12	-1.3	0.8	—	—	190	260	—	—	280	390	530	1,060	2.4
	RRF015P03	TL		-30	-1.5	0.8	115	160	170	240	190	270	—	—	—	—	3.2 ^{**2}
	RSF010P05	TL		-45	-1	0.8	330	460	450	630	490	690	—	—	—	—	2.3 ^{**2}
	RUL035N02	TR	N	20	3.5	1	—	—	31	43	—	—	38	53	66	93	5.7
	RF6E065BN	TCR		30	6.5	1	12.9	15.3	18.5	22.7	—	—	—	—	—	—	8.3
	RF6E045AJ	TCR		30	4.5	1	—	—	16.9	23.7	—	—	23.9	33.5	—	—	8.1
	RTL035N03	TR		30	3.5	1	—	—	40	56	42	59	56	79	—	—	4.6
	RXL035N03	TCR		30	3.5	1	35	50	45	65	50	70	—	—	—	—	3.3 ^{**2}
	New RF6G035BG	TCR		40	3.5	1	37	46	59	80	—	—	—	—	—	—	1.8
	New RF6L025BG	TCR		60	2.5	1	70	91	100	140	—	—	—	—	—	—	1.7
SOT-363T (UMT6) 2021 size	RAL035P01	TR	P	-12	-3.5	1	—	—	30	42	—	—	40	56	75	150	22
	RAL025P01	TR		-12	-2.5	1	—	—	44	62	—	—	55	77	90	180	16
	RF6C055BC	TCR		-20	-5.5	1	—	—	19.5	25.7	—	—	24.7	33.1	33.7	63.6	15.2
	RRL035P03	TR		-30	-3.5	1	36	50	52	72	58	81	—	—	—	—	8 ^{**2}
	US6K4	TR		20	1.5	1	—	—	130	180	—	—	170	240	220 ^{**1}	310 ^{**1}	1.8
	US6K1	TR	N+N	30	1.5	1	—	—	170	240	180	250	240	340	—	—	1.6
	US6K2	TR		30	1.4	1	170	240	250	350	270	380	—	—	—	—	1.4 ^{**2}
	US6J12	TCR		-12	-2	1	—	—	75	105	—	—	105	145	200	400	7.6
	US6J11	TR		-12	-1.3	1	—	—	190	260	—	—	280	390	530	1,060	2.4
	US6M11	TR	N+P	20	1.5	1	—	—	130	180	—	—	170	240	300	600	1.8
	US6M2	TR		-12	-1.3	1	—	—	190	260	—	—	280	390	530	1,060	2.4
	US6M1	TR		30	1.5	1	—	—	170	240	180	250	240	340	—	—	1.6
	US6M1	TR		-20	-1	1	—	—	280	390	310	430	570	800	—	—	2.1

Note1: () : ROHM Packages at package site.

Note2: *1 V_{GS}=1.8V *2 V_{GS}=5V

Power MOSFETs

Power MOSFET series

Package	Product No.		Polarity (ch)	V _{DS} (V)	I _D (A)	P _D (W) (T _a =25°C)	R _{DS(on)} (mΩ)										Q _g (nC) (V _{GS} =4.5)					
	Part No.						V _{GS} =10V		V _{GS} =4.5V		V _{GS} =4.0V		V _{GS} =2.5V		V _{GS} =1.8V							
							Typ	Max	Typ	Max	Typ	Max	Typ	Max	Typ	Max						
SOT-346T (TSMT3) 2928 size	RUR040N02	TL	N	20	4	1	—	—	25	35	—	—	33	46	42	59	55	110	8			
	RUR020N02	TL		20	2	1	—	—	75	105	—	—	95	135	130	185	170	240	2			
	RQ5E070BN	TCL		30	7	1	12.4	16.1	16.5	20.4	—	—	—	—	—	—	—	—	11.7			
	RQ5E065AJ	TCL		30	6.5	1	—	—	13.7	18.1	—	—	17.9	23.7	—	—	—	—	12.2			
	RQ5E040TN	TL		30	4	1	—	—	34	48	36	50	47	66	—	—	—	—	5.9			
	RQ5E040AJ	TCL		30	4	1	—	—	27	37	—	—	39	54	—	—	—	—	4.3			
	RQ5E035XN	TCL		30	3.5	1	35	50	45	65	50	70	—	—	—	—	—	—	3.3*			
	RQ5E035BN	TCL		30	3.5	1	28	37	43	56	—	—	—	—	—	—	—	—	3.1			
	RQ5E030AJ	TCL		30	3	1	—	—	57	75	—	—	81	109	—	—	—	—	2.1			
	RQ5E025SN	TL		30	2.5	1	50	70	74	105	83	118	—	—	—	—	—	—	2.9*			
	RQ5E025TN	TL		30	2.5	1	—	—	66	92	70	98	95	133	—	—	—	—	3.3			
	RQ5H030TN	TL		45	3	1	—	—	48	67	53	74	68	95	—	—	—	—	6.2			
	RQ5H025TN	TL		45	2.5	1	—	—	95	130	100	140	125	175	—	—	—	—	3.2			
	RQ5H020TN	TL		45	2	1	—	—	130	180	135	190	180	250	—	—	—	—	2.9			
	New RQ5L045BG	TCL		60	4.5	1	24	32	33	49	—	—	—	—	—	—	—	—	3.9			
	RQ5L030SN	TL		60	3	1	60	85	70	100	75	105	—	—	—	—	—	—	5*			
	RQ5L020SN	TL		60	2	1	120	170	140	195	150	210	—	—	—	—	—	—	2.7*			
	New RQ5P035BG	TCL		100	3.5	1	46	60	58	81	—	—	—	—	—	—	—	—	3.3			
	RQ5P010SN	TL		100	1	1	370	520	400	560	410	580	—	—	—	—	—	—	3.5*			
	RQ5A040ZP	TL	P	-12	-4	1	—	—	22	30	—	—	30	42	40	60	55	110	30			
	RQ5A030AP	TL		-12	-3	1	—	—	44	62	—	—	55	77	75	110	90	180	16			
	RQ5A025ZP	TL		-12	-2.5	1	—	—	44	61	—	—	60	84	81	121	110	220	13			
	RQ5A020ZP	TL		-12	-2	1	—	—	75	105	—	—	105	145	150	225	200	400	6.5			
	RQ5C060BC	TCL		-20	-6	1	—	—	16.1	21.1	—	—	20.3	26.9	27.4	51.0	—	—	19.2			
	RQ5C035BC	TCL		-20	-3.5	1	—	—	42	59	—	—	54	76	84	135	—	—	6.5			
	RQ5C030TP	TL		-20	-3	1	—	—	55	75	60	85	90	125	—	—	—	—	9.3			
	RQ5C025TP	TL		-20	-2.5	1	—	—	70	95	75	105	115	160	—	—	—	—	7			
	RQ5C020TP	TL		-20	-2	1	—	—	100	135	110	150	180	250	—	—	—	—	4.9			
	RQ5E050AT	TCL		-30	-5	1	21	26	30	37	—	—	—	—	—	—	—	—	9.7			
	RQ5E040RP	TL		-30	-4	1	32	45	45	63	52	72	—	—	—	—	—	—	10.5*			
	RQ5E035AT	TCL		-30	-3.5	1	38	50	54	70	—	—	—	—	—	—	—	—	5.2			
	RQ5E030RP	TL		-30	-3	1	55	75	85	115	95	125	—	—	—	—	—	—	5.2*			
	RQ5E025SP	TL		-30	-2.5	1	70	98	100	140	115	160	—	—	—	—	—	—	5.4*			
	RQ5E025AT	TCL		-30	-2.5	1	70	91	104	135	—	—	—	—	—	—	—	—	2.7			
	RQ5E020SP	TL		-30	-2	1	85	120	135	190	150	210	—	—	—	—	—	—	4.3*			
	RQ5E015RP	TL		-30	-1.5	1	115	160	170	240	190	270	—	—	—	—	—	—	3.2*			
	RQ5H020SP	TL		-45	-2	1	130	190	180	260	200	280	—	—	—	—	—	—	9.5*			
	RQ5L015SP	TL		-60	-1.5	1	200	280	240	340	255	360	—	—	—	—	—	—	10*			
SOT-25T (TSMT5) 2928 size	QS5K2	TR	N+N	30	2	1.25	—	—	71	100	76	107	110	154	—	—	—	—	2.8			
	RQ6C050UN	TR		20	5	1.25	—	—	22	30	—	—	27	38	32	45	40	80	12			
	RQ6E085BN	TCR		30	8.5	1.25	11.1	14.4	13.9	17.3	—	—	—	—	—	—	—	—	16.6			
	RQ6E080AJ	TCR		30	8	1.25	—	—	12.5	16.5	—	—	15.7	19.5	—	—	—	—	16.2			
	RQ6E055BN	TR		30	5.5	1.25	19	25	30	39	—	—	—	—	—	—	—	—	4.4			
	RQ6E050AJ	TCR		30	5	1.25	—	—	26	35	—	—	38	50	—	—	—	—	4.7			
	RQ6E045BN	TCR		30	4.5	1.25	21	30	35	49	—	—	—	—	—	—	—	—	4.7			
	RQ6E045TN	TR		30	4.5	1.25	—	—	30	43	32	45	42	60	—	—	—	—	7.6			
	RQ6E045SN	TR		30	4.5	1.25	27	38	36	51	40	56	—	—	—	—	—	—	6.8*			
	RQ6E040XN	TCR		30	4	1.25	35	50	45	65	50	70	—	—	—	—	—	—	33*			
	RQ6E035TN	TR		30	3.5	1.25	—	—	38	54	40	56	55	77	—	—	—	—	4.6			
	RTQ020N03	TR	P	30	2	1.25	—	—	89	125	94	132	138	194	—	—	—	—	2.4			
	RVQ040N05	TR		45	4	1.25	38	53	47	66	53	74	—	—	—	—	—	—	6.3*			
	RTQ020N05	TR		45	2	1.25	—	—	140	190	150	210	200	280	—	—	—	—	2.3			
	RSQ015N06	TR		60	1.5	1.25	210	290	240	330	255	350	—	—	—	—	—	—	2*			
	QS6K1	TR		30	1	1.25	—	—	170	238	180	252	260	364	—	—	—	—	1.7			
	QS6K21	TR		45	1	1.25	—	—	300	420	310	435	415	585	—	—	—	—	1.5			
	RQ6A050ZP	TR		-12	-5	1.25	—	—	19	26	—	—	26	36	33	49	44	88	35			
	RQ6A045AP	TCR		-12	-4.5	1.25	—	—	22	30	—	—	28	39	38	57	50	100	40			
	RAQ045P01	TCR		-12	-4.5	1.25	—	—	22	30	—	—	28	39	38	57	50	100	40			
	RQ6A045ZP	TR		-12	-4.5	1.25	—	—	25	35	—	—	31	43	39	58	50	100	31			
	RQ6C065BC	TCR		-20	-6.5	1.25	—	—	14.9	21	—	—	18.6	26	25	50	—	—	22			
	RQ6C050BC	TCR		-20	-5	1.25	—	—	27	36	—	—	35	47	48	77	—	—	10.4			
	RQ6E060AT	TCR		-30	-6	1.25	20.3	26.4	26.8	34.6	—	—	—	—	—	—	—	—	12.9			
	RQ6E050AT	TCR		-30	-5	1.25	21	27	29	38	—	—	—	—	—	—	—	—	10.4			
	RQ6E045RP	TR		-30	-4.5	1.25	25	35	34	48	38	53	—	—	—	—	—	—	14*			
	RRQ045P03	TR		-30	-3.5	1.25	38	50	54	70	—	—	—	—	—	—	—	—	5.2			
	RQ6E035AT	TR		-30	-3.5</																	

Power MOSFET series

Package	Product No.		Polarity (ch)	V _{DSS} (V)	I _D (A)	P _D (W) (T _a =25°C)	R _{DS(on)} (mΩ)										Q _g (nC) (V _{GS} =4.5)		
	Part No.	Packing code					V _{GS} =10V		V _{GS} =4.5V		V _{GS} =4.0V		V _{GS} =2.5V		V _{GS} =1.8V				
			Typ	Max	Typ	Max	Typ	Max	Typ	Max	Typ	Max	Typ	Max	Typ	Max			
(TSMT8) 3028 size	RQ1C075UN	TR	N	20	7.5	1.5	—	—	11	16	—	—	14	20	17	24	20	40	18
	RQ1C065UN	TR		20	6.5	1.5	—	—	16	22	—	—	19	27	24	32	29	58	11
	RQ7E110AJ	TCR		30	11	1.5	—	—	6.8	9	—	—	9.1	12.4	—	—	—	—	22
	RQ1E100XN	TR		30	10	1.5	7.5	10.5	9.5	13.3	10	14	—	—	—	—	—	—	12.7 ^{*1}
	RQ1E075XN	TCR		30	7.5	1.5	12	17	17	24	19	27	—	—	—	—	—	—	6.8 ^{*1}
	RQ7G080BG	TCR		40	8	1.5	12.7	16.5	15.5	24	—	—	—	—	—	—	—	—	5.0
	RQ7L055BG	TCR		60	5.5	1.5	22	29	30	42	—	—	—	—	—	—	—	—	3.9
	QH8KA4	TCR		30	9	1.5	—	—	12.5	17	13	18	17	24	—	—	—	—	12
	QH8KA3	TCR		30	9.0 ^{*2}	2.6 ^{*2}	12.3	16.0	18.2	23.7	—	—	—	—	—	—	—	—	7.9
	QS8K13	TCR		30	6	1.5	20	28	25	35	28	39	—	—	—	—	—	—	5.5 ^{*1}
N+N	QH8KA2	TCR		30	4.5	1.5	25	35	40	56	—	—	—	—	—	—	—	—	4.7
	QH8KA1	TCR		30	4.5 ^{*2}	2.4 ^{*2}	56	73	86	112	—	—	—	—	—	—	—	—	1.5
	QS8K11	TCR		30	3.5	1.5	35	50	45	65	50	70	—	—	—	—	—	—	3.3 ^{*1}
	QH8KB6	TCR		40	8	1.5	13.7	17.7	16.4	27	—	—	—	—	—	—	—	—	5.0
	QH8KB5	TCR		40	7.5 ^{*2}	1.5	34	44	44	74	—	—	—	—	—	—	—	—	1.8
	QS8K21	TR		45	4	1.5	38	53	48	67	53	75	—	—	—	—	—	—	5.4 ^{*1}
	QH8KC6	TCR		60	5.5	1.5	23	30	31	44	—	—	—	—	—	—	—	—	3.9
	QH8KC5	TCR		60	3	1.5	70	90	100	140	—	—	—	—	—	—	—	—	1.7
	New QH8KE6	TCR		100	4	1.5	43	56	55	82	—	—	—	—	—	—	—	—	3.3
	New QH8KE5	TCR		100	2	1.5	155	202	210	315	—	—	—	—	—	—	—	—	1.6
	QH8K51	TR		100	2	1.5	240	325	250	340	260	355	—	—	—	—	—	—	4.7 ^{*1}
P	RQ1A070AP	TR		-12	-7	1.5	—	—	10	14	—	—	13	19	18	27	24	48	80
	RQ1A060ZP	TR		-12	-6	1.5	—	—	16	23	—	—	22	31	28	42	39	78	34
	RQ7E100AT	TCR		-30	-10	1.5	8.7	11.2	11.9	14.8	—	—	—	—	—	—	—	—	26
	RQ1E070RP	TR		-30	-7	1.5	12	17	17	24	19	27	—	—	—	—	—	—	26 ^{*1}
	RQ7E055AT	TCR		-30	-5.5	1.5	19.3	24.5	28.2	36.1	—	—	—	—	—	—	—	—	9.4
	RQ1E050RP	TR		-30	-5	1.5	22	31	32	45	36	50	—	—	—	—	—	—	13 ^{*1}
	RQ7G080AT	TCR		-40	-8	1.5	14.7	18.2	18.1	22.6	—	—	—	—	—	—	—	—	18
	RQ7L050AT	TCR		-60	-5	1.5	31	39	35	44	—	—	—	—	—	—	—	—	18
	New RQ7P035AT	TCR		-100	-3.5	1.5	85	111	91	118	—	—	—	—	—	—	—	—	21
	QS8J13	TR		-12	-5.5	1.5	—	—	15	22	—	—	19	28	24	38	29	58	60
P+P	QS8J2	TR		-12	-4	1.5	—	—	26	36	—	—	36	50	46	69	66	132	20
	QH8JA1	TCR		-20	-5	1.5	—	—	28	38	—	—	35	48	49	77	—	—	10.2
	QS8J5	TR		-30	-5	1.5	28	39	40	56	45	63	—	—	—	—	—	—	10 ^{*1}
	QS8J4	TR		-30	-4	1.5	40	56	55	77	60	84	—	—	—	—	—	—	8.4 ^{*1}
	QH8JB5	TCR		-40	-5	1.5	33	41	41	51	—	—	—	—	—	—	—	—	9.0
	QH8JC5	TCR		-60	-3.5	1.5	71	91	79	101	—	—	—	—	—	—	—	—	8.5
	New QH8JE5	TCR		-100	-2	1.5	210	270	220	290	—	—	—	—	—	—	—	—	10.2
	QH8MA4	TCR		30	9 ^{*2}	2.6 ^{*2}	12.3	16	18.2	23.7	—	—	—	—	—	—	—	—	7.9
	QH8MA3	TCR		30	7 ^{*2}	2.5 ^{*2}	22	29	35	46	—	—	—	—	—	—	—	—	3.7
	QH8MA2	TCR		30	-5.5 ^{*2}	2.5 ^{*2}	37	48	55	72	—	—	—	—	—	—	—	—	5.2
N+P	QH8MB5	TCR		30	4.5	1.5	25	35	40	56	—	—	—	—	—	—	—	—	4.7
	QH8MC5	TCR		-30	-3	1.5	55	80	80	115	—	—	—	—	—	—	—	—	4.3
	QS8M31	TR		40	4.5	1.5	34	44	44	74	—	—	—	—	—	—	—	—	1.8
	QH8ME5	TCR		-40	-5	1.5	33	41	41	51	—	—	—	—	—	—	—	—	9.0
	QS8M31	TR		60	3	1.5	70	90	100	140	—	—	—	—	—	—	—	—	1.7
	New QH8ME5	TCR		60	-3.5	1.5	71	91	79	101	—	—	—	—	—	—	—	—	8.5
	QS8M51	TR		-60	-2	1.5	80	112	93	130	98	137	—	—	—	—	—	—	4 ^{*1}
	QS8M51	TR		-100	-2	1.5	150	210	180	252	190	266	—	—	—	—	—	—	7.2 ^{*1}
	QS8M51	TR		100	2	1.5	147	190	190	290	—	—	—	—	—	—	—	—	1.6
	QS8M51	TR		-100	-2	1.5	210	270	220	290	—	—	—	—	—	—	—	—	10.2
	QS8M51	TR		100	2	1.5	240	325	250	340	260	355	—	—	—	—	—	—	4.7 ^{*1}
	QS8M51	TR		-100	-1.5	1.5	350	470	380	510	400	540	—	—	—	—	—	—	17 ^{*1}

Note1: () : ROHM Packages at package site.

Note2: *1 V_{Gs}=5V *2, *3, *4, *5 Please note that, although the internal circuit configuration may differ between part numbers, the electrical specifications remain the same. *6 V_{Gs}=1.8V

Package	Product No.		Polarity (ch)	V _{DSS} (V)	I _D (A)	P _D (W) (T _a =25°C)	R _{DS(on)} (mΩ)										Q _g (nC) (V _{GS} =4.5V)	
	Part No.	Packing code					V _{GS} =10V		V _{GS} =4.5V		V _{GS} =4.0V		V _{GS} =2.5V		V _{GS} =1.5V			
			Typ	Max	Typ	Max	Typ	Max	Typ	Max	Typ	Max	Typ	Max	Typ	Max		
SOT-353T (TUMT5) 2021 size	US5U1	TR	N+SBD (0.5A)	30	1.5	1	—	—	170	240	180	250	240	340	—	—	—	1.6
	US5U2	TR		30	1.4	1	—	170	240	250	350	270	380	—	—	—	—	1.4 ^{*1}
	US5U30	TR		-20	-1	1	—	—	280	390	310	430	570	800	—	—	—	2.1

Power MOSFETs

Power MOSFETs

Package	Application	Product No.		Polarity (ch)	V _{DSS} (V)	I _D (A)	P _D (W) (T _s =25°C)	R _{DS(on)} (mΩ)												Q _g (nC) (V _{GS} =4.5V)		
		Part No.	Packing code					V _{GS} =10V	V _{GS} =6V	V _{GS} =4.5V	V _{GS} =4.0V	V _{GS} =2.5V	V _{GS} =1.8V	V _{GS} =1.5V	V _{GS} =10V	V _{GS} =6V	V _{GS} =4.5V	V _{GS} =4.0V	V _{GS} =2.5V	V _{GS} =1.8V	V _{GS} =1.5V	
TO-243 SOT-89 (MPT3) 4540 size	DC-DC Converter Motor Drive	RHP030N03	T100	N	30	3	2	90	120	—	—	—	—	160	210	—	—	—	—	—	6.5*	
		RHP020N06	T100		60	2	2	150	200	—	—	200	280	240	340	—	—	—	—	—	—	7*
		RJP020N06	T100		60	2	2	—	—	—	—	165	240	170	250	210	300	—	—	—	—	5**
DFN1616-7T (HEML1616L7) 1616 size	Load Switch Switching	RW4E075AJ	TCL1	N	30	7.5	1.5	—	—	—	—	18.5	26	—	—	26.6	38	—	—	—	—	6.3
		RW4E065GN	TCL1		30	6.5	1.5	18.2	22.5	—	—	25.1	31.6	—	—	—	—	—	—	—	—	2.1
		RW4E045AJ	TCL1		30	4.5	1.5	—	—	—	—	28	40	—	—	41	58	—	—	—	—	4
		RW4E045AT	TCL1	P	-30	-4.5	1.5	34	48	—	—	50	70	—	—	—	—	—	—	—	—	5.3
		RW4C045BC	TCL1		-20	-4.5	1.5	—	—	—	—	39	56	—	—	52	74	73	117	—	—	6.5
DFN2020-8S (HUML2020L8) Single 2020 size	DC-DC Converter Motor Drive	RF4E110GN	TR	N	30	11	2	8.7	11.3	—	—	11.7	16.5	—	—	—	—	—	—	—	—	3.5
		RF4E080GN	TR		30	8	2	13.5	17.6	—	—	17.6	31.2	—	—	—	—	—	—	—	—	2.8
		RF4E070GN	TR		30	7	2	16.4	21.4	—	—	23	33	—	—	—	—	—	—	—	—	2.2
		RF4G100BG	TCR		40	10	2	10.9	14.2	—	—	13.7	23.0	—	—	—	—	—	—	—	—	5.0
		RF4L070BG	TCR		60	7	2	21	27	—	—	29	40	—	—	—	—	—	—	—	—	3.9
	Load Switch Switching	RF4E110BN	TR	N	30	11	2	8.5	11.1	—	—	11.8	15.4	—	—	—	—	—	—	—	—	12
		RF4E100AJ	TCR		30	10	2	—	—	—	—	9.4	12.4	—	—	13.3	17.9	—	—	—	—	13
		RF4E080BN	TR		30	8	2	13.5	17.6	—	—	18.9	24.6	—	—	—	—	—	—	—	—	7.2
		RF4E070BN	TR		30	7	2	22	28.6	—	—	30.8	40	—	—	—	—	—	—	—	—	4.6
		RF4E060AJ	TCR		30	6	2	—	—	—	—	28	37	—	—	41	55	—	—	—	—	4
		RF4P060BG	TCR	P	100	6	2	41	53	—	—	52	78	—	—	—	—	—	—	—	—	3.3
		RF4C050AP	TR		-20	-10	2	—	—	—	—	18	26	—	—	22	31	27	45	32	65	55
		RF4C100BC	TCR		-20	-10	2	—	—	—	—	12	15.6	—	—	15.4	20	23.5	37.6	—	—	23.5
		RF4E075AT	TCR		-30	-7.5	2	16.7	21.7	—	—	24.4	31.7	—	—	—	—	—	—	—	—	11
		RF4G060AT	TCR		-40	-6	2	32	40	—	—	40	51	—	—	—	—	—	—	—	—	8.5
		RF4L040AT	TCR	P	-60	-4	2	70	89	—	—	78	100	—	—	—	—	—	—	—	—	8.5
		RF4P025AT	TCR		-100	-2.5	2	200	260	—	—	220	280	—	—	—	—	—	—	—	—	10.2
DFN2020-8D (HUML2020L8) Dual 2020 size	Load Switch Switching	UT6K3	TCR	N+N	30	5.5	2	—	—	—	—	30	42	—	—	45	63	—	—	—	—	4
		UT6KB5	TCR		40	5	2	37	48	—	—	48	80	—	—	—	—	—	—	—	—	1.8
		UT6KC5	TCR		60	3.5	2	73	95	—	—	104	145	—	—	—	—	—	—	—	—	1.7
		UT6KE5	TCR		100	2	2	159	207	—	—	230	345	—	—	—	—	—	—	—	—	1.6
		UT6JA3	TCR	P+P	-20	-5	2	—	—	—	—	42	59	—	—	54	76	76	118	—	—	6.5
		UT6J3	TCR		-20	-3	2	—	—	—	—	60	85	—	—	65	95	95	155	130	260	8.5
		UT6JA2	TCR		-30	-4	2	55	70	—	—	80	103	—	—	—	—	—	—	—	—	3.4
	Motor	UT6JB5	TCR	N+P	-40	-3.5	2	95	122	—	—	121	155	—	—	—	—	—	—	—	—	3.3
		UT6JC5	TCR		-60	-2.5	2	220	280	—	—	250	320	—	—	—	—	—	—	—	—	3.2
		UT6JE5	TCR		-100	-1	2	650	840	—	—	690	900	—	—	—	—	—	—	—	—	3.7
		UT6MA3	TCR		20	5.5	2	—	—	—	—	30	42	—	—	45	63	—	—	—	—	4
		UT6MA2	TCR		-20	-5	2	—	—	—	—	42	59	—	—	54	76	—	—	—	—	6.5
		UT6MB5	TCR		30	4	2	37	46	—	—	59	80	—	—	—	—	—	—	—	—	2.2
		UT6MC5	TCR		-30	-4	2	55	70	—	—	80	103	—	—	—	—	—	—	—	—	3.3
		UT6ME5	TCR		40	5	2	37	48	—	—	48	80	—	—	—	—	—	—	—	—	1.8
		UT6MD5	TCR		-40	-3.5	2	95	122	—	—	121	155	—	—	—	—	—	—	—	—	3.3
		UT6NC5	TCR		60	3.5	2	73	95	—	—	104	145	—	—	—	—	—	—	—	—	1.7
		UT6NE5	TCR		-60	-2.5	2	220	280	—	—	250	320	—	—	—	—	—	—	—	—	3.2
		UT6ND5	TCR		100	2	2	159	207	—	—	230	345	—	—	—	—	—	—	—	—	1.6
		UT6NF5	TCR		-100	-1	2	650	840	—	—	690	900	—	—	—	—	—	—	—	—	3.7

Note1: () : ROHM Packages at package site.
Note2: *1 V_{GS}=10V *2 V_{GS}=4V

Power MOSFETs

Package	Application	Product No.		Polarity (ch)	V _{DSS} (V)	I _D (A) (T _{case} =25°C)	P _D (W) (T _{case} =25°C)	R _{DS(on)} (mΩ)												Q _G (nC) (V _{GS} =4.5V)
		Part No.	Packing code					Typ	Max	Typ	Max	Typ	Max	Typ	Max	Typ	Max	Typ	Max	
 (HSMT8) 3333 size Single	DC-DC Converter Switching	<i>New</i> RH6E040BG	TB1	N	30	125 ^{*2,*3}	78	2.1	2.9	—	—	3.2	4.6	—	—	—	—	—	—	14
		RQ3E180GN	TB1		30	39	20	3.3	4.3	—	—	4.3	6.1	—	—	—	—	—	—	11
		RQ3E150GN	TB		30	39	17	4.7	6.1	—	—	6.2	8.8	—	—	—	—	—	—	7.4
		RQ3E120GN	TB		30	27	15	6.7	8.8	—	—	9.1	13.8	—	—	—	—	—	—	4.8
		RQ3E100GN	TB		30	21	15	8.9	11.7	—	—	12	20	—	—	—	—	—	—	3.9
		RQ3E080GN	TB		30	18	14	12.9	16.7	—	—	17.5	31.2	—	—	—	—	—	—	2.8
		<i>New</i> RH6G040BG	TB1		40	95 ^{*2,*3}	59	2.8	3.6	—	—	4.7	6.5	—	—	—	—	—	—	12.5
		<i>New</i> RH6L040BG	TB1		60	65 ^{*2,*3}	59	5.5	7.1	—	—	8	11.2	—	—	—	—	—	—	9.2
		<i>New</i> RQ3L070BG	TB1		60	20	15	19.8	24.7	—	—	27.6	37.3	—	—	—	—	—	—	3.9
		<i>New</i> RQ3L060BG	TB1		60	15.5	14	29	38	—	—	42	58	—	—	—	—	—	—	2.9
	Load Switch Switching	<i>New</i> RH6P040BH	TB1		100	40 ^{*3}	59	12	15.6	15.6	23.3	—	—	—	—	—	—	—	—	10.9 ^{*5}
		RQ3P300BH	TB1		100	39 ^{*3}	32	11.9	15.5	15.6	24.0	—	—	—	—	—	—	—	—	18 ^{*2}
		<i>New</i> RH6R025BH	TB1		150	25 ^{*3}	59	46	60	49	73	—	—	—	—	—	—	—	—	11 ^{*5}
		RQ3E180BN	TB1		30	39	20	2.8	3.9	—	—	3.7	5.2	—	—	—	—	—	—	37
		RQ3E150BN	TB		30	39	17	3.8	5.3	—	—	5.3	7.4	—	—	—	—	—	—	23
		RQ3E130BN	TB		30	39	16	4.4	6	—	—	6.7	9.4	—	—	—	—	—	—	16
		RQ3E180AJ	TB1		30	30	30	—	—	—	—	3.5	4.5	—	—	4.5	5.8	—	—	39
		RQ3E110AJ	TB		30	24	15	—	—	—	—	8.8	11.7	—	—	12.6	16.5	—	—	13.5
		RQ3E120BN	TB		30	21	16	6.6	9.3	—	—	8.6	11.9	—	—	—	—	—	—	14
		RQ3E100BN	TB1		30	21	15	7.7	10.4	—	—	11	15.3	—	—	—	—	—	—	10.5
 (HSMT8) 3333 size Dual	Motor	<i>New</i> HT8KB6	TB1	N+N	40	15	14	13.3	17.2	—	—	19.3	27	—	—	—	—	—	—	5
		<i>New</i> HT8KB5	TB1		40	12	13	36	47	—	—	58	81	—	—	—	—	—	—	1.8
		<i>New</i> HT8KC6	TB1		60	15	14	23	29	—	—	31	43	—	—	—	—	—	—	3.9
		<i>New</i> HT8KC5	TB1		60	10	13	69	90	—	—	99	139	—	—	—	—	—	—	1.7
		<i>New</i> HT8KE6	TB1		100	13	14	44	57	—	—	56	83	—	—	—	—	—	—	3.3
		<i>New</i> HT8KE5	TB1		100	7	13	148	193	—	—	200	300	—	—	—	—	—	—	1.7
	DC-DC Converter	HS8K1	TB		30	10 ^{*1}	2 ^{*1}	11.2	14.6	—	—	14.7	20	—	—	—	—	—	—	2.7
		HS8K11	TB		30	11 ^{*1}	2 ^{*1}	9.1	11.8	—	—	11.9	16.5	—	—	—	—	—	—	3.3
		HS8K11	TB		30	7 ^{*1}	2 ^{*1}	12.8	17.9	—	—	20.8	29.1	—	—	—	—	—	—	5.7
		HS8K11	TB		30	11 ^{*1}	2 ^{*1}	10.2	13.3	—	—	11.8	15.4	—	—	—	—	—	—	9
 (HSML3030L10) 3030 size	Motor	HS8MA2	TCR1	N+P	30	7.0 ^{*4}	4 ^{*4}	25	35	—	—	40	56	—	—	—	—	—	—	4.7
					-30	-5.5 ^{*4}	4 ^{*4}	55	80	—	—	80	115	—	—	—	—	—	—	4.3

Note1: (): ROHM Packages at package site.

Note2: *1 T_{case}=25°C *2 Silicon limit *3 V_{GS}=10V *4 P_W≤1s *5 V_{GS}=6V

Power MOSFETs

Power MOSFET series

Package	Product No.		Polarity (ch)	V _{DSS} (V)	I _D (A)	P _D (W) (T _a =25°C)	R _{DS(on)} (mΩ)				Q _g (nC) (V _{GS} =5V)					
	Part No.	Packing code					V _{GS} =10V		V _{GS} =4.5V							
							Typ	Max	Typ	Max						
SOP8 (SOP8) 5060 size	RS3E135BN	TB	N	30	13.5	2	5.7	7.4	8.5	10.9	—	—	16.6*1			
	RXH125N03	TB		30	12.5	2	7.5	12	9.5	13.3	10	14	12.7			
	RXH100N03	TB1		30	10	2	9.5	13	12	17	13	18	11			
	RS3E095BN	TB		30	9.5	2	11.9	14.6	17.5	21.9	—	—	8.3*1			
	RXH090N03	TB1		30	9	2	12	17	17	24	19	27	6.8			
	RXH070N03	TB1		30	7	2	20	28	25	35	28	39	5.8			
	RSH070N05	TB1		45	7	2	18	25	23	32	25	35	12			
	RSH065N06	TB1		60	6.5	2	24	37	28	44	31	48	11			
	RS3E180AT	TB1	P	-30	-18	2	4.1	5.4	5	6.1	—	—	80*1			
	RRH140P03	TB		-30	-14	2	5	7	6.7	9.4	7.3	10.2	80			
	RS3E130AT	TB1		-30	-13	2	6.5	8.5	8.6	11.2	—	—	83*2			
	RRH100P03	TB1		-30	-10	2	9	12.6	12.5	17.5	14	19.6	39			
	RRH090P03	TB1		-30	-9	2	11	15.4	15	21	17	24	30			
	RS3E075AT	TB1		-30	-7.5	2	18	23.5	24	31	—	—	12.8*1			
	RRH050P03	TB1		-30	-5	2	36	50	52	72	58	80	9.2			
	RRH040P03	TB1		-30	-4	2	55	75	85	115	95	125	5.2			
	RS3G160AT	TB1		-40	-16	2	5	6.2	6.1	7.6	—	—	55*1			
	RSH070P05	TB1		-45	-7	2	19	27	25	35	28	39	34			
	RS3L110AT	TB1	N+N	-60	-11	2	10.1	12.8	11.2	14.3	—	—	55*1			
	RS3P070AT	TB1		-100	-7	2	28	36	30	38	—	—	57*1			
	SH8KA7	TB		30	15*3	4.6*3	7.1	9.1	8.3	10.7	—	—	41*1			
	SH8KA4	TB		30	9*3	3*3	16.5	21.4	22.2	28.9	—	—	7.9*1			
	SH8KA2	TB		30	8*3	2.8*3	23	28	34	43	—	—	4.1*1			
	SH8K12	TB		30	6*3	2	30	42	40	56	45	63	4			
	SH8KA1	TB		30	4.5*3	2.7*3	54	69	84	109	—	—	1.6*1			
	SH8K11	TB		30	3.5	2	70	98	90	126	100	140	1.9			
	SH8KB6	TB1		40	8.5	2	14.9	19.4	18.2	26	—	—	5.0*1			
	SH8KB7	TB1		40	13.5	2	6.5	8.4	7.5	10.5	—	—	13*1			
	SH8KC6	TB1		60	6.5	2	25	32	33	46	—	—	3.9*1			
	SH8KC7	TB1		60	10.5	2	9.5	12.4	12.3	17.2	—	—	10.8*1			
	SH8KE7	TB1	P+P	100	8	2	16.1	20.9	19.7	29.6	—	—	10.5*1			
	SH8KE6	TB1		100	4.5	2	45	58	56	84	—	—	3.3*1			
	SH8J66	TB1		-30	-9	2	13.5	18.5	17.5	23.6	19	24.7	35			
	SH8J65	TB1		-30	-7	2	21.5	29	29	39	31	40.8	18			
	SH8J62	TB1		-30	-4.5	2	40	56	55	77	60	84	8			
	SH8JB5	TB1		-40	-8.5	2	12.4	15.3	15	18.7	—	—	25*1			
	SH8JC5	TB1		-60	-7.5	2	25	32	28	35	—	—	23*1			
	SH8J31	TB		-60	-4.5	2	50	70	55	80	60	85	40*2			
	SH8JE5	TB1		-100	-4.5	2	70	91	74	96	—	—	25*1			
	SH8MA4	TB1	N+P	30	9*3	3.0*3	16.5	21.4	22.2	32.5	—	—	7.9*1			
				-30	-8.5*3		23	29.6	32	41.3	—	—	9.8*1			
	SH8MA3	TB1		30	7*3	2.8*3	23	28	42	57	—	—	3.7*1			
				-30	-6*3		40	50	60	73	—	—	5.2*1			
	SH8MA2	TB		30	4.5*3	2.7*3	57	80	88	125	—	—	1.5*1			
				-30	-4.5*3		63	82	89	115	—	—	3.4*1			
	SH8MB5	TB1		40	8.5	2	14.9	19.4	18.2	26	—	—	5*1			
				-40	-8.5		13.9	16.8	16.5	21	—	—	25*1			
	New SH8MB4	TB1		40	4.5	2	42	55	65	91	—	—	1.8*1			
				-40	-5.6		36	46	44	56	—	—	9.0*1			
	New SH8MC4	TB1		60	3.5	2	73	95	106	148	—	—	1.7*1			
				-60	-4		75	96	84	107	—	—	8.5*1			
	SH8M24	TB1		45	4.5	2	33	46	41	57	46	64	6.8			
				-45	-3.5		45	63	60	84	66	92	13			
	SH8MC5	TB1		60	6.5	2	25	32	33	46	—	—	3.9*1			
				-60	-7		27	33	29	37	—	—	23*1			
	SH8M31	TB		60	4.5	2	46	65	52	73	55	77	7*1			
				-60	-4.5		50	70	55	80	60	85	20*1			
	SH8M41	TB1		80	3.4	2	90	130	110	150	120	160	6.6			
				-80	-2.6		165	240	220	300	230	310	8.2			
	SH8ME5	TB1		100	4.5	2	45	58	56	84	—	—	3.3*1			
				-100	-4.5		70	91	74	96	—	—	25*1			

Note1: (): ROHM Packages at package site.
 Note2: *1 V_{GS}=4.5V *2 V_{GS}=10V *3 P_{WS}≤1s

Power MOSFET series

Package	Application	Product No.		Polarity (ch)	V _{DSS} (V)	I _D (A) (T _C =25°C)	P _D (W) (T _C =25°C)	R _{DS(on)} (mΩ)						Q _g (nC) (V _{GS} =4.5V)					
		Part No.	Packing code					V _{GS} =10V		V _{GS} =6V		V _{GS} =4.5V							
								Typ	Max	Typ	Max	Typ	Max						
HSOP8 (HSOP8) 5060 size Single	Load Switch	RS1E350BN	TB1	N	30	80	35	1.2	1.7	—	—	1.8	2.5	95					
		RS1E281BN	TB1		30	80	30	1.7	2.3	—	—	2.3	3.2	50					
		RS1E200BN	TB1		30	68	25	2.8	3.9	—	—	3.8	5.3	29					
		RS1E180BN	TB		30	60	25	3.5	4.9	—	—	4.9	6.9	23					
		RS1E240BN	TB		30	40	30	2.3	3.2	—	—	3.3	4.6	35					
		RS1E260AT	TB1	P	-30	-80	40	2.5	3.1	—	—	3.5	4.3	87					
		RS1E220AT	TB1		-30	-76	34	3.3	4.1	—	—	4.6	5.8	65					
		RS1G201AT	TB1		-40	-78	40	4.2	5.2	—	—	5.2	6.5	62					
	DC-DC Converter Switching	RS1L151AT	TB1	N	-60	-56	40	8.9	11.3	—	—	9.9	12.6	59					
		New RS1N110AT	TB1		-80	-43	40	16.3	21	17.4	22	—	—	83**					
		RS1P090AT	TB1		-100	-33	40	26	34	—	—	28	36	62					
		RS1E350GN	TB		30	80	39	1.48	1.76	—	—	1.92	2.40	32.7					
		RS1E321GN	TB1		30	80	34	1.4	1.9	—	—	1.8	2.9	19.6					
		RS1E301GN	TB1		30	80	33	1.7	2.2	—	—	2.2	3.3	18.5					
		RS1E280GN	TB		30	80	31	2.0	2.6	—	—	2.6	3.8	17.1					
		RS1E240GN	TB		30	72	27	2.6	3.3	—	—	3.3	5.2	11.2					
	DC-DC Converter Switching	RS1E200GN	TB	N	30	57	25	3.6	4.6	—	—	4.7	7.5	7.8					
		RS1E170GN	TB		30	40	23	5.1	6.7	—	—	6.7	10.3	5.9					
		RS1E150GN	TB		30	40	22	6.7	8.8	—	—	8.8	13.3	4.8					
		RS1E130GN	TB		30	35	22	8.9	11.7	—	—	11.7	17.7	3.9					
		New RS6E120BG	TB1		30	270*1,*2	138	0.79	1.1	—	—	1.2	1.76	35					
		New RS6E122BG	TB1		30	155*1,*2	89	1.51	2.16	—	—	2.27	3.37	23					
		New RS6G120CH	TB1		40	225*1,*2	166	0.78	0.91	1.25	1.76	—	—	44**					
		New RS6G120BG	TB1		40	210*1,*2	104	1.03	1.34	—	—	1.74	2.43	34					
		New RS6G100BG	TB1		40	100*2	59	2.6	3.4	—	—	4.6	6.5	11.8					
		New RS6L120BG	TB1		60	150*1,*2	104	2.1	2.7	—	—	3	4.2	25					
		New RS6L090BG	TB1		60	90*2	73	3.6	4.7	—	—	5.3	7.4	14.0					
		New RS6N120BH	TB1		80	135*1,*2	104	2.8	3.3	3.5	4.9	—	—	33**					
		New RS6P100BH	TB1		100	100*2	104	4.5	5.9	5.8	8.7	—	—	29**					
		New RS6P060BH	TB1		100	60*2	73	8.2	10.6	10.7	16	—	—	16.2**					
		New RS1P600BH	TB1		100	60	35	6.7	8.8	8.6	12.9	—	—	21**					
		New RS6R060BH	TB1		150	60*2	104	16.7	21.8	17.9	26.8	—	—	30**					
		New RS6R035BH	TB1		150	35*2	73	32	41	34	50	—	—	16.2**					
DFN5060-8S (DFN5060T8LSHAAE) 5060 size	DC-DC Converter Motor	New RS7E200BG	TB1	N	30	390*1,*2	180	0.53	0.7	—	—	0.75	1.06	60					
		New RS7N200BH	TB1		80	230*1,*2	180	1.7	2	2.1	2.9	—	—	45**					

Note1: () : ROHM Packages at package site.

Note2: *1 Silicon limit *2 V_{GS}=10V *3 V_{GS}=6V

Power MOSFET series

Package	Application	Product No.		Polarity (ch)	V _{DSS} (V)	I _D (A) (T _C =25°C)	P _D (W) (T _C =25°C)	R _{DS(on)} (mΩ)				Q _g (nC) (V _{GS} =4.5V)					
		Part No.	Packing code					V _{GS} =10V		V _{GS} =4.5V							
								Typ	Max	Typ	Max						
HSOP8 (HSOP8) 5060 size Asymmetry Dual	Switching	HP8K24	TB	N+N	30	80	31	2.3	3	3.2	4.2	17.2					
					30	27	22	6.7	8.8	9.1	13.3	4.8					
		HP8K22	TB		30	57	25	3.6	4.6	4.7	7.5	7.8					
					30	27	22	6.7	8.8	9.1	13.3	4.8					
	Motor	New HP8KB7	TB1	N+N	40	24	26	6.2	8	8	11	13					
		New HP8KB6	TB1		40	24	21	12.1	15.7	17.8	25	5					
		New HP8KC7	TB1		60	24	26	8.8	11.5	11.2	15.7	10.8					
		New HP8KC6	TB1		60	23	21	21	27	29	40	3.9					
		New HP8KE7	TB1		100	24	26	15.1	19.6	18.6	27.8	10.5					
		New HP8KE6	TB1		100	17	21	41	54	53	73	3.7					
		New HP8JE5	TB1	N+P	100	12.5	21	98	127	106	138	18.5					
		HP8MA2	TB1		30	18*1,*2	7*1,*2	7.5	9.6	11.7	16.5	10.5					
					-30	-15*1,*2	7*1,*2	13.2	17.9	21	29	12.8					
		40	16.5		40	20	35	46	57	80	1.8						
					-40	-18.0	20	34	44	42	55	9					
		60	12		60	20	69	90	99	139	1.7						
	Load Switch			N+P	-60	-12	20	74	96	83	107	8.5					
		New HP8MC5	TB1		60	8.5*1,*2	7*1,*2	46	65	52	73	6.2					
		HP8M31	TB1		-60	-8.5*1,*2	7*1,*2	50	70	55	80	15.7					
					100	8.5	20	148	193	200	300	1.7					
		New HP8ME5	TB1		-100	-8.0	20	210	273	233	303	10.2					
		HP8M51	TB1		100	4.5*1,*2	7*1,*2	120	170	130	180	8.5					
					-100	-4.5*1,*2	7*1,*2	210	290	230	320	12.5					
HSOP8 (HSOP8) 5060 size Drain Common Dual	Load Switch	HP8KA1	TB	N+N	30	14	3	3.5	5	5	7	24					

Note1: () : ROHM Packages at package site.

Note2: *1 T_s=25°C *2 P_w≤1s

Power MOSFETs

Power MOSFET series

Package	Product No.		Polarity (ch)	V _{DSS} (V)	I _D (A) (T _C =25°C)	P _D (W) (T _C =25°C)	R _{DS(on)} (mΩ)								Q _g (nC) (V _{GS} =10V)				
	Part No.						V _{GS} =10V		V _{GS} =6.0V		V _{GS} =4.5V		V _{GS} =4.0V						
	Packing code	Typ					Max	Typ	Max	Typ	Max	Typ	Max	Typ	Max				
TO-252 DPAK (TO-252)	RD3G07BBG	TL1	N	40	150*1,*2	89	1.75	2.3	—	—	2.6	3.7	—	—	—	—	28*5		
	RD3G03BBG	TL1		40	65*1,*2	50	5	6.5	—	—	7.6	10.6	—	—	—	—	9.3*5		
	RD3H200SN	TL1		45	20	20	20	28	—	—	25	35	28	40	12*4	—	—		
	RD3L07BBG	TL1		60	115*1,*2	102	3	3.9	—	—	4.1	5.7	—	—	—	—	23*5		
	RD3L03BBG	TL1		60	50*1,*2	50	8.7	11.3	—	—	12.1	16.9	—	—	—	—	7.1*5		
	RD3L220SN	TL1		60	22	20	18	26	—	—	21	30	23	33	30	—	—		
	RD3L150SN	TL1		60	15	20	28	40	—	—	33	47	36	51	18	—	—		
	RD3L080SN	TL1		60	8	15	57	80	—	—	70	98	78	109	9.4	—	—		
	RD3L050SN	TL1		60	5	15	78	109	—	—	94	131	100	140	8	—	—		
	RD3P07BBH	TL1		100	80*1,*2	89	5.9	7.7	7.5	11.2	—	—	—	—	—	—	25*3		
	RD3P03BBH	TL1		100	35*2	50	18	23	23	34	—	—	—	—	—	—	8.2*3		
	RD3P200SN	TL1		100	20	20	33	46	—	—	—	—	36	50	55	—	—		
	RD3P175SN	TL1		100	17.5	20	75	105	—	—	80	112	85	119	24	—	—		
	RD3P100SN	TL1		100	10	20	95	133	—	—	100	140	105	147	18	—	—		
	RD3P050SN	TL1		100	5	15	135	190	—	—	142	200	145	205	14	—	—		
	RD3R05BBH	TL1		150	50*2	89	22	29	24	35	—	—	—	—	—	—	24*3		
	RD3R02BBH	TL1		150	20*2	50	62	81	67	100	—	—	—	—	—	—	8.1*3		
	RD3S100CN	TL1		190	10	85	130	182	—	—	—	—	136	190	52	—	—		
	RD3S075CN	TL1		190	7.5	52	240	336	—	—	—	—	248	347	30	—	—		
	RD3T100CN	TL1		200	10	85	140	182	—	—	—	—	—	—	25	—	—		
	RD3T075CN	TL1		200	7.5	52	250	325	—	—	—	—	—	—	15	—	—		
	RD3T050CN	TL1		200	5	29	540	760	—	—	—	—	—	—	8.3	—	—		
	RD3U080CN	TL1		250	8	85	225	300	—	—	—	—	—	—	25	—	—		
	RD3U060CN	TL1		250	6	52	410	530	—	—	—	—	—	—	15	—	—		
	RD3U040CN	TL1		250	4	29	930	1,300	—	—	—	—	—	—	8.5	—	—		
	RD3G07BAT	TL1	P	-40	-70	101	5.7	7.1	—	—	6.9	8.7	—	—	52*5	—	—		
	RD3G03BAT	TL1		-40	-35	56	15	19.1	—	—	18.5	24	—	—	19.5*5	—	—		
	RD3G01BAT	TL1		-40	-15	25	31	39	—	—	38	49	—	—	9.5*5	—	—		
	RD3H160SP	TL1		-45	16	20	35	50	—	—	45	63	50	70	16*4	—	—		
	RD3H080SP	TL1		-45	-8	15	65	91	—	—	95	133	105	147	9*4	—	—		
	RD3H045SP	TL1		-45	-4.5	15	110	155	—	—	160	225	185	260	12*4	—	—		
	RD3L07BAT	TL1		-60	-70	101	10.1	12.7	—	—	11.1	14.1	—	—	54*5	—	—		
	RD3L03BAT	TL1		-60	-35	56	32	41	—	—	36	46	—	—	18.5*5	—	—		
	RD3L140SP	TL1		-60	-14	20	60	84	—	—	73	103	77	108	27	—	—		
	RD3L01BAT	TL1		-60	-10	26	65	84	—	—	73	93	—	—	9.1*5	—	—		
	RD3P05BAT	TL1		-100	-50*2	101	32	41	35	46	—	—	—	—	68*3	—	—		
	RD3P02BAT	TL1		-100	-20*2	56	89	116	100	130	—	—	—	—	25*3	—	—		
	RD3P01BAT	TL1		-100	-10*2	25	181	240	210	270	—	—	—	—	12.3*3	—	—		
	RD3P130SP	TL1		-100	-13	20	135	200	—	—	150	220	155	230	40	—	—		
TO-263S D2PAK (LPTS)	RSJ650N10	TL	N	100	65	100	6.5	9.1	—	—	—	—	7	9.8	260	—	—		
	RSJ550N10	TL		100	55	100	12	16.8	—	—	—	—	13.5	18.9	143	—	—		
	RSJ400N10	TL		100	40	50	19	27	—	—	—	—	21	30	90	—	—		
	RSJ301N10	TL		100	30	50	33	46	—	—	—	—	36	50	60	—	—		
	RCJ700N20	TL		200	70	297	30.5	42.7	—	—	—	—	—	—	125	—	—		
	RCJ451N20	TL		200	45	211	42	55	—	—	—	—	—	—	80	—	—		
	RCJ300N20	TL		200	30	166	60	80	—	—	—	—	—	—	60	—	—		
	RCJ200N20	TL		200	20	106	100	130	—	—	—	—	—	—	40	—	—		
	RCJ160N20	TL		200	16	85	135	180	—	—	—	—	—	—	26	—	—		
	RCJ120N20	TL		200	12	52	250	325	—	—	—	—	—	—	15	—	—		
	RCJ081N20	TL		200	8	40	550	770	—	—	—	—	—	—	9	—	—		
	RCJ510N25	TL		250	51	304	48	65	—	—	—	—	—	—	120	—	—		
	RCJ331N25	TL		250	33	211	77	105	—	—	—	—	—	—	80	—	—		
	RCJ220N25	TL		250	22	166	105	140	—	—	—	—	—	—	60	—	—		
	RCJ120N25	TL		250	12	107	180	235	—	—	—	—	—	—	35	—	—		
	RCJ100N25	TL		250	10	85	245	320	—	—	—	—	—	—	26.5	—	—		
	RCJ050N25	TL		250	5	30	970	1,360	—	—	—	—	—	—	9	—	—		
	RSJ250P10	TL	P	-100	-25	50	45	63	—	—	48	67	50	70	60*4	—	—		
	RSJ151P10	TL		-100	-15	50	85	120	—	—	95	135	100	140	64	—	—		

Note1: (): ROHM Packages at package site.
Note2: *1 Silicon limit *2 V_{GS}=10V *3 V_{GS}=6V *4 V_{GS}=5V *5 V_{GS}=4.5V

Power MOSFET series

Package	Product No.		Polarity (ch)	V _{DSS} (V)	I _D (A) (T _C =25°C)	P _D (W) (T _C =25°C)	R _{DS(on)} (mΩ)								Q _g (nC) (V _{GS} =10V)					
	Part No.	Packing code					V _{GS} =10V		V _{GS} =6.0V		V _{GS} =4.5V		V _{GS} =4.0V							
							Typ	Max	Typ	Max	Typ	Max	Typ	Max						
TO-263AB (TO-263AB-3LSHYAD)	RJ1P10BBH	TL1	N	100	170 ^{*1,*2}	189	2.3	3.0	2.8	4.2	—	—	—	—	89 ^{*3}					
	RJ1P07CBH	TL1		100	120 ^{*1,*2}	135	3.9	5.1	4.7	7.1	—	—	—	—	48 ^{*3}					
	RJ1P04BBH	TL1		100	80 ^{*1,*2}	89	6.8	8.8	8.4	12.5	—	—	—	—	25 ^{*3}					
	RJ1R10BBH	TL1		150	105 ^{*2}	189	6.3	8.2	6.7	10	—	—	—	—	86 ^{*3}					
TO-220AB (TO-220AB)	RX3G18BBG	C16	N	40	270 ^{*1,*2}	192	1.13	1.47	—	—	1.43	2	—	—	105 ^{*5}					
	RX3G07BBG	C16		40	130 ^{*1,*2}	89	2.3	3	—	—	3.2	4.4	—	—	28 ^{*5}					
	RX3L18BBG	C16		60	240 ^{*1,*2}	192	1.41	1.84	—	—	1.73	2.43	—	—	80 ^{*5}					
	RX3L07BBG	C16		60	105 ^{*1,*2}	89	3.5	4.6	—	—	4.7	6.5	—	—	23 ^{*5}					
	RX3P10BBH	C16		100	170 ^{*1,*2}	189	2.5	3.3	2.9	4.4	—	—	—	—	89 ^{*3}					
	RX3P07CBH	C16		100	120 ^{*1,*2}	135	4	5.2	4.8	7.2	—	—	—	—	48 ^{*3}					
	RX3P07BBH	C16		100	80 ^{*1,*2}	89	6.5	8.4	8	12	—	—	—	—	25 ^{*3}					
	RX3R10BBH	C16		150	105 ^{*2}	181	6.8	8.8	7.2	10.8	—	—	—	—	86 ^{*3}					
	RX3R05BBH	C16		150	50 ^{*2}	89	22	29	24	35	—	—	—	—	25 ^{*3}					
	RX3P12BAT	C16		P	-100	-120 ^{*2}	201	9.4	12.3	10.5	13.6	—	—	—	—	255 ^{*3}				
TO-220FP (TO-220FM)	RCX700N20	—	N	200	70	83	30.5	42.7	—	—	—	—	—	—	125					
	RCX450N20	—		200	45	69	42	55	—	—	—	—	—	—	80					
	RCX300N20	—		200	30	61	60	80	—	—	—	—	—	—	60					
	RCX200N20	—		200	20	48	100	130	—	—	—	—	—	—	40					
	RCX160N20	—		200	16	43	135	180	—	—	—	—	—	—	26					
	RCX120N20	—		200	12	40	250	325	—	—	—	—	—	—	15					
	RCX081N20	—		200	8	40	470	770	—	—	—	—	—	—	9					
	RCX511N25	—		250	51	84	48	65	—	—	—	—	—	—	120					
	RCX330N25	—		250	33	69	77	105	—	—	—	—	—	—	80					
	RCX220N25	—		250	22	61	105	140	—	—	—	—	—	—	60					
	RCX120N25	—		250	12	48	180	235	—	—	—	—	—	—	35					
	RCX100N25	—		250	10	43	245	320	—	—	—	—	—	—	26.5					
	RCX080N25	—		250	8	35	460	600	—	—	—	—	—	—	15					
	RCX051N25	—		250	5	30	970	1,360	—	—	—	—	—	—	9					

Note1: () : ROHM Packages at package site.

Note2: *1 Silicon limit *2 V_{GS}=10V *3 V_{GS}=6V *4 V_{GS}=5V *5 V_{GS}=4.5V

Power MOSFETs

Low Noise type

Package	Product No.		Polarity (ch)	V _{DSS} (V)	I _D (A)	P _D (W) (T _C =25°C)	R _{DS(on)} (Ω)		Q _g (nC) V _{GS} =10V					
	Part No.	Packing code					V _{GS} =10V							
							Typ	Max						
SOP8 (SOP8)	R6000ENH	TB1	N	600	0.5	2.0	7.300	8.800	4.3					
	R6002ENH	TB1		600	1.7	2.0	2.800	3.400	6.5					
TO-261 SOT-223-3 (SOT-223-3)	New R6004END4	TL1	N	600	2.4	9.1	0.9	0.98	15					
TO-252 DPAK (TO-252)	R6011END3	TL1	N	600	11	124	0.340	0.390	32					
	R6009END3	TL1		600	9	94	0.500	0.535	23					
	R6007END3	TL1		600	7	78	0.570	0.620	20					
	R6004END3	TL1		600	4	59	0.900	0.980	15					
	R6002END3	TL1		600	1.7	26	2.800	3.400	6.5					
	R6511END3	TL1		650	11	124	0.360	0.400	32					
	R6509END3	TL1		650	9	94	0.530	0.585	24					
	R6507END3	TL1		650	7	78	0.605	0.665	20					
	R6504END3	TL1		650	4	58	0.955	1.050	15					
	R6502END3	TL1		650	1.7	26	3.050	4.000	6.5					
TO-263S D2PAK (LPTS)	R6024ENJ	TL	N	600	24	245	0.150	0.165	70					
	R6020ENJ	TL		600	20	231	0.170	0.196	60					
	R6015ENJ	TL		600	15	184	0.260	0.290	40					
	R6011ENJ	TL		600	11	124	0.340	0.390	32					
	R6009ENJ	TL		600	9	94	0.500	0.535	23					
	R6007ENJ	TL		600	7	78	0.570	0.620	20					
	R6004ENJ	TL		600	4	58	0.900	0.980	15					
	R6524ENJ	TL		650	24	245	0.160	0.185	70					
	R6520ENJ	TL		650	20	231	0.185	0.205	61					
	R6515ENJ	TL		650	15	184	0.280	0.315	40					
	R6511ENJ	TL		650	11	124	0.360	0.400	32					
	R6509ENJ	TL		650	9	94	0.530	0.585	24					
	R6507ENJ	TL		650	7	78	0.605	0.665	20					
	R6504ENJ	TL		650	4	58	0.955	1.050	15					
TO-220FP (TO-220FM)	R6030ENX	C7 G	N	600	30	86	0.115	0.130	85					
	R6024ENX	C7 G		600	24	74	0.150	0.165	70					
	R6020ENX	C7 G		600	20	68	0.170	0.196	60					
	R6015ENX	C7 G		600	15	60	0.260	0.290	40					
	R6011ENX	C7 G		600	11	53	0.340	0.390	32					
	R6009ENX	C7 G		600	9	48	0.500	0.535	23					
	R6007ENX	C7 G		600	7	46	0.570	0.620	20					
	R6004ENX	C7 G		600	4	35	0.900	0.980	15					
	R6530ENX	C7 G		650	30	86	0.125	0.140	90					
	R6524ENX	C7 G		650	24	74	0.160	0.185	70					
	R6520ENX	C7 G		650	20	68	0.185	0.205	61					
	R6515ENX	C7 G		650	15	60	0.280	0.315	40					
	R6511ENX	C7 G		650	11	53	0.360	0.400	32					
	R6509ENX	C7 G		650	9	48	0.530	0.585	24					
	R6507ENX	C7 G		650	7	46	0.605	0.665	20					
	R6504ENX	C7 G		650	4	35	0.955	1.050	15					
TO-247AD (TO-247)	R6076ENZ4	C13	N	600	76	735	0.038	0.042	260					
	R6047ENZ4	C13		600	47	481	0.066	0.072	145					
	R6035ENZ4	C13		600	35	379	0.092	0.102	110					
	R6030ENZ4	C13		600	30	305	0.115	0.130	85					
	R6024ENZ4	C13		600	24	245	0.150	0.165	70					
	R6020ENZ4	C13		600	20	231	0.170	0.196	60					
	R6576ENZ4	C13		650	76	735	0.040	0.046	260					
	R6547ENZ4	C13		650	47	480	0.070	0.080	150					
	R6535ENZ4	C13		650	35	379	0.098	0.115	110					
	R6530ENZ4	C13		650	30	305	0.125	0.140	90					
	R6524ENZ4	C13		650	24	245	0.160	0.185	70					
	R6520ENZ4	C13		650	20	231	0.185	0.205	61					
(TO-3PF)	R6035ENZ	C17	N	600	35	120	0.092	0.102	110					
	R6030ENZ	C17		600	30	120	0.115	0.130	85					
	R6024ENZ	C17		600	24	120	0.150	0.165	70					
	R6020ENZ	C17		600	20	120	0.170	0.196	60					
	R6015ENZ	C17		600	15	120	0.260	0.290	40					
	R6535ENZ	C17		650	35	102	0.098	0.115	110					
	R6530ENZ	C17		650	30	86	0.125	0.140	90					
	R6524ENZ	C17		650	24	74	0.165	0.185	70					
	R6520ENZ	C17		650	20	68	0.185	0.205	61					

Note: () : ROHM Packages at package site.

Fast Switching type

Package	Product No.		Polarity (ch)	V _{DSS} (V)	I _D (A)	P _D (W) (T _C =25°C)	R _{DS(on)} (Ω)		Qg (nC) V _{GS} =10V					
	Part No.	Packing code					V _{GS} =10V							
							Typ	Max						
TO-252 DPAK (TO-252)	R6011KND3	TL1	N	600	11	124	0.340	0.390	22					
	R6009KND3	TL1		600	9	94	0.500	0.535	16.5					
	R6007KND3	TL1		600	7	78	0.570	0.620	15					
	R6006KND3	TL1		600	6	70	0.720	0.830	12					
	R6003KND3	TL1		600	3	44	1.300	1.500	8					
	R6014YND3	TL1		600	14	132	0.215*	0.260*	20					
	New R6010YND3	TL1		600	10	92	0.324*	0.390*	15					
	R6511KND3	TL1		650	11	124	0.360	0.400	22					
	R6509KND3	TL1		650	9	94	0.530	0.585	16.5					
	R6507KND3	TL1		650	7	78	0.605	0.665	15					
	R6504KND3	TL1		650	4	58	0.955	1.050	10					
	R8006KND3	TL1		800	6	83	0.750	0.900	22					
	R8003KND3	TL1		800	3	48	1.500	1.800	11.5					
	R8002KND3	TL1		800	1.6	30	3.500	4.200	7.5					
TO-263S D2PAK (LPTS)	R6024KNJ	TL	N	600	24	245	0.150	0.165	46					
	R6020KNJ	TL		600	20	231	0.170	0.196	40					
	R6015KNJ	TL		600	15	184	0.260	0.290	30					
	R6011KNJ	TL		600	11	124	0.340	0.390	22					
	R6009KNJ	TL		600	9	94	0.500	0.535	16.5					
	R6007KNJ	TL		600	7	78	0.570	0.620	15					
	R6004KNJ	TL		600	4	58	0.900	0.980	10					
	R6524KNJ	TL		650	24	245	0.160	0.185	46					
	R6520KNJ	TL		650	20	231	0.185	0.205	40					
	R6515KNJ	TL		650	15	184	0.280	0.315	30					
	R6511KNJ	TL		650	11	124	0.360	0.400	22					
	R6509KNJ	TL		650	9	94	0.530	0.585	16.5					
	R6507KNJ	TL		650	7	78	0.605	0.665	15					
	R6504KNJ	TL		650	4	58	0.955	1.050	10					
TO-220AB (TO-220AB)	R6049YNX3	C16	N	600	49	448	0.068*	0.082*	65					
	New R6038YNX3	C16		600	38	348	0.080*	0.096*	50					
	R6027YNX3	C16		600	27	245	0.112*	0.135*	40					
	R6022YNX3	C16		600	22	205	0.137*	0.165*	33					
	R6020YNX3	C16		600	20	182	0.154*	0.185*	28					
	R6014YNX3	C16		600	14	132	0.215*	0.260*	20					
	New R6010YNX3	C16		600	10	92	0.324*	0.390*	15					
	R6535KNX3	C16		650	35	370	0.098	0.115	72					
	R6530KNX3	C16		650	30	307	0.125	0.140	56					
	R6524KNX3	C16		650	24	253	0.160	0.185	45					
	R6520KNX3	C16		650	20	220	0.185	0.205	40					
	R6515KNX3	C16		650	15	161	0.280	0.315	27.5					
TO-220FP (TO-220FM)	R6030KNX	C7 G	N	600	30	86	0.115	0.130	56					
	R6024KNX	C7 G		600	24	74	0.150	0.165	46					
	R6020KNX	C7 G		600	20	68	0.170	0.196	40					
	R6015KNX	C7 G		600	15	60	0.260	0.290	30					
	R6011KNX	C7 G		600	11	53	0.340	0.390	22					
	R6009KNX	C7 G		600	9	48	0.500	0.535	16.5					
	R6007KNX	C7 G		600	7	46	0.570	0.620	15					
	R6006KNX	C7 G		600	6	40	0.720	0.830	12					
	R6004KNX	C7 G		600	4	35	0.900	0.980	10					
	New R6061YNX	C7 G		600	26	100	0.050*	0.060*	80					
	R6049YNX	C7 G		600	22	90	0.068*	0.082*	20					
	New R6038YNX	C7 G		600	18	81	0.080*	0.096*	50					
	R6027YNX	C7 G		600	14	70	0.112*	0.135*	40					
	R6022YNX	C7 G		600	13	65	0.137*	0.165*	35					
	R6020YNX	C7 G		600	12	62	0.154*	0.185*	30					
	R6014YNX	C7 G		600	9	54	0.215*	0.260*	20					
	New R6010YNX	C7 G		600	7	47	0.324*	0.390*	15					
	R6530KNX	C7 G		650	30	86	0.125	0.140	56					
	R6524KNX	C7 G		650	24	74	0.160	0.185	46					
	R6520KNX	C7 G		650	20	68	0.185	0.205	40					
	R6515KNX	C7 G		650	15	60	0.280	0.315	30					
	R6511KNX	C7 G		650	11	53	0.360	0.400	22					
	R6509KNX	C7 G		650	9	48	0.530	0.585	16.5					
	R6507KNX	C7 G		650	7	46	0.605	0.665	14.5					
	R6504KNX	C7 G		650	4	35	0.955	1.050	10					
	R8019KNX	C7 G		800	19	83	0.200	0.240	65					
	R8011KNX	C7 G		800	11	65	0.370	0.450	37					
	R8009KNX	C7 G		800	9	59	0.500	0.600	27					
	R8006KNX	C7 G		800	6	52	0.750	0.900	22					
	R8003KNX	C7 G		800	3	48	1.500	1.800	11.5					
	R8002KNX	C7 G		800	1.6	28	3.500	4.200	7.5					

Note: () ROHM Packages at package site.
*V_{GS}=12V

Power MOSFETs

Fast Switching type

Package	Product No.		Polarity (ch)	V _{DSS} (V)	I _D (A)	P _D (W) (T _c =25°C)	R _{DS(on)} (Ω)		Q _g (nC) V _{GS} =10V					
	Part No.	Packing code					V _{GS} =10V							
							Typ	Max						
TO-247AD (TO-247)	R6086YNZ4	C13	N	600	86	781	0.036*	0.044*	110					
	R6061YNZ4	C13			61	568	0.050*	0.060*	76					
	R6049YNZ4	C13			49	448	0.068*	0.082*	65					
	New R6038YNZ4	C13			38	348	0.080*	0.096*	50					
	R6027YNZ4	C13			27	245	0.112*	0.135*	40					
	R6022YNZ4	C13			22	205	0.137*	0.165*	33					
	R6020YNZ4	C13			20	182	0.154*	0.185*	28					
	R6076KNZ4	C13			76	735	0.038	0.042	165					
	R6047KNZ4	C13			47	481	0.066	0.072	100					
	R6035KNZ4	C13			35	379	0.095	0.102	72					
	R6030KNZ4	C13			30	305	0.115	0.130	56					
	R6024KNZ4	C13			24	245	0.150	0.165	46					
	R6020KNZ4	C13			20	231	0.170	0.196	40					
	R6576KNZ4	C13			76	735	0.040	0.046	165					
	R6547KNZ4	C13			47	481	0.070	0.080	100					
	R6535KNZ4	C13			35	379	0.098	0.115	72					
	R6530KNZ4	C13			30	305	0.125	0.140	56					
	R6524KNZ4	C13			24	245	0.160	0.185	45					
	R6520KNZ4	C13			20	231	0.185	0.205	40					
(TO-3PF)	R6086YNZ	C17	N	600	33	781	0.036*	0.044*	110					
	R6035KNZ	C17			35	102	0.092	0.102	72					
	R6030KNZ	C17			30	86	0.115	0.130	56					
	R6024KNZ	C17			24	74	0.150	0.165	45					
	R6020KNZ	C17			20	68	0.170	0.196	40					
	R6015KNZ	C17			15	60	0.260	0.290	27.5					
	R6535KNZ	C17			35	102	0.098	0.115	72					
	R6530KNZ	C17			30	86	0.125	0.140	56					
	R6524KNZ	C17			24	74	0.160	0.185	45					
	R6520KNZ	C17			20	68	0.185	0.205	40					
	R6515KNZ	C17			15	60	0.280	0.315	27.5					

Note: () : ROHM Packages at package site.
*V_{GS}=12V

High-Speed Trr Type <PrestoMOS>

Package	Product No.		Polarity (ch)	V _{DSS} (V)	I _D (A)	P _D (W) (T _C =25°C)	R _{DS(on)} (Ω)		Q _g Typ (nC) V _{GS} =15V	trr Typ (ns)						
	Part No.	Packing code					V _{GS} =15V									
							Typ	Max								
TO-261 SOT-223-3 (SOT-223-3)	New R6002JND4	TL1	N	600	1	6.6	2.5	3.25	7	40						
	New R6003JND4	TL1		600	1.3	7.8	1.65	2.15	8	42						
TO-252 DPAK (TO-252)	R6009JND3	TL1	N	600	9	125	0.450	0.585	22	65						
	R6007JND3	TL1		600	7	96	0.600	0.780	17.5	60						
	R6006JND3	TL1		600	6	86	0.720	0.936	15.5	58						
	R6004JND3	TL1		600	4	60	1.100	1.430	10.5	45						
	New R6009RND3	TL1		600	9	125	0.510	0.665	22	55						
	New R6007RND3	TL1		600	7	96	0.730	0.940	17.5	50						
	New R6004RND3	TL1		600	4	60	1.330	1.730	10.5	40						
	R6013VND3	TL1		600	13	131	0.250	0.300	21*	65						
TO-263S D2PAK (LPTS)	R6020JNJ	TL	N	600	20	252	0.180	0.234	45	85						
	R6018JNJ	TL		600	18	220	0.220	0.286	42	80						
	R6012JNJ	TL		600	12	160	0.300	0.390	28	70						
	R6009JNJ	TL		600	9	125	0.450	0.585	22	65						
	R6007JNJ	TL		600	7	96	0.600	0.780	17.5	60						
	R6006JNJ	TL		600	6	86	0.720	0.936	15.5	58						
	R6004JNJ	TL		600	4	60	1.100	1.430	10.5	45						
TO-220AB (TO-220AB)	R6035VNX3	C16	N	600	35	348	0.095	0.114	50*	92						
	R6024VNX3	C16		600	24	245	0.127	0.153	38*	80						
TO-220FP (TO-220FM)	R6030JNX	C7 G	N	600	30	95	0.110	0.143	74	100						
	R6025JNX	C7 G		600	25	85	0.140	0.182	57	90						
	R6020JNX	C7 G		600	20	76	0.180	0.234	45	85						
	R6018JNX	C7 G		600	18	72	0.220	0.286	42	80						
	R6012JNX	C7 G		600	12	60	0.300	0.390	28	70						
	R6009JNX	C7 G		600	9	53	0.450	0.585	22	65						
	R6007JNX	C7 G		600	7	46	0.600	0.780	17.5	60						
	R6006JNX	C7 G		600	6	43	0.720	0.936	15.5	58						
	R6004JNX	C7 G		600	4	35	1.100	1.430	10.5	45						
	New R6055VNX	C7 G		600	23	99	0.059	0.071	80*	112						
	R6035VNX	C7 G		600	17	81	0.095	0.114	50*	92						
	R6024VNX	C7 G		600	13	70	0.127	0.153	38*	80						
	R6018VNX	C7 G		600	10	61	0.170	0.204	27*	68						
	R6013VNX	C7 G		600	8	54	0.250	0.300	21*	65						
TO-247AD (TO-247)	R6070JNZ4	C13	N	600	70	770	0.045	0.058	165	135						
	R6050JNZ4	C13		600	50	615	0.064	0.083	120	120						
	R6042JNZ4	C13		600	42	495	0.080	0.104	100	110						
	R6030JNZ4	C13		600	30	370	0.110	0.143	74	100						
	R6025JNZ4	C13		600	25	306	0.140	0.182	57	90						
	R6020JNZ4	C13		600	20	252	0.180	0.234	45	85						
	R6077VNZ4	C13		600	77	781	0.042	0.051	108*	125						
	R6055VNZ4	C13		600	55	543	0.059	0.071	80*	112						
(TO-3PF)	R6050JNZ	C17	N	600	50	120	0.064	0.083	120	120						
	R6030JNZ	C17		600	30	93	0.110	0.143	74	100						
	R6025JNZ	C17		600	25	85	0.140	0.182	57	90						
	R6020JNZ	C17		600	20	76	0.180	0.234	45	85						
	R6077VNZ	C17		600	29	113	0.042	0.051	108*	125						
	R6055VNZ	C17		600	23	99	0.059	0.071	80*	112						

Note: () : ROHM Packages at package site.

*V_{GS}=10V

Selector Guide for Automotive MOSFETs

Automotive MOSFETs																							
Package	Product No.			Polarity (ch)	V _{DSS} (V)	I _D (A)	V _{GS} (V)	R _{DS(on)} (mΩ)										Automotive Grade AEC-Q101					
	Part No.	Grade Code	Packing code					V _{GS} =10V		V _{GS} =4.5V		V _{GS} =2.5V		V _{GS} =1.8V		V _{GS} =1.5V							
								Typ	Max	Typ	Max	Typ	Max	Typ	Max	Typ	Max						
DFN1010-3W (DFN1010-3W) 1010 size	RV8C010UN	HZG	G2CR	N	20	1	±8	—	—	340	470	400	560	470	650	540	810	—	40	YES			
	RV8L002SN	HZG	G2CR		60	0.25	±20	1,700	2,400	2,100	3,000	3,000	12,000	—	—	—	—	—	15	YES			
	New BSS138BKX	HZG	G2CR		60	1	±20	490	680	580	810	1,000	4,000	—	—	—	—	—	47	YES			
	BSS84X	HZG	G2CR	P	-60	-0.23	±20	2,800	5,300	3,500	6,400	—	—	—	—	—	—	—	35	YES			
DFN1616-6W (DFN1616-6W) 1616 size	RV4C020ZP	HZG	TCR1	P	-20	-2	±8	—	—	180	260	240	340	320	450	400	560	2	80	YES			
	New RV4C060ZP	HZG	TCR1		-20	-6	±8	—	—	48	66	70	98	90	150	140	280	12	1,270	YES			
	RV4E031RP	HZG	TCR1		-30	-3.1	±20	75	105	108	152	—	—	—	—	—	—	4.8	460	YES			
SOT-323 (UMT3) 2021 size	BSS138BWA	HZG	T106	N	60	0.38	±20	500	700	600	840	1,000	4,000	—	—	—	—	—	—	YES			
	New BSS138WA	HZG	T106		60	0.31	±20	1,700	2,400	2,100	3,000	3,000	12,000	—	—	—	—	—	—	YES			
	BSS84WA	HZG	T106	P	-60	-0.21	±20	3,600	5,300	4,300	6,400	—	—	—	—	—	—	—	—	YES			
SOT-363 (UMT6) 2021 size	UM6K31N	FHA	TCN	N+N	60	0.25	±20	1,700	2,400	2,100	3,000	3,000	12,000	—	—	—	—	—	15*4	YES			
SOT-323T (TUMT3) 2021 size	RUF025N02	FRA	TL	N	20	2.5	±10	—	—	39	54	49	68	65	91	80	160	5*2	370	YES			
	RTF025N03	FRA	TL		30	2.5	±12	—	—	48	67	70	98	—	—	—	—	—	3.7*2	270	YES		
	RTF016N05	FRA	TL		45	1.6	±12	—	—	140	190	200	280	—	—	—	—	—	2.3*2	150	YES		
	RSF015N06	FRA	TL		60	1.5	±20	210	290	240	330	—	—	—	—	—	—	2	110	YES			
SOT-363T (TUMT6) 2021 size	RUL035N02	FRA	TR	N	20	3.5	±10	—	—	31	43	38	53	50	70	66	93	5.7*2	460	YES			
	RTL035N03	FRA	TR		30	3.5	±12	—	—	40	56	56	79	—	—	—	—	—	4.6*2	350	YES		
	RTL020P02	FRA	TR		-20	-2	±12	—	—	100	135	180	250	—	—	—	—	—	4.9*2	430	YES		
	RRL035P03	FRA	TR	P	-30	-3.5	±20	36	50	52	72	—	—	—	—	—	—	8	800	YES			
	RRL025P03	FRA	TR		-30	-2.5	±20	55	75	85	115	—	—	—	—	—	—	5.2	480	YES			
	RSL020P03	FRA	TR		-30	-2	±20	80	120	125	190	—	—	—	—	—	—	3.9	350	YES			
TO-236AB SOT-23 (SST3)	RUC002N05	HZG	T116	N	50	0.2	±8	—	—	1,600	2,200	1,700	2,400	—	—	—	2,000	4,000	—	25	YES		
	New BSS670A	HZG	T116		60	0.65	±20	500	650	600	820	—	—	—	—	—	—	—	—	YES			
	BSS138BKA	HZG	T116		60	0.4	±20	500	700	600	840	1,000	4,000	—	—	—	—	—	—	YES			
	RK7002BM	HZG	T116		60	0.25	±20	1,700	2,400	2,100	3,000	3,000	12,000	—	—	—	—	—	15	YES			
	BSS84A	HZG	T116	P	-60	-0.23	±20	2,800	5,300	3,500	6,400	—	—	—	—	—	—	—	—	YES			
SOT-346T (TSMT3) 2928 size	RUR040N02	HZG	TL	N	20	4	±10	—	—	25	35	33	46	—	—	55	110	8*2	680	YES			
	RTR040N03	HZG	TL		30	4	±12	—	—	34	48	47	66	—	—	—	—	—	5.9*2	475	YES		
	RTR025N03	HZG	TL		30	2.5	±12	—	—	66	92	95	133	—	—	—	—	—	3.3*2	220	YES		
	RSR025N03	HZG	TL		30	2.5	±20	50	70	74	105	—	—	—	—	—	—	2.9	165	YES			
	RTR030N05	HZG	TL		45	3	±12	—	—	48	67	68	95	—	—	—	—	—	6.2*2	510	YES		
	RSR025N05	HZG	TL		45	2.5	±20	70	100	95	150	—	—	—	—	—	—	3.6	260	YES			
	RTR025N05	HZG	TL		45	2.5	±12	—	—	95	130	125	175	—	—	—	—	—	3.2*2	250	YES		
	RTR020N05	HZG	TL	P	45	2	±12	—	—	130	180	180	250	—	—	—	—	—	2.9*2	200	YES		
	RSR030N06	HZG	TL		60	3	±20	60	85	70	100	—	—	—	—	—	—	5	380	YES			
	RSR020N06	HZG	TL		60	2	±20	120	170	140	195	—	—	—	—	—	—	2.7	180	YES			
	RSR010N10	HZG	TL		100	1	±20	370	520	400	560	—	—	—	—	—	—	3.5	140*4	YES			
	RTR030P02	HZG	TL		-20	-3	±12	—	—	55	75	90	125	—	—	—	—	—	9.3*2	840	YES		
	RTR025P02	HZG	TL		-20	-2.5	±12	—	—	70	95	115	160	—	—	—	—	—	7*2	630	YES		
	RTR020P02	HZG	TL		-20	-2	±12	—	—	100	135	180	250	—	—	—	—	—	4.9*2	430	YES		
SOT-457T (TSMT6) 2928 size	RRR040P03	HZG	TL	N	-30	-4	±20	32	45	45	63	—	—	—	—	—	—	10.5	1,000	YES			
	RRR030P03	HZG	TL		-30	-3	±20	55	75	85	115	—	—	—	—	—	—	5.2	480	YES			
	RSR025P03	HZG	TL		-30	-2.5	±20	70	98	100	140	—	—	—	—	—	—	5.4	460	YES			
	RSR020P05	HZG	TL		-45	-2	±20	130	190	180	260	—	—	—	—	—	—	4.5*2	500	YES			
	RSR015P06	HZG	TL		-60	-1.5	±20	200	280	240	340	—	—	—	—	—	—	10*1	500	YES			
	RUQ050N02	HZG	TR		20	5	±10	—	—	22	30	27	38	—	—	40	80	12*2	900	YES			
	RTQ045N03	HZG	TR		30	4.5	±12	—	—	30	43	42	60	—	—	—	—	—	7.6*2	540	YES		
SOT-467T (TSMT6) 2928 size	RSQ045N03	HZG	TR	N	30	4.5	±20	27	38	36	51	—	—	—	—	—	—	6.8	520	YES			
	RSQ035N03	HZG	TR		30	3.5	±20	44	62	60	84	—	—	—	—	—	—	5.3	290	YES			
	RTQ035N03	HZG	TR		30	3.5	±12	—	—	38	54	55	77	—	—	—	—	—	4.6*2	285	YES		
	RSQ020N03	HZG	TR		30	2	±20	96	134	148	207	—	—	—	—	—	—	2.2	110	YES			
	RVQ040N05	HZG	TR		45	4	±21	38	53	47	66	—	—	—	—	—	—	6.3	530	YES			
	RTQ020N05	HZG	TR		45	2	±12	—	—	140	190	200	280	—	—	—	—	—	2.3*2	150	YES		
	RSQ035N06	HZG	TR		60	3.5	±20	50	70	58	82	—	—	—	—	—	—	6.5	430	YES			
SOT-457T (TSMT6) 2928 size	RSQ015N06	HZG	TR	P	60	1.5	±20	210	290	240	330	—	—	—	—	—	—	2	110	YES			
	RSQ030N08	HZG	TR		80	3.0	±20	93	131	100	140	—	—	—	—	—	—	6.5*1	550	YES			
	QS6K1	FRA	TR		30	1	±12	—	—	170	238	260	364	—	—	—	—	—	1.7*2	77	YES		
	QS6K21	FRA	TR		45	1	±12	—</td															

Automotive MOSFETs

Package	Product No.			Polarity (ch)	V _{DSS} (V)	I _D (A)	V _{GS} (V)	R _{DS(on)} (mΩ)								Q _g Typ (nC)	C _{iss} Typ (pF)	Automotive Grade AEC-Q101							
	Part No.	Grade Code	Packing code					V _{GS} =10V		V _{GS} =4.5V		V _{GS} =2.5V		V _{GS} =1.8V		V _{GS} =1.5V									
								Typ	Max	Typ	Max	Typ	Max	Typ	Max	Typ	Max								
(TSMT8) 3028 size	RQ1C075UN	FRA	TR	P	N	20	7.5	±10	—	—	11	16	14	20	—	—	20	40	18*1	1,400	YES				
	QS8K2	FRA	TR		N+N	30	3.5	±12	—	—	38	54	55	77	—	—	—	—	4.6*1	285	YES				
	RQ1A070ZP	FRA	TR		—12	—7	±10	—	—	8	12	11	16	—	—	19	38	58*1	7,400*3	YES					
	RQ1E070RP	FRA	TR		—30	—7	±20	12	17	17	24	—	—	—	—	—	—	—	26	2,700	YES				
	RQ1E050RP	FRA	TR		—30	—5	±20	22	31	32	45	—	—	—	—	—	—	—	13	1,300	YES				
	QS8J4	FRA	TR		P+P	—30	—4	±20	40	56	55	77	—	—	—	—	—	—	8.4	800	YES				
	QS8M51	FRA	TR		N+P	100	2	±20	240	325	250	340	—	—	—	—	—	—	4.7	290*2	950*2	YES			

Note1: (): ROHM Packages at package site.

Note2: *1 V_{GS}=4.5V *2 V_{GS}=25V *3 V_{GS}=6V

Selector Guide for Automotive Power MOSFETs

Package	Product No.			Polarity (ch)	V _{DSS} (V)	I _D (A)	V _{GS} (V)	R _{DS(on)} (mΩ)								Q _g Typ (nC)	C _{iss} Typ (pF)	Automotive Grade AEC-Q101									
	Part No.	Grade Code	Packing code					V _{GS} =10V		V _{GS} =4.5V		V _{GS} =4.0V															
								Typ	Max	Typ	Max	Typ	Max	Typ	Max				V _{GS} =5V	V _{Ds} =10V							
SOP8 (SOP8) 5060 size	RSS130N03	HZG	TB	N	30	13	±20	5.9	8.3	7.4	10.4	—	—	—	—	25	2,000	YES									
	RSS100N03	HZG	TB		30	10	±20	9.5	13.3	12.5	17.5	—	—	—	—	14	1,070	YES									
	RSS095N05	HZG	TB		45	9.5	±20	11	16	14	20	—	—	—	—	18.9	1,830	YES									
	RSS070N05	HZG	TB		45	7	±20	18	25	23	32	—	—	—	—	12	1,000	YES									
	RSS065N06	HZG	TB		60	6.5	±20	24	37	28	44	—	—	—	—	11	900	YES									
	SP8K3	HZG	TB	N+N	30	7	±20	17	24	23	33	—	—	—	—	8.4	600	YES									
	SP8K2	HZG	TB		30	6	±20	21	30	30	42	—	—	—	—	7.2	520	YES									
	SP8K24	HZG	TB		45	6	±20	18	25	24	34	—	—	—	—	15.4	1,400	YES									
	SP8K22	HZG	TB		45	4.5	±20	33	46	41	57	—	—	—	—	6.8	550	YES									
	SP8K33	HZG	TB		60	5	±20	34	48	38	54	—	—	—	—	8	620	YES									
	SP8K32	HZG	TB		60	4.5	±20	46	65	52	73	—	—	—	—	7	500	YES									
	SP8K31	HZG	TB		60	3.5	±20	85	120	100	140	—	—	—	—	3.7	250	YES									
	SP8K41	HZG	TB		80	3.4	±20	90	130	110	150	120	160	—	—	6.6	600	YES									
	SP8K52	HZG	TB		100	3	±20	120	170	130	180	—	—	—	—	8.5	610*3	YES									
	RRS140P03	HZG	TB	P	—30	—14	±20	5	7	6.7	9.4	—	—	—	—	80	8,000	YES									
	RRS100P03	HZG	TB		—30	—10	±20	9	12.6	12.5	17.5	—	—	—	—	39	3,600	YES									
	RRS090P03	HZG	TB		—30	—9	±20	11	15.4	15	21	—	—	—	—	30	3,000	YES									
	RRS050P03	HZG	TB		—30	—5	±20	36	50	52	72	—	—	—	—	9.2	850	YES									
	RSS070P05	HZG	TB		—45	—7	±20	19	27	25	35	—	—	—	—	34	4,100	YES									
	RSS060P05	HZG	TB	P+P	—45	—6	±20	26	36	35	49	—	—	—	—	23	2,700	YES									
	SP8J66	HZG	TB		—30	—9	±20	13.5	18.5	17.5	23.6	—	—	—	—	35	3,000	YES									
	SP8M4	HZG	TB		30	9	±20	12	18	16	24	—	—	—	—	15	1,190	YES									
	SP8M5	HZG	TB		—30	—7	±20	20	28	25	35	—	—	—	—	25	2,600	YES									
	SP8M3	HZG	TB		30	6	±20	21	30	30	42	—	—	—	—	7.2	520	YES									
	SP8M6	HZG	TB		30	5	±20	36	51	52	73	—	—	—	—	3.9	230	YES									
	SP8M21	HZG	TB		—30	—4.5	±20	40	56	57	80	—	—	—	—	8.5	850	YES									
	SP8M24	HZG	TB		30	5	±20	36	51	52	73	—	—	—	—	3.9	230	YES									
	SP8M31	HZG	TB		45	6	±20	18	25	24	34	—	—	—	—	15.4	1,400	YES									
	SP8M41	HZG	TB		—45	—4	±20	33	46	43	60	—	—	—	—	20	2,400	YES									
	SP8M51	HZG	TB		45	4.5	±20	33	46	41	57	—	—	—	—	6.8	550	YES									

Note1: (): ROHM Packages at package site.

Note2: *1 V_{GS}=10V *2 V_{GS}=4V *3 V_{GS}=25V

Selector Guide for Automotive Power MOSFETs

Automotive Power MOSFETs																					
Package	Product No.			Polarity (ch)	V _{DSS} (V)	I _D (A)	V _{GS} (V)	R _{DS(on)} (mΩ)				Q _g Typ (nC)	C _{iss} Typ (pF)	Automotive Grade AEC-Q101							
	Part No.	Grade Code	Packing code					V _{GS} =10V		V _{GS} =4.5V											
								Typ	Max	Typ	Max										
TO-252 DPAK (TO-252)	RD3H200SN	FRA	TL	N	45	20	±20	20	28	25	35	12* ³	950	YES							
	RD3L220SN	FRA	TL		60	22	±20	18	26	21	30	30	1,500	YES							
	RD3L150SN	FRA	TL		60	15	±20	28	40	33	47	18	930	YES							
	RD3L080SN	FRA	TL		60	8	±20	57	80	70	98	9.4	380	YES							
	RD3L050SN	FRA	TL		60	5	±20	78	109	94	131	8	290	YES							
	RD3P200SN	FRA	TL		100	20	±20	33	46	36* ²	50* ²	55	2,100* ¹	YES							
	RD3P175SN	FRA	TL		100	17.5	±20	75	105	80	112	24	950* ¹	YES							
	RD3P100SN	FRA	TL		100	10	±20	95	133	100	140	18	700* ¹	YES							
	RD3P050SN	FRA	TL		100	5	±20	135	190	142	200	14	530* ¹	YES							
	RD3S100AA	FRA	TL		190	10	±20	130	182	136* ²	190* ²	52	2,000	YES							
	RD3U080AA	FRA	TL		250	8	±30	225	300	—	—	25	1,440* ¹	YES							
	RD3U041AA	FRA	TL		250	4	±30	930	1,300	—	—	8.5	350* ¹	YES							
	R5205PND3	FRA	TL		525	5	±25	1,300	1,600	—	—	10.8	320* ¹	YES							
	R6006PND3	FRA	TL		600	6	±30	900	1,200	—	—	15	460* ¹	YES							
	R6004PND3	FRA	TL		600	4	±25	1,400	1,800	—	—	11	280* ¹	YES							
	R8007AND3	FRA	TL		800	7	±30	1,200	1,600	—	—	28	850	YES							
	R8002CND3	FRA	TL		800	2	±30	3,300	4,300	—	—	12.1	240* ¹	YES							
	R8001CND3	FRA	TL		800	1	±30	6,700	8,700	—	—	7.2	60* ¹	YES							
	RD3H160SP	FRA	TL	P	-45	-16	±20	35	50	45	63	16* ³	2,000	YES							
	RD3H080SP	FRA	TL		-45	-8	±20	65	91	95	133	9* ³	1,000	YES							
	RD3H045SP	FRA	TL		-45	-4.5	±20	110	155	160	225	12* ³	550	YES							
	RD3L140SP	FRA	TL		-60	-14	±20	60	84	73	103	27	1,900	YES							
	RD3P130SP	FRA	TL		-100	-13	±20	135	200	150	220	40	2,400* ¹	YES							
TO-263S D2PAK (LPTS)	RSJ451N04	FRG	TL	N	40	45	±20	9.5	13.5	—	—	43	2,400* ¹	YES							
	RSJ400N06	FRG	TL		60	40	±20	11	16	—	—	52	2,400	YES							
	RSJ400N10	FRG	TL		100	40	±20	19	27	21* ²	30* ²	90	3,600* ¹	YES							
	RSJ301N10	FRG	TL		100	30	±20	33	46	36* ²	50* ²	60	2,100* ¹	YES							
	RJ1U330AA	FRG	TL		250	33	±30	77	105	—	—	80	4,500* ¹	YES							
	R6020PNJ	FRA	TL		600	20	±30	190	250	—	—	65	2,040* ¹	YES							
	R8008ANJ	FRG	TL		800	8	±30	790	1,030	—	—	38	1,100* ¹	YES							
	R8005ANJ	FRG	TL		800	5	±30	1,600	2,100	—	—	20	500* ¹	YES							
	R8002ANJ	FRG	TL		800	2	±30	3,300	4,300	—	—	13	250* ¹	YES							
	RSJ250P10	FRG	TL	P	-100	-25	±20	45	63	48	67	60* ³	8,000* ¹	YES							

Note1: () : ROHM Packages at package site.

Note2: *1 V_{DSS}=25V *2 V_{GS}=4V *3 V_{GS}=5V

Bipolar Transistors

Quick Reference for General Purpose Amplification Bipolar Transistors (Flat type)												
Polarity Application	SOT-723 (VMT3) 1212 size		SOT-416FL (EMT3F) 1616 size		SOT-323FL (UMT3F) 2021 size		V_{CEO} (V)	I_c (A)	h_{FE}^{*2}			
	 PNP	NPN	 PNP	NPN	 PNP	NPN						
General Purpose Amplification	2SAR522M	2SCR522M	2SAR522EB	2SCR522EB	2SAR522UB	2SCR522UB	20	0.2	120 to 560			
	2SAR523M	2SCR523M	2SAR523EB	2SCR523EB	2SAR523UB	2SCR523UB	50	0.1	120 to 560			
	2SA2029	2SC5658	2SA1774EB	2SC4617EB	2SA1576UB	2SC4081UB	50	0.15	120 to 390			
Low V_{CE} (sat)	2SA2030	2SC5663					12	0.5	270 to 680			
		2SD2696					30	0.4	270 to 680			
Driver			2SAR502EB	2SCR502EB	2SAR502UB	2SCR502UB	30	0.5	200 to 500			

Note1: *1 With reference land installed.

Note2: *2 For h_{FE} , please see the technical specifications.

Note3: PNP (—) symbol omitted.

Note4: (): ROHM Packages at package site.

General Purpose Amplification Bipolar Transistors (Flat type)													
Package	Application	Product No.								Automotive Grade AEC-Q101			
		Part No.	Grade	Code	Packing	h_{FE}^{*2} Code		Polarity (ch)	P_D^{*1} (W)	V_{CEO} (V)	I_c (A)	h_{FE}^{*2}	
SOT-723 (VMT3) 1212 size	General Purpose Amplification	2SAR522M	—	T2L		X	X		0.15	-20	-0.2	120 to 560	—
	2SAR523M	—	T2L		X	X	X		0.15	-50	-0.1	120 to 560	—
	2SA2029	FHA	T2L	Q	R	X	X	PNP	0.15	-50	-0.15	120 to 390	YES
	2SA2030	—	T2L		X	X	X		0.15	-12	-0.5	270 to 680	—
	General Purpose Amplification	2SCR522M	—	T2L		X	X	NPN	0.15	20	0.2	120 to 560	—
	2SCR523M	—	T2L		X	X	X		0.15	50	0.1	120 to 560	—
	2SC5658	FHA	T2L	Q	R	X	X		0.15	50	0.15	120 to 390	YES
	2SC5663	—	T2L		X	X	X		0.15	12	0.5	270 to 680	—
	2SD2696	—	T2L		X	X	X		0.15	30	0.4	270 to 680	—
	Driver	2SAR502EB	—	TL		X	X		0.15	-20	-0.2	120 to 560	—
SOT-416FL (EMT3F) 1616 size	General Purpose Amplification	2SAR523EB	—	TL		X	X	PNP	0.15	-50	-0.1	120 to 560	—
	2SA1774EB	—	TL	Q	R	X	X		0.15	-50	-0.15	120 to 390	—
	Driver	2SAR502EB	—	TL		X	X		0.15	-30	-0.5	200 to 500	—
	General Purpose Amplification	2SCR522EB	—	TL		X	X		0.15	20	0.2	120 to 560	—
	2SCR523EB	—	TL	Q	R	X	X	NPN	0.15	50	0.1	120 to 560	—
	2SC4617EB	—	TL	Q	R	X	X		0.15	50	0.15	120 to 390	—
	Driver	2SCR502EB	—	TL		X	X		0.15	30	0.5	200 to 500	—
	General Purpose Amplification	2SAR522UB	—	TL		X	X	PNP	0.2	-20	-0.2	120 to 560	—
	2SAR523UB	—	TL		X	X	X		0.2	-50	-0.1	120 to 560	—
	2SA1576UB	—	TL	Q	R	X	X		0.2	-50	-0.15	120 to 390	—
	Driver	2SAR502UB	—	TL		X	X		0.2	-30	-0.5	200 to 500	—
SOT-323FL (UMT3F) 2021 size	General Purpose Amplification	2SCR522UB	—	TL		X	X	NPN	0.2	20	0.2	120 to 560	—
	2SCR523UB	—	TL		X	X	X		0.2	50	0.1	120 to 560	—
	2SC4081UB	—	TL	Q	R	X	X		0.2	50	0.15	120 to 390	—
	Driver	2SCR502UB	—	TL		X	X		0.2	30	0.5	200 to 500	—

Note1: *General part No. have no grade code.

Note2: *1 With reference land installed.

Note3: *2 For h_{FE} , N: 56 to 120, P: 82 to 180, Q: 120 to 270, R: 180 to 390, S: 270 to 560. Please see the technical specifications.

Note4: (): ROHM Packages at package site.

Quick Reference for General Purpose Amplification Bipolar Transistors (Gull wing type)														
Package	SOT-416 (EMT3) 1616 size		SOT-323 (UMT3) 2021 size		TO-236 SOT-346 (SMT3) 2928 size		TO-236AB SOT-23 (SST3) 2924 size		V_{CEO} (V)	I_c (A)	h_{FE}^{*2}			
	 PNP	NPN	 PNP	NPN	 PNP	NPN	 PNP	NPN						
General Purpose Amplification	2SA1774E3	2SC4617E3	2SA1576U3	2SC4081U3	2SA1037AK	2SC2412K			50	0.15	120 to 390			
Low V_{CE} (sat)	2SA2018E3	2SC5585E3			2SA2119K				12	0.5	270 to 680			
			2SB1689	2SD2652					12	1.5	270 to 680			
					2SB1690K	2SD2653K			12	2	270 to 680			
					2SB1590K	2SD1757K			15	0.5	120 to 560			
				2SB1694	2SD2656		2SD2444K		15	1	120 to 390			
						2SB1695K	2SD2657K		30	1	270 to 680			
	2SAR502E3	2SCR502E3	2SAR502U3	2SCR502U3					30	0.5	200 to 500			
			2SA1577	2SC4097	2SA1036K	2SC2411K			32	0.5	120 to 390			
					2SB1197K	2SD1781K			32	0.8	120 to 390			
				2SD1949		2SD1484K			50	0.5	120 to 390			
High Speed Switching					2SB1198K	2SD1782K			80	0.5	120 to 390			
High Voltage			2SA2088U3	2SC5876U3					60	0.5	120 to 270			
			2SA1579U3	2SC4102U3	2SA1514K	2SC3906K	2SARA41C	2SCRC41C	120	0.05	180 to 560			
						2SC4061K			300	0.1	56 to 120			

Note1: *1 With reference land installed.

Note2: *2 For h_{FE} , please see the technical specifications.

Note3: PNP (—) symbol omitted.

Note4: (): ROHM Packages at package site.

Bipolar Transistors

General Purpose Amplification Bipolar Transistors (Gull wing type)

Package	Application	Product No.					Polarity (ch)	P_D^{*1} (W)	V_{CEO} (V)	I_C (A)	h_{FE}^{*2}	Automotive Grade AEC-Q101						
		Grade Code		Packing code	h_{FE}^{*2} Code													
General		Automotive																
SOT-416 (EMT3) 1616 size	General Purpose Amplification	2SA1774E3	*	HZG	TL	Q	R	X	X	X	X	X	PNP	0.15	-50	-0.15	120 to 390	YES
	Low V_{CE} (sat)	2SA2018E3		HZG	TL	X	X	X	X	X	X	X	PNP	0.15	-12	-0.5	270 to 680	YES
	Driver	2SAR502E3		HZG	TL	X	X	X	X	X	X	X	PNP	0.15	-30	-0.5	200 to 500	YES
	General Purpose Amplification	2SC4617E3		HZG	TL	Q	R	X	X	X	X	X	NPN	0.15	50	0.15	120 to 390	YES
	Low V_{CE} (sat)	2SC5585E3		-	TL	X	X	X	X	X	X	X	NPN	0.15	12	0.5	270 to 680	-
	Driver	2SCR502E3		HZG	TL	X	X	X	X	X	X	X	NPN	0.15	30	0.5	200 to 500	YES
SOT-323 (UMT3) 2021 size	General Purpose Amplification	2SA1576U3	*	HZG	T106	Q	R	X	X	X	X	X	PNP	0.2	-50	-0.15	120 to 390	YES
	Low V_{CE} (sat)	2SB1689		-	T106	X	X	X	X	X	X	X	PNP	0.2	-12	-1.5	270 to 680	-
		2SB1694		-	T106	X	X	X	X	X	X	X	PNP	0.2	-30	-1	270 to 680	-
	Driver	2SAR502U3		HZG	T106	X	X	X	X	X	X	X	PNP	0.2	-30	-0.5	200 to 500	YES
		2SA1577		-	T106	Q	R	X	X	X	X	X	PNP	0.2	-32	-0.5	120 to 390	-
	High Speed Switching	2SA2088U3		HZG	T106	Q	X	X	X	X	X	X	PNP	0.2	-60	-0.5	120 to 270	YES
	High Voltage	2SA1579U3		HZG	T106	R	S	X	X	X	X	X	PNP	0.2	-120	-0.05	180 to 560	YES
	General Purpose Amplification	2SC4081U3		HZG	T106	Q	R	X	X	X	X	X	PNP	0.2	50	0.15	120 to 390	YES
	Low V_{CE} (sat)	2SD2652		-	T106	X	X	X	X	X	X	X	PNP	0.2	12	1.5	270 to 680	-
		2SD2656		-	T106	X	X	X	X	X	X	X	PNP	0.2	30	1	270 to 680	-
	Driver	2SCR502U3		HZG	T106	X	X	X	X	X	X	X	PNP	0.2	30	0.5	200 to 500	YES
		2SC4097		-	T106	Q	R	X	X	X	X	X	PNP	0.2	32	0.5	120 to 390	-
		2SD1949		-	T106	Q	R	X	X	X	X	X	PNP	0.2	50	0.5	120 to 390	-
	High speed Switching	2SC5876U3		HZG	T106	Q	R	X	X	X	X	X	PNP	0.2	60	0.5	120 to 390	YES
	High Voltage	2SC4102U3		HZG	T106	R	S	X	X	X	X	X	PNP	0.2	120	0.05	180 to 560	YES
TO-236 SOT-346 (SMT3) 2928 size	General Purpose Amplification	2SA1037AK	*	-	T146	Q	R	X	X	X	X	X	PNP	0.2	-50	-0.15	120 to 390	-
		2SA2119K		-	T146	X	X	X	X	X	X	X	PNP	0.2	-12	-0.5	270 to 680	-
	Low V_{CE} (sat)	2SB1690K		-	T146	X	X	X	X	X	X	X	PNP	0.2	-12	-2	270 to 680	-
		2SB1590K		-	T146	Q	X	X	X	X	X	X	PNP	0.2	-15	-1	120 to 390	-
		2SB1695K		-	T146	X	X	X	X	X	X	X	PNP	0.2	-30	-1.5	270 to 680	-
	Driver	2SA1036K		-	T146	Q	R	X	X	X	X	X	PNP	0.2	-32	-0.5	120 to 390	-
		2SB1197K		-	T146	Q	R	X	X	X	X	X	PNP	0.2	-32	-0.8	120 to 390	-
		2SB1198K		-	T146	Q	R	X	X	X	X	X	PNP	0.2	-80	-0.5	120 to 390	-
	High Voltage	2SA1514K		-	T146	R	S	X	X	X	X	X	PNP	0.2	-120	-0.05	180 to 560	-
	General Purpose Amplification	2SC2412K		-	T146	Q	R	X	X	X	X	X	PNP	0.2	50	0.15	120 to 390	-
	Low V_{CE} (sat)	2SD2653K		-	T146	X	X	X	X	X	X	X	PNP	0.2	12	2	270 to 680	-
		2SD1757K		-	T146	Q	R	S	X	X	X	X	PNP	0.2	15	0.5	120 to 560	-
		2SD2444K		-	T146	R	X	X	X	X	X	X	PNP	0.2	15	1	180 to 390	-
		2SD2657K		-	T146	X	X	X	X	X	X	X	PNP	0.2	30	1.5	270 to 680	-
	Driver	2SC2411K		-	T146	Q	R	X	X	X	X	X	PNP	0.2	32	0.5	120 to 390	-
		2SD1781K		-	T146	Q	R	X	X	X	X	X	PNP	0.2	32	0.8	120 to 390	-
		2SD1484K		-	T146	Q	R	X	X	X	X	X	PNP	0.2	50	0.5	120 to 390	-
		2SD1782K		-	T146	Q	R	X	X	X	X	X	PNP	0.2	80	0.5	120 to 390	-
	High Voltage	2SC3906K		-	T146	R	S	X	X	X	X	X	PNP	0.2	120	0.05	180 to 560	-
		2SC4061K		-	T146	N	X	X	X	X	X	X	PNP	0.2	300	0.1	56 to 120	-
TO-236AB SOT-23 (SST3) 2924 size	High Voltage	2SARA41C	*	HZG	T116	R	S	X	X	X	X	X	PNP	0.2	-120	-0.05	180 to 560	YES
		2SCRC41C		HZG	T116	R	S	X	X	X	X	X	NPN	0.2	120	0.05	180 to 560	YES

Note1: *General Part No. have no grade code.

Note2: *1 With reference land installed.

Note3: *2 For I_{FE} , N: 56 to 120, P: 82 to 180, Q: 120 to 270, R: 180 to 390, S: 270 to 560. Please see the technical specifications.

Note4: () : ROHM Packages at package site.

Quick Reference for Bipolar Transistors (For Oversea Customer)

Application	Polarity	SOT-323 (UMT3) 2021 size		TO-236AB SOT-23 (SST3) 2924 size		V_{CEO} (V)	I_c (A)	h_{FE}^{*2}
		PNP	NPN	$P_D=0.2W$	$P_D=0.2W$			
General Purpose Amplification	BC858BW	BC848BW	BC858B	BC848B	30	0.1	200 to 450	
		BC847BU3		BC847B	45	0.1	200 to 450	
	BC857BU3		BC857B		45	0.1	210 to 480	
			BC857C	BC847C	45	0.1	420 to 800	
				BC846B	65	0.12	200 to 450	
			BC856B		65	0.1	220 to 475	
			BSS63A	BSS64A	100	0.1	30 or more	
			BSS5130A	BSS4130A	30	1	270 to 680	
			BC807-16	BC817-16	45	0.8	100 to 250	
			BC807-25	BC817-25	45	0.8	160 to 400	
Driver			BC807-40	BC817-40	45	0.8	250 to 600	
			BCX17	BCX19	45	0.5	100 to 600	
			SSTA56	SSTA06	80	0.5	100 or more	
	UMT3906	UMT3904	SST3906	SST3904	40	0.2	100 to 300	
	UMT4403U3	UMT4401U3	SST4403	SST4401	40	0.6	100 to 300	
Switching		UMT2222AU3		SST2222A	40	0.6	100 to 300	
	UMT2907A		SST2907A		60	0.6	100 to 300	
	Darlington*3			SSTA28	80 (V_{CES})	0.3	10,000 or more	

Note1: *1 With reference land installed.

Note2: *2 For h_{FE} , please see the technical specifications.

Note3: *3 For internal circuit, please see the technical specifications.

Note4: PNP (—) symbol omitted.

Note5: (): ROHM Packages at package site.

Bipolar Transistors (For Oversea Customer)

Package	Application	Product No.			Polarity (ch)	P_D^{*1} (W)	V_{CEO} (V)	I_c (A)	h_{FE}^{*2}	Automotive Grade AEC-Q101
		Part No.	General	Automotive						
SOT-323 (UMT3) 2021 size	General Purpose Amplification	BC858BW	*	—	T106	0.2	-30	-0.1	210 to 480	—
		BC857BU3		HZG	T106	0.2	-45	-0.1	210 to 480	YES
	Switching	UMT3906		—	T106	0.2	-40	-0.2	100 to 300	—
		UMT4403U3		HZG	T106	0.2	-40	-0.6	100 to 300	YES
		UMT2907A		—	T106	0.2	-60	-0.6	100 to 300	—
	General Purpose Amplification	BC848BW	*	—	T106	0.2	30	0.1	200 to 450	—
		BC847BU3		HZG	T106	0.2	45	0.1	200 to 450	YES
	Switching	UMT3904		—	T106	0.2	40	0.2	100 to 300	—
		UMT4401U3		HZG	T106	0.2	40	0.6	100 to 300	YES
		UMT2222AU3		HZG	T106	0.2	40	0.6	100 to 300	YES
TO-236AB SOT-23 (SST3) 2924 size	General Purpose Amplification	BC858B	*	HZG	T116	0.2	-30	-0.1	210 to 480	YES
		BC857B		HZG	T116	0.2	-45	-0.1	210 to 480	YES
		BC857C		HZG	T116	0.2	-45	-0.1	420 to 800	YES
		BC856B		HZG	T116	0.2	-65	-0.1	220 to 475	YES
		BSS63A		HZG	T116	0.2	-100	-0.1	30 or more	YES
	Driver	BSS5130A	*	HZG	T116	0.2	-30	-1	270 to 680	YES
		BCX17		HZG	T116	0.2	-45	-0.5	100 to 600	YES
		BC807-16		HZG	T116	0.2	-45	-0.8	100 to 250	YES
		BC807-25		HZG	T116	0.2	-45	-0.8	160 to 400	YES
		BC807-40		HZG	T116	0.2	-45	-0.8	250 to 600	YES
	Switching	SSTA56	*	HZG	T116	0.2	-80	-0.5	100 or more	YES
		SST4403		HZG	T116	0.2	-40	-0.6	100 to 300	YES
		SST2907A		HZG	T116	0.2	-60	-0.6	100 to 300	YES
	General Purpose Amplification	SST3906	*	HZG	T116	0.2	-40	-0.2	100 to 300	YES
		BC848B		HZG	T116	0.2	30	0.1	200 to 450	YES
		BC847B		HZG	T116	0.2	45	0.1	200 to 450	YES
		BC847C		HZG	T116	0.2	45	0.1	420 to 800	YES
		BC846B		HZG	T116	0.2	65	0.12	200 to 450	YES
	Driver	BSS64A	*	HZG	T116	0.2	100	0.1	30 or more	YES
		BSS4130A		HZG	T116	0.2	30	1	270 to 680	YES
		BCX19		HZG	T116	0.2	45	0.5	100 to 600	YES
		BC817-16		HZG	T116	0.2	45	0.8	100 to 250	YES
		BC817-25		HZG	T116	0.2	45	0.8	160 to 400	YES
	Switching	BC817-40	*	HZG	T116	0.2	45	0.8	250 to 600	YES
		SSTA06		HZG	T116	0.2	80	0.5	100 or more	YES
		SST3904		HZG	T116	0.2	40	0.2	100 to 300	YES
	Darlington*3	SST4401	*	HZG	T116	0.2	40	0.6	100 to 300	YES
		SST2222A		HZG	T116	0.2	40	0.6	100 to 300	YES
	Darlington*3	SSTA28		—	T116	0.2	80 (V_{CES})	0.3	10,000 or more	—

Note1: *General Part No. have no grade code.

Note2: *1 With reference land installed.

Note3: *2 For h_{FE} , please see the technical specifications.

Note4: *3 For internal circuit, please see the technical specifications.

Note5: (): ROHM Packages at package site.

Bipolar Transistors

Quick Reference for High h_{FE} ·Muting/Darlington Bipolar Transistors

Polarity	Package	SOT-723 (VMT3) 1212 size	SOT-416 (EMT3) 1616 size	TO-236 SOT-346 (SMT3) 2928 size	V_{CEO} (V)	I_c (A)	h_{FE}^{*2}	
	Application	PNP	NPN	PNP				
High h_{FE} Muting					2SD2704K	25 (V_{EBO})	0.3	820 to 2,700
					2SD2114K	20	0.5	820 to 2,700
		2SD2707		<i>New</i> 2SD2654E3	2SD2226K	50	0.15	820 to 2,700
Darlington ^{*3}					2SD2142K	30	0.3	5,000 or more
					2SB852K	2SD1383K	32 (V_{CES})	0.3

Note1: *1 With reference land installed.

Note2: *2 For h_{FE} , please see the technical specifications.

Note3: *3 For internal circuit, please see the technical specifications.

Note4: PNP (—) symbol omitted.

Note5: () : ROHM Packages at package site.

High h_{FE} ·Muting/Darlington Bipolar Transistors

Package	Application	Product No.					Polarity (ch)	P_D^{*1} (W)	V_{CEO} (V)	I_c (A)	h_{FE}^{*2}		
		Part No.	Grade Code		Packing code	h_{FE}^{*2} Code							
			General	Automotive									
 SOT-723 (VMT3) 1212 size	High h_{FE} Muting	2SD2707	*	—	T2L	V	W	NPN	0.15	50	0.15	820 to 2,700	W: Not Recommended
 SOT-416 (EMT3) 1616 size	High h_{FE} Muting	<i>New</i> 2SD2654E3	*	—	TL	V	W	NPN	0.15	50	0.15	820 to 2,700	
 TO-236 SOT-346 (SMT3) 2928 size	Darlington ^{*3}	2SB852K	*	—	T146	B	X	PNP	0.2	-32 (V_{CES})	-0.3	5,000 or more	
	High h_{FE} Muting	2SD2704K		—	T146	X	X	NPN	0.2	25 (V_{EBO})	0.3	820 to 2,700	
		2SD2114K		—	T146	V	W		0.2	20	0.5	820 to 2,700	
		2SD2226K		—	T146	V	W		0.2	50	0.15	820 to 2,700	
	Darlington ^{*3}	2SD2142K		—	T146	X	X	NPN	0.2	30	0.3	5,000 or more	
		2SD1383K		—	T146	B	X		0.2	32 (V_{CES})	0.3	5,000 or more	

Note1: *General Part No. have no grade code.

Note2: *1 With reference land installed.

Note3: *2 For h_{FE} , B: 5,000 or more, V: 820 to 1,800, W: 1,200 to 2,700. Please see the technical specifications.

Note4: *3 For internal circuit, please see the technical specifications.

Note5: () : ROHM Packages at package site.

Quick Reference for Low Saturation/Driver Bipolar Transistors							
Polarity Application	SOT-323T/SOT-363T (TUMT3/TUMT6) 2021 size		SOT-346T/SOT-457T (TSMT3/TSMT6) 2928 size		V_{CEO} (V)	I_C (A)	h_{FE}^{*2}
	PNP	NPN	PNP	NPN			
Low $V_{CE(sat)}$	2SB1732	2SD2702	2SB1709	2SD2674	12	1.5	270 to 680
	2SB1730	2SD2700	2SB1690	2SD2653	12	2	270 to 680
			2SB1705	2SD2670	12	3	270 to 680
			2SB1707	2SD2672	12	4	270 to 680
			QST2 ^{*3}	QSX1 ^{*3}	12	6	270 to 680
	2SB1733	2SD2703	2SB1710	2SD2675	30	1	270 to 680
	2SB1731	2SD2701	2SB1695	2SD2657	30	1.5	270 to 680
			2SB1706	2SD2671	30	2	270 to 680
			2SB1708	2SD2673	30	3	270 to 680
			QST3 ^{*3}	QSX2 ^{*3}	30	5	270 to 680
Driver			2SAR512R	2SCR512R	30	2	200 to 500
			2SAR513R	2SCR513R	50	1	180 to 450
			2SAR553R	2SCR553R	50	2	180 to 450
			2SAR543R	2SCR543R	50	3	180 to 450
			2SAR514R	2SCR514R	80	0.7	120 to 390
			2SAR554R	2SCR554R	80	1.5	120 to 390
			2SAR544R	2SCR544R	80	2.5	120 to 390
High Speed Switching			2SA2094	2SC5866	60	2	120 to 270 120 to 390
High Voltage			2SAR340Q ^{*3}	2SCR341Q ^{*3}	400	0.1	82 to 270

Note1: *1 With reference land installed.

Note2: *2 For h_{FE} , please see the technical specifications.

Note3: *3 6pin package (TSMT6/TUMT6) For internal circuit, please see the technical specifications.

Note4: PNP (–) symbol omitted.

Note5: (): ROHM Packages at package site.

Bipolar Transistors

Low Saturation/Driver Bipolar Transistors

Package	Application	Product No.				Polarity (ch)	Pd*1 (W)	V _{CEO} (V)	I _c (A)	h _{FE} *2	Automotive Grade AEC-Q101
		Part No.	Grade Code	Packing code	h _{FE} *2 Code						
		General	Automotive								
SOT-323T (TUMT3) 2021 size	Low V _{CE} (sat)	2SB1732	*	—	TL	PNP	0.4	-12	-1.5	270 to 680	—
		2SB1730		—	TL		0.4	-12	-2	270 to 680	—
		2SB1733		—	TL		0.4	-30	-1	270 to 680	—
		2SB1731		—	TL		0.4	-30	-1.5	270 to 680	—
		2SD2702		—	TL	NPN	0.4	12	1.5	270 to 680	—
		2SD2700		—	TL		0.4	12	2	270 to 680	—
		2SD2703		—	TL		0.4	30	1	270 to 680	—
		2SD2701		—	TL		0.4	30	1.5	270 to 680	—
		2SB1709		—	TL		0.5	-12	-1.5	270 to 680	—
		2SB1690		—	TL		0.5	-12	-2	270 to 680	—
SOT-346T (TSMT3) 2928 size	Low V _{CE} (sat)	2SB1705		—	TL	PNP	0.5	-12	-3	270 to 680	—
		2SB1707		—	TL		0.5	-12	-4	270 to 680	—
		2SB1710		—	TL		0.5	-30	-1	270 to 680	—
		2SB1695		—	TL		0.5	-30	-1.5	270 to 680	—
		2SB1706		—	TL		0.5	-30	-2	270 to 680	—
		2SB1708		—	TL		0.5	-30	-3	270 to 680	—
		2SAR512R		HZG	TL		0.5	-30	-2	200 to 500	YES
		2SAR513R		HZG	TL		0.5	-50	-1	180 to 450	YES
		2SAR553R		HZG	TL		0.5	-50	-2	180 to 450	YES
		2SAR543R		—	TL		0.5	-50	-3	180 to 450	—
SOT-346T (TSMT3) 2928 size	Driver	2SAR514R		HZG	TL	PNP	0.5	-80	-0.7	120 to 390	YES
		2SAR554R		—	TL		0.5	-80	-1.5	120 to 390	—
		2SAR544R		—	TL		0.5	-80	-2.5	120 to 390	—
		2SA2094		—	TL		0.5	-60	-2	120 to 270	—
		2SD2674		—	TL		0.5	12	1.5	270 to 680	—
		2SD2653		—	TL		0.5	12	2	270 to 680	—
		2SD2670		—	TL		0.5	12	3	270 to 680	—
		2SD2672		—	TL		0.5	12	4	270 to 680	—
		2SD2675		—	TL		0.5	30	1	270 to 680	—
		2SD2657		—	TL		0.5	30	1.5	270 to 680	—
SOT-346T (TSMT3) 2928 size	High Speed Switching	2SD2671		—	TL	NPN	0.5	30	2	270 to 680	—
		2SD2673		—	TL		0.5	30	3	270 to 680	—
		2SCR512R		HZG	TL		0.5	30	2	200 to 500	YES
		2SCR513R		HZG	TL		0.5	50	1	180 to 450	YES
		2SCR553R		HZG	TL		0.5	50	2	180 to 450	YES
		2SCR543R		—	TL		0.5	50	3	180 to 450	—
		2SCR514R		HZG	TL		0.5	80	0.7	120 to 390	YES
		2SCR554R		—	TL		0.5	80	1.5	120 to 390	—
		2SCR544R		—	TL		0.5	80	2.5	120 to 390	—
		2SC5866		—	TL		0.5	60	2	120 to 390	—
SOT-457T (TSMT6) 2928 size	Low V _{CE} (sat)	QST2*3	*	—	TR	PNP	0.5	-12	-6	270 to 680	—
		QST3*3		—	TR		0.5	-30	-5	270 to 680	—
		2SAR340Q*3		—	TR		0.5	-400	-0.1	82 to 270	—
		QSX1*3		—	TR	NPN	0.5	12	6	270 to 680	—
		QSX2*3		—	TR		0.5	30	5	270 to 680	—
		High Voltage		2SCR341Q*3	—		0.5	400	0.1	82 to 270	—

Note1: *General Part No. have no grade code.

Note2: *1 With reference land installed.

Note3: *2 For h_{FE}, P: 82 to 180, Q: 120 to 270, R: 180 to 390. Please see the technical specifications.

Note4: *3 6pin package (TSMT6) For internal circuit, please see the technical specifications.

Note5: (): ROHM Packages at package site.

Quick Reference for Power Bipolar Transistors

Polarity	Package	DFN2020-3S (HUML2020L3) 2020 size	TO-243 SOT-89 (MPT3) 4540 size	TO-252 DPAK (TO-252)	TO-263AB (LPTL)	V_{CEO} (V)	I_C (A)	h_{FE}^{*3}
		*1  P _D =0.5W	*1  P _D =0.5W	*2  P _D =10W	*2  P _D =40W			
		Application	PNP	NPN	PNP	NPN	PNP	NPN
Gate Driver			2SAR642P	2SCR642P				30 10 ^{*5} 200 to 500
Driver			2SB1697	2SD2661				12 2 270 to 680
			2SAR293P 2SAR293P5	2SCR293P 2SCR293P5				30 1 270 to 680
			2SAR512P 2SAR512P5	2SCR512P 2SCR512P5				30 2 200 to 500
			2SAR552P 2SAR552P5	2SCR552P 2SCR552P5				30 3 200 to 500
	2SAR542F3	2SCR542F3						30 3 200 to 500
			2SAR542P	2SCR542P	2SAR572D3	2SCR572D3		30 5 200 to 500
	2SAR562F3	2SCR562F3						30 6 200 to 500
					2SAR582D3	2SCR582D3		30 10 200 to 500
			2SAR513P 2SAR513P5	2SCR513P 2SCR513P5				50 1 180 to 450
			2SAR553P 2SAR553P5	2SCR553P 2SCR553P5				50 2 180 to 450
			2SAR533P 2SAR533P5	2SCR533P 2SCR533P5				50 3 180 to 450
					2SAR573D3	2SCR573D3		50 3 180 to 450
	2SAR563F3	2SCR563F3						50 6 180 to 450
					2SAR583D3	2SCR583D3		50 7 180 to 450
			2SAR514P 2SAR514P5	2SCR514P 2SCR514P5				80 0.7 120 to 390
			2SAR554P 2SAR554P5	2SCR554P 2SCR554P5				80 1.5 120 to 390
					2SAR574D3	2SCR574D3		80 2 120 to 390
			2SAR544P 2SAR544P5	2SCR544P 2SCR544P5				80 2.5 120 to 390
	2SAR564F3	2SCR564F3						80 4 120 to 390
					2SAR586D3	2SCR586D3	2SAR586J	2SCR586J 80 5 120 to 390
			2SAR372P 2SAR372P5	2SCR372P 2SCR372P5				120 0.7 120 to 390
			2SAR375P 2SAR375P5	2SCR375P 2SCR375P5				120 1.5 120 to 390
	2SAR567F3	2SCR567F3						120 2.5 120 to 390
					2SAR587D3	2SCR587D3		120 3 120 to 390
High Voltage			2SAR340P	2SCR346P				400 0.1 82 to 270
High Speed Switching			2SA2071P5	2SC5824				60 3 120 to 270 120 to 390
High h_{FE}				2SD2537				25 1.2 820 to 1,800
				2SB1427				20 2 390 to 820
				2SD2153				25 2 560 to 2,700
Darlington ^{*4}				2SD1834				60 (V _{CES}) 1 2k or more

Note1: *1 With reference land installed.

Note2: *2 $T_c=25^\circ C$

Note3: *3 For h_{FE} , please see the technical specifications.

Note4: *4 For internal circuit, please see the technical specifications.

Note5: *5 $P_{on}=1\text{ms}$, Single pulse

Note6: PNP (-) symbol omitted.

Note7: (): ROHM Packages at package site.

Bipolar Transistors

Power Bipolar Transistors

Package	Application	Product No.					Polarity (ch)	P_D^{*1} (W)	V_{CEO} (V)	I_C (A)	h_{FE}^{*3}	Automotive Grade AEC-Q101	
		Part No.	Grade Code	Packing code	h_{FE}^{*3} Code								
			General	Automotive									
◆ DFN2020-3S (HUML2020L3) 2020 size	Driver	2SAR542F3	*	—	TR	X	X	X	X	X	X	X	PNP
		2SAR562F3		—	TR	X	X	X	X	X	X	X	
		2SAR563F3		—	TR	X	X	X	X	X	X	X	
		2SAR564F3		—	TR	X	X	X	X	X	X	X	
		2SAR567F3		—	TR	X	X	X	X	X	X	X	
		2SCR542F3		—	TR	X	X	X	X	X	X	X	NPN
		2SCR562F3		—	TR	X	X	X	X	X	X	X	
		2SCR563F3		—	TR	X	X	X	X	X	X	X	
		2SCR564F3		—	TR	X	X	X	X	X	X	X	
		2SCR567F3		—	TR	X	X	X	X	X	X	X	
TO-243 SOT-89 (MPT3) 4540 size	Driver	2SAR642P	—	HZG	T100	X	X	X	X	X	X	X	PNP
		2SB1697	*	—	T100	X	X	X	X	X	X	X	
		2SAR293P	—	HZG	T100	X	X	X	X	X	X	X	
		2SAR293P5	*	—	T100	X	X	X	X	X	X	X	
		2SAR512P	—	HZG	T100	X	X	X	X	X	X	X	
		2SAR512P5	*	—	T100	X	X	X	X	X	X	X	
		2SAR552P	—	HZG	T100	X	X	X	X	X	X	X	
		2SAR552P5	*	—	T100	X	X	X	X	X	X	X	
		2SAR542P	*	FRA	T100	X	X	X	X	X	X	X	
		2SAR513P	—	HZG	T100	X	X	X	X	X	X	X	
		2SAR513P5	*	—	T100	X	X	X	X	X	X	X	
		2SAR553P	—	HZG	T100	X	X	X	X	X	X	X	
		2SAR553P5	*	—	T100	X	X	X	X	X	X	X	
		2SAR533P	—	HZG	T100	X	X	X	X	X	X	X	
		2SAR533P5	*	—	T100	X	X	X	X	X	X	X	
		2SAR514P	—	HZG	T100	X	X	X	X	X	X	X	
		2SAR514P5	*	—	T100	X	X	X	X	X	X	X	
	Driver	2SAR554P	—	HZG	T100	X	X	X	X	X	X	X	PNP
		2SAR554P5	*	—	T100	X	X	X	X	X	X	X	
		2SAR544P	—	HZG	T100	X	X	X	X	X	X	X	
		2SAR544P5	*	—	T100	X	X	X	X	X	X	X	
		2SAR372P	—	HZG	T100	Q	R	X	X	X	X	X	
		2SAR372P5	*	—	T100	Q	R	X	X	X	X	X	
		2SAR375P	—	HZG	T100	Q	R	X	X	X	X	X	
		2SAR375P5	*	—	T100	Q	R	X	X	X	X	X	
		2SAR340P	*	—	T100	P	Q	X	X	X	X	X	
		2SA2071P5	*	—	T100	Q	X	X	X	X	X	X	
		2SB1427	*	—	T100	E	X	X	X	X	X	X	
		2SCR642P	—	HZG	T100	X	X	X	X	X	X	X	
	Driver	2SD2661	*	—	T100	X	X	X	X	X	X	X	PNP
		2SCR293P	—	HZG	T100	X	X	X	X	X	X	X	
		2SCR293P5	*	—	T100	X	X	X	X	X	X	X	
		2SAR512P	—	HZG	T100	X	X	X	X	X	X	X	
		2SCR512P5	*	—	T100	X	X	X	X	X	X	X	
		2SCR552P	—	HZG	T100	X	X	X	X	X	X	X	
		2SCR552P5	*	—	T100	X	X	X	X	X	X	X	
		2SCR542P	*	FRA	T100	X	X	X	X	X	X	X	
		2SCR513P	—	HZG	T100	X	X	X	X	X	X	X	
		2SCR513P5	*	—	T100	X	X	X	X	X	X	X	
		2SCR553P	—	HZG	T100	X	X	X	X	X	X	X	
		2SCR553P5	*	—	T100	X	X	X	X	X	X	X	
		2SCR533P	—	HZG	T100	X	X	X	X	X	X	X	
		2SCR533P5	*	—	T100	X	X	X	X	X	X	X	
		2SCR514P	—	HZG	T100	X	X	X	X	X	X	X	
Transistors	Driver	2SCR514P5	*	—	T100	X	X	X	X	X	X	X	PNP
		2SCR554P	—	HZG	T100	X	X	X	X	X	X	X	
		2SCR554P5	*	—	T100	X	X	X	X	X	X	X	
		2SCR544P	—	HZG	T100	X	X	X	X	X	X	X	
		2SCR544P5	*	—	T100	X	X	X	X	X	X	X	
		2SCR372P	—	HZG	T100	Q	R	X	X	X	X	X	
		2SCR372P5	*	—	T100	Q	R	X	X	X	X	X	
		2SCR375P	—	HZG	T100	Q	R	X	X	X	X	X	
		2SCR375P5	*	—	T100	Q	R	X	X	X	X	X	
		2SCR346P	*	—	T100	P	Q	X	X	X	X	X	
High Voltage	Driver	2SC5824	*	—	T100	Q	R	X	X	X	X	X	PNP
		2SD2537	*	—	T100	V	X	X	X	X	X	X	
		2SD2153	*	—	T100	U	V	W	X	X	X	X	
		2SD1834	*	—	T100	X	X	X	X	X	X	X	
High Speed Switching	Driver											NPN	
High h _{FE}	Driver											PNP	
Darlington ^{*5}	Driver											PNP	

Note1: *General Part No. have no grade code.

Note2: *1 With reference land installed.

Note3: *3 hFE P: 82 to 180, Q: 120 to 270, R: 180 to 390, U: 560 to 1,200, V: 820 to 1,800, W: 1,200 to 2,700. Please see the technical specifications.

Note4: *4 Pw=1ms, Single pulse

Note5: *5 For internal circuit, please see the technical specifications.

Note6: () : ROHM Packages at package site.

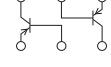
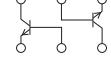
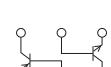
Power Bipolar Transistors																					
Package	Application	Product No.				Polarity (ch)	Po* ¹ (W)	V _{CEO} (V)	I _C (A)	h _{FE}		Automotive Grade AEC-Q101									
		Part No.	Grade Code		Packing code																
			General	Automotive																	
 TO-252 DPAK (TO-252)	Driver	2SAR572D3	*	—	TL1	PNP	10	-30	-5	200 to 500	—	—	—								
		2SAR572D3	—	FRA	TL		10	-30	-5	200 to 500	YES	—	—								
		2SAR582D3	*	—	TL1		10	-30	-10	200 to 500	—	—	—								
		2SAR582D3	—	FRA	TL		10	-30	-10	200 to 500	YES	—	—								
		2SAR573D3	*	—	TL1		10	-50	-3	180 to 450	—	—	—								
		2SAR573D3	—	FRA	TL		10	-50	-3	180 to 450	YES	—	—								
		2SAR583D3	*	—	TL1		10	-50	-7	180 to 450	—	—	—								
		2SAR583D3	—	FRA	TL		10	-50	-7	180 to 450	YES	—	—								
		2SAR574D3	*	—	TL1		10	-80	-2	120 to 390	—	—	—								
		2SAR574D3	—	FRA	TL		10	-80	-2	120 to 390	YES	—	—								
		2SAR586D3	*	—	TL1	NPN	10	-80	-5	120 to 390	—	—	—								
		2SAR586D3	—	FRA	TL		10	-80	-5	120 to 390	YES	—	—								
		2SAR587D3	*	—	TL1		10	-120	-3	120 to 390	—	—	—								
		2SAR587D3	—	FRA	TL		10	-120	-3	120 to 390	YES	—	—								
		2SCR572D3	*	—	TL1		10	30	5	200 to 500	—	—	—								
		2SCR572D3	—	FRA	TL		10	30	5	200 to 500	YES	—	—								
		2SCR582D3	*	—	TL1		10	30	10	200 to 500	—	—	—								
		2SCR582D3	—	FRA	TL		10	30	10	200 to 500	YES	—	—								
		2SCR573D3	*	—	TL1		10	50	3	180 to 450	—	—	—								
		2SCR573D3	—	FRA	TL		10	50	3	180 to 450	YES	—	—								
 TO-263AB (LPLT)	Driver	2SCR583D3	*	—	TL1		10	50	7	180 to 450	—	—	—								
		2SCR583D3	—	FRA	TL		10	50	7	180 to 450	YES	—	—								
		2SCR574D3	*	—	TL1		10	80	2	120 to 390	—	—	—								
		2SCR574D3	—	FRA	TL		10	80	2	120 to 390	YES	—	—								
		2SCR586D3	*	—	TL1		10	80	5	120 to 390	—	—	—								
		2SCR586D3	—	FRA	TL		10	120	3	120 to 390	—	—	—								
		2SCR587D3	*	—	TL1		10	120	3	120 to 390	YES	—	—								
		2SCR587D3	—	FRA	TL		10	120	3	120 to 390	YES	—	—								

Note1: *General Part No. have no grade code.

Note2: *1 Tc=25°C

Note3: () : ROHM Packages at package site.

Complex Bipolar Transistors

Quick Reference for General Purpose Amplification Complex Bipolar Transistors											
Configuration	Item	Package	Application	Equivalent Circuit Diagram (TOP View)	SOT-553/SOT-563 (EMT5/EMT6) 1616 size	SOT-353/SOT-363 (UMT5/UMT6) 2021 size	SOT-25/SOT-457 (SMT5/SMT6) 2928 size	Equivalent Element Transistors	V _{CEO} (V)	I _C (A)	h _{FE}
											
PNP×2	Pre Amplifier				EMT51			2SAR522EBx2	-20	-0.2	120 to 560
					EMT52			2SAR523EBx2	-50	-0.1	120 to 560
					EMT1	UMT1N	IMT1A	2SA1037AKx2	-50	-0.15	120 to 560
					EMT18	UMT18N	IMT18	2SA2018x2	-12	-0.5	270 to 680
NPN×2	Pre Amplifier				EMX51			2SCR522EBx2	20	0.2	120 to 560
					EMX52			2SCR523EBx2	50	0.1	120 to 560
					EMX1	UMX1N	IMX1	2SC2412Kx2	50	0.15	120 to 560
					EMX26			2SD2654x2	50	0.15	820 to 2,700
					EMX18	UMX18N		2SC5585x2	12	0.5	270 to 680
PNP + NPN	Pre Amplifier				IMX25			2SD2704Kx2	20	0.3	820 to 2,700
					EMY1	UMY1N	FMY1A	2SA1037AK	-50	-0.15	120 to 560
					EMZ51			2SC2412K	50	0.15	120 to 560
					EMZ52			2SAR522EB	-20	-0.2	120 to 560
					EMZ1	UMZ1N	IMZ1A	2SAR523EB	20	0.2	120 to 560
					EMZ7			2SA1037AK	-50	-0.15	120 to 560
					EMZ8			2SC2412K	50	0.15	120 to 560
								2SA2018	-12	-0.5	270 to 680
Note1: For Pin location, please see the technical specifications. Note2: () : ROHM Packages at package site.											

Complex Bipolar Transistors

General Purpose Amplification Complex Bipolar Transistors

Package	Configuration	Application	Product No.			Equivalent Element Transistors	V _{CEO} (V)	I _c (A)	h _{FE}	Automotive Grade AEC-Q101					
			Part No.	Grade Code											
				General	Automotive										
SOT-553 (EMT5) 1616 size	PNP+NPN	Pre Amplifier	EMY1	*	—	T2R	2SA1037AK	-50	-0.15	120 to 560	—				
					—	T2R	2SC2412K	50	0.15	120 to 560					
	PNP×2		Pre Amplifier	* EMT51 EMT52 EMT1 EMT18 EMX51 EMX52 EMX1 EMX26 EMX18 EMZ51 EMZ52 EMZ1 EMZ7 EMZ8	—	T2R	2SAR522EBx2	-20	-0.2	120 to 560	—				
					—	T2R	2SAR523EBx2	-50	-0.1	120 to 560	—				
					—	T2R	2SA1037AKx2	-50	-0.15	120 to 560	—				
					—	T2R	2SA2018x2	-12	-0.5	270 to 680	—				
					—	T2R	2SCR522EBx2	20	0.2	120 to 560	—				
					—	T2R	2SCR523EBx2	50	0.1	120 to 560	—				
					—	T2R	2SC2412Kx2	50	0.15	120 to 560	—				
					—	T2R	2SD2654x2	50	0.15	820 to 2,700	—				
					—	T2R	2SC5585x2	12	0.5	270 to 680	—				
	NPN×2				—	T2R	2SAR522EB	-20	-0.2	120 to 560	—				
					—	T2R	2SCR522EB	20	0.2	120 to 560					
					—	T2R	2SAR523EB	-50	-0.1	120 to 560	—				
					—	T2R	2SCR523EB	50	0.1	120 to 560					
					—	T2R	2SA1037AK	-50	-0.15	120 to 560	—				
					—	T2R	2SC2412K	50	0.15	120 to 560					
					—	T2R	2SA2018	-12	-0.5	270 to 680	—				
					—	T2R	2SC5585	12	0.5	270 to 680					
					—	T2R	2SA2018	-12	-0.5	270 to 680	—				
					—	T2R	2SC2412K	50	0.15	120 to 560					
SOT-353 (UMT5) 2021 size	PNP+NPN	Pre Amplifier	UMY1N	*	—	TR	2SA1037AK	-50	-0.15	120 to 560	—				
							2SC2412K	50	0.15	120 to 560					
SOT-363 (UMT6) 2021 size	PNP×2	Pre Amplifier	UMT18N	*	—	TR	2SA2018x2	-12	-0.5	270 to 680	—				
					FHA	TN	2SA1037AKx2	-50	-0.15	120 to 560	YES				
	NPN×2		UMX18N	*	—	TN	2SC5585x2	12	0.5	270 to 680	—				
					FHA	TN	2SC2412Kx2	50	0.15	120 to 560	YES				
	PNP+NPN		UMX1N		FHA	TR	2SA1037AK	-50	-0.15	120 to 560	YES				
							2SC2412K	50	0.15	120 to 560					
SOT-25 (SMT5) 2928 size	PNP+NPN	Pre Amplifier	FMY1A	*	—	T148	2SA1037AK	-50	-0.15	120 to 560	YES				
							2SC2412K	50	0.15	120 to 560					
SOT-457 (SMT6) 2928 size	PNP×2	Pre Amplifier	IMT1A	*	—	T110	2SA1037AKx2	-50	-0.15	120 to 560	—				
					—	T110	2SA2018x2	-12	-0.5	270 to 680	—				
	NPN×2		IMX1		—	T110	2SC2412Kx2	50	0.15	120 to 560	—				
					—	T110	2SD2704Kx2	20	0.3	820 to 2,700	—				
	PNP+NPN		IMX25		—	T108	2SA1037AK	-50	-0.15	120 to 560	—				
							2SC2412K	50	0.15	120 to 560					

Note1: *General Part No. have no grade code.

Note2: For Pin location, please see the technical specifications.

Note3: (): ROHM Packages at package site.

Quick Reference for Complex Bipolar Transistors for Driver

Configuration	Item	Package	Application	SOT-363T (TUMT6) 2021 size	SOT-25T/SOT-457T (TSMT5/TSMT6) 2928 size	Equivalent Element Transistors	V _{CEO} (V)	I _C (A)	h _{FE}
					 				
				Equivalent Circuit Diagram (TOP View)		Part No.			
PNP \times 2	Driver		US6T8		QST8	2SB1709 \times 2	-12	-1.5	270 to 680
			US6T9		QST9	2SB1710 \times 2	-30	-1	270 to 680
NPN \times 2	Driver		US6X7		QSX7	2SD2674 \times 2	12	1.5	270 to 680
			US6X8		QSX8	2SD2675 \times 2	30	1	270 to 680
	DC-DC Converter				QS5W1	Exclusive Chip	30	3	200 to 500
					QS5W2	2SCR533P \times 2	50	3	180 to 450
PNP + NPN	Pre Amplifier				QS6Z5	2SAR513P 2SCR513P	-50 50	-1 1	180 to 450 180 to 450
	DC-DC Converter				QSZ2	2SB1695 2SD2657	-30 30	-1.5 1.5	270 to 680 270 to 680
					QSZ4	2SB1706 2SD2671	-30 30	-2 2	270 to 680 270 to 680
					QS5Y1	Exclusive Chip	-30 30	-3 3	200 to 500 200 to 500
					QS5Y2	2SAR533P 2SCR533P	-50 50	-3 3	180 to 450 180 to 450

Note1: For Pin location, please see the technical specifications.

Note2: (): ROHM Packages at package site.

Bipolar Transistors for Driver

Package	Configuration	Application	Product No.			Equivalent Element Transistors	V _{CEO} (V)	I _C (A)	h _{FE}	
			Part No.	Grade Code	Packing code					
 SOT-363T (TUMT6) 2021 size	PNP \times 2		US6T8	*	-	TR	2SB1709 \times 2	-12	-1.5	
			US6T9	*	-	TR	2SB1710 \times 2	-30	-1	
	NPN \times 2		US6X7	*	-	TR	2SD2674 \times 2	12	1.5	
			US6X8	*	-	TR	2SD2675 \times 2	30	1	
 SOT-25T (TSMT5) 2928 size	NPN \times 2		QS5W1	*	-	TR	Exclusive Chip	30	3	
			QS5W2	*	-	TR	2SCR533P \times 2	50	3	
			QSZ2	*	-	TR	2SB1695 2SD2657	-30 30	-1.5 1.5	
	PNP+NPN		QSZ4	*	-	TR	2SB1706 2SD2671	-30 30	-2 2	
			QS5Y1	*	-	TR	Exclusive Chip	-30 30	-3 3	
			QS5Y2	*	-	TR	2SAR533P 2SCR533P	-50 50	-3 3	
 SOT-457T (TSMT6) 2928 size	PNP \times 2		QST8	*	-	TR	2SB1709 \times 2	-12	-1.5	
			QST9	*	-	TR	2SB1710 \times 2	-30	-1	
	NPN \times 2		QSX7	*	-	TR	2SD2674 \times 2	12	1.5	
			QSX8	*	-	TR	2SD2675 \times 2	30	1	
	PNP+NPN	Pre Amplifier	QS6Z5	*	-	TR	2SAR513P 2SCR513P	-50 50	-1 1	

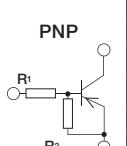
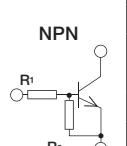
Note1: *General Part No. have no grade code.

Note2: For Pin location, please see the technical specifications.

Note3: (): ROHM Packages at package site.

Digital Transistors

100mA Digital Transistors (Including Automotive use)

Package	Polarity	Specifications	Part No.		Packing code	R ₁ (kΩ)	R ₂ (kΩ)	V _{CC} (V _{CEO}) (V)	I _o (I _c) (A)	G _i (h _{FE})	Automotive Grade AEC-Q101
			General	Automotive							
SOT-723 (VMT3) 1212 size P _D =150mW*	 	R ₁ =R ₂	DTA123EM	DTA123EMFHA	T2L	2.2	2.2	-50	-0.1	20 or more	YES
			DTA143EM	DTA143EMFHA	T2L	4.7	4.7	-50	-0.1	30 or more	YES
			DTA114EM	DTA114EMFHA	T2L	10	10	-50	-0.05	30 or more	YES
			DTA124EM	DTA124EMFHA	T2L	22	22	-50	-0.03	56 or more	YES
			DTA144EM	DTA144EMFHA	T2L	47	47	-50	-0.03	68 or more	YES
			DTA115EM	DTA115EMFHA	T2L	100	100	-50	-0.02	82 or more	YES
		R ₁ ≠R ₂	DTA113ZM	DTA113ZMFHA	T2L	1	10	-50	-0.1	33 or more	YES
			DTA123YM	DTA123YMFHA	T2L	2.2	10	-50	-0.1	33 or more	YES
			DTA123JM	DTA123JMFHA	T2L	2.2	47	-50	-0.1	80 or more	YES
			DTA143XM	DTA143XMFHA	T2L	4.7	10	-50	-0.1	30 or more	YES
			DTA143ZM	DTA143ZMFHA	T2L	4.7	47	-50	-0.1	80 or more	YES
			DTA114YM	DTA114YMFHA	T2L	10	47	-50	-0.07	68 or more	YES
		R ₁ Alone	DTA124XM	DTA124XMFHA	T2L	22	47	-50	-0.05	68 or more	YES
			DTA143TM	DTA143TMFHA	T2L	4.7	—	-50	-0.1	100 to 600	YES
			DTA114TM	DTA114TMFHA	T2L	10	—	-50	-0.1	100 to 600	YES
			DTC123EM	DTC123EMFHA	T2L	2.2	2.2	50	0.1	20 or more	YES
			DTC143EM	DTC143EMFHA	T2L	4.7	4.7	50	0.1	30 or more	YES
			DTC114EM	DTC114EMFHA	T2L	10	10	50	0.05	30 or more	YES
		R ₁ =R ₂	DTC124EM	DTC124EMFHA	T2L	22	22	50	0.03	56 or more	YES
			DTC144EM	DTC144EMFHA	T2L	47	47	50	0.03	68 or more	YES
			DTC115EM	DTC115EMFHA	T2L	100	100	50	0.02	82 or more	YES
			DTC113ZM	DTC113ZMFHA	T2L	1	10	50	0.1	33 or more	YES
			DTC123YM	DTC123YMFHA	T2L	2.2	10	50	0.1	33 or more	YES
			DTC123JM	DTC123JMFHA	T2L	2.2	47	50	0.1	80 or more	YES
		R ₁ ≠R ₂	DTC143XM	DTC143XMFHA	T2L	4.7	10	50	0.1	30 or more	YES
			DTC143ZM	DTC143ZMFHA	T2L	4.7	47	50	0.1	80 or more	YES
			DTC114YM	DTC114YMFHA	T2L	10	47	50	0.07	68 or more	YES
			DTC124XM	DTC124XMFHA	T2L	22	47	50	0.05	68 or more	YES
			DTC143TM	DTC143TMFHA	T2L	4.7	—	50	0.1	100 to 600	YES
			DTC114TM	DTC114TMFHA	T2L	10	—	50	0.1	100 to 600	YES
		R ₁ Alone	DTC144TM	DTC144TMFHA	T2L	47	—	50	0.1	100 to 600	YES
			DTA123EEB	—	TL	2.2	2.2	-50	-0.1	20 or more	—
			DTA143EEB	—	TL	4.7	4.7	-50	-0.1	30 or more	—
			DTA114EEB	—	TL	10	10	-50	-0.05	30 or more	—
			DTA124EEB	—	TL	22	22	-50	-0.03	56 or more	—
			DTA144EEB	—	TL	47	47	-50	-0.03	68 or more	—
		R ₁ =R ₂	DTA115EEB	—	TL	100	100	-50	-0.02	82 or more	—
			DTA113ZEB	—	TL	1	10	-50	-0.1	33 or more	—
			DTA123YEB	—	TL	2.2	10	-50	-0.1	33 or more	—
			DTA123JEB	—	TL	2.2	47	-50	-0.1	80 or more	—
			DTA143XEB	—	TL	4.7	10	-50	-0.1	30 or more	—
			DTA143ZEB	—	TL	4.7	47	-50	-0.1	80 or more	—
		R ₁ ≠R ₂	DTA114YEB	—	TL	10	47	-50	-0.07	68 or more	—
			DTA124XEB	—	TL	22	47	-50	-0.05	68 or more	—
			DTA143TEB	—	TL	4.7	—	-50	-0.1	100 to 600	—
			DTA114TEB	—	TL	10	—	-50	-0.1	100 to 600	—
			DTA144TEB	—	TL	47	—	-50	-0.1	100 to 600	—
			DTA115TEB	—	TL	100	100	-50	-0.02	82 or more	—
		R ₁ Alone	DTA113ZEB	—	TL	1	10	50	0.1	33 or more	—
			DTA123YEB	—	TL	2.2	10	50	0.1	33 or more	—
			DTA123JEB	—	TL	2.2	47	50	0.1	80 or more	—
			DTA143XEB	—	TL	4.7	10	50	0.1	30 or more	—
			DTA143ZEB	—	TL	4.7	47	50	0.1	80 or more	—
			DTA114YEB	—	TL	10	47	50	0.07	68 or more	—
		R ₁ ≠R ₂	DTA124XEB	—	TL	22	47	50	0.05	68 or more	—
			DTA143TEB	—	TL	4.7	—	50	0.1	100 to 600	—
			DTA114TEB	—	TL	10	—	50	0.1	100 to 600	—
			DTA144TEB	—	TL	47	—	50	0.1	100 to 600	—
			DTA115TEB	—	TL	100	100	50	0.02	82 or more	—
			DTA113TEB	—	TL	1	10	50	0.1	33 or more	—
		R ₁ Alone	DTA123YEB	—	TL	2.2	10	50	0.1	33 or more	—
			DTA123JEB	—	TL	2.2	47	50	0.1	80 or more	—
			DTA143XEB	—	TL	4.7	10	50	0.1	30 or more	—
			DTA143ZEB	—	TL	4.7	47	50	0.1	80 or more	—
			DTA114YEB	—	TL	10	47	50	0.07	68 or more	—
			DTA124XEB	—	TL	22	47	50	0.05	68 or more	—
		R ₁ Alone	DTA143TEB	—	TL	4.7	—	50	0.1	100 to 600	—
			DTA114TEB	—	TL	10	—	50	0.1	100 to 600	—

Note1: *With reference land installed.
Note2: () : ROHM Packages at package site.

100mA Digital Transistors (Including Automotive use)

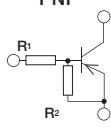
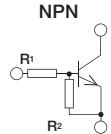
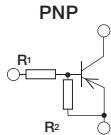
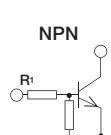
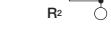
Package	Polarity	Specifications	Part No.		Packing code	R_1 (kΩ)	R_2 (kΩ)	V_{CC} (V_{CEO}) (V)	I_o (I_c) (A)	G_i (h_{FE})	Automotive Grade AEC-Q101
			General	Automotive							
SOT-416 (EMT3) 1616 size $P_D=150mW^*$	PNP	$R_1=R_2$	DTA123EE3	DTA123EE3HZG	TL	2.2	2.2	-50	-0.1	20 or more	YES
			DTA143EE3	DTA143EE3HZG	TL	4.7	4.7	-50	-0.1	30 or more	YES
			DTA114EE3	DTA114EE3HZG	TL	10	10	-50	-0.05	30 or more	YES
			DTA124EE3	DTA124EE3HZG	TL	22	22	-50	-0.03	56 or more	YES
			DTA144EE3	DTA144EE3HZG	TL	47	47	-50	-0.03	68 or more	YES
			DTA115EE3	DTA115EE3HZG	TL	100	100	-50	-0.02	82 or more	YES
	$R_1 \neq R_2$		DTA113ZE3	DTA113ZE3HZG	TL	1	10	-50	-0.1	33 or more	YES
			DTA123YE3	DTA123YE3HZG	TL	2.2	10	-50	-0.1	33 or more	YES
			DTA123JE3	DTA123JE3HZG	TL	2.2	47	-50	-0.1	80 or more	YES
			DTA143XE3	DTA143XE3HZG	TL	4.7	10	-50	-0.1	30 or more	YES
			DTA143ZE3	DTA143ZE3HZG	TL	4.7	47	-50	-0.1	80 or more	YES
			DTA114YE3	DTA114YE3HZG	TL	10	47	-50	-0.07	68 or more	YES
	R_1 Alone		DTA124XE3	DTA124XE3HZG	TL	22	47	-50	-0.05	68 or more	YES
			DTA143TE3	DTA143TE3HZG	TL	4.7	-	-50	-0.1	100 to 600	YES
	NPN	$R_1=R_2$	DTA114TE3	DTA114TE3HZG	TL	10	-	-50	-0.1	100 to 600	YES
			DTC123EE3	DTC123EE3HZG	TL	2.2	2.2	50	0.1	20 or more	YES
			DTC143EE3	DTC143EE3HZG	TL	4.7	4.7	50	0.1	30 or more	YES
			DTC114EE3	DTC114EE3HZG	TL	10	10	50	0.05	30 or more	YES
			DTC124EE3	DTC124EE3HZG	TL	22	22	50	0.03	56 or more	YES
			DTC144EE3	DTC144EE3HZG	TL	47	47	50	0.03	68 or more	YES
		$R_1 \neq R_2$	DTC115EE3	DTC115EE3HZG	TL	100	100	50	0.02	82 or more	YES
			DTC113ZE3	DTC113ZE3HZG	TL	1	10	50	0.1	33 or more	YES
			DTC123YE3	DTC123YE3HZG	TL	2.2	10	50	0.1	33 or more	YES
			DTC123JE3	DTC123JE3HZG	TL	2.2	47	50	0.1	80 or more	YES
			DTC143XE3	DTC143XE3HZG	TL	4.7	10	50	0.1	30 or more	YES
			DTC143ZE3	DTC143ZE3HZG	TL	4.7	47	50	0.1	80 or more	YES
	R_1 Alone		DTC114YE3	DTC114YE3HZG	TL	10	47	50	0.07	68 or more	YES
			DTC124XE3	DTC124XE3HZG	TL	22	47	50	0.05	68 or more	YES
			DTC143TE3	DTC143TE3HZG	TL	4.7	-	50	0.1	100 to 600	YES
			DTC114TE3	DTC114TE3HZG	TL	10	-	50	0.1	100 to 600	YES
SOT-323FL (UMT3F) 2021 size $P_D=200mW^*$	PNP	$R_1=R_2$	DTA143EUB	-	TL	4.7	4.7	-50	-0.1	30 or more	-
			DTA114EUB	-	TL	10	10	-50	-0.05	30 or more	-
			DTA124EUB	-	TL	22	22	-50	-0.03	56 or more	-
			DTA144EUB	-	TL	47	47	-50	-0.03	68 or more	-
			DTA115EUB	-	TL	100	100	-50	-0.02	82 or more	-
		$R_1 \neq R_2$	DTA123JUB	-	TL	2.2	47	-50	-0.1	80 or more	-
			DTA143XUB	-	TL	4.7	10	-50	-0.1	30 or more	-
			DTA143ZUB	-	TL	4.7	47	-50	-0.1	80 or more	-
			DTA114YUB	-	TL	10	47	-50	-0.07	68 or more	-
			DTA143TUB	-	TL	4.7	-	-50	-0.1	100 to 600	-
			DTA114TUB	-	TL	10	-	-50	-0.1	100 to 600	-
	NPN	$R_1=R_2$	DTC143EUB	-	TL	4.7	4.7	50	0.1	30 or more	-
			DTC114EUB	-	TL	10	10	50	0.05	30 or more	-
			DTC124EUB	-	TL	22	22	50	0.03	56 or more	-
			DTC144EUB	-	TL	47	47	50	0.03	68 or more	-
			DTC115EUB	-	TL	100	100	50	0.02	82 or more	-
		$R_1 \neq R_2$	DTC123JUB	-	TL	2.2	47	50	0.1	80 or more	-
			DTC143XUB	-	TL	4.7	10	50	0.1	30 or more	-
			DTC143ZUB	-	TL	4.7	47	50	0.1	80 or more	-
			DTC114YUB	-	TL	10	47	50	0.07	68 or more	-
			DTC143TUB	-	TL	4.7	-	50	0.1	100 to 600	-
			DTC114TUB	-	TL	10	-	50	0.1	100 to 600	-

Note1: *With reference land installed.

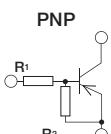
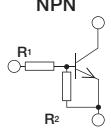
Note2: (-) : ROHM Packages at package site.

Digital Transistors

100mA Digital Transistors (Including Automotive use)

Package	Polarity	Specifications	Part No.		Packing code	R ₁ (kΩ)	R ₂ (kΩ)	V _{CC} (V _{CEO}) (V)	I _O (I _C) (A)	G _I (h _{FE})	Automotive Grade AEC-Q101
			General	Automotive							
 P _D =200mW*	 	R ₁ ≠R ₂	DTA114WUA	—	T106	10	4.7	-50	-0.1	24 or more	—
			DTA144WUA	—	T106	47	22	-50	-0.03	56 or more	—
		R ₁ Alone	DTA124TUA	—	T106	22	—	-50	-0.1	100 to 600	—
			DTA144TUA	—	T106	47	—	-50	-0.1	100 to 600	—
			DTA115TUA	—	T106	100	—	-50	-0.1	100 to 600	—
		R ₂ Alone	DTA114GUA	—	T106	—	10	-50	-0.1	30 or more	—
			DTA144GUA	—	T106	—	47	-50	-0.1	68 or more	—
			DTA115GUA	—	T106	—	100	-50	-0.1	82 or more	—
	 	R ₁ ≠R ₂	DTC114WUA	—	T106	10	4.7	50	0.1	24 or more	—
			DTC144WUA	—	T106	47	22	50	0.03	56 or more	—
		R ₁ Alone	DTC124TUA	—	T106	22	—	50	0.1	100 to 600	—
			DTC144TUA	—	T106	47	—	50	0.1	100 to 600	—
			DTC115TUA	—	T106	100	—	50	0.1	100 to 600	—
		R ₂ Alone	DTC124GUA	—	T106	—	22	50	0.1	56 or more	—
			DTC144GUA	—	T106	—	47	50	0.1	68 or more	—
 P _D =200mW*	 	R ₁ =R ₂	DTA123EU3	DTA123EU3HZG	T106	2.2	2.2	-50	-0.1	20 or more	YES
			DTA143EU3	DTA143EU3HZG	T106	4.7	4.7	-50	-0.1	30 or more	YES
			DTA114EU3	DTA114EU3HZG	T106	10	10	-50	-0.05	30 or more	YES
			DTA124EU3	DTA124EU3HZG	T106	22	22	-50	-0.03	56 or more	YES
			DTA144EU3	DTA144EU3HZG	T106	47	47	-50	-0.03	68 or more	YES
			DTA115EU3	—	T106	100	100	-50	-0.02	82 or more	—
			DTA113ZU3	DTA113ZU3HZG	T106	1	10	-50	-0.1	33 or more	YES
		R ₁ ≠R ₂	DTA123YU3	DTA123YU3HZG	T106	2.2	10	-50	-0.1	33 or more	YES
			DTA123JU3	DTA123JU3HZG	T106	2.2	47	-50	-0.1	80 or more	YES
			DTA143XU3	DTA143XU3HZG	T106	4.7	10	-50	-0.1	30 or more	YES
			DTA143ZU3	DTA143ZU3HZG	T106	4.7	47	-50	-0.1	80 or more	YES
			DTA114YU3	DTA114YU3HZG	T106	10	47	-50	-0.07	68 or more	YES
			DTA124XU3	DTA124XU3HZG	T106	22	47	-50	-0.05	68 or more	YES
			DTA143TU3	DTA143TU3HZG	T106	4.7	—	-50	-0.1	100 to 600	YES
		R ₁ Alone	DTA114TU3	DTA114TU3HZG	T106	10	—	-50	-0.1	100 to 600	YES
			DTC123EU3	DTC123EU3HZG	T106	2.2	2.2	50	0.1	20 or more	YES
			DTC143EU3	DTC143EU3HZG	T106	4.7	4.7	50	0.1	30 or more	YES
			DTC114EU3	DTC114EU3HZG	T106	10	10	50	0.05	30 or more	YES
			DTC124EU3	DTC124EU3HZG	T106	22	22	50	0.03	56 or more	YES
			DTC144EU3	DTC144EU3HZG	T106	47	47	50	0.03	68 or more	YES
			DTC115EU3	—	T106	100	100	50	0.02	82 or more	—
	 	R ₁ ≠R ₂	DTC113ZU3	DTC113ZU3HZG	T106	1	10	50	0.1	33 or more	YES
			DTC123YU3	DTC123YU3HZG	T106	2.2	10	50	0.1	33 or more	YES
			DTC123JU3	DTC123JU3HZG	T106	2.2	47	50	0.1	80 or more	YES
			DTC143XU3	DTC143XU3HZG	T106	4.7	10	50	0.1	30 or more	YES
			DTC143ZU3	DTC143ZU3HZG	T106	4.7	47	50	0.1	80 or more	YES
			DTC114YU3	DTC114YU3HZG	T106	10	47	50	0.07	68 or more	YES
			DTC124XU3	DTC124XU3HZG	T106	22	47	50	0.05	68 or more	YES
	R ₁ Alone	R ₁ Alone	DTC143TU3	DTC143TU3HZG	T106	4.7	—	50	0.1	100 to 600	YES
			DTC114TU3	DTC114TU3HZG	T106	10	—	50	0.1	100 to 600	YES
			DTC114GU3	—	T106	—	10	50	0.1	30 or more	—
	R ₂ Alone	R ₂ Alone	DTC115GU3	—	T106	—	100	50	0.1	82 or more	—

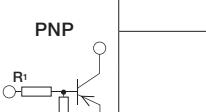
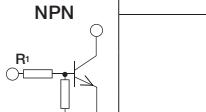
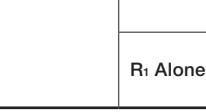
Note1: *With reference land installed.
 Note2: () : ROHM Packages at package site.

100mA Digital Transistors (Including Automotive use)											
Package	Polarity	Specifications	Part No.		Packing code	R_1 (kΩ)	R_2 (kΩ)	V_{CC} (V_{CEO}) (V)	I_o (I_c) (A)	G_i (h_{FE})	
			General	Automotive							
 $P_D=200\text{mW}^*$	 		DTA123ECA	DTA123ECAHZG	T116	2.2	2.2	-50	-0.1	20 or more	YES
			DTA143ECA	DTA143ECAHZG	T116	4.7	4.7	-50	-0.1	30 or more	YES
			DTA114ECA	DTA114ECAHZG	T116	10	10	-50	-0.05	30 or more	YES
			DTA124ECA	DTA124ECAHZG	T116	22	22	-50	-0.03	56 or more	YES
			DTA144ECA	DTA144ECAHZG	T116	47	47	-50	-0.03	68 or more	YES
			DTA115ECA	—	T116	100	100	-50	-0.02	82 or more	—
			DTA113ZCA	DTA113ZCAHZG	T116	1	10	-50	-0.1	33 or more	YES
			DTA123YCA	DTA123YCAHZG	T116	2.2	10	-50	-0.1	33 or more	YES
			DTA123JCA	DTA123JCAHZG	T116	2.2	47	-50	-0.1	80 or more	YES
			DTA143XCA	DTA143XCAHZG	T116	4.7	10	-50	-0.1	30 or more	YES
			DTA143ZCA	DTA143ZCAHZG	T116	4.7	47	-50	-0.1	80 or more	YES
			DTA114YCA	DTA114YCAHZG	T116	10	47	-50	-0.07	68 or more	YES
			DTA124XCA	DTA124XCAHZG	T116	22	47	-50	-0.05	68 or more	YES
			DTA144VCA	DTA144VCAHZG	T116	47	10	-50	-0.03	33 or more	YES
			DTA144WCA	DTA144WCAHZG	T116	47	22	-50	-0.03	56 or more	YES
			DTA123TCA	DTA123TCAHZG	T116	2.2	—	-50	-0.1	100 to 600	YES
			DTA143TCA	DTA143TCAHZG	T116	4.7	—	-50	-0.1	100 to 600	YES
			DTA114TCA	DTA114TCAHZG	T116	10	—	-50	-0.1	100 to 600	YES
			DTA124TCA	DTA124TCAHZG	T116	22	—	-50	-0.1	100 to 600	YES
			DTA144TCA	DTA144TCAHZG	T116	47	—	-50	-0.1	100 to 600	YES
			DTA115TCA	DTA115TCAHZG	T116	100	—	-50	-0.1	100 to 600	YES
			DTC123ECA	DTC123ECAHZG	T116	2.2	2.2	50	0.1	20 or more	YES
			DTC143ECA	DTC143ECAHZG	T116	4.7	4.7	50	0.1	30 or more	YES
			DTC114ECA	DTC114ECAHZG	T116	10	10	50	0.05	30 or more	YES
			DTC124ECA	DTC124ECAHZG	T116	22	22	50	0.03	56 or more	YES
			DTC144ECA	DTC144ECAHZG	T116	47	47	50	0.03	68 or more	YES
			DTC115ECA	—	T116	100	100	50	0.02	82 or more	—
			DTC113ZCA	DTC113ZCAHZG	T116	1	10	50	0.1	33 or more	YES
			DTC123YCA	DTC123YCAHZG	T116	2.2	10	50	0.1	33 or more	YES
			DTC123JCA	DTC123JCAHZG	T116	2.2	47	50	0.1	80 or more	YES
			DTC143XCA	DTC143XCAHZG	T116	4.7	10	50	0.1	30 or more	YES
			DTC143ZCA	DTC143ZCAHZG	T116	4.7	47	50	0.1	80 or more	YES
			DTC114YCA	DTC114YCAHZG	T116	10	47	50	0.07	68 or more	YES
			DTC124XCA	DTC124XCAHZG	T116	22	47	50	0.05	68 or more	YES
			DTC144VCA	DTC144VCAHZG	T116	47	10	50	0.03	33 or more	YES
			DTC144WCA	DTC144WCAHZG	T116	47	22	50	0.03	56 or more	YES
			DTC123TCA	DTC123TCAHZG	T116	2.2	—	50	0.1	100 to 600	YES
			DTC143TCA	DTC143TCAHZG	T116	4.7	—	50	0.1	100 to 600	YES
			DTC114TCA	DTC114TCAHZG	T116	10	—	50	0.1	100 to 600	YES
			DTC124TCA	DTC124TCAHZG	T116	22	—	50	0.1	100 to 600	YES
			DTC144TCA	DTC144TCAHZG	T116	47	—	50	0.1	100 to 600	YES
			DTC115TCA	DTC115TCAHZG	T116	100	—	50	0.1	100 to 600	YES

Note1: *With reference land installed.
Note2: () : ROHM Packages at package site.

Digital Transistors

100mA Digital Transistors (For Consumer only)

Package	Polarity	Specifications	Part No.	Packing code	R ₁ (kΩ)	R ₂ (kΩ)	V _{cc} (V _{CEO}) (V)	I _o (I _c) (A)	G _i (h _{FE})	Automotive Grade AEC-Q101
			General							
 TO-236 SOT-346 (SMT3) 2928 size	 PNP	R ₁ =R ₂	DTA123EKA	T146	2.2	2.2	-50	-0.1	20 or more	YES
			DTA143EKA	T146	4.7	4.7	-50	-0.1	30 or more	YES
			DTA114EKA	T146	10	10	-50	-0.05	30 or more	YES
			DTA124EKA	T146	22	22	-50	-0.03	56 or more	YES
			DTA144EKA	T146	47	47	-50	-0.03	68 or more	YES
			DTA115EKA	T146	100	100	-50	-0.02	82 or more	YES
	 NPN	R ₁ ≠R ₂	DTA113ZKA	T146	1	10	-50	-0.1	33 or more	YES
			DTA123YKA	T146	2.2	10	-50	-0.1	33 or more	YES
			DTA123JKA	T146	2.2	47	-50	-0.1	80 or more	YES
			DTA143XKA	T146	4.7	10	-50	-0.1	30 or more	YES
			DTA143ZKA	T146	4.7	47	-50	-0.1	80 or more	YES
			DTA114YKA	T146	10	47	-50	-0.07	68 or more	YES
	 R ₁ Alone	R ₁ =R ₂	DTA124XKA	T146	22	47	-50	-0.05	68 or more	YES
			DTA143TKA	T146	4.7	-	-50	-0.1	100 to 600	YES
			DTA114TKA	T146	10	-	-50	-0.1	100 to 600	YES
			DTC123EKA	T146	2.2	2.2	50	0.1	20 or more	YES
			DTC143EKA	T146	4.7	4.7	50	0.1	30 or more	YES
			DTC114EKA	T146	10	10	50	0.05	30 or more	YES
	 NPN	R ₁ ≠R ₂	DTC124EKA	T146	22	22	50	0.03	56 or more	YES
			DTC144EKA	T146	47	47	50	0.03	68 or more	YES
			DTC115EKA	T146	100	100	50	0.02	82 or more	YES
			DTC113ZKA	T146	1	10	50	0.1	33 or more	YES
			DTC123YKA	T146	2.2	10	50	0.1	33 or more	YES
			DTC123JKA	T146	2.2	47	50	0.1	80 or more	YES
		R ₁ Alone	DTC143XKA	T146	4.7	10	50	0.1	30 or more	YES
			DTC143ZKA	T146	4.7	47	50	0.1	80 or more	YES
			DTC114YKA	T146	10	47	50	0.07	68 or more	YES
			DTC124XKA	T146	22	47	50	0.05	68 or more	YES
			DTC143TKA	T146	4.7	-	50	0.1	100 to 600	YES
			DTC114TKA	T146	10	-	50	0.1	100 to 600	YES

Note1: *With reference land installed.

Note2: () : ROHM Packages at package site.

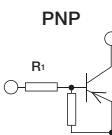
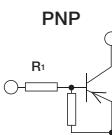
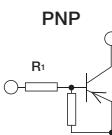
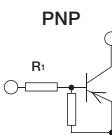
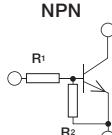
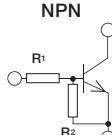
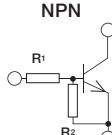
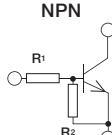
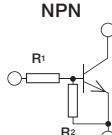
100mA Digital Transistors (For Consumer only)

Package	Polarity	Specifications	Part No.	Packing code	R ₁ (kΩ)	R ₂ (kΩ)	V _{CC} (V _{CEO}) (V)	I _o (I _c) (A)	G _i (h _{FE})
SOT-723 (VMT3) 1212 size P _D =150mW*	PNP	R ₁ =R ₂	DTA023EM	T2L	2.2	2.2	-50	-0.1	20 or more
			DTA043EM	T2L	4.7	4.7	-50	-0.1	20 or more
			DTA014EM	T2L	10	10	-50	-0.05	35 or more
			DTA024EM	T2L	22	22	-50	-0.03	60 or more
			DTA044EM	T2L	47	47	-50	-0.03	80 or more
			DTA015EM	T2L	100	100	-50	-0.02	80 or more
	R ₁ ≠R ₂	R ₁ ≠R ₂	DTA013ZM	T2L	1	10	-50	-0.1	30 or more
			DTA023YM	T2L	2.2	10	-50	-0.1	35 or more
			DTA023JM	T2L	2.2	47	-50	-0.1	80 or more
			DTA043XM	T2L	4.7	10	-50	-0.1	35 or more
			DTA043ZM	T2L	4.7	47	-50	-0.1	80 or more
			DTA014YM	T2L	10	47	-50	-0.07	80 or more
	R ₁ Alone	R ₁ Alone	DTA024XM	T2L	22	47	-50	-0.05	80 or more
			DTA043TM	T2L	4.7	—	-50	-0.1	100 to 600
			DTA014TM	T2L	10	—	-50	-0.1	100 to 600
			DTA044TM	T2L	47	—	-50	-0.06	100 to 600
			DTA015TM	T2L	100	—	-50	-0.1	100 to 600
			DTD023EM	T2L	2.2	2.2	50	0.1	20 or more
SOT-416FL (EMT3F) 1616 size P _D =150mW*	NPN	R ₁ =R ₂	DTD043EM	T2L	4.7	4.7	50	0.1	20 or more
			DTD014EM	T2L	10	10	50	0.05	35 or more
			DTD024EM	T2L	22	22	50	0.03	60 or more
			DTD044EM	T2L	47	47	50	0.03	80 or more
			DTD015EM	T2L	100	100	50	0.02	80 or more
			DTD013ZM	T2L	1	10	50	0.1	30 or more
	R ₁ ≠R ₂	R ₁ ≠R ₂	DTD023YM	T2L	2.2	10	50	0.1	35 or more
			DTD023JM	T2L	2.2	47	50	0.1	80 or more
			DTD043XM	T2L	4.7	10	50	0.1	35 or more
			DTD043ZM	T2L	4.7	47	50	0.1	80 or more
			DTD014YM	T2L	10	47	50	0.07	80 or more
			DTD024XM	T2L	22	47	50	0.05	80 or more
	R ₁ Alone	R ₁ Alone	DTD043TM	T2L	4.7	—	50	0.1	100 to 600
			DTD014TM	T2L	10	—	50	0.1	100 to 600
			DTD044TM	T2L	47	—	50	0.06	100 to 600
			DTD015TM	T2L	100	—	50	0.1	100 to 600
			DTA023EEB	TL	2.2	2.2	-50	-0.1	20 or more
			DTA043EEB	TL	4.7	4.7	-50	-0.1	20 or more
SOT-416FL (EMT3F) 1616 size P _D =150mW*	PNP	R ₁ =R ₂	DTA014EEB	TL	10	10	-50	-0.05	35 or more
			DTA024EEB	TL	22	22	-50	-0.03	60 or more
			DTA044EEB	TL	47	47	-50	-0.03	80 or more
			DTA015EEB	TL	100	100	-50	-0.02	80 or more
			DTA013ZEB	TL	1	10	-50	-0.1	30 or more
			DTA023YEB	TL	2.2	10	-50	-0.1	35 or more
	R ₁ ≠R ₂	R ₁ ≠R ₂	DTA023JEB	TL	2.2	47	-50	-0.1	80 or more
			DTA043XEB	TL	4.7	10	-50	-0.1	35 or more
			DTA043ZEB	TL	4.7	47	-50	-0.1	80 or more
			DTA014YEB	TL	10	47	-50	-0.07	80 or more
			DTA024XEB	TL	22	47	-50	-0.05	80 or more
			DTA043TEB	TL	4.7	—	-50	-0.1	100 to 600
	R ₁ Alone	R ₁ Alone	DTA014TEB	TL	10	—	-50	-0.1	100 to 600
			DTA044TEB	TL	47	—	-50	-0.06	100 to 600
			DTA015TEB	TL	100	—	-50	-0.1	100 to 600
			DTD023EEB	TL	2.2	2.2	50	0.1	20 or more
			DTD043EEB	TL	4.7	4.7	50	0.1	20 or more
			DTD014EEB	TL	10	10	50	0.05	35 or more
	R ₁ ≠R ₂	R ₁ ≠R ₂	DTD024EEB	TL	22	22	50	0.03	60 or more
			DTD044EEB	TL	47	47	50	0.03	80 or more
			DTD015EEB	TL	100	100	50	0.02	80 or more
			DTD013ZEB	TL	1	10	50	0.1	30 or more
			DTD023YEB	TL	2.2	10	50	0.1	35 or more
			DTD023JEB	TL	2.2	47	50	0.1	80 or more
	R ₁ Alone	R ₁ Alone	DTD043XEB	TL	4.7	10	50	0.1	35 or more
			DTD043ZEB	TL	4.7	47	50	0.1	80 or more
			DTD014YEB	TL	10	47	50	0.07	80 or more
			DTD024XEB	TL	22	47	50	0.05	80 or more
			DTD043TEB	TL	4.7	—	50	0.1	100 to 600
			DTD014TEB	TL	10	—	50	0.1	100 to 600

Note1: *With reference land installed.
Note2: () : ROHM Packages at package site.

Digital Transistors

100mA Digital Transistors (For Consumer only)

Package	Polarity	Specifications	Part No.	Packing code	R ₁ (kΩ)	R ₂ (kΩ)	V _{CC} (V _{CEO}) (V)	I _O (I _C) (A)	G _I (h _{FE})
  SOT-323FL (UMT3F) 2021 size P _D =200mW*	 R₁=R₂	DTA023EUB DTA043EUB DTA014EUB DTA024EUB DTA044EUB DTA015EUB	TL	2.2	2.2	-50	-0.1	20 or more	
			TL	4.7	4.7	-50	-0.1	20 or more	
			TL	10	10	-50	-0.05	35 or more	
			TL	22	22	-50	-0.03	60 or more	
			TL	47	47	-50	-0.03	80 or more	
			TL	100	100	-50	-0.02	80 or more	
	 R₁≠R₂	DTA013ZUB DTA023YUB DTA023JUB DTA043XUB DTA043ZUB DTA014YUB DTA024XUB	TL	1	10	-50	-0.1	30 or more	
			TL	2.2	10	-50	-0.1	35 or more	
			TL	2.2	47	-50	-0.1	80 or more	
			TL	4.7	10	-50	-0.1	35 or more	
			TL	4.7	47	-50	-0.1	80 or more	
			TL	10	47	-50	-0.07	80 or more	
			TL	22	47	-50	-0.05	80 or more	
	 R₁ Alone	DTA043TUB DTA014TUB DTA044TUB DTA015TUB	TL	4.7	-	-50	-0.1	100 to 600	
			TL	10	-	-50	-0.1	100 to 600	
			TL	47	-	-50	-0.06	100 to 600	
			TL	100	-	-50	-0.1	100 to 600	
  R₁=R₂	 R₁≠R₂	DTC023EUB DTC043EUB DTC014EUB DTC024EUB DTC044EUB DTC015EUB	TL	2.2	2.2	50	0.1	20 or more	
			TL	4.7	4.7	50	0.1	20 or more	
			TL	10	10	50	0.05	35 or more	
			TL	22	22	50	0.03	60 or more	
			TL	47	47	50	0.03	80 or more	
			TL	100	100	50	0.02	80 or more	
	 R₁≠R₂	DTC013ZUB DTC023YUB DTC023JUB DTC043XUB DTC043ZUB DTC014YUB DTC024XUB	TL	1	10	50	0.1	30 or more	
			TL	2.2	10	50	0.1	35 or more	
			TL	2.2	47	50	0.1	80 or more	
			TL	4.7	10	50	0.1	35 or more	
			TL	4.7	47	50	0.1	80 or more	
			TL	10	47	50	0.07	80 or more	
			TL	22	47	50	0.05	80 or more	
	 R₁ Alone	DTC043TUB DT014TUB DTC044TUB DTC015TUB	TL	4.7	-	50	0.1	100 to 600	
			TL	10	-	50	0.1	100 to 600	
			TL	47	-	50	0.06	100 to 600	
			TL	100	-	50	0.1	100 to 600	

Note1: *With reference land installed.
 Note2: (): ROHM Packages at package site.

500mA Digital Transistors (Including Automotive use)

Package	Polarity	Specifications	Part No.		Packing code	R_1 (kΩ)	R_2 (kΩ)	V_{CC} (V_{CEO}) (V)	I_o (I_c) (A)	G_i (h_{FE})	Automotive Grade AEC-Q101
			General	Automotive							
TO-236AB SOT-23 (SST3) 2924 size $P_D=200mW^*$	PNP	$R_1=R_2$	DTB113EC	DTB113ECHZG	T116	1	1	-50	-0.5	33 or more	YES
			DTB123EC	DTB123ECHZG	T116	2.2	2.2	-50	-0.5	39 or more	YES
			DTB143EC	DTB143ECHZG	T116	4.7	4.7	-50	-0.5	47 or more	YES
			DTB114EC	DTB114ECHZG	T116	10	10	-50	-0.5	56 or more	YES
	$R_1 \neq R_2$		DTB113ZC	DTB113CHZG	T116	1	10	-50	-0.5	56 or more	YES
			DTB123YC	DTB123YCHZG	T116	2.2	10	-50	-0.5	56 or more	YES
	R_1 Alone		DTB123TC	DTB123TCHZG	T116	2.2	—	-40	-0.5	100 to 600	YES
			DTB114GC	DTB114GCHZG	T116	—	10	-50	-0.5	56 or more	YES
TO-236 SOT-346 (SMT3) 2928 size $P_D=200mW^*$	NPN	$R_1=R_2$	DTD113EC	DTD113ECHZG	T116	1	1	50	0.5	33 or more	YES
			DTD123EC	DTD123ECHZG	T116	2.2	2.2	50	0.5	39 or more	YES
			DTD143EC	DTD143ECHZG	T116	4.7	4.7	50	0.5	47 or more	YES
			DTD114EC	DTD114ECHZG	T116	10	10	50	0.5	56 or more	YES
	$R_1 \neq R_2$		DTD113ZC	DTD113CHZG	T116	1	10	50	0.5	56 or more	YES
			DTD123YC	DTD123YCHZG	T116	2.2	10	50	0.5	56 or more	YES
	R_1 Alone		DTD123TC	DTD123TCHZG	T116	2.2	—	40	0.5	100 to 600	YES
			DTD114GC	DTD114GCHZG	T116	—	10	50	0.5	56 or more	YES
TO-236 SOT-346 (SMT3) 2928 size $P_D=200mW^*$	PNP	$R_1=R_2$	DTB113EK	—	T146	1	1	-50	-0.5	33 or more	—
			DTB123EK	—	T146	2.2	2.2	-50	-0.5	39 or more	—
			DTB143EK	—	T146	4.7	4.7	-50	-0.5	47 or more	—
			DTB114EK	—	T146	10	10	-50	-0.5	56 or more	—
	$R_1 \neq R_2$		DTB113ZK	—	T146	1	10	-50	-0.5	56 or more	—
			DTB123YK	—	T146	2.2	10	-50	-0.5	56 or more	—
	R_1 Alone		DTB123TK	—	T146	2.2	—	-40	-0.5	100 to 600	—
			DTB114GK	—	T146	—	10	-50	-0.5	56 or more	—
	NPN	$R_1=R_2$	DTD113EK	—	T146	1	1	50	0.5	33 or more	—
			DTD123EK	—	T146	2.2	2.2	50	0.5	39 or more	—
			DTD143EK	—	T146	4.7	4.7	50	0.5	47 or more	—
			DTD114EK	—	T146	10	10	50	0.5	56 or more	—
	$R_1 \neq R_2$		DTD113ZK	—	T146	1	10	50	0.5	56 or more	—
			DTD123YK	—	T146	2.2	10	50	0.5	56 or more	—
	R_1 Alone		DTD123TK	—	T146	2.2	—	40	0.5	100 to 600	—
			DTD114GK	—	T146	—	10	50	0.5	56 or more	—

Note1: *With reference land installed.

Note2: () : ROHM Packages at package site.

Digital Transistors

12V/500mA Digital Transistors

Package	Polarity	Specifications	Part No.	Packing code	R ₁ (kΩ)	R ₂ (kΩ)	V _{CC} (V _{CEO}) (V)	I _O (I _C) (A)	G _I (h _{FE})
SOT-723 (VMT3) 1212 size P _D =150mW*	PNP	R ₁ =R ₂	DTB543EM	T2L	4.7	4.7	-12	-0.5	115 or more
			DTB513ZM	T2L	1	10	-12	-0.5	140 or more
		R ₁ ≠R ₂	DTB523YM	T2L	2.2	10	-12	-0.5	140 or more
			DTB543XM	T2L	4.7	10	-12	-0.5	140 or more
			DTB543ZM	T2L	4.7	47	-12	-0.5	140 or more
	NPN	R ₁ =R ₂	DTD543EM	T2L	4.7	4.7	12	0.5	115 or more
			DTD513ZM	T2L	1	10	12	0.5	140 or more
		R ₁ ≠R ₂	DTD523YM	T2L	2.2	10	12	0.5	140 or more
			DTD543XM	T2L	4.7	10	12	0.5	140 or more
			DTD543ZM	T2L	4.7	47	12	0.5	140 or more
SOT-416 (EMT3) 1616 size P _D =150mW*	PNP	R ₁ =R ₂	New DTB543EE3	TL	4.7	4.7	-12	-0.5	115 or more
			New DTB513ZE3	TL	1	10	-12	-0.5	140 or more
		R ₁ ≠R ₂	New DTB523YE3	TL	2.2	10	-12	-0.5	140 or more
			New DTB543ZE3	TL	4.7	47	-12	-0.5	140 or more
			New DTD543EE3	TL	4.7	4.7	12	0.5	115 or more
	NPN	R ₁ =R ₂	New DTD513ZE3	TL	1	10	12	0.5	140 or more
			New DTD523YE3	TL	2.2	10	12	0.5	140 or more
		R ₁ ≠R ₂	New DTD543XE3	TL	4.7	10	12	0.5	140 or more
			New DTD543ZE3	TL	4.7	47	12	0.5	140 or more

Note1: *With reference land installed.

Note2: (): ROHM Packages at package site.

Muting Digital Transistors

Package	Polarity	Specifications	Part No.	Packing code	R ₁ (kΩ)	R ₂ (kΩ)	V _{CC} (V _{CEO}) (V)	I _O (I _C) (A)	G _I (h _{FE})
SOT-323FL (UMT3F) 2021 size P _D =200mW*	NPN	R ₁ Alone	DTC923TUB	TL	2.2	—	40 (V _{EBO})	0.4	820 to 2,700
			DTC943TUB	TL	4.7	—	40 (V _{EBO})	0.4	820 to 2,700
			DTC914TUB	TL	10	—	40 (V _{EBO})	0.4	820 to 2,700
SOT-323 (UMT3) 2021 size P _D =200mW*	NPN	R ₁ Alone	DTC623TU	T106	2.2	—	20	0.6	820 to 2,700
			DTC643TU	T106	4.7	—	20	0.6	820 to 2,700
			DTC614TU	T106	10	—	20	0.6	820 to 2,700
TO-236 SOT-346 (SMT3) 2928 size P _D =200mW*	NPN	R ₁ Alone	DTC623TK	T146	2.2	—	20	0.6	820 to 2,700
			DTC643TK	T146	4.7	—	20	0.6	820 to 2,700
			DTC614TK	T146	10	—	20	0.6	820 to 2,700

Note1: *With reference land installed.

Note2: (): ROHM Packages at package site.

Power Digital Transistors (Including Automotive use)

Package	Polarity	Specifications	Part No.		Packing code	R_1 (kΩ)	R_2 (kΩ)	V_{CC} (V_{CEO}) (V)	I_o (I_c) (A)	G_i (h_{FE})	Automotive Grade AEC-Q101
			General	Automotive							
 TO-243 SOT-89 (MPT3) 4540 size $P_D=0.5W^*$	NPN	Driver	DTDG23YP	DTDG23YPFRA	T100	2.2	10	60 ± 10	1	300 or more	YES
			DTDG14GP	DTDG14GPFRA	T100	—	10	60 ± 10	1	300 or more	YES

Note1: *With reference land installed.

Note2: For internal circuit, please see the technical specifications.

Note3: () : ROHM Packages at package site.

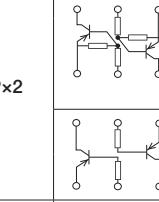
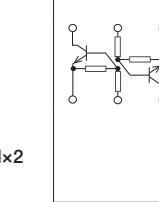
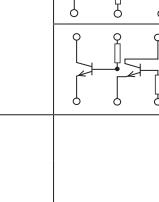
Complex Digital Transistors

100mA Complex Digital Transistors

Package	Configuration	Equivalent Circuit Diagram (TOP View)	Part No.	Packing code	Equivalent Element Transistors	R ₁ (kΩ)	R ₂ (kΩ)	V _{CC} (V _{CEO}) (V)	I _o (I _c) (A)
SOT-563 (EMT6) 1616 size	PNPx2		EMB10	T2R	DTA123Jx2	2.2	47	-50	-0.1
			EMB11	T2R	DTA114E×2	10	10		-0.05
			EMB2	T2R	DTA144E×2	47	47		-0.03
			EMB3	T2R	DTA143Tx2	4.7	—		-0.1
			EMB4	T2R	DTA114Tx2	10	—		-0.1
	NPNx2		EMH10	T2R	DTC123Jx2	2.2	47	50	0.1
			EMH25	T2R	DTC143Zx2	4.7	47		0.1
			EMH11	T2R	DTC114Ex2	10	10		0.05
			EMH9	T2R	DTC114Yx2	10	47		0.07
			EMH1	T2R	DTC124Ex2	22	22		0.03
			EMH2	T2R	DTC144Ex2	47	47		0.03
			EMH3	T2R	DTC143Tx2	4.7	—		0.1
			EMH4	T2R	DTC114Tx2	10	—		0.1
	PNP+NPN Complimentary		EMD22	T2R	DTA143Z	4.7	47	-50	-0.1
					DTC143Z	4.7	47	50	0.1
			EMD3	T2R	DTA114E	10	10	-50	-0.05
					DTC114E	10	10	50	0.05
			EMD9	T2R	DTA114Y	10	47	-50	-0.07
					DTC114Y	10	47	50	0.07
			EMD2	T2R	DTA124E	22	22	-50	-0.03
					DTC124E	22	22	50	0.03
			EMD12	T2R	DTA144E	47	47	-50	-0.03
					DTC144E	47	47	50	0.03
			EMD6	T2R	DTA143T	4.7	—	-50	-0.1
					DTC143T	4.7	—	50	0.1
	PNP+NPN Different type		EMD5	T2R	DTA143X	4.7	10	-50	-0.1
					DTC144E	47	47	50	0.03
			EMD4	T2R	DTA114Y	10	47	-50	-0.1
					DTC144E	47	47	50	0.03

Note1: For Pin location, please see the technical specifications.
 Note2: (): ROHM Packages at package site.

100mA Complex Digital Transistors (Including Automotive use)

Package	Configuration	Equivalent Circuit Diagram (TOP View)	Part No.		Packing code	Equivalent Element Transistors	R_1 (kΩ)	R_2 (kΩ)	V_{CC} (V_{CEO}) (V)	I_o (I_c) (A)	Automotive Grade AEC-Q101
			General	Automotive							
SOT-363 (UMT6) 2021 size	PNP×2		UMB10N	UMB10NFHA	TN	DTA123J×2	2.2	47	-50	-0.1	YES
			UMB11N	UMB11NFHA	TN	DTA114E×2	10	10		-0.05	YES
			UMB2N	UMB2NFHA	TN	DTA144E×2	47	47		-0.03	YES
			UMB3N	UMB3NFHA	TN	DTA143T×2	4.7	—		-0.1	YES
			UMB4N	UMB4NFHA	TN	DTA114T×2	10	—		-0.1	YES
	NPN×2		UMH10N	UMH10NFHA	TN	DTC123J×2	2.2	47	50	0.1	YES
			UMH25N	UMH25NFHA	TN	DTC143Z×2	4.7	47		0.1	YES
			UMH11N	UMH11NFHA	TN	DTC114E×2	10	10		0.05	YES
			UMH9N	UMH9NFHA	TN	DTC114Y×2	10	47		0.07	YES
			UMH1N	UMH1NFHA	TN	DTC124E×2	22	22		0.03	YES
	PNP+NPN Complimentary		UMH2N	UMH2NFHA	TN	DTC144E×2	47	47	0.03	0.03	YES
			UMH3N	UMH3NFHA	TN	DTC143T×2	4.7	—		0.1	YES
			UMH4N	UMH4NFHA	TN	DTC114T×2	10	—		0.1	YES
			UMH8N	—	TR	DTC114T×2	10	—	—	0.1	—
			UMD25N	—	TR	DTA123J	2.2	47		-0.1	—
			UMD22N	UMD22NFHA	TR	DTA143Z	4.7	47		0.1	YES
			UMD3N	UMD3NFHA	TR	DTA114E	10	10		-0.05	YES
			UMD9N	UMD9NFHA	TR	DTC114E	10	10		0.05	YES
			UMD2N	UMD2NFHA	TR	DTA114Y	10	47		-0.07	YES
			UMD12N	UMD12NFHA	TR	DTC114Y	10	47		0.07	YES
			UMD6N	UMD6NFHA	TR	DTA124E	22	22		-0.03	YES
			UMD5N	—	TR	DTC124E	22	22		0.03	YES
			UMD4N	—	TR	DTA144E	47	47	—	-0.03	YES
			UMD4N	—	TR	DTC144E	47	47		0.03	—

Note1: For Pin location, please see the technical specifications.

Note2: (): ROHM Packages at package site.

Complex Digital Transistors

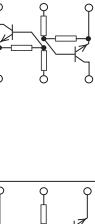
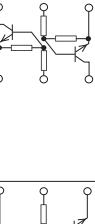
100mA Complex Digital Transistors (For Consumer only)

Package	Configuration	Equivalent Circuit Diagram (TOP View)	Part No.	Packing code	Equivalent Element Transistors	R_1 (kΩ)	R_2 (kΩ)	V_{CC} (V_{CEO}) (V)	I_o (I_c) (A)	Automotive Grade AEC-Q101
			General							
SOT-457 (SMT6) 2928 size	PNP×2		IMB10A	T110	DTA123J×2	2.2	47	-50	-0.1	-
			IMB11A	T110	DTA114E×2	10	10		-0.05	-
			IMB2A	T110	DTA144Ex2	47	47		-0.03	-
			IMB3A	T110	DTA143Tx2	4.7	-		-0.1	-
	NPN×2		IMH11A	T110	DTC114Ex2	10	10	50	0.05	YES
			IMH9A	T110	DTC114Y×2	10	47		0.07	YES
			IMH1A	T110	DTC124Ex2	22	22		0.03	-
			IMH2A	T110	DTC144Ex2	47	47		0.03	-
			IMH3A	T110	DTC143Tx2	4.7	-		0.1	-
			IMH4A	T110	DTC114Tx2	10	-		0.1	-
	PNP+NPN Complimentary		IMD3A	T108	DTA114E	10	10	-50	-0.05	YES
					DTC114E	10	10		0.05	
			IMD9A	T108	DTA114Y	10	47	-50	-0.07	YES
					DTC114Y	10	47		0.07	
			IMD2A	T108	DTA124E	22	22	-50	-0.03	-
					DTC124E	22	22		0.03	
			IMD6A	T108	DTA143T	4.7	-	-50	-0.1	-
					DTC143T	4.7	-		0.1	

Note1: For Pin location, please see the technical specifications.

Note2: () : ROHM Packages at package site.

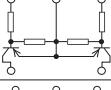
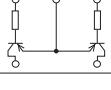
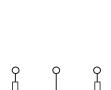
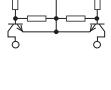
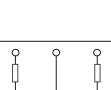
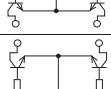
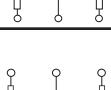
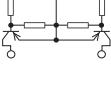
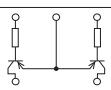
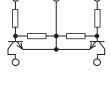
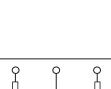
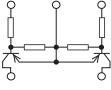
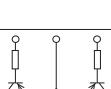
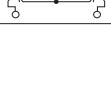
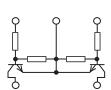
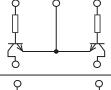
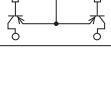
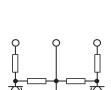
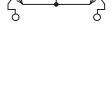
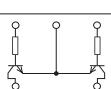
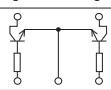
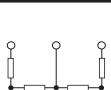
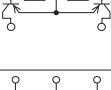
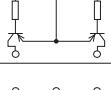
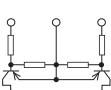
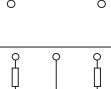
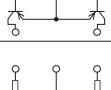
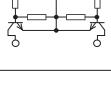
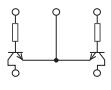
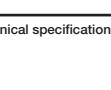
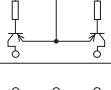
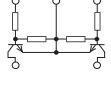
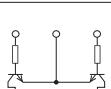
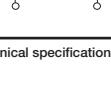
100mA Complex Digital Transistors (For Consumer only)

Package	Configuration	Equivalent Circuit Diagram (TOP View)	Part No.	Packing code	Equivalent Element Transistors	R ₁ (kΩ)	R ₂ (kΩ)	V _{cc} (V _{CEO}) (V)	I _o (I _c) (A)	
SOT-563 (EMT6) 1616 size	PNP×2	  	EMB60	T2R	DTA023J×2	2.2	47	-50	-0.1	
			EMB75	T2R	DTA043Z×2	4.7	47		-0.1	
			EMB59	T2R	DTA014Y×2	10	47		-0.07	
			EMB61	T2R	DTA014E×2	10	10		-0.05	
			EMB51	T2R	DTA024E×2	22	22		-0.03	
			EMB52	T2R	DTA044E×2	47	47		-0.03	
	NPN×2		EMB53	T2R	DTA043Tx2	4.7	—	50	-0.1	
			EMH60	T2R	DTC023J×2	2.2	47		0.1	
			EMH75	T2R	DTC043Z×2	4.7	47		0.1	
			EMH61	T2R	DTC014E×2	10	10		0.05	
			EMH59	T2R	DTC014Y×2	10	47		0.07	
			EMH51	T2R	DTC024E×2	22	22		0.03	
			EMH52	T2R	DTC044E×2	47	47		0.03	
	PNP+NPN Complimentary	  	EMD72	T2R	DTA043Z	4.7	47	-50	-0.1	
					DTC043Z	4.7	47	50	0.1	
			EMD59	T2R	DTA014Y	10	47	-50	-0.07	
					DTC014Y	10	47	50	0.07	
			EMD53	T2R	DTA014E	10	10	-50	-0.05	
					DTC014E	10	10	50	0.05	
			EMD52	T2R	DTA024E	22	22	-50	-0.03	
					DTC024E	22	22	50	0.03	
			EMD62	T2R	DTA044E	47	47	-50	-0.03	
					DTC044E	47	47	50	0.03	

Note1: For Pin location, please see the technical specifications.
Note2: () : ROHM Packages at package site.

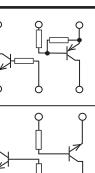
Complex Digital Transistors

100mA Complex Digital Transistors (For Consumer only)

Package	Configuration	Equivalent Circuit Diagram (TOP View)	Part No.	Packing code	Equivalent Element Transistors	R ₁ (kΩ)	R ₂ (kΩ)	V _{CC} (V _{CEO}) (V)	I _o (I _c) (A)
SOT-553 (EMT5) 1616 size	PNP×2		EMA5	T2R	DTA123J×2	2.2	47	-50	-0.1
			EMA3	T2R	DTA143T×2	4.7	—	-50	-0.1
			EMA4	T2R	DTA114T×2	10	—	-50	-0.1
	NPN×2		EMG11	T2R	DTC123J×2	2.2	47	50	0.1
			EMG8	T2R	DTC143Z×2	4.7	47	50	0.1
			EMG9	T2R	DTC114E×2	10	10	50	0.05
			EMG5	T2R	DTC114Y×2	10	47	50	0.07
			EMG1	T2R	DTC124E×2	22	22	50	0.03
			EMG2	T2R	DTC144E×2	47	47	50	0.03
			EMG3	T2R	DTC143T×2	4.7	—	50	0.1
			EMG4	T2R	DTC114T×2	10	—	50	0.1
			EMG6	T2R	DTC144T×2	47	—	50	0.1
SOT-353 (UMT5) 2021 size	PNP×2		UMA5N	TR	DTA123J×2	2.2	47	-50	-0.1
			UMA9N	TR	DTA114E×2	10	10	-50	-0.05
			UMA1N	TR	DTA124E×2	22	22	-50	-0.03
			UMA2N	TR	DTA144E×2	47	47	-50	-0.03
			UMA3N	TR	DTA143T×2	4.7	—	-50	-0.1
			UMA4N	TR	DTA114T×2	10	—	-50	-0.1
	NPN×2		UMG11N	TR	DTC123J×2	2.2	47	50	0.1
			UMG8N	TR	DTC143Z×2	4.7	47	50	0.1
			UMG9N	TR	DTC114E×2	10	10	50	0.05
			UMG5N	TR	DTC114Y×2	10	47	50	0.07
			UMG1N	TR	DTC124E×2	22	22	50	0.03
			UMG2N	TR	DTC144E×2	47	47	50	0.03
			UMG3N	TR	DTC143T×2	4.7	—	50	0.1
			UMG4N	TR	DTC114T×2	10	—	50	0.1
SOT-25 (SMT5) 2928 size	PNP×2		FMA5A	T148	DTA123J×2	2.2	47	-50	-0.1
			FMA9A	T148	DTA114E×2	10	10	-50	-0.05
			FMA1A	T148	DTA124E×2	22	22	-50	-0.03
			FMA2A	T148	DTA144E×2	47	47	-50	-0.03
			FMA3A	T148	DTA143T×2	4.7	—	-50	-0.1
			FMA4A	T148	DTA114T×2	10	—	-50	-0.1
	NPN×2		FMG9A	T148	DTC114E×2	10	10	50	0.05
			FMG1A	T148	DTC124E×2	22	22	50	0.03
			FMG2A	T148	DTC144E×2	47	47	50	0.03
			FMG3A	T148	DTC143T×2	4.7	—	50	0.1
			FMG4A	T148	DTC114T×2	10	—	50	0.1
			FMG6A	T148	DTC144T×2	47	—	50	0.1

Note1: For No.1 Pin location, please see the technical specifications.
 Note2: (): ROHM Packages at package site.

Complex Digital Transistors (For Power Management, Muting and Driver)

Package	Configuration	Equivalent Circuit Diagram (TOP View)	Part No.	Packing code	Equivalent Element Transistors	R ₁ (kΩ)	R ₂ (kΩ)	V _{cc} (V _{CEO}) (V)	I _o (I _c) (A)
SOT-563 (EMT6) 1616 size	PNP+NPN Power Management		EMD29	T2R	DTB513Z DTC114E	1 10	10 10	-12 50	-0.5 0.1
SOT-363 (UMT6) 2021 size	NPN×2 Muting		UMH33N	TN	DTC923TUB×2	2.2	—	40 (V _{EBO})	0.4
			UMH37N	TN	DTC914TUB×2	10	—	40 (V _{EBO})	0.4
SOT-457 (SMT6) 2928 size	PNP+NPN Power Management		IMD10A	T108	Exclusive Chip DTC114T	0.1 10	10 —	-50 50	-0.5 0.1
	NPN×2 Muting		IMD16A	T108	Exclusive Chip DTC115T	2.2 100	22 —	-50 50	-0.5 0.1
			IMH23	T110	DTC643Tx2	4.7	—	20	0.6
			IMH21	T110	DTC614Tx2	10	—	20	0.6
SOT-457T (TSMT6) 2928 size	NPN×2 Driver		QSH29	TR	Exclusive Chip×2	—	10	60±10	0.5

Note1: For No.1 Pin location, please see the technical specifications.

Note2: (): ROHM Packages at package site.

Packages

● Dimensions (Unit: mm)

DFN0604-3 (VML0604)	DFN0806-3 (VML0806)	DFN1006-3 (VML1006)	DSN1006-3 (SMM1006)	SOT-723 (VMT3)
SOT-416FL (EMT3F)	SOT-416 (EMT3)	SOT-553 (EMT5)	SOT-563 (EMT6)	SOT-323FL (UMT3F)
SOT-323 (UMT3)	SOT-353 (UMT5)	SOT-363 (UMT6)	TO-263AB SOT-23 (SST3)	TO-236 SOT-346 (SMT3)
SOT-25 (SMT5)	SOT-457 (SMT6)	SOT-323T (TUMT3)	SOT-353T (TUMT5)	SOT-363T (TUMT6)
SOT-346T (TSMT3)	SOT-25T (TSMT5)	SOT-457T (TSMT6)	(TSMT8)	
DFN1010-3 (DFN1010-3)	DFN1010-3W (DFN1010-3W)	DFN1212-3 (DFN1212-3)	DFN1616-6 (DFN1616-6)	
DFN1616-6W (DFN1616-6W)	DFN1616-7T (HEML1616L7)	DFN2020-3S (HUML2020L3)	DFN2020-8S (HUML2020L8) Single	

Note1: (): ROHM Packages at package site.

Note2: For details of dimensions, please refer to the technical specifications.

● Dimensions (Unit: mm)

DFN2020-8D (HUML2020L8) Dual	(HSML3030L10)	DFN3333-9DC (HSML3333L9)	(HSMT8)*1 Single
(HSMT8)*2 Single	(HSMT8) Dual	TO-243 SOT-89 (MPT3)	SOP8 (SOP8)
HSOP8*1 (HSOP8) Single	HSOP8*2 (HSOP8) Single		HSOP8 (HSOP8) Asymmetry Dual
HSOP8 (HSOP8) Symmetry Dual	HSOP8 (HSOP8) Drain Common Dual		DFN5060-8S (DFN5060T8LSHAAE)
TO-261 SOT-223-3 (SOT-223-3)	TO-252*3 DPAK (TO-252)		TO-252*4 DPAK (TO-252)
TO-263S D2PAK (LPTS)	TO-263AB (LPTL)		TO-263AB (TO-263AB-3LSHYAD)

Note1: *1 Taping code: TB, *2 Taping code: TB1

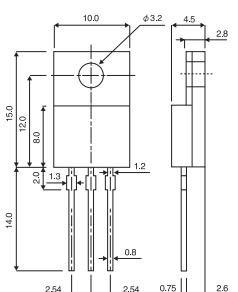
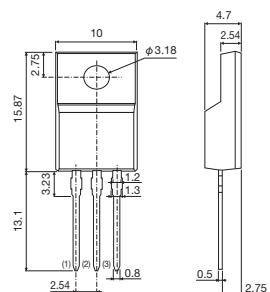
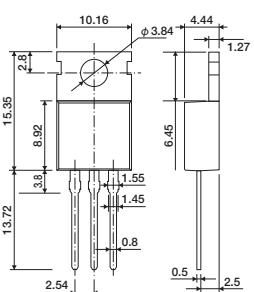
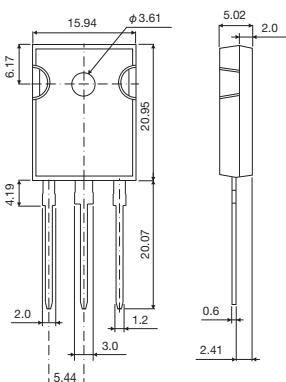
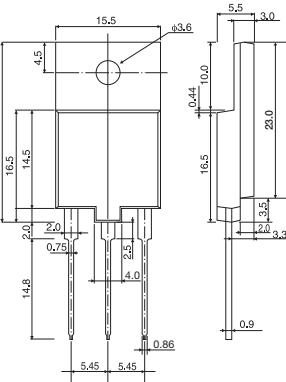
Note2: *3 Taping code: TL, *4 Taping code: TL1

Note3: (): ROHM Packages at package site.

Note4: For details of dimensions, please refer to the technical specifications.

Packages

● Dimensions (Unit: mm)

TO-220FP^{*1} (TO-220FM) 	TO-220FP^{*2} (TO-220FM) 	TO-220AB (TO-220AB) 
TO-247AD (TO-247) 	(TO-3PF) 	

Note1: *1 Packing code: -, *2 Packing code: C7 G

Note2: (); ROHM Packages at package site.

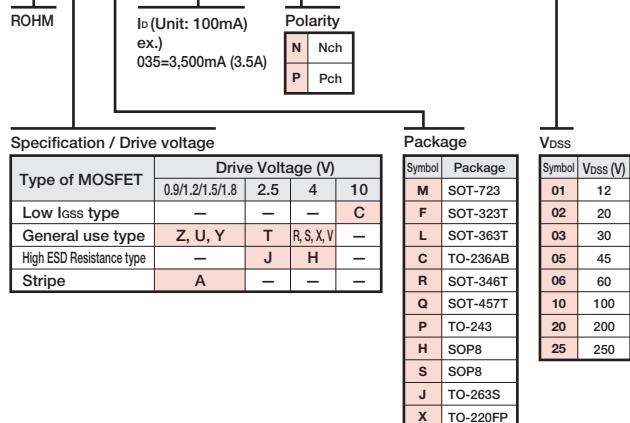
Note3: For details of dimensions, please refer to the technical specifications.

Product No. Explanation

• MOSFET Part No. Explanation

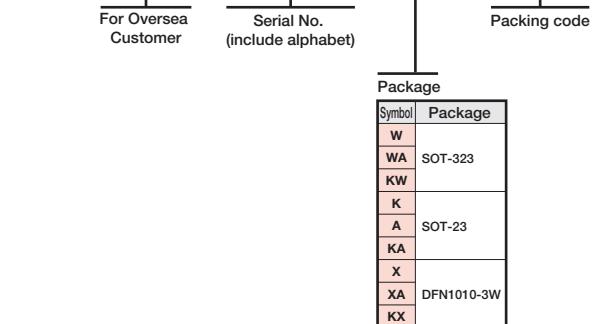
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Example: **R T Q 0 3 5 P 0 2 T R**



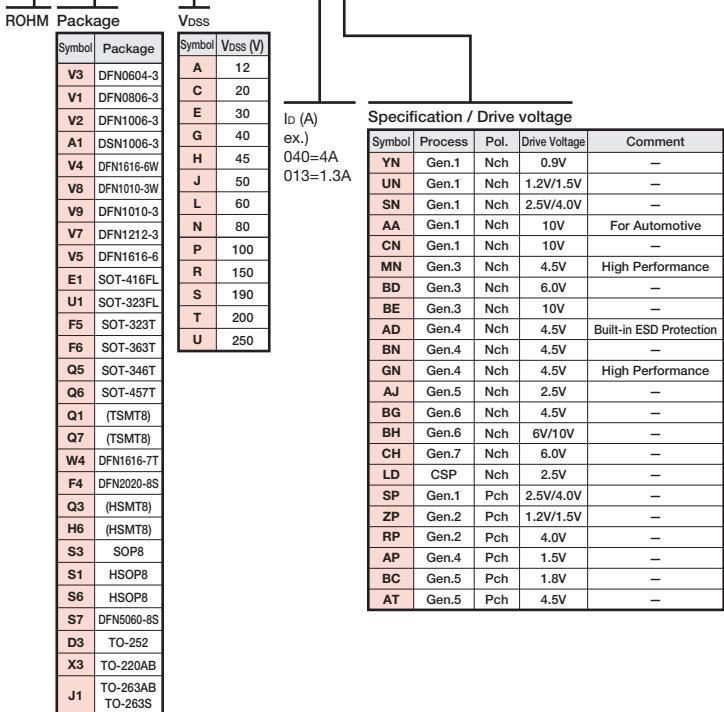
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Example: **B S S 1 3 8 B K W T 1 0 6**



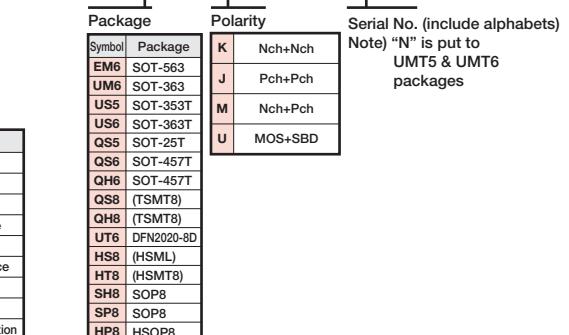
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Example: **R T 1 A 0 4 0 Z P T L**



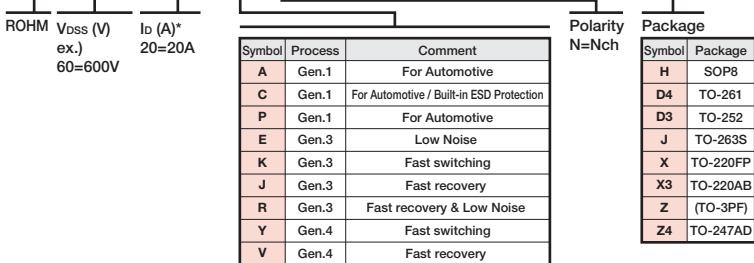
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Example: **S H 8 M 3 () T B**



<Single-Chip type>

Example: **R 6 0 2 0 E N Z (4) C 1 3**

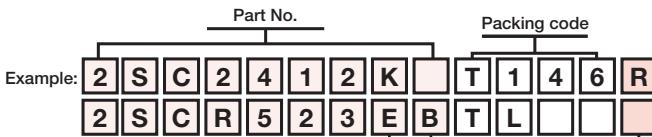


*In the case of insulated package, value may be different.

Note: () : ROHM Packages at package site.

Product No. Explanation

• Bipolar Transistor Part No. Explanation



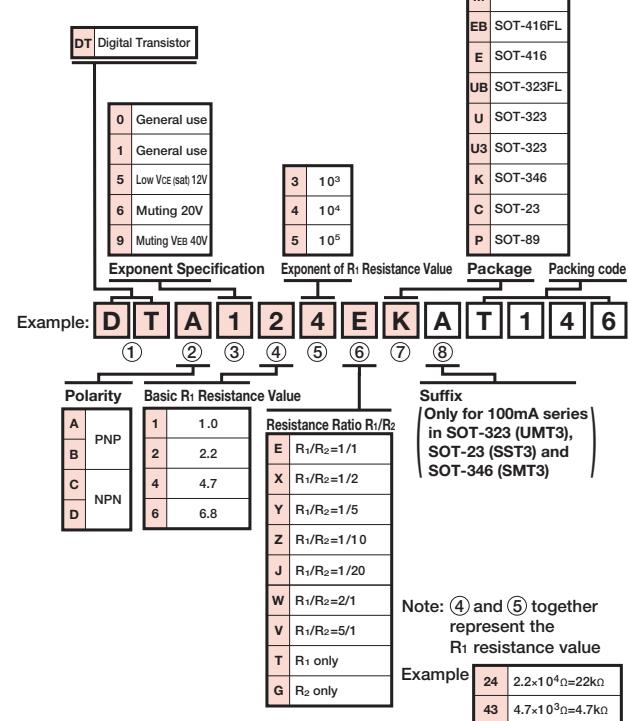
• Package

Code	Package
M	SOT-723
EB	SOT-416FL
E	SOT-416
E3	SOT-416
UB	SOT-323FL
U	SOT-323
U3	SOT-323
K	SOT-346
C	SOT-23
R	SOT-346T
F3	DFN2020-3S
P	SOT-89
P5	SOT-89
D3	TO-252
J	TO-263

• hFE Ranking Code

Code	hFE Range
N	56 to 120
P	82 to 180
Q	120 to 270
R	180 to 390
S	270 to 560
U	560 to 1200
V	820 to 1800
W	1200 to 2700

• Digital Transistor Part No. Explanation



• Packaging type

Package				Size (mm)	Height (mm)	Packing Code	Packing from	Direction	Quantity (pcs)
GENERAL Code	JEDEC Code	ROHM Package	JEITA Code						
Surface Mount type	DFN0604-3	—	(VML0604)	—	0604	0.36	T2L, T2CL	Embossed tape	Terminal No.1 on opposite side from sprocket hole side
	DFN0806-3	—	(VML0806)	—	0806	0.36	T2L, T2CL	Embossed tape	Terminal No.1 on opposite side from sprocket hole side
	DFN1006-3	—	(VML1006)	SC-101	1006	0.37	T2L, T2CL	Embossed tape	Terminal No.1 on opposite side from sprocket hole side
	DSN1006-3	—	(SMM1006)	—	1006	0.22	5CL	Embossed tape	Terminal No.1 on opposite side from sprocket hole side
	SOT-723	—	(VMT3)	SC-105AA	1212	0.5	T2L, T2CL	Embossed tape	One terminal on sprocket hole side
	SOT-416FL	—	(EMT3F)	SC-89	1616	0.7	TL, TCL	Embossed tape	One terminal on sprocket hole side
	SOT-416	—	(EMT3)	SC-75A	1616	0.7	TL, TCL	Embossed tape	One terminal on sprocket hole side
	SOT-553	—	(EMT5)	SC-107BB	1616	0.5	T2R, T2CR	Embossed tape	Three terminals on sprocket hole side
	SOT-563	—	(EMT6)	SC-107C	1616	0.5	T2R, T2CR	Embossed tape	Terminal No.1 on sprocket hole side
	SOT-323FL	—	(UMT3F)	SC-85	2120	0.9	TL, TCL	Embossed tape	One terminal on sprocket hole side
	SOT-323	—	(UMT3)	SC-70	2120	0.9	T106, T306	Embossed tape	One terminal on sprocket hole side
	SOT-353	—	(UMT5)	SC-88A	2120	0.9	TR, TCR	Embossed tape	Three terminals on sprocket hole side
	SOT-363	—	(UMT6)	SC-88	2120	0.9	TR, TCR	Embossed tape	Terminal No.1 on sprocket hole side
	SOT-323T	—	(TUMT3)	SC-113A	2120	0.77	TL, TCL	Embossed tape	One terminal on sprocket hole side
	SOT-353T	—	(TUMT5)	SC-113CA	2120	0.77	TR, TCR	Embossed tape	Terminal No.1 on sprocket hole side
	SOT-363T	—	(TUMT6)	SC-113DA	2120	0.77	TR, TCR	Embossed tape	Terminal No.1 on sprocket hole side
	SOT-23	TO-236AB	(SST3)	SOT-23	2429	0.95	T116, T316	Embossed tape	One terminal on sprocket hole side
	SOT-346	TO-236	(SMT3)	SC-59	2829	1.1	T146	Embossed tape	One terminal on sprocket hole side
	SOT-25	—	(SMT5)	SC-74A	2829	1.1	T148	Embossed tape	Three terminals on sprocket hole side
	SOT-457	—	(SMT6)	SC-74	2829	1.1	T108	Embossed tape	Terminal No.1 on opposite side from sprocket hole side
	SOT-346T	—	(TSMT3)	SC-96	2928	0.85	TL, TCL	Embossed tape	Non-direction
	SOT-25T	—	(TSMT5)	—	2928	0.85	TR, TCR	Embossed tape	One terminal on sprocket hole side
	SOT-457T	—	(TSMT6)	SC-95	2928	0.85	TR, TCR	Embossed tape	Terminal No.1 on sprocket hole side
	—	—	(TSMT8)	—	3028	0.8	TR, TCR	Embossed tape	Terminal No.1 on sprocket hole side
	DFN1010-3	—	(DFN1010-3)	—	1010	0.4	G2CR	Embossed tape	Terminal No.1 on sprocket hole side
	DFN1010-3W	—	(DFN1010-3) W	—	1010	0.4	G2CR	Embossed tape	Terminal No.1 on sprocket hole side
	DFN1212-3	—	(DFN1212-3)	—	1212	0.45	TCR1	Embossed tape	Terminal No.1 on sprocket hole side
	DFN1616-6	—	(DFN1616-6)	—	1616	0.75	TCR1	Embossed tape	Terminal No.1 on sprocket hole side
	DFN1616-6W	—	(DFN1616-6W)	—	1616	0.75	TCR1	Embossed tape	Terminal No.1 on sprocket hole side
	DFN1616-7T	—	(HEML1616L7)	—	1616	0.6	TCL1	Embossed tape	Terminal No.1 on opposite side from sprocket hole side
	DFN2020-3S	—	(HUML2020L3)	—	2020	0.6	TR, TCR	Embossed tape	Terminal No.1 on opposite side from sprocket hole side
	DFN2020-8D	—	(HUML2020L8)	—	2020	0.6	TR, TCR	Embossed tape	Terminal No.1 on sprocket hole side
	DFN2020-8S	—	(HUML2020L8)	—	2020	0.6	TR, TCR	Embossed tape	Terminal No.1 on sprocket hole side
	—	—	(HSM3030L10)	—	3030	0.6	TB	Embossed tape	Terminal No.1 on sprocket hole side
	DFN3333-9DC	—	(HSM3333L9)	—	3333	0.75	TCR1	Embossed tape	Terminal No.1 on sprocket hole side
	—	—	(HSM78)	—	3333	0.8	TB, TB1	Embossed tape	Terminal No.1 on sprocket hole side
	SOT-89	TO-243	(MPT3)	SC-62	4540	1.5	T100	Embossed tape	Three terminals on sprocket hole side
	SOP8	—	(SOP8)	—	5060	1.75	TB, TB1	Embossed tape	Terminal No.1 on sprocket hole side
	HSOP8	—	(HSOP8)	—	5060	1	TB, TB1	Embossed tape	Three terminals on sprocket hole side
	DFN5060-8S	—	(DFN5060T8LSHAAE)	—	5060	1	TB1	Embossed tape	Terminal No.1 on sprocket hole side
	SOT-223-3	TO-261	(SOT-223-3)	—	6.5x7.0	1.66	TL1	Embossed tape	Fin on sprocket hole side
	DPAK	TO-252	(TO-252)	—	10.0x6.6	2.2	TL, TL1	Embossed tape	Fin on sprocket hole side
	D2PAK	TO-263S	(LPTS)	SC-83	13.1x10.1	4.5	TL	Embossed tape	Fin on sprocket hole side
	—	TO-263AB	(LPTL)	(TO-263AB-3LSHYAD)	15.1x10.1	4.5	TLL	Embossed tape	Fin on sprocket hole side
	—	—	—	—	29x10	4.5	TL1	Embossed tape	—
	—	TO-220FP	(TO-220FM)	—	4.7	C7 G	Bulk	—	500
	—	TO-220AB	(TO-220AB)	—	29.07x10.16	4.5	C16	Tube	—
	—	—	(TO-3PF)	—	43.8x15.5	5.5	C17	Tube	—
	—	TO-247AD	(TO-247)	—	41.26x15.94	5.02	C13	Tube	—
	—	—	(TO-247N)	—	41x16	5	C11	Tube	—
	—	—	—	—	—	—	—	—	450

Diodes

Schottky Barrier Diodes 	P.195	Fast Recovery Diodes 	P.210
Rectifier Diodes 	P.214	Zener Diodes 	P.215
TVS 	P.218	Switching Diodes 	P.222
High Frequency Diodes 	P.224	Packages	P.225
Product No. Explanation	P.227		

 Click on the icon to access the product page on ROHM's website. Please check the website for the latest updates.

Schottky Barrier Diodes

●Quick Reference for Small Signal Type Schottky Barrier Diodes

V _R (V)	I _o (mA)	Surface Mount type							
		0402 size		0603 size			1006 size		2012 size
		◆	◆	◆	◆	◆	◆	◆	◆
		DSN0402-2 (SMD0402)		DSN0603-2 (SMD0603)		DSN0603-2 (SMD0603B)		DSN1006-2 (SMD1006)	
20	2,000						RB061QS-20	5	
30	100	RB522FS-30	1	RB522ES-30	2				
	200					RB520HS-30 RB532HS-30	3 4		
40	1,000						RB161QS-40	6	
	1,500						RB160QS-40	7	
	4,000* ¹								New RB080AR-40
									8

Note: (): ROHM Packages.

*1 It is not I_o (Average rectified forward current) but I_F (Forward current) notation.

Schottky Barrier Diodes

Quick Reference for Small Signal Type Schottky Barrier Diodes

V _R (V)	I _O (mA)	Surface Mount type								
		1006 size		1608 size	2512 size	2514 size	1616 size	2120 size		2924 size
		◆	◆	◆	◆	◆	◆	◆	◆	◆
		SOD-923 (VMN2M)	DFN1006-2W (DFN1006-2W)	SOD-523 (EMD2)	SOD-323FL (UMD2)	SOD-323HE (TUMD2M)	SOT-416FL (EMD3F)	SOT-323FL (UMD3F)	SOT-323 (UMD3)	SOT-23 (SSD3)
20	500		New RB551ASA-30	20		RB551VM-30	44	RB411VAM-50	69	
	700									
	1,000							RB162VAM-20	70	
	2,000							RB161VAM-20	71	RBE1VAM20A
30	30	RB751CM-40	9	RB751ASA-40	21	RB751SM-40	26	RB751VM-40	45	
	100	RB520CM-30	10		RB510SM-30	27	RB510VM-30	46		
		RB521CM-30	11		RB511SM-30	28	RB530VM-30	47		
		RB530CM-30	12		RB500SM-30	29	RB511VM-30	48		
		RB531CM-30	13		RB501SM-30	30	RB531VM-30	49		
	200			RB520ASA-30	22	RB520SM-30	31	RB520VM-30	50	
				RB521ASA-30	23	RB521SM-30	32	RB521VM-30	51	
					RB530SM-30	33	RB540VM-30	52		
					RB531SM-30	34	RB541VM-30	53		
	500		New RB550ASA-30	24		RB550VM-30	54	RSX051VAM30	74	
40	700							RSX051VYM30	75	
	1,000							RSX071VAM30	76	
	1,500							RSX071VYM30	77	
	30							RB168VAM-30	78	
	80							RB168VYM-30	79	
	100	RB530CM-40	14		RB510SM-40	35	RB511VM-40	55		
		RB531CM-40	15		RB511SM-40	36	RB530VM-40	56		
		RB520CM-40	16		RB530SM-40	37	RB531VM-40	57		
		RB521CM-40	17		RB531SM-40	38	RB500VM-40	58		
	120							RB501VM-40	59	
60	200			RB520ASA-40	25	RB540SM-40	39	RB541VM-40	61	
						RB541SM-40	40	RB520VM-40	62	
						RB520SM-40	41	RB521VM-40	63	
						RB521SM-40	42	RB550VM-40	64	
								RB551VM-40	65	
	500							RB560VM-40	66	
	1,000							RB561VM-40	67	
	100	RB530CM-60	18					RB400VAM-50	86	
		RB520CM-60	19					RB400VYM-50	87	
	200				RB521SM-60	43				
90	1,000							RB160VAM-60	92	
	200							RB168VAM-60	93	
	700							RB168VYM-60	94	
	1,000							RB021VAM90	95	
100	500							RB578VAM100	96	
	1,000							RB578VYM100	97	
	700							RB168VAM100	98	
	1,000							RB168VYM100	99	
150	500							RB558VAM150	100	
	1,000							RB168VAM150	101	RB168VYM150

Note: () : ROHM Packages.

Schottky Barrier Diodes

Schottky Barrier Diodes
 Example: R B 7 5 1 S M - 4 0 F H T 2 R
 Part No. Grade Code Taping Code

Small Signal Type Schottky Barrier Diodes 1														
Quick Reference No.	Product No.			Absolute Maximum Ratings ($T_c=25^\circ\text{C}$)				Electrical Characteristics ($T_j=25^\circ\text{C}$) ²				Package	Equivalent Circuit Diagram	Automotive Grade AEC-Q101
	Part No.	Grade Code		Taping Code	V_{RM} (V)	V_R (V)	I_o^{*1} (mA)	I_{FSM} (A) ^{*2} 60Hz,1~	V_F (V) Max	I_R (μA) Max	I_F (mA)	V_R (V)		
		General	Automotive											
1	RB522FS-30	*	—	T27R	30	30	100	0.5	0.37	10	7	10	DSN0402-2 (SMD0402)	—
2	RB522ES-30		—	T15R	30	30	100	0.5	0.37	10	7	10	DSN0603-2 (SMD0603)	—
3	RB520HS-30		—	T15R	30	30	200	1.5	0.43	10	0.3	10	DSN0603-2 (SMD0603B)	—
4	RB532HS-30		—	T15R	30	30	200	1.5	0.3	10	15	10		—
5	RB061QS-20		—	T18R	20	20	2,000	15	0.47	2,000	200	10	DSN1006-2 (SMD1006)	—
6	RB161QS-40		—	T18R	40	40	1,000	7	0.6	1,000	100	10		—
7	RB160QS-40		—	T18R	40	40	1,500	10	0.65	1,500	1	10		—
8	New RB080AR-40		—	T7R	40	40	4,000 ^{*3}	40	0.63	4,000	200	40	DSN2012-2 (SMD2012)	—
9	RB751CM-40		—	T2R	40	30	30	0.2	0.37	1	0.5	30	SOD-923 (VMN2M)	—
10	RB520CM-30		—	T2R	—	30	100	0.5	0.45	10	0.5	10		—
11	RB521CM-30		—	T2R	—	30	100	0.5	0.35	10	10	10		—
12	RB530CM-30		—	T2R	30	30	100	0.5	0.46	10	0.3	10		—
13	RB531CM-30		—	T2R	30	30	100	0.5	0.37	10	7	10		—
14	RB530CM-40		—	T2R	40	40	100	0.5	0.48	10	2	40		—
15	RB531CM-40		—	T2R	40	40	100	0.5	0.41	10	25	40		—
16	RB520CM-40		—	T2R	40	40	100	1	0.71	100	15	40		—
17	RB521CM-40		—	T2R	40	40	100	1	0.61	100	100	40		—
18	RB530CM-60		—	T2R	60	60	100	0.2	0.54	10	1	60		—
19	RB520CM-60		—	T2R	60	60	100	0.5	0.44	10	3	60		—
20	New RB551ASA-30	—	FH	T2RB	30	20	500	1	0.47	500	100	20	DFN1006-2W (DFN1006-2W)	YES
21	RB751ASA-40		FH	T2RB	40	30	30	0.2	0.37	1	0.5	30		YES
22	RB520ASA-30		FH	T2RB	30	30	200	1	0.58	200	1	10		YES
23	RB521ASA-30		FH	T2RB	30	30	200	1	0.47	200	30	10		YES
24	New RB550ASA-30		FH	T2RB	30	30	500	1	0.59	500	35	30		YES
25	RB520ASA-40		FH	T2RB	40	40	200	1	0.55	100	10	40		YES
26	RB751SM-40	*	FH	T2R	40	30	30	0.2	0.37	1	0.5	30	SOD-523 (EMD2)	YES
27	RB510SM-30		—	T2R	30	30	100	0.5	0.46	10	0.3	10		—
28	RB511SM-30		—	T2R	30	30	100	0.5	0.37	10	7	10		—
29	RB500SM-30		FH	T2R	30	30	100	1	0.45	10	0.5	10		YES
30	RB501SM-30		FH	T2R	30	30	100	1	0.35	10	10	10		YES
31	RB520SM-30		FH	T2R	—	30	200	1	0.58	200	1	10		YES
32	RB521SM-30		FH	T2R	—	30	200	1	0.47	200	30	10		YES
33	RB530SM-30		FH	T2R	—	30	200	1	0.45	10	0.5	10		YES
34	RB531SM-30		FH	T2R	—	30	200	1	0.35	10	10	10		YES
35	RB510SM-40		FH	T2R	40	40	100	0.5	0.48	10	2	40		YES
36	RB511SM-40		—	T2R	40	40	100	0.5	0.41	10	25	40		—
37	RB530SM-40		FH	T2R	40	40	100	1	0.71	100	15	40		YES
38	RB531SM-40		—	T2R	40	40	100	1	0.61	100	100	40		—
39	RB540SM-40		—	T2R	40	40	200	1	0.71	100	15	40		—
40	RB541SM-40		—	T2R	40	40	200	1	0.61	100	100	40		—
41	RB520SM-40		FH	T2R	45	40	200	1	0.55	100	10	40		YES
42	RB521SM-40		FH	T2R	45	40	200	1	0.54	200	90	40		YES
43	RB521SM-60		FH	T2R	60	60	200	1	0.6	200	100	60		YES

*General Part No. have no grade code.

*1 I_o : Average output current per chip. In case of 1, 2 or 3 chip diodes. I_o indicates average output current of 1, 2 or 3 chips.

*2 Value/Chip

*3 It is not I_o (Average rectified forward current) but IF (Forward current) notation.

Note: (): ROHM Packages.

Schottky Barrier Diodes

Schottky Barrier Diodes
 Example: R B 5 2 1 V M - 3 0 F H T E - 1 7
 Part No. Grade Code Taping Code

Quick Reference No.	Product No.			Absolute Maximum Ratings ($T_c=25^\circ\text{C}$)				Electrical Characteristics ($T_j=25^\circ\text{C}$) ^{*2}			Package	Equivalent Circuit Diagram	Automotive Grade AEC-Q101			
	Part No.	Grade Code		V_{RM} (V)	V_R (V)	I_o ^{*1} (mA)	$I_{F(SM)}$ (A) ^{*2} 60Hz.1 \sim	V_F (V) Max	I_F (mA) Max	V_R (V)						
		General	Automotive													
44	RB551VM-30	*	—	TE-17	30	20	500	2	0.47	500	100	20	SOD-323FL (UMD2)			
45	RB751VM-40		FH	TE-17	40	30	30	0.2	0.37	1	0.5	30				
46	RB510VM-30		FH	TE-17	30	30	100	0.5	0.46	10	0.3	10				
47	RB530VM-30		FH	TE-17	30	30	100	0.5	0.45	10	0.5	10				
48	RB511VM-30		—	TE-17	30	30	100	0.5	0.37	10	7	10				
49	RB531VM-30		—	TE-17	30	30	100	1	0.49	100	10	10				
50	RB520VM-30		FH	TE-17	30	30	200	1	0.58	200	1	10				
51	RB521VM-30		FH	TE-17	30	30	200	1	0.47	200	30	10				
52	RB540VM-30		—	TE-17	30	30	200	1	0.45	10	0.5	10				
53	RB541VM-30		—	TE-17	30	30	200	1	0.64	200	10	10				
54	RB550VM-30		—	TE-17	30	30	500	1	0.59	500	35	30				
55	RB510VM-40		—	TE-17	40	40	100	0.5	0.48	10	2	40				
56	RB511VM-40		—	TE-17	40	40	100	0.5	0.41	10	25	40				
57	RB530VM-40		FH	TE-17	40	40	100	1	0.69	100	15	40				
58	RB531VM-40		—	TE-17	40	40	100	1	0.61	100	100	40				
59	RB500VM-40		FH	TE-17	45	40	100	1	0.45	10	1	10				
60	RB501VM-40		FH	TE-17	45	40	100	1	0.55	100	30	10				
61	RB540VM-40		—	TE-17	40	40	200	1	0.71	100	15	40				
62	RB541VM-40		—	TE-17	40	40	200	1	0.61	100	100	40				
63	RB520VM-40		FH	TE-17	40	40	200	1	0.55	100	10	40				
64	RB521VM-40		FH	TE-17	40	40	200	1	0.54	200	90	40				
65	RB550VM-40		—	TE-17	40	40	200	1	0.51	200	40	40				
66	RB551VM-40		FH	TE-17	40	40	200	1	0.43	200	300	40				
67	RB560VM-40		FH	TE-17	40	40	500	2	0.64	500	40	40				
68	RB561VM-40		—	TE-17	40	40	500	2	0.56	500	300	40				
69	RB411VAM-50	*	—	TR	50	20	500	3	0.5	500	30	10	SOD-323HE (TUMD2M)			
70	RB162VAM-20		—	TR	25	20	1,000	5	0.4	1,000	1,200	20				
71	RB161VAM-20		—	TR	30	20	1,000	5	0.42	1,000	1,000	20				
72	RBE1VAM20A		—	TR	30	20	1,000	3	0.53	1,000	200	20				
73	RBE2VAM20A		—	TR	30	20	2,000	5	0.46	2,000	700	20				
74	RSX051VAM30		—	TR	30	30	500	5	0.39	500	200	30				
75	RSX051VYM30		—	FH	TR	30	30	500	5	0.39	500	200				
76	RSX071VAM30		*	—	TR	30	30	700	5	0.42	700	200				
77	RSX071VYM30		—	FH	TR	30	30	700	5	0.42	700	200				
78	RB168VAM-30		*	—	TR	30	30	1,000	5	0.73	1,000	0.3				
79	RB168VYM-30		—	FH	TR	30	30	1,000	5	0.73	1,000	0.3				
80	RB550VAM-30		*	—	TR	30	30	1,000	5	0.52	1,000	30				
81	RB550VYM-30		—	FH	TR	30	30	1,000	3	0.52	1,000	30				
82	RSX101VAM30		*	—	TR	30	30	1,000	5	0.47	1,000	200				
83	RSX101VYM30		—	FH	TR	30	30	1,000	5	0.47	1,000	200				
84	RSX201VAM30		*	—	TR	30	30	1,500	8	0.46	1,500	300				
85	RSX201VYM30		—	FH	TR	30	30	1,500	8	0.46	1,500	300				
86	RB400VAM-50		*	—	TR	50	40	500	3	0.55	500	50				
87	RB400VYM-50		—	FH	TR	50	40	500	3	0.55	500	50				

*General Part No. have no grade code.

*1 I_o : Average output current per chip. In case of 1, 2 or 3 chip diodes. I_o indicates average output current of 1, 2 or 3 chips.

*2 Value/Chip

Note: (-): ROHM Packages.

Schottky Barrier Diodes
 Example: R B 1 6 8 V Y M - 6 0 F H T R
 Part No.
 Grade Code Taping Code

Small Signal Type Schottky Barrier Diodes 3

Quick Reference No.	Product No.			Absolute Maximum Ratings ($T_c=25^\circ C$)					Electrical Characteristics ($T_c=25^\circ C$) ²				Package	Equivalent Circuit Diagram	Automotive Grade AEC-Q101	
	Part No.	Grade Code		Taping Code	V_{RM} (V)	V_R (V)	I_o^{*1} (mA)	I_{F50} (A) ² 60Hz.1 \sim	V_F (V) Max	I_F (mA) Max	V_R (V)					
		General	Automotive													
88	RB160VAM-40	*	-	TR	40	40	1,000	10	0.55	700	50	40	SOD-323HE (TUMD2M)		-	
89	RB160VYM-40	-	FH	TR	40	40	1,000	10	0.55	700	50	40			YES	
90	RB168VAM-40	*	-	TR	40	40	1,000	5	0.79	1,000	0.5	40			-	
91	RB168VYM-40	-	FH	TR	40	40	1,000	5	0.79	1,000	0.5	40			YES	
92	RB160VAM-60	*	-	TR	60	60	1,000	5	0.67	1,000	40	60			-	
93	RB168VAM-60	*	-	TR	60	60	1,000	5	0.82	1,000	1	60			-	
94	RB168VYM-60	-	FH	TR	60	60	1,000	5	0.82	1,000	1	60			YES	
95	RB021VAM90	*	-	TR	90	90	200	5	0.49	200	900	90			-	
96	RB578VAM100	*	-	TR	100	100	700	5	0.85	700	0.2	100			-	
97	RB578VYM100	-	FH	TR	100	100	700	5	0.85	700	0.2	100			YES	
98	RB168VAM100	*	-	TR	100	100	1,000	5	0.84	1,000	0.3	100			-	
99	RB168VYM100	-	FH	TR	100	100	1,000	5	0.84	1,000	0.3	100			YES	
100	RB558VAM150	*	-	TR	150	150	500	3	0.95	500	0.5	150			-	
101	RB168VAM150	*	-	TR	150	150	1,000	5	0.89	1,000	1	150			-	
102	RB168VYM150	-	FH	TR	150	150	1,000	5	0.89	1,000	1	150			YES	
103	RB715WM	*	FH	TL	40	40	30 ^{*2}	0.2	0.37	1	1	10	SOT-416FL (EMD3F)		YES	
104	RB715UM	*	-	TL	40	40	30	0.2	0.37	1	1	10	SOT-323FL (UMD3F)		-	
105	RB508FM-40C	-	FH	T106	40	40	80	1	0.48	1	0.035	30	SOT-323 (UMD3)		YES	
106	RB715FM-40	*	FH	T106	40	40	30	0.2	0.37	1	1	10	SOT-323 (UMD3)		YES	
107	BAT54CHY		FH	T116	30	30	200 ^{*2}	0.6	0.8	100	2	25	SOT-23 (SSD3)		YES	
108	BAS40-05HY		FH	T116	40	40	120 ^{*2}	0.6	0.5	10	1	30	SOT-416FL (EMD3F)		YES	
109	RB557WM		-	TL	-	30	100 ^{*2}	0.5	0.49	100	10	10	SOT-323FL (UMD3F)		-	
110	RB717UM		-	TL	45	40	30 ^{*2}	0.2	0.37	1	1	30	SOT-323 (UMD3)		-	
111	RB508FM-40A		-	FH	T106	40	40	80	1	0.48	1	0.035	30	SOT-323 (UMD3)	YES	
112	BAT54AHY		FH	T116	30	30	200 ^{*2}	0.6	0.8	100	2	25	SOT-23 (SSD3)	YES		
113	BAS40-06HY	*	FH	T116	40	40	120 ^{*2}	0.6	0.5	10	1	30	SOT-416FL (EMD3F)		YES	
114	RB548WM		-	TL	-	30	100 ^{*2}	0.5	0.45	10	0.5	10	SOT-323FL (UMD3F)		-	
115	RB558WM		-	TL	-	30	100 ^{*2}	0.5	0.49	100	10	10	SOT-323FL (UMD3F)		-	
116	RB706WM-40		-	TL	45	40	30 ^{*2}	0.2	0.37	1	0.5	30	SOT-323FL (UMD3F)		-	
117	RB706UM-40		-	TL	45	40	30 ^{*2}	0.2	0.37	1	1	30	SOT-323FL (UMD3F)		-	
118	RB508FM-40S		-	FH	T106	40	40	80	1	0.48	1	0.035	30	SOT-323 (UMD3)	YES	
119	BAT54SHY		FH	T116	30	30	200 ^{*2}	0.6	0.8	100	2	25	SOT-23 (SSD3)	YES		
120	BAS40-04HY		FH	T116	40	40	120 ^{*2}	0.6	0.5	10	1	30	SOT-323FL (UMD3F)		YES	
121	RB451UM		-	TL	40	40	100	1	0.45	100	90	40	SOT-323FL (UMD3F)		-	
122	RB450UM		-	TL	45	40	100	1	0.55	100	10	40	SOT-323FL (UMD3F)		-	
123	RB461FM		FH	T106	25	20	700	3	0.49	700	200	20	SOT-323 (UMD3)		YES	
124	RB508FM-40		-	FH	T106	40	40	80	1	0.48	1	0.035	30	SOT-323 (UMD3)	YES	
125	BAT54HY		FH	T116	30	30	200 ^{*2}	0.6	0.8	100	2	25	SOT-23 (SSD3)		YES	
126	BAS40HY		FH	T116	40	40	120	0.6	0.5	10	1	30	SOT-23 (SSD3)		YES	

*General Part No. have no grade code.

¹ I_o : Average output current per chip. In case of 1, 2 or 3 chip diodes. I_o indicates average output current of 1, 2 or 3 chips.

² Value/Chip

Note: (): ROHM Packages.

Schottky Barrier Diodes

Quick Reference for Middle Power Schottky Barrier Diodes (High Efficient type)

V _R (V)	I _O (A)	Surface Mount type										
		2513 size		3516 size				4725 size				
		(PMDE)		SOD-123FL (PMDU)		SOD-123FL (PMDUP)		SOD-128 (PMDTM)		SOD-128 (PMDTP)		
Low I _R type		Low V _F /Low I _R type		Low I _R type		Ultra Low I _R type		Low V _F /Low I _R type		Low I _R type		
Low V _F /Low I _R type		Low I _R type		Ultra Low I _R type		Low V _F /Low I _R type		Low I _R type		Ultra Low I _R type		
20	5							RSX501LAM20	2			
	1		RSX101MM-30	1								
30	2							RSX201LAM30	3		RSX201L-30	
	3							RSX205LAM30	4		RSX205L-30	
100	2	YQ2VWM10B	9		YQ2MM10A	10					YQ3LAM10D	
	3								11			
	2				RSX068MP2S	12						
200	3									RSX048LAP2S		
	5									RSX058LAP2S	14	
										RSX088LAP2S	15	

Note: () : ROHM Packages.

Quick Reference for Middle Power Schottky Barrier Diodes (Standard type)

V _R (V)	I _O (A)	Surface Mount type										
		2513 size		3516 size			4725 size			5026 size	5336 size	
		(PMDE)		SOD-123FL (PMDU)			SOD-128 (PMDTM)			DO-214AC SMA (PMDS)	DO-214AA SMB (SMBP)	
Low V _F type		Ultra Low I _R type	Ultra Low V _F type	Low V _F type	Ultra Low I _R type	Ultra Low V _F type	Low V _F type	Ultra Low I _R type	Low V _F type	Ultra Low I _R type	Low V _F type	Ultra Low I _R type
1			RBS1MM40A	16			RBS1LAM40A	22				
20	2		RBS2MM40A	17			RBS2LAM40A	23				
	3		RBS2MM40B	18			RBS2LAM40B	24				
	5		RBS2MM40C	19			RBS2LAM40C	25				
30	1		RBS3MM40A	20			RBS3LAM40A	26				
	2		RBS3MM40B	21			RBS3LAM40B	27				
	3						RBS3LAM40C	28				
	5						RBS5LAM40A	29				
1	1	RBR1VWM30A	30	RB168VWM-30	97		RBR1MM30A	36	RB168MM-30	107		RBR1L30A
2	2	RBR2VWM30A	31	RB068VWM-30	98		RBR2MM30A	37	RB068MM-30	108		RBR2L30A
3	3						RBR3MM30A	39				RBR3L30A
	5											RBR5L30B
1	1	RBR1VWM40A	32	RB168VWM-40	99		RBR1MM40A	40	RB168MM-40	109		RBR1L40A
2	2	RBR2VWM40A	33	RB068VWM-40	100		RBR2MM40A	41	RB068MM-40	110		RBR2L40A
3	3						RBR2MM40B	42				RBR2LB40C
	5						RBR2MM40C	43				
40	1	RBR1VWM40A	32	RB168VWM-40	99		RBR1MM40A	40	RB168MM-40	109		RBR1L40A
2	2	RBR2VWM40A	33	RB068VWM-40	100		RBR2MM40A	41	RB068MM-40	110		RBR2L40A
3	3						RBR2MM40B	42				RBR2LB40C
	5						RBR2MM40C	43				
60	1	RBR1VWM60A	34	RB168VWM-60	101		RBR1MM60A	46	RB168MM-60	111		RBR1L60A
2	2	RBR2VWM60A	35	RB068VWM-60	102		RBR2MM60A	47	RB068MM-60	112		RBR2L60A
3	3						RBR2MM60B	48				RBR2LB60B
	5						RBR2MM60C	49				
90	1				RB160MM-90	52						RBR5L60A
100	1				RB168VWM100	103						RBR160L90
2	2				RB068VWM100	104						RBR160L100
3	3											RBR068LB100
	5											RBR058LB100
150	1				RB168VWM150	105						RBR168L150
2	2				RB068VWM150	106						RBR068L150
3	3											RBR058L150
	5											RBR088L150
200	1						RB168MM200	116				

Note: () : ROHM Packages.



Schottky Barrier Diodes

Schottky Barrier Diodes

Example: **R S X 1 0 1 M M - 3 0 T F T R**

Part No. _____ Grade Code _____ Taping Code _____

Middle Power Schottky Barrier Diodes (High Efficient type)

Quick Reference No.	Product No.			Absolute Maximum Ratings ($T_c=25^\circ\text{C}$)				Electrical Characteristics ($T_j=25^\circ\text{C}$)				Package	Equivalent Circuit Diagram	Automotive Grade AEC-Q101	
	Part No.	Grade Code	Taping Code	V_{RM} (V)	V_R (V)	I_o (A)	I_{FSM} (A) 60Hz.1~	V_F (V) Max	I_R (mA) Max	I_F (A)	V_R (V)				
		General	Automotive	Code											
Low V_F/Low I_R type															
1	RSX101MM-30	*	TF	TR	30	30	1	45	0.39	1	0.2	30	SOD-123FL (PMDU)		YES
2	RSX501LAM20	*	—	TR	20	20	5	100	0.39	3	0.5	20	SOD-128 (PMDTM)		—
3	RSX201LAM30		TF	TR	30	30	2	60	0.44	2	0.15	30			YES
4	RSX205LAM30		TF	TR	30	30	2	60	0.49	2	0.2	30			YES
5	RSX301LAM30		TF	TR	30	30	3	100	0.42	3	0.2	15			YES
6	RSX201L-30	—	DD	TE25	30	30	2	60	0.44	2	0.15	30	DO-214AC SMA (PMDS)		YES
7	RSX205L-30		TF	TE25	30	30	2	60	0.49	2	0.2	30			YES
8	RSX301L-30		DD	TE25	30	30	3	70	0.42	3	0.2	30			YES
Low I_R type															
9	YQ2VWM10B	*	TF	TR	100	100	2	30	0.77	2	0.01	100	(PMDE)		YES
10	YQ2MM10A	*	TF	TR	100	100	2	30	0.77	2	0.01	100	SOD-123FL (PMDU)		YES
11	YQ3LAM10D	*	TF	TR	100	100	3	80	0.64	3	0.03	100	SOD-128 (PMDTM)		YES
Ultra Low I_R type															
12	RSX068MP2S	*	—	TR	200	200	2	50	0.89	2	0.0001	200	SOD-123FL (PMDUP)		—
13	RSX048LAP2S	*	—	TR	200	200	3	75	0.87	3	0.0002	200	SOD-128 (PMDTP)		—
14	RSX058LAP2S		—	TR	200	200	3	50	0.92	3	0.0001	200			—
15	RSX088LAP2S		—	TR	200	200	5	75	0.92	5	0.0002	200			—

*General Part No. have no grade code.

Note: () : ROHM Packages.

Schottky Barrier Diodes

Schottky Barrier Diodes
 Example: R B R 1 V W M 3 0 A T F T R
 Part No. Grade Code Taping Code

Middle Power Schottky Barrier Diodes (Standard type) 1

Quick Reference No.	Product No.			Absolute Maximum Ratings ($T_c=25^\circ\text{C}$)				Electrical Characteristics ($T_j=25^\circ\text{C}$)				Package	Equivalent Circuit Diagram	Automotive Grade AEC-Q101	
	Part No.	Grade Code	Taping Code	V_{RM} (V)	V_R (V)	I_o (A)	I_{FSM} (A) 60Hz.1 ω	V_F (V) Max	I_F (A)	I_R (mA) Max	V_R (V)				
		General	Automotive												
Ultra Low V_F type															
16	RBS1MM40A	*	—	TR	40	20	1	25	0.38	1	0.4	20	SOD-123FL (PMDU)		—
17	RBS2MM40A		—	TR	40	20	2	25	0.48	2	0.4	20			—
18	RBS2MM40B		—	TR	40	20	2	35	0.41	2	0.5	20			—
19	RBS2MM40C		—	TR	40	20	2	45	0.39	2	0.6	20			—
20	RBS3MM40A		—	TR	40	20	3	35	0.49	3	0.5	20			—
21	RBS3MM40B		—	TR	40	20	3	45	0.45	3	0.6	20			—
22	RBS1LAM40A	*	—	TR	40	20	1	40	0.38	1	0.4	20	SOD-128 (PMDTM)		—
23	RBS2LAM40A		—	TR	40	20	2	40	0.48	2	0.4	20			—
24	RBS2LAM40B		—	TR	40	20	2	50	0.41	2	0.5	20			—
25	RBS2LAM40C		—	TR	40	20	2	80	0.37	2	0.8	20			—
26	RBS3LAM40A		—	TR	40	20	3	50	0.49	3	0.5	20			—
27	RBS3LAM40B		—	TR	40	20	3	60	0.45	3	0.6	20			—
28	RBS3LAM40C		—	TR	40	20	3	80	0.4	3	0.8	20			—
29	RBS5LAM40A		—	TR	40	20	5	80	0.49	5	0.8	20			—
Low V_F type															
30	RBR1VWM30A	*	TF	TR	30	30	1	30	0.48	1	0.05	30	(PMDE)		YES
31	RBR2VWM30A		TF	TR	30	30	2	30	0.53	2	0.05	30			YES
32	RBR1VWM40A		TF	TR	40	40	1	20	0.52	1	0.05	40			YES
33	RBR2VWM40A		TF	TR	40	40	2	20	0.62	2	0.05	40			YES
34	RBR1VWM60A		TF	TR	60	60	1	20	0.53	1	0.075	60			YES
35	RBR2VWM60A		TF	TR	60	60	2	20	0.65	2	0.075	60			YES
36	RBR1MM30A	*	TF	TR	30	30	1	30	0.48	1	0.05	30	SOD-123FL (PMDU)		YES
37	RBR2MM30A		TF	TR	30	30	2	30	0.53	2	0.05	30			YES
38	RBR2MM30B		TF	TR	30	30	2	30	0.49	2	0.08	30			YES
39	RBR3MM30A		TF	TR	30	30	3	30	0.51	3	0.1	30			YES
40	RBR1MM40A		TF	TR	40	40	1	20	0.52	1	0.05	40			YES
41	RBR2MM40A		TF	TR	40	40	2	20	0.62	2	0.05	40			YES
42	RBR2MM40B		TF	TR	40	40	2	30	0.55	2	0.08	40			YES
43	RBR2MM40C		TF	TR	40	40	2	30	0.52	2	0.1	40			YES
44	RBR3MM40A		TF	TR	40	40	3	30	0.62	3	0.08	40			YES
45	RBR3MM40B		TF	TR	40	40	3	30	0.58	3	0.1	40			YES
46	RBR1MM60A		TF	TR	60	60	1	20	0.53	1	0.075	60			YES
47	RBR2MM60A		TF	TR	60	60	2	20	0.65	2	0.075	60			YES
48	RBR2MM60B		TF	TR	60	60	2	30	0.58	2	0.1	60			YES
49	RBR2MM60C		TF	TR	60	60	2	30	0.55	2	0.12	60			YES
50	RBR3MM60A		TF	TR	60	60	3	30	0.66	3	0.1	60			YES
51	RBR3MM60B		TF	TR	60	60	3	30	0.61	3	0.12	60			YES
52	RB160MM-90		TF	TR	90	90	1	30	0.73	1	0.1	90			YES
53	RBR1LAM30A	*	TF	TR	30	30	1	40	0.48	1	0.05	30	SOD-128 (PMDTM)		YES
54	RBR2LAM30A		TF	TR	30	30	2	45	0.49	2	0.08	30			YES
55	RBR3LAM30A		TF	TR	30	30	3	40	0.58	3	0.05	30			YES
56	RBR3LAM30B		TF	TR	30	30	3	45	0.53	3	0.08	30			YES
57	RBR5LAM30A		TF	TR	30	30	5	75	0.54	5	0.1	30			YES
58	RBR5LAM30B		TF	TR	30	30	5	100	0.49	5	0.15	30			YES
59	RBR1LAM40A		TF	TR	40	40	1	40	0.52	1	0.05	40			YES
60	RBR2LAM40A		TF	TR	40	40	2	45	0.55	2	0.08	40			YES
61	RBR3LAM40A		TF	TR	40	40	3	40	0.69	3	0.05	40			YES
62	RBR3LAM40B		TF	TR	40	40	3	45	0.62	3	0.08	40			YES
63	RBR3LAM40C		TF	TR	40	40	3	75	0.55	3	0.1	40			YES
64	RBR5LAM40A		TF	TR	40	40	5	100	0.53	5	0.2	40			YES
65	RBR1LAM60A		TF	TR	60	60	1	40	0.53	1	0.075	60			YES
66	RBR2LAM60A		TF	TR	60	60	2	40	0.65	2	0.075	60			YES
67	RBR2LAM60B		TF	TR	60	60	2	75	0.52	2	0.15	60			YES
68	RBR3LAM60A		TF	TR	60	60	3	45	0.66	3	0.1	60			YES
69	RBR3LAM60B		TF	TR	60	60	3	75	0.56	3	0.15	60			YES
70	RBR5LAM60A		TF	TR	60	60	5	100	0.55	5	0.25	60			YES
71	RB160LAM-90		TF	TR	95	90	1	50	0.73	1	0.1	90			YES

*General Part No. have no grade code.
 Note: () : ROHM Packages.

Schottky Barrier Diodes
 Example: R B R 1 L 3 0 A D D T E 2 5
 Part No. Grade Code Taping Code

Middle Power Schottky Barrier Diodes (Standard type) 2

Quick Reference No.	Product No.			Absolute Maximum Ratings ($T_c=25^\circ\text{C}$)				Electrical Characteristics ($T_j=25^\circ\text{C}$)				Package	Equivalent Circuit Diagram	Automotive Grade AEC-Q101	
	Part No.	Grade Code	Taping Code	V_{RM} (V)	V_R (V)	I_o (A)	I_{FSM} (A) 60Hz.1~	V_F (V) Max	I_R (mA) Max	I_F (A)	V_R (V)				
		General	Automotive												
Low V_F type															
72	RBR1L30A	-	DD	TE25	30	30	1	30	0.48	1	0.05	30	DO-214AC SMA (PMDS)		YES
73	RBR2L30A		DD	TE25	30	30	2	40	0.49	2	0.08	30			YES
74	RBR3L30A		DD	TE25	30	30	3	30	0.58	3	0.05	30			YES
75	RBR3L30B		DD	TE25	30	30	3	40	0.53	3	0.08	30			YES
76	RBR5L30A		DD	TE25	30	30	5	50	0.54	5	0.1	30			YES
77	RBR5L30B		DD	TE25	30	30	5	50	0.49	5	0.15	30			YES
78	RBR1L40A		DD	TE25	40	40	1	30	0.52	1	0.05	40			YES
79	RBR2L40A		DD	TE25	40	40	2	40	0.55	2	0.08	40			YES
80	RBR3L40A		DD	TE25	40	40	3	30	0.69	3	0.05	40			YES
81	RBR3L40B		DD	TE25	40	40	3	40	0.62	3	0.08	40			YES
82	RBR3L40C		DD	TE25	40	40	3	50	0.55	3	0.1	40			YES
83	RBR5L40A		DD	TE25	40	40	5	50	0.53	5	0.2	40			YES
84	RBR1L60A		DD	TE25	60	60	1	30	0.53	1	0.075	60			YES
85	RBR2L60A		DD	TE25	60	60	2	30	0.65	2	0.075	60			YES
86	RBR2L60B		DD	TE25	60	60	2	50	0.52	2	0.15	60			YES
87	RBR3L60A		DD	TE25	60	60	3	40	0.66	3	0.1	60			YES
88	RBR3L60B		DD	TE25	60	60	3	50	0.56	3	0.15	60			YES
89	RBR5L60A	*	DD	TE25	60	60	5	50	0.55	5	0.25	60	DO-214AA SMB (SMBP)		YES
90	RB160L-90		TF	TE25	95	90	1	30	0.73	1	0.1	90			YES
91	New RBR2LB30A		—	TBR1	30	30	2	40	0.49	2	0.08	30			—
92	New RBR3LB30B		—	TBR1	30	30	3	40	0.53	3	0.08	30			—
93	New RBR2LB40C		—	TBR1	40	40	2	55	0.52	2	0.1	40			—
94	New RBR3LB40C		—	TBR1	40	40	3	55	0.55	3	0.1	40			—
95	New RBR2LB60B		—	TBR1	60	60	2	55	0.52	2	0.15	60			—
96	New RBR3LB60B		—	TBR1	60	60	3	55	0.56	3	0.15	60			—

*General Part No. have no grade code.
 Note: () : ROHM Packages.

Schottky Barrier Diodes

Schottky Barrier Diodes
 Example: R B 1 6 8 V W M - 3 0 T F T R
 Part No. Grade Code Taping Code

Quick Reference No.	Product No.			Absolute Maximum Ratings ($T_c=25^\circ\text{C}$)				Electrical Characteristics ($T_j=25^\circ\text{C}$)				Package	Equivalent Circuit Diagram	Automotive Grade AEC-Q101	
	Part No.	Grade Code	Taping Code	V_{RM} (V)	V_R (V)	I_O (A)	I_{FSM} (A) 60Hz,1~	V_F (V) Max	I_F (A)	I_R (mA) Max	V_R (V)				
		General	Automotive												
Ultra Low I_R type															
97	RB168VWM-30	*	TF	TR	30	30	1	30	0.69	1	0.0006	30	(PMDE)		YES
98	RB068VWM-30		TF	TR	30	30	2	30	0.75	2	0.0006	30			
99	RB168VWM-40		TF	TR	40	40	1	30	0.69	1	0.0005	40			
100	RB068VWM-40		TF	TR	40	40	2	30	0.79	2	0.0005	40			
101	RB168VWM-60		TF	TR	60	60	1	30	0.76	1	0.0005	60			
102	RB068VWM-60		TF	TR	60	60	2	30	0.84	2	0.0005	60			
103	RB168VWM100		TF	TR	100	100	1	25	0.84	1	0.0003	100			
104	RB068VWM100		TF	TR	100	100	2	25	0.94	2	0.0003	100			
105	RB168VWM150		TF	TR	150	150	1	25	0.89	1	0.001	150			
106	RB068VWM150		TF	TR	150	150	2	25	0.96	2	0.001	150			
107	RB168MM-30	*	TF	TR	30	30	1	30	0.69	1	0.0006	30	SOD-123FL (PMDU)		YES
108	RB068MM-30		TF	TR	30	30	2	50	0.7	2	0.0008	30			
109	RB168MM-40		TF	TR	40	40	1	40	0.65	1	0.00055	40			
110	RB068MM-40		TF	TR	40	40	2	40	0.725	2	0.00055	40			
111	RB168MM-60		TF	TR	60	60	1	40	0.68	1	0.0015	60			
112	RB068MM-60		TF	TR	60	60	2	40	0.765	2	0.0015	60			
113	RB168MM100		TF	TR	100	100	1	40	0.81	1	0.0004	100			
114	RB068MM100		TF	TR	100	100	2	40	0.87	2	0.0004	100			
115	RB168MM150		TF	TR	150	150	1	35	0.84	1	0.004	150			
116	RB168MM200		TF	TR	200	200	1	35	0.89	1	0.00085	200			
117	RB168LAM-30	*	TF	TR	30	30	1	40	0.69	1	0.0006	30	SOD-128 (PMDTM)		YES
118	RB068LAM-30		TF	TR	30	30	2	50	0.7	2	0.0008	30			
119	RB058LAM-30		TF	TR	30	30	3	80	0.68	3	0.0025	30			
120	RB088LAM-30		TF	TR	30	30	5	80	0.69	5	0.0025	30			
121	RB168LAM-40		TF	TR	40	40	1	40	0.69	1	0.0005	40			
122	RB068LAM-40		TF	TR	40	40	2	50	0.69	2	0.001	40			
123	RB058LAM-40		TF	TR	40	40	3	90	0.69	3	0.0025	40			
124	RB088LAM-40		TF	TR	40	40	5	90	0.71	5	0.0036	40			
125	RB168LAM-60		TF	TR	60	60	1	40	0.68	1	0.0015	60			
126	RB068LAM-60		TF	TR	60	60	2	70	0.68	2	0.002	60			
127	RB058LAM-60	-	TF	TR	60	60	3	90	0.64	3	0.004	60	DO-214AC SMA (PMDS)		YES
128	RB088LAM-60		TF	TR	60	60	5	90	0.71	5	0.004	60			
129	RB168LAM100		TF	TR	100	100	1	40	0.81	1	0.0004	100			
130	RB068LAM100		TF	TR	100	100	2	70	0.81	2	0.0015	100			
131	RB058LAM100		TF	TR	100	100	3	80	0.81	3	0.003	100			
132	RB088LAM100		TF	TR	100	100	5	80	0.87	5	0.003	100			
133	RB168LAM150		TF	TR	150	150	1	50	0.84	1	0.0025	150			
134	RB068LAM150		TF	TR	150	150	2	70	0.81	2	0.003	150			
135	RB058LAM150		TF	TR	150	150	3	80	0.84	3	0.003	150			
136	RB088LAM150		TF	TR	150	150	5	80	0.9	5	0.003	150			
137	RB168L-30	-	TF	TE25	30	30	1	30	0.69	1	0.0006	30	DO-214AA SMB (SMBP)		YES
138	RB068L-30		DD	TE25	30	30	2	60	0.7	2	0.0008	30			
139	RB168L-40		TF	TE25	40	40	1	50	0.65	1	0.00055	40			
140	RB068L-40		DD	TE25	40	40	2	50	0.69	2	0.001	40			
141	RB058L-40		DD	TE25	40	40	3	100	0.7	3	0.005	40			
142	RB168L-60		TF	TE25	60	60	1	50	0.68	1	0.0015	60			
143	RB068L-60		DD	TE25	60	60	2	90	0.68	2	0.002	60			
144	RB058L-60		DD	TE25	60	60	3	120	0.64	3	0.004	60			
145	RB168L100		DD	TE25	100	100	1	50	0.81	1	0.0004	100			
146	RB068L100		DD	TE25	100	100	2	110	0.79	2	0.003	100			
147	RB168L150	*	DD	TE25	150	150	1	50	0.84	1	0.004	150	DO-214AA SMB (SMBP)		YES
148	RB068L150		DD	TE25	150	150	2	90	0.81	2	0.003	150			
149	RB058L150	*	DD	TE25	150	150	3	90	0.85	3	0.003	150			
150	New RB068LB100		—	TBR1	100	100	2	90	0.81	2	0.0015	100			—
151	New RB058LB100		—	TBR1	100	100	3	90	0.84	3	0.0015	100			—

*General Part No. have no grade code.
 Note: (—) : ROHM Packages.

Schottky Barrier Diodes

●Quick Reference for Power Schottky Barrier Diodes (High Efficient type)

V _R (V)	I _O (A)	Surface Mount type			
					
		TO-277A (TO-277GE)		TO-252AA D-PAK (TO-252GE)	TO-252AA D-PAK (TO-252M)
Low I _R type		Low I _R type		Low I _R type	Low I _R type
10	YQ10RSM10SD	1			
			YQ20BGE10SD	2	YQ20BM10SD
				3	YQ20NL10SE YQ20NL10CD
20					4
30					5
YQ30NL10SE					

Note: (): ROHM Packages.

●Quick Reference for Power Schottky Barrier Diodes (Standard type) 1

V _R (V)	I _O (A)	Surface Mount type							
									
		TO-277A (TO-277GE)		TO-252AA D-PAK (TO-252GE)		TO-252AA D-PAK (TO-252M)		TO-252AA D-PAK (TO-252M)	
Low V _F type		Low I _R type	Ultra Low I _R type	Low V _F type	Low I _R type	Ultra Low I _R type	Low V _F type	Low I _R type	Ultra Low I _R type
30	5						RB078BGE30S	99	
	6						RB098BGE-30	100	
	10			RBR10BGE30A	10		RB088BGE-30	101	RBR10BM30A
	15			RBR15BGE30A	11				RBR15BM30A
	20			RBR20BGE30A	12				RBR20BM30A
40	3	RBR3RSM40B	7						
	5	RBR5RSM40B	8						
	6						RB098BGE-40	102	
	10	RBR10RSM40B	9	RBR10BGE40A	13		RB088BGE-40	103	RBR10BM40A
	15			RBR15BGE40A	14				RBR15BM40A
	20			RBR20BGE40A	15				RBR20BM40A
45	10					RBQ10BGE45A	55		RBQ10BM45A
	15					RBQ15BGE45A	56		RBQ15BM45A
	20					RBQ20BGE45A	57		RBQ20BM45A
60	6					RB098BGE-60	104		
	10			RBR10BGE60A	16		RB088BGE-60	105	RBR10BM60A
	15			RBR15BGE60A	17				RBR15BM60A
	20			RBR20BGE60A	18				RBR20BM60A
65	3		RBQ3RSM65B	49					
	5		RBQ5RSM65B	50					
	10		RBQ10RSM65B	51		RBQ10BGE65A	58		RBQ10BM65A
	15					RBQ15BGE65A	59		RBQ15BM65A
	20					RBQ20BGE65A	60		RBQ20BM65A
100	3		RBQ3RSM10B	52	RB058RSM10S	91			
	5		RBQ5RSM10B	53	RB078RSM10S	92			
	6					RB098BGE100	106		
	8								
	10		RBQ10RSM10B	54	RB088RSM10S	94	RBQ10BGE10A	61	RB088BGE100
	15					RBQ15BGE10A	62		RBQ15BM100A
	20								RBQ20BM100A
150	3			RB058RSM15S	95				
	5			RB078RSM15S	96				
	6					RB098BGE150	108		
	8			RB048RSM15S	97				
	10			RB088RSM15S	98		RB088BGE150	109	
200	3					RSX058BGE2S	110		
	5					RSX078BGE2S	111		
	10								RSX078BM2S
	20								RSX218BM200
									RB218BM200

Note: (): ROHM Packages.

Schottky Barrier Diodes

●Quick Reference for Power Schottky Barrier Diodes (Standard type) 2

V _R (V)	I _O (A)	Surface Mount type				Through Hole type									
															
		TO-263AB D2PAK (TO-263S)		TO-263AB D2PAK (TO-263L)	TO-220AB (TO-220FN) <3pin>		TO-220AB (TO-220FN) <2pin>								
Low V _F type		Low I _R type		Ultra Low I _R type		Low I _R type		Low V _F type		Low I _R type		Ultra Low I _R type		Low I _R type	
30	10	RBR10NS30A	28		RB088NS-30	129		RBR10T30A	40		RB088T-30	152			
	20	RBR20NS30A	29		RB218NS-30	130		RBR20T30A	41		RB218T-30	153			
	30	RBR30NS30A	30		RB228NS-30	131		RBR30T30A	42		RB228T-30	154			
	40	RBR40NS30A	31		RB238NS-30	132					RB238T-30	155			
40	10	RBR10NS40A	32		RB088NS-40	133		RBR10T40A	43		RB088T-40	156			
	20	RBR20NS40A	33		RB218NS-40	134		RBR20T40A	44		RB218T-40	157			
	30	RBR30NS40A	34		RB228NS-40	135		RBR30T40A	45		RB228T-40	158			
	40	RBR40NS40A	35		RB238NS-40	136					RB238T-40	159			
45	10	RBQ10NS45A		72	New RBQ10NL45B		82	RBQ10T45A		84					
	16				New RBQ16NL45B		83								
	20	RBQ20NS45A		73				RBQ20T45A		85					
	30	RBQ30NS45A RBQ30NS45B		74 81				RBQ30T45A		86	RBQ30TB45B		90		
60	10	RBR10NS60A	36		RB088NS-60	137		RBR10T60A	46		RB088T-60	160			
	20	RBR20NS60A	37		RB218NS-60	138		RBR20T60A	47		RB218T-60	161			
	30	RBR30NS60A	38		RB228NS-60	139		RBR30T60A	48		RB228T-60	162			
	40	RBR40NS60A	39		RB238NS-60	140					RB238T-60	163			
65	10	RBQ10NS65A		75				RBQ10T65A		87					
	20	RBQ20NS65A		76				RBQ20T65A		88					
	30	RBQ30NS65A		77				RBQ30T65A		89					
100	10	RBQ10NS100A		78	RB088NS100	141					RB088T100	164			
	20	RBQ20NS100A		79	RB218NS100	142					RB218T100	165			
	30	RBQ30NS100A		80	RB228NS100 RB298NS100	143 144					RB228T100 RB298T100	166 167			
	40				RB238NS100	145					RB238T100	168			
150	10				RB088NS150	146					RB088T150	169			
	20				RB218NS150	147					RB218T150	170			
	30				RB228NS150	148					RB228T150	171			
	40				RB238NS150	149					RB238T150	172			
200	10				RB088NS200	150									
	20				RB218NS200	151									

Note: () : ROHM Packages.

Schottky Barrier Diodes

Schottky Barrier Diodes
 Example: Y Q 2 0 B M 1 0 S D F H T L
 Part No. Grade Code Taping Code

Power Schottky Barrier Diodes (High Efficient type)																
Quick Reference No.	Product No.			Absolute Maximum Ratings ($T_c=25^\circ\text{C}$)				Electrical Characteristics ($T_i=25^\circ\text{C}$)			Package	Equivalent Circuit Diagram	Automotive Grade AEC-Q101			
	Part No.	Grade Code		Taping Code	V_{RM} (V)	V_R (V)	I_o^{*1} (A)	I_{FSD} (A) ^{*2} 60Hz.1~	V_F (V) Max	I_R (mA) Max						
		General	Automotive													
Low I_R type																
1	YQ10RSM10SD	*	TF	TL1	100	100	10	200	0.67	10	0.08	100	TO-277A (TO-277GE)		YES	
2	YQ20BGE10SD	*	—	TL	100	100	20	150	0.86	20	0.08	100	TO-252AA D-PAK (TO-252GE)		—	
3	YQ20BM10SD	—	FH	TL	100	100	20	150	0.86	20	0.08	100	TO-252AA D-PAK (TO-252M)		YES	
4	YQ20NL10SE	*	FH	TL	100	100	20	200	0.86	20	0.08	100	TO-263AB D2PAK (TO-263L)		YES	
5	YQ30NL10SE		FH	TL	100	100	30	200	0.86	30	0.15	100			YES	
6	YQ20NL10CD		FH	TL	100	100	20	150	0.71	10	0.07	100			YES	
Power Schottky Barrier Diodes (Standard type) 1																
Quick Reference No.	Product No.			Absolute Maximum Ratings ($T_c=25^\circ\text{C}$)				Electrical Characteristics ($T_i=25^\circ\text{C}$)			Package	Equivalent Circuit Diagram	Automotive Grade AEC-Q101			
	Part No.	Grade Code		Taping Code	V_{RM} (V)	V_R (V)	I_o^{*1} (A)	I_{FSD} (A) ^{*2} 60Hz.1~	V_F (V) Max	I_R (mA) Max						
		General	Automotive													
Low V_F type																
7	RBR3RSM40B	*	TF	TL1	40	40	3	150	0.47	3	0.12	40	TO-277A (TO-277GE)		YES ^{*3}	
8	RBR5RSM40B		TF	TL1	40	40	5	100	0.53	5	0.12	40			YES ^{*3}	
9	RBR10RSM40B		TF	TL1	40	40	10	150	0.54	5	0.3	45			YES ^{*3}	
10	RBR10BGE30A	*	—	TL	30	30	10	50	0.55	5	0.1	30	TO-252AA D-PAK (TO-252GE)		—	
11	RBR15BGE30A		—	TL	30	30	15	100	0.51	7.5	0.2	30			—	
12	RBR20BGE30A		—	TL	30	30	20	100	0.51	10	0.3	30			—	
13	RBR10BGE40A		—	TL	40	40	10	50	0.62	5	0.12	40			—	
14	RBR15BGE40A		—	TL	40	40	15	100	0.55	7.5	0.24	40			—	
15	RBR20BGE40A		—	TL	40	40	20	100	0.55	10	0.36	40			—	
16	RBR10BGE60A		—	TL	60	60	10	50	0.65	5	0.2	60			—	
17	RBR15BGE60A		—	TL	60	60	15	100	0.58	7.5	0.4	60			—	
18	RBR20BGE60A		—	TL	60	60	20	100	0.59	10	0.6	60			—	
19	RBR10BM30A	—	FH	TL	30	30	10	50	0.55	5	0.1	30	TO-252AA D-PAK (TO-252M)		YES	
20	RBR15BM30A		FH	TL	30	30	15	100	0.51	7.5	0.2	30			YES	
21	RBR20BM30A		FH	TL	30	30	20	100	0.51	10	0.3	30			YES	
22	RBR10BM40A		FH	TL	40	40	10	50	0.62	5	0.12	40			YES	
23	RBR15BM40A		FH	TL	40	40	15	100	0.55	7.5	0.24	40			YES	
24	RBR20BM40A		FH	TL	40	40	20	100	0.55	10	0.36	40			YES	
25	RBR10BM60A		FH	TL	60	60	10	50	0.65	5	0.2	60			YES	
26	RBR15BM60A		FH	TL	60	60	15	100	0.58	7.5	0.4	60			YES	
27	RBR20BM60A		FH	TL	60	60	20	100	0.59	10	0.6	60			YES	
28	RBR10NS30A	*	FH	TL	30	30	10	50	0.55	5	0.1	30	TO-263AB D2PAK (TO-263S)		YES	
29	RBR20NS30A		FH	TL	30	30	20	100	0.55	10	0.2	30			YES	
30	RBR30NS30A		FH	TL	30	30	30	100	0.55	15	0.3	30			YES	
31	RBR40NS30A		FH	TL	30	30	40	100	0.52	20	0.6	30			YES	
32	RBR10NS40A		FH	TL	40	40	10	50	0.62	5	0.12	40			YES	
33	RBR20NS40A		FH	TL	40	40	20	100	0.62	10	0.24	40			YES	
34	RBR30NS40A		FH	TL	40	40	30	100	0.62	15	0.36	40			YES	
35	RBR40NS40A		FH	TL	40	40	40	100	0.55	20	0.43	40			YES	
36	RBR10NS60A		FH	TL	60	60	10	50	0.65	5	0.2	60			YES	
37	RBR20NS60A		FH	TL	60	60	20	100	0.64	10	0.4	60			YES	
38	RBR30NS60A		FH	TL	60	60	30	100	0.67	15	0.6	60			YES	
39	RBR40NS60A		FH	TL	60	60	40	100	0.6	20	0.8	60			YES	
40	RBR10T30A	NZ	—	C9	30	30	10	50	0.55	5	0.1	30	TO-220AB (TO-220FN) <3pin>		—	
41	RBR20T30A	NZ	—	C9	30	30	20	100	0.55	10	0.2	30			—	
42	RBR30T30A	NZ	—	C9	30	30	30	100	0.55	15	0.3	30			—	
43	RBR10T40A	NZ	—	C9	40	40	10	50	0.62	5	0.12	40			—	
44	RBR20T40A	NZ	—	C9	40	40	20	100	0.62	10	0.24	40			—	
45	RBR30T40A	NZ	—	C9	40	40	30	100	0.62	15	0.36	40			—	
46	RBR10T60A	NZ	—	C9	60	60	10	50	0.65	5	0.2	60			—	
47	RBR20T60A	NZ	—	C9	60	60	20	100	0.64	10	0.4	60			—	
48	RBR30T60A	NZ	—	C9	60	60	30	100	0.67	15	0.6	60			—	

*General Part No. have no grade code.

*1 I_o : Average rectified output current per die. In case of 2 dies, I_o indicates average output current of 2 dies.

*2 Value/Die

*3 Some automotive applications may not be supported.

Note: () : ROHM Packages.

Schottky Barrier Diodes

Schottky Barrier Diodes
Example: R B Q 1 0 B M 4 5 A F H T L
Part No. Grade Code Taping Code

Power Schottky Barrier Diodes (Standard type) 2

Quick Reference No.	Product No.			Absolute Maximum Ratings ($T_c=25^\circ\text{C}$)					Electrical Characteristics ($T_j=25^\circ\text{C}$)			Package	Equivalent Circuit Diagram	Automotive Grade AEC-Q101			
	Part No.	Grade Code		Taping Code	V_{RM} (V)	V_R (V)	I_o^{*1} (A)	I_{F5M} (A) ^{*2} 60Hz.1 ω	V_F (V) Max	I_R (mA) Max	I_F (A)						
		General	Automotive														
Low I_R type																	
49	RBQ3RSM65B	*	TF	TL1	65	65	3	100	0.57	3	0.09	65	TO-277A (TO-277GE)		YES ^{*3}		
50	RBQ5RSM65B		TF	TL1	65	65	5	100	0.66	5	0.09	65			YES ^{*3}		
51	RBQ10RSM65B		TF	TL1	65	65	10	150	0.67	10	0.15	65			YES ^{*3}		
52	RBQ3RSM10B		TF	TL1	100	100	3	100	0.70	3	0.08	100			YES ^{*3}		
53	RBQ5RSM10B		TF	TL1	100	100	5	150	0.70	5	0.14	100			YES ^{*3}		
54	RBQ10RSM10B		TF	TL1	100	100	10	200	0.70	10	0.25	100			YES ^{*3}		
55	RBQ10BGE45A	*	—	TL	45	45	10	50	0.65	5	0.07	45	TO-252AA D-PAK (TO-252GE)		—		
56	RBQ15BGE45A		—	TL	45	45	15	100	0.59	7.5	0.14	45			—		
57	RBQ20BGE45A		—	TL	45	45	20	100	0.59	10	0.2	45			—		
58	RBQ10BGE65A		—	TL	65	65	10	50	0.69	5	0.07	65			—		
59	RBQ15BGE65A		—	TL	65	65	15	100	0.63	7.5	0.14	65			—		
60	RBQ20BGE65A		—	TL	65	65	20	100	0.63	10	0.2	65			—		
61	RBQ10BGE10A		—	TL	100	100	10	100	0.77	5	0.08	100			—		
62	RBQ15BGE10A		—	TL	100	100	15	100	0.71	7.5	0.14	100			—		
63	RBQ10BM45A	—	FH	TL	45	45	10	50	0.65	5	0.07	45	TO-252AA D-PAK (TO-252M)		YES		
64	RBQ15BM45A		FH	TL	45	45	15	100	0.59	7.5	0.14	45			YES		
65	RBQ20BM45A		FH	TL	45	45	20	100	0.59	10	0.2	45			YES		
66	RBQ10BM65A		FH	TL	65	65	10	50	0.69	5	0.07	65			YES		
67	RBQ15BM65A		FH	TL	65	65	15	100	0.63	7.5	0.14	65			YES		
68	RBQ20BM65A		FH	TL	65	65	20	100	0.63	10	0.2	65			YES		
69	RBQ10BM100A		FH	TL	100	100	10	100	0.77	5	0.08	100			YES		
70	RBQ15BM100A		FH	TL	100	100	15	100	0.71	7.5	0.14	100			YES		
71	RBQ20BM100A	*	FH	TL	100	100	20	100	0.69	10	0.2	100	TO-263AB D2PAK (TO-263S)		YES		
72	RBQ10NS45A		FH	TL	45	45	10	100	0.65	5	0.07	45			YES		
73	RBQ20NS45A		FH	TL	45	45	20	100	0.65	10	0.14	45			YES		
74	RBQ30NS45A		FH	TL	45	45	30	100	0.65	15	0.2	45			YES		
75	RBQ10NS65A		FH	TL	65	65	10	100	0.69	5	0.07	65			YES		
76	RBQ20NS65A		FH	TL	65	65	20	100	0.69	10	0.14	65			YES		
77	RBQ30NS65A		FH	TL	65	65	30	100	0.69	15	0.2	65			YES		
78	RBQ10NS100A		FH	TL	100	100	10	100	0.77	5	0.08	100			YES		
79	RBQ20NS100A	*	FH	TL	100	100	20	100	0.77	10	0.14	100	TO-263AB D2PAK (TO-263L)		YES		
80	RBQ30NS100A		FH	TL	100	100	30	100	0.77	15	0.2	100			YES		
81	RBQ30NS45B		FH	TL	45	45	30	100	0.59	30	0.7	45			YES		
82	New RBQ10NL45B		FNS	FHH	TL	45	45	10	150	0.62	10	0.1	45		YES		
83	New RBQ16NL45B		FNS	FHH	TL	45	45	16	150	0.61	16	0.1	45		YES		
84	RBQ10T45A	*	NZ	—	C9	45	45	10	100	0.65	5	0.07	45	TO-220AB (TO-220FN) <3pin>		—	
85	RBQ20T45A		NZ	—	C9	45	45	20	100	0.65	10	0.14	45			—	
86	RBQ30T45A		NZ	—	C9	45	45	30	100	0.65	15	0.2	45			—	
87	RBQ10T65A		NZ	—	C9	65	65	10	100	0.69	5	0.07	65			—	
88	RBQ20T65A		NZ	—	C9	65	65	20	100	0.69	10	0.14	65			—	
89	RBQ30T65A		NZ	—	C9	65	65	30	100	0.69	15	0.2	65			—	
90	RBQ30TB45B		NZ	—	C9	45	45	30	100	0.59	30	0.7	45			—	
Ultra Low I_R type																	
91	RB058RSM10S	*	TF	TL1	100	100	3	120	0.81	3	0.0013	100	TO-277A (TO-277GE)		YES ^{*3}		
92	RB078RSM10S		TF	TL1	100	100	5	120	0.84	5	0.0013	100			YES ^{*3}		
93	RB048RSM10S		TF	TL1	100	100	8	160	0.84	8	0.0034	100			YES ^{*3}		
94	RB088RSM10S		TF	TL1	100	100	10	220	0.84	10	0.0037	100			YES ^{*3}		
95	RB058RSM15S		TF	TL1	150	150	3	120	0.83	3	0.0021	150			YES ^{*3}		
96	RB078RSM15S		TF	TL1	150	150	5	120	0.87	5	0.0021	150			YES ^{*3}		
97	RB048RSM15S		TF	TL1	150	150	8	160	0.88	8	0.0037	150			YES ^{*3}		
98	RB088RSM15S		TF	TL1	150	150	10	220	0.88	10	0.0045	150			YES ^{*3}		
99	RB078BGE30S		—	TL	35	30	5	50	0.72	5	0.005	30	TO-252AA D-PAK (TO-252GE)		—		
100	RB098BGE-30		—	TL	35	30	6	50	0.72	3	0.0015	30			—		
101	RB088BGE-30		—	TL	35	30	10	50	0.72	5	0.003	30			—		
102	RB098BGE-40		—	TL	45	40	6	50	0.77	3	0.0015	40			—		
103	RB088BGE-40		—	TL	45	40	10	50	0.77	5	0.003	40			—		
104	RB098BGE-60		—	TL	60	60	6	50	0.83	3	0.0015	60			—		
105	RB088BGE-60	TO-252AA D-PAK (TO-252GE)	—	TL	60	60	10	50	0.83	5	0.003	60			—		
106	RB098BGE100		—	TL	110	100	6	100	0.77	3	0.003	100			—		
107	RB088BGE100		—	TL	100	100	10	50	0.87	5	0.005	100			—		
108	RB098BGE150		—	TL	150	150	6	100	0.83	3	0.007	150			—		
109	RB088BGE150		—	TL	150	150	10	50	0.88	5	0.015	150			—		
110	RSX058BGE2S		—	TL	200	200	3	50	0.87	3	0.0002	200			—		
111	RSX078BGE2S		—	TL	200	200	5	50	0.92	5	0.0002	200			—		

*General Part No. have no grade code.

*1 I_o : Average rectified output current per die. In case of 2 dies, I_o indicates average output current of 2 dies.

*2 Value/Die

*3 Some automotive applications may not be supported. Please contact a ROHM sales representative for further details.

Note: (): ROHM Packages.

Schottky Barrier Diodes
 Example: R B 0 7 8 B M 3 0 S F H T L
 Part No. Grade Code Taping Code

Power Schottky Barrier Diodes (Standard type) 3

Quick Reference No.	Product No.			Absolute Maximum Ratings ($T_c=25^\circ\text{C}$)				Electrical Characteristics ($T_j=25^\circ\text{C}$)				Package	Equivalent Circuit Diagram	Automotive Grade AEC-Q101		
	Part No.	Grade Code		Taping Code	V_{RM} (V)	V_R (V)	I_O^{*1} (A)	I_{FSD} (A) ^{*2} 60Hz,1~	V_F (V) Max	I_F (A) Max	I_R (mA) Max					
		General	Automotive													
Ultra Low I_R type																
112	New RB078BM30S	FNS	FHH	TL	35	30	5	50	0.72	5	0.005	30	TO-252 (DPAK)		YES	
113	New RB075BM40S	FNS	FHH	TL	40	40	5	50	0.75	5	0.005	40			YES	
114	New RB078BM10S	FNS	FHH	TL	110	100	5	100	0.74	5	0.0064	100			YES	
115	New RSX058BM2S	FNS	FHH	TL	200	200	3	50	0.87	3	0.0002	200			YES	
116	New RSX078BM2S	FNS	FHH	TL	200	200	5	50	0.92	5	0.0002	200			YES	
117	New RB098BM-30	FNS	FHH	TL	35	30	6	50	0.72	3	0.0015	30			YES	
118	New RB088BM-30	FNS	FHH	TL	35	30	10	50	0.72	5	0.003	30			YES	
119	New RB098BM-40	FNS	FHH	TL	45	40	6	50	0.77	3	0.0015	40			YES	
120	New RB088BM-40	FNS	FHH	TL	45	40	10	50	0.77	5	0.003	40			YES	
121	New RB098BM-60	FNS	FHH	TL	60	60	6	50	0.83	3	0.0015	60			YES	
122	New RB088BM-60	FNS	FHH	TL	60	60	10	50	0.83	5	0.003	60			YES	
123	New RB098BM100	FNS	FHH	TL	110	100	6	100	0.77	3	0.003	100			YES	
124	New RB088BM100	FNS	FHH	TL	110	100	10	50	0.87	5	0.005	100			YES	
125	New RB098BM150	FNS	FHH	TL	150	150	6	100	0.83	3	0.007	150			YES	
126	New RB088BM150	FNS	FHH	TL	150	150	10	50	0.88	5	0.015	150			YES	
127	New RB088BM200	FNS	FHH	TL	200	200	10	100	0.88	5	0.007	200			YES	
128	New RB218BM200	FNS	FHH	TL	200	200	20	100	0.88	10	0.01	200			YES	
129	RB088NS-30	*	FH	TL	35	30	10	50	0.72	5	0.003	30	TO-263AB D2PAK (TO-263S)		YES	
130	RB218NS-30		FH	TL	35	30	20	100	0.72	10	0.005	30			YES	
131	RB228NS-30		FH	TL	35	30	30	100	0.72	15	0.01	30			YES	
132	RB238NS-30		FH	TL	35	30	40	100	0.75	20	0.012	30			YES	
133	RB088NS-40		FH	TL	45	40	10	50	0.77	5	0.003	40			YES	
134	RB218NS-40		FH	TL	45	40	20	100	0.77	10	0.005	40			YES	
135	RB228NS-40		FH	TL	45	40	30	100	0.77	15	0.01	40			YES	
136	RB238NS-40		FH	TL	45	40	40	100	0.8	20	0.012	40			YES	
137	RB088NS-60		FH	TL	60	60	10	50	0.83	5	0.003	60			YES	
138	RB218NS-60		FH	TL	60	60	20	100	0.83	10	0.005	60			YES	
139	RB228NS-60		FH	TL	60	60	30	100	0.83	15	0.01	60			YES	
140	RB238NS-60		FH	TL	60	60	40	100	0.86	20	0.012	60			YES	
141	RB088NS100		FH	TL	110	100	10	100	0.87	5	0.005	100			YES	
142	RB218NS100		FH	TL	110	100	20	100	0.87	10	0.007	100			YES	
143	RB228NS100		FH	TL	110	100	30	100	0.87	5	0.005	100			YES	
144	RB298NS100		FH	TL	110	100	30	100	0.87	15	0.01	100			YES	
145	RB238NS100		FH	TL	110	100	40	100	0.86	20	0.02	100			YES	
146	RB088NS150		FH	TL	150	150	10	50	0.88	5	0.015	150			YES	
147	RB218NS150		FH	TL	150	150	20	100	0.88	10	0.02	150			YES	
148	RB228NS150		FH	TL	150	150	30	100	0.88	15	0.025	150			YES	
149	RB238NS150		FH	TL	150	150	40	100	0.87	20	0.03	150			YES	
150	RB088NS200		FH	TL	200	200	10	100	0.88	5	0.007	200			YES	
151	RB218NS200		FH	TL	200	200	20	100	0.88	10	0.01	200			YES	
152	RB088T-30	NZ	—	C9	35	30	10	50	0.72	5	0.003	30	TO-220AB (TO-220FN) <3pin>		—	
153	RB218T-30	NZ	—	C9	35	30	20	100	0.72	10	0.005	30			—	
154	RB228T-30	NZ	—	C9	35	30	30	100	0.72	15	0.01	30			—	
155	RB238T-30	NZ	—	C9	35	30	40	100	0.75	20	0.012	30			—	
156	RB088T-40	NZ	—	C9	45	40	10	50	0.77	5	0.003	40			—	
157	RB218T-40	NZ	—	C9	45	40	20	100	0.77	10	0.005	40			—	
158	RB228T-40	NZ	—	C9	45	40	30	100	0.77	15	0.01	40			—	
159	RB238T-40	NZ	—	C9	45	40	40	100	0.8	20	0.012	40			—	
160	RB088T-60	NZ	—	C9	60	60	10	50	0.83	5	0.003	60			—	
161	RB218T-60	NZ	—	C9	60	60	20	100	0.83	10	0.005	60			—	
162	RB228T-60	NZ	—	C9	60	60	30	100	0.83	15	0.01	60			—	
163	RB238T-60	NZ	—	C9	60	60	40	100	0.86	20	0.012	60			—	
164	RB088T100	NZ	—	C9	110	100	10	100	0.87	5	0.005	100			—	
165	RB218T100	NZ	—	C9	110	100	20	100	0.87	10	0.007	100			—	
166	RB228T100	NZ	—	C9	110	100	30	100	0.87	5	0.005	100			—	
167	RB298T100	NZ	—	C9	110	100	30	100	0.87	15	0.01	100			—	
168	RB238T100	NZ	—	C9	110	100	40	100	0.86	20	0.02	100			—	
169	RB088T150	NZ	—	C9	150	150	10	50	0.88	5	0.015	150			—	
170	RB218T150	NZ	—	C9	150	150	20	100	0.88	10	0.02	150			—	
171	RB228T150	NZ	—	C9	150	150	30	100	0.88	15	0.025	150			—	
172	RB238T150	NZ	—	C9	150	150	40	100	0.87	20	0.03	150			—	

*General Part No. have no grade code.

*1 I_o : Average rectified output current per die. In case of 2 dies, I_o indicates average output current of 2 dies.

*2 Value/Die

Note: () : ROHM Packages.

Fast Recovery Diodes

Quick Reference for Small Signal Type/Middle Power Fast Recovery Diodes

Fast Recovery Diodes
 Example: R F 0 1 V M 2 S F H T E - 1 7
 Part No. Grade Code Taping Code

V _R (V)	I _O (A)	Surface Mount type											
		◆	◆	◆	◆	◆	◆	◆	◆	◆	◆		
		1608 size	2512 size	2514 size		2513 size		3516 size		4725 size		5026 size	2928 size
		SOD-523 (EMD2)	SOD-323FL (UMD2)	SOD-323HE (TUMD2M)	SOD-323HE (TUMD2SM)	(PMDE)		SOD-123FL (PMDU)	SOD-128 (PMDTM)	DO-214AC SMA (PMDS)		SOT-457T (TSMD6)	
100	0.5			RF05VAM1S RF05VYM1S	3 4								
	0.4												
	0.5			RF05VAM2S RF05VYM2S	5 6			RFC02MM2S	11				
	0.7							RF071MM2S	12				
	0.8							RF081MM2S	13				
	1						RFN1VWM2S	9		RF101LAM2S	14	RF101L2S	26
	1.1									RF081LAM2S	15	RF081L2S	27
	2						RFN2VWM2S	10		RF201LAM2S RF202LAM2S	16 17	RF201L2S	28
	3									RF302LAM2S	18		
250	0.1		RF01VM2S	2									
	1									RF071LAM4S RF101LAM4S	19 20	RF071L4S RF101L4S	29 30
	1.5									RF201LAM4S RFN2LAM4S	21 22	RF201L4S RFN2L4S	31 32
450	0.1	RFU01SM4S	1										
	0.2					RFU02VSM6S	7						
	0.8									RFN1LAM6S	23	RFN1L6S	33
	1.5									RFN2LAM6S	24	RFN2L6S	34
700	0.8									RFN1LAM7S	25	RFN1L7S	35
800	0.2					RFU02VSM8S	8						

Note: () : ROHM Packages.

Small Signal/Middle Power Fast Recovery Diodes

Quick Reference No.	Product No.			Absolute Maximum Ratings (T _a =25°C/T _c =25°C/T _r =25°C)				Electrical Characteristics (T _r =25°C)*1				Package	Equivalent Circuit Diagram	Automotive Grade AEC-Q101					
	Part No.	Grade Code	Taping Code	V _{RM} (V)	V _R (V)	I _O (A)	I _{FSM} (A) 60Hz,1°C	V _F (V) Max	I _F (A) Max	I _R (μA) Max	V _R (V) Max	t _{rr} (ns) Max	I _F (A)	I _R (A)					
1	RFU01SM4S		—	T2R	450	450	0.1	1	1.8	0.1	10	450	35	0.1	0.1	SOD-523 (EMD2)	—		
2	RF01VM2S	*	FH	TE-17	250	250	0.1	1	1.2	0.1	10	250	50	*2		SOD-323FL (UMD2)	YES		
3	RF05VAM1S		—	TR	100	100	0.5	6	0.98	0.5	10	100	25	0.5	1	SOD-323HE (TUMD2M)	—		
4	RF05VYM1S		—	FH	TR	100	100	0.5	6	0.98	0.5	10	100	25	0.5	1	SOD-323HE (TUMD2M)	YES	
5	RF05VAM2S	*	—	TR	200	200	0.5	6	0.98	0.5	10	200	25	0.5	1	SOD-323HE (TUMD2M)	—		
6	RF05VYM2S		—	FH	TR	200	200	0.5	6	0.98	0.5	10	200	25	0.5	1	SOD-323HE (TUMD2M)	YES	
7	RFU02VSM6S		—	TR	600	600	0.2	1	2.2	0.2	10	600	35	0.1	0.1	SOD-323HE (TUMD2SM)	—		
8	RFU02VSM8S		—	TR	800	800	0.2	1	3	0.2	10	800	35	0.1	0.1	SOD-323HE (TUMD2SM)	—		
9	RFN1VWM2S		TF	TR	200	200	1	20	0.93	1	1	200	25	0.5	1	(PMDE)	YES		
10	RFN2VWM2S		TF	TR	200	200	2	20	0.99	2	1	200	25	0.5	1	(PMDE)	YES		
11	RFC02MM2S		TF	TR	200	200	0.5	10	0.95	0.5	1	200	35	0.1	0.2	SOD-123FL (PMDU)	YES		
12	RF071MM2S		TF	TR	200	200	0.7	15	0.85	0.7	10	200	25	0.5	1	SOD-123FL (PMDU)	YES		
13	RF081MM2S		TF	TR	200	200	0.8	20	0.95	0.8	10	200	25	0.5	1	SOD-123FL (PMDU)	YES		
14	RF101LAM2S		TF	TR	200	200	1	20	0.87	1	10	200	25	0.5	1	SOD-123FL (PMDU)	YES		
15	RF081LAM2S		TF	TR	200	200	1.1	25	0.98	1	10	200	25	0.5	1	SOD-123FL (PMDU)	YES		
16	RF201LAM2S		TF	TR	200	200	2	20	0.87	2	10	200	25	0.5	1	SOD-123FL (PMDU)	YES		
17	RF202LAM2S		TF	TR	200	200	2	20	0.93	2	10	200	25	0.5	1	SOD-123FL (PMDU)	YES		
18	RF302LAM2S		TF	TR	200	200	3	20	0.92	3	10	200	25	0.5	1	SOD-123FL (PMDU)	YES		
19	RF071LAM4S		TF	TR	400	400	1	15	1.25	0.7	10	400	25	0.5	1	SOD-128 (PMDTM)	YES		
20	RF101LAM4S		TF	TR	400	400	1	25	1.25	1	10	400	25	0.5	1	SOD-128 (PMDTM)	YES		
21	RF201LAM4S		TF	TR	400	400	1.5	50	1.2	1.5	1	400	30	0.5	1	SOD-128 (PMDTM)	YES		
22	RFN2LAM4S		TF	TR	400	400	1.5	50	1.2	1.5	1	400	30	0.5	1	SOD-128 (PMDTM)	YES		
23	RFN1LAM6S		TF	TR	600	600	0.8	15	1.45	0.8	1	600	35	0.5	1	SOD-128 (PMDTM)	YES		
24	RFN2LAM6S		TF	TR	600	600	1.5	40	1.55	1.5	1	600	35	0.5	1	SOD-128 (PMDTM)	YES		
25	RFN1LAM7S		TF	TR	700	700	0.8	15	1.5	0.8	1	700	80	0.5	1	SOD-128 (PMDTM)	YES		
26	RF101L2S		DD	TE25	200	200	1	20	0.87	1	10	200	25	0.5	1	DO-214AC SMA (PMDS)	YES		
27	RF081L2S		TF	TE25	200	200	1.1	25	0.98	1	10	200	25	0.5	1	DO-214AC SMA (PMDS)	YES		
28	RF201L2S		DD	TE25	200	200	2	20	0.87	2	10	200	25	0.5	1	DO-214AC SMA (PMDS)	YES		
29	RF071L4S		TF	TE25	400	400	1	15	1.25	0.7	10	400	25	0.5	1	DO-214AC SMA (PMDS)	YES		
30	RF101L4S		TF	TE25	400	400	1	25	1.25	1	10	400	25	0.5	1	DO-214AC SMA (PMDS)	YES		
31	RF201L4S		DD	TE25	400	400	1.5	50	1.2	1.5	1	400	30	0.5	1	DO-214AC SMA (PMDS)	YES		
32	RFN2L4S		DD	TE25	400	400	1.5	50	1.2	1.5	1	400	30	0.5	1	DO-214AC SMA (PMDS)	YES		
33	RFN1L6S		DD	TE25	600	600	0.8	15	1.45	0.8	1	600	35	0.5	1	DO-214AC SMA (PMDS)	YES		
34	RFN2L6S		DD	TE25	600	600	1.5	40	1.55	1.5	1	600	35	0.5	1	DO-214AC SMA (PMDS)	YES		
35	RFN1L7S		DD	TE25	700	700	0.8	15	1.5	0.8	1	700	80	0.5	1	DO-214AC SMA (PMDS)	YES		
36	RF04UA2D	*	FH	TR	200	200	0.4	1	0.98	0.2	10	200	25	0.5	1	SOT-457T (TSMD6)	YES		

*General Part No. have no grade code.

*1 Value/Chip *2 V_R=6V, I_O=10mA, Irr=0.1×I_R

Note: () : ROHM Packages.

Fast Recovery Diodes

Quick Reference for Power Fast Recovery Diodes

V _R (V)	I _o (A)	Surface Mount type			Through Hole type						
											
		TO-252AA D-PAK (TO-252GE)	TO-252AA D-PAK (TO-252M)	TO-263AB D2PAK (TO-263S)	TO-220AB (TO-220FN) <2pin>	TO-220AB (TO-220FN) <3pin>	TO-220AB (TO-220NFM)	TO-220AC (TO-220AC)	TO-220AC (TO-220ACFP)	TO-247-2L (TO-247GE-2L)	
200	3	RF301BGE2S RFN3BGE2S	19 20	RF301BM2S RFN3BM2S	34 35						
	5	RF501BGE2S RFN5BGE2S	21 22	RF501BM2S RFN5BM2S	36 37						
	6	RF601BGE2D RFN6BGE2D	1 2	RF601BM2D RFN6BM2D	3 4		RF601T2D RFN6T2D	10 11			
	10			RF1001NS2D	5		RF1001T2D RFN10T2D	12 13			
	16			RF1601NS2D	6		RF1601T2D RFN16T2D	14 15			
	20			RF2001NS2D	7		RF2001T2D RFN20T2D	16 17			
300	20			RF2001NS3D	8		RF2001T3D	18	RF1501TF3S	67	
350	5	RFN5BGE3S	23	RFN5BM3S	38						
	10	RFN10BGE3S	32	RFN10BM3S	47	RFN10NS3S	49				
	20					RFN20NS3S RFUH25NS3S RFUH20NS3S	50 51 52	RFUH25TB3S RFUH20TB3S	61 62		
430	10					RFN10NS4S RFUH10NS4S	53 54	RFN10TB4S RFUH10TB4S	63 64		
	20					RFN20NS4S RFUH20NS4S	55 56	RFN20TB4S RFUH20TB4S	65 66		
600	3	RFN3BGE6S RF305BGE6S	24 25	RFN3BM6S RF305BM6S	39 40						
	5	RFNL5BGE6S RFN5BGE6S RF505BGE6S RFV5BGE6S	26 27 28 29	RFNL5BM6S RFN5BM6S RF505BM6S RFV5BM6S	41 42 43 44		RFN5TF6S RF505TF6S RFUH5TF6S	68 69 70		RFNL5TJ6S	
	8	RFV8BGE6S	30	RFV8BM6S	45				RFVS8TG6S RFV8TG6S	77 78	
	10	RFNL10BGE6S RFN10BGE6S	31 33	RFNL10BM6S RFN10BM6S	46 48	RFN10NS6S RFUH10NS6S	57 58	RFN10TF6S RF1005TF6S RFUH10TF6S	71 72 73	RFNL10TJ6S	
	12								RFV12TG6S	79	
	15								RFV15TG6S	80	
	20					RFN20NS6S RFUH20NS6S	59 60	RFN20TF6S RFUH20TF6S	74 75	RFNL20TJ6S RFN20TJ6S RFUH20TJ6S	
	30								RFV30TG6S	81	
650	30									RFL30TZ6S RFS30TZ6S	
	60									RFL60TZ6S RFS60TZ6S	
800	5						RFN5TF8S	76			
	10					RFN10NS8D	9				

Note: () : ROHM Packages.

Fast Recovery Diodes

Fast Recovery Diodes
 Example: R F 6 0 1 B M 2 D F H T L
 Part No. Grade Code Taping Code

Power Fast Recovery Diodes 1

Quick Reference No.	Product No.			Absolute Maximum Ratings ($T_c=25^\circ C$)				Electrical Characteristics ($T_j=25^\circ C$) ^{*2}						Package	Equivalent Circuit Diagram	Automotive Grade AEC-Q101			
	Part No.	Grade Code	Taping Code	V_{RM} (V)	V_R (V)	I_o^{*1} (A)	I_{FSM} (A) 60Hz,1~	V_F (V) Max	I_F (A)	I_R (μA) Max	V_R (V) Max	t_{rr} (ns)	I_F (A)	I_R (A)					
		General	Code																
1	RF601BGE2D	*	TL	200	200	6	60	0.93	3	10	200	25	0.5	1	TO-252AA D-PAK (TO-252GE)		—		
2	RFN6BGE2D	—	TL	200	200	6	40	0.98	3	10	200	25	0.5	1	TO-252AA D-PAK (TO-252M)		—		
3	RF601BM2D	—	FH	TL	200	200	6	60	0.93	3	10	200	25	0.5	1	TO-252AA D-PAK (TO-252M)		YES	
4	RFN6BM2D	—	FH	TL	200	200	6	40	0.98	3	10	200	25	0.5	1	TO-252AA D-PAK (TO-252M)		YES	
5	RF1001NS2D	*	FH	TL	200	200	10	80	0.93	5	10	200	25	0.5	1	TO-263AB D2PAK (TO-263S)		YES	
6	RF1601NS2D	*	FH	TL	200	200	16	100	0.93	8	10	200	30	0.5	1	TO-263AB D2PAK (TO-263S)		YES	
7	RF2001NS2D	*	FH	TL	200	200	20	100	0.93	10	10	200	30	0.5	1	TO-263AB D2PAK (TO-263S)		YES	
8	RF2001NS3D	*	FH	TL	350	300	20	100	1.3	10	10	300	25	0.5	1	TO-263AB D2PAK (TO-263S)		YES	
9	RFN10NS8D	*	FH	TL	800	800	10	60	2.1	5	10	800	40	0.5	1	TO-263AB D2PAK (TO-263S)		YES	
10	RF601T2D	NZ	—	C9	200	200	6	60	0.93	3	10	200	25	0.5	1	TO-220AB (TO-220FN) <3pin>		—	
11	RFN6T2D	NZ	—	C9	200	200	6	40	0.98	3	10	200	25	0.5	1	TO-220AB (TO-220FN) <3pin>		—	
12	RF1001T2D	NZ	—	C9	200	200	10	80	0.93	5	10	200	30	0.5	1	TO-220AB (TO-220FN) <3pin>		—	
13	RFN10T2D	NZ	—	C9	200	200	10	80	0.98	5	10	200	25	0.5	1	TO-220AB (TO-220FN) <3pin>		—	
14	RF1601T2D	NZ	—	C9	200	200	16	100	0.93	8	10	200	30	0.5	1	TO-220AB (TO-220FN) <3pin>		—	
15	RFN16T2D	NZ	—	C9	200	200	16	100	0.98	8	10	200	30	0.5	1	TO-220AB (TO-220FN) <3pin>		—	
16	RF2001T2D	NZ	—	C9	200	200	20	100	0.93	10	10	200	30	0.5	1	TO-220AB (TO-220FN) <3pin>		—	
17	RFN20T2D	NZ	—	C9	200	200	20	100	0.98	10	10	200	30	0.5	1	TO-220AB (TO-220FN) <3pin>		—	
18	RF2001T3D	NZ	—	C9	350	300	20	100	1.3	10	10	300	25	0.5	1	TO-220AB (TO-220FN) <3pin>		—	
19	RF301BGE2S	*	—	TL	200	200	3	40	0.93	3	10	200	25	0.5	1	TO-252AA D-PAK (TO-252GE)		—	
20	RFN3BGE2S	*	—	TL	200	200	3	40	0.98	3	10	200	25	0.5	1	TO-252AA D-PAK (TO-252GE)		—	
21	RF501BGE2S	*	—	TL	200	200	5	40	0.92	5	1	200	25	0.5	1	TO-252AA D-PAK (TO-252GE)		—	
22	RFN5BGE2S	*	—	TL	200	200	5	40	0.98	5	10	200	25	0.5	1	TO-252AA D-PAK (TO-252GE)		—	
23	RFN5BGE3S	*	—	TL	350	350	5	50	1.5	5	10	350	30	0.5	1	TO-252AA D-PAK (TO-252GE)		—	
24	RFN3BGE6S	*	—	TL	600	600	3	20	1.55	3	10	600	30	0.5	1	TO-252AA D-PAK (TO-252GE)		—	
25	RF305BGE6S	*	—	TL	600	600	3	50	1.7	3	10	600	30	0.5	1	TO-252AA D-PAK (TO-252GE)		—	
26	RFNL5BGE6S	*	—	TL	600	600	5	50	1.3	5	10	600	60	0.5	1	TO-252AA D-PAK (TO-252GE)		—	
27	RFN5BGE6S	*	—	TL	600	600	5	30	1.55	5	10	600	50	0.5	1	TO-252AA D-PAK (TO-252GE)		—	
28	RF505BGE6S	*	—	TL	600	600	5	50	1.7	5	10	600	30	0.5	1	TO-252AA D-PAK (TO-252GE)		—	
29	RFV5BGE6S	*	—	TL	600	600	5	60	2.8	5	10	600	20	0.5	1	TO-252AA D-PAK (TO-252GE)		—	
30	RFV8BGE6S	*	—	TL	600	600	8	100	2.8	8	10	600	25	0.5	1	TO-252AA D-PAK (TO-252GE)		—	
31	RFNL10BGE6S	*	—	TL	600	600	10	100	1.25	8	10	600	65	0.5	1	TO-252AA D-PAK (TO-252GE)		—	
32	RFN10BGE3S	*	—	TL	350	350	10	80	1.5	10	10	350	30	0.5	1	TO-252AA D-PAK (TO-252M)		—	
33	RFN10BGE6S	*	—	TL	600	600	10	100	1.55	10	10	600	50	0.5	1	TO-252AA D-PAK (TO-252M)		—	
34	RF301BM2S	*	—	FH	TL	200	200	3	40	0.93	3	10	200	25	0.5	1	TO-252AA D-PAK (TO-252M)		YES
35	RFN3BM2S	*	—	FH	TL	200	200	3	40	0.98	3	10	200	25	0.5	1	TO-252AA D-PAK (TO-252M)		YES
36	RF501BM2S	*	—	FH	TL	200	200	5	40	0.92	5	1	200	25	0.5	1	TO-252AA D-PAK (TO-252M)		YES
37	RFN5BM2S	*	—	FH	TL	200	200	5	40	0.98	5	10	200	25	0.5	1	TO-252AA D-PAK (TO-252M)		YES
38	RFN5BM3S	*	—	FH	TL	350	350	5	50	1.5	5	10	350	30	0.5	1	TO-252AA D-PAK (TO-252M)		YES
39	RFN3BM6S	*	—	FH	TL	600	600	3	20	1.55	3	10	600	30	0.5	1	TO-252AA D-PAK (TO-252M)		YES
40	RF305BM6S	*	—	FH	TL	600	600	3	50	1.7	3	10	600	30	0.5	1	TO-252AA D-PAK (TO-252M)		YES
41	RFNL5BM6S	*	—	FH	TL	600	600	5	50	1.3	5	10	600	60	0.5	1	TO-252AA D-PAK (TO-252M)		YES
42	RFN5BM6S	*	—	FH	TL	600	600	5	30	1.55	5	10	600	50	0.5	1	TO-252AA D-PAK (TO-252M)		YES
43	RF505BM6S	*	—	FH	TL	600	600	5	50	1.7	5	10	600	30	0.5	1	TO-252AA D-PAK (TO-252M)		YES
44	RFV5BM6S	*	—	FH	TL	600	600	5	60	2.8	5	10	600	20	0.5	1	TO-252AA D-PAK (TO-252M)		YES
45	RFV8BM6S	*	—	FH	TL	600	600	8	100	2.8	8	10	600	25	0.5	1	TO-252AA D-PAK (TO-252M)		YES
46	RFNL10BM6S	*	—	FH	TL	600	600	10	100	1.25	8	10	600	65	0.5	1	TO-252AA D-PAK (TO-252M)		YES
47	RFN10BM3S	*	—	FH	TL	350	350	10	80	1.5	10	10	350	30	0.5	1	TO-252AA D-PAK (TO-252M)		YES
48	RFN10BM6S	*	—	FH	TL	600	600	10	100	1.55	10	10	600	50	0.5	1	TO-252AA D-PAK (TO-252M)		YES
49	RFN10NS3S	*	—	FH	TL	350	350	10	100	1.5	10	10	350	30	0.5	1	TO-263AB D2PAK (TO-263S)		YES
50																			

Fast Recovery Diodes
Example: R F U H 2 5 T B 3 S N Z C 9
Part No. Grade Code Taping Code

Power Fast Recovery Diodes 2

Quick Reference No.	Product No.			Absolute Maximum Ratings ($T_c=25^\circ\text{C}$)						Electrical Characteristics ($T_j=25^\circ\text{C}$)						Package	Equivalent Circuit Diagram	Automotive Grade AEC-Q101		
	Part No.	Grade Code		Taping Code	V_{RM} (V)	V_R (V)	I_o (A)	I_{F50M} (A) 60Hz,1 ω	V_F (V) Max	I_F (A)	I_R (μA) Max	V_R (V)	t_{rr} (ns) Max	I_F (A)	I_R (A)					
		General	Automotive																	
61	RFUH25TB3S	NZ	—	C9	350	350	20	100	1.45	20	10	350	30	0.5	1	TO-220AB (TO-220FN) <2pin>	TO-220AB (TO-220NFM)	—		
62	RFUH20TB3S	NZ	—	C9	350	350	20	100	1.5	20	10	350	25	0.5	1			—		
63	RFN10TB4S	NZ	—	C9	430	430	10	80	1.7	10	10	430	25	0.5	1			—		
64	RFUH10TB4S	NZ	—	C9	430	430	10	80	1.55	10	10	430	30	0.5	1			—		
65	RFN20TB4S	NZ	—	C9	430	430	20	100	1.55	20	10	430	30	0.5	1			—		
66	RFUH20TB4S	NZ	—	C9	430	430	20	100	1.7	20	10	430	25	0.5	1			—		
67	RF1501TF3S	*	FH	C9	350	300	20	100	1.5	20	10	300	30	0.5	1	TO-220AC (TO-220AC)	TO-220AC (TO-220ACFP)	YES		
68	RFN5TF6S		FH	C9	600	600	5	30	1.55	5	10	600	50	0.5	1			YES		
69	RF505TF6S		FH	C9	600	600	5	80	1.7	5	10	600	30	0.5	1			YES		
70	RFUH5TF6S		FH	C9	600	600	5	30	2.8	5	10	600	25	0.5	1			YES		
71	RFN10TF6S		FH	C9	600	600	10	100	1.55	10	10	600	50	0.5	1			YES		
72	RF1005TF6S		FH	C9	600	600	10	100	1.7	10	10	600	40	0.5	1			YES		
73	RFUH10TF6S		FH	C9	600	600	10	60	2.8	10	10	600	25	0.5	1			YES		
74	RFN20TF6S		FH	C9	600	600	20	100	1.55	20	10	600	60	0.5	1			YES		
75	RFUH20TF6S		FH	C9	600	600	20	100	2.8	20	10	600	35	0.5	1			YES		
76	RFN5TF8S		FH	C9	800	800	5	60	2.1	5	10	800	40	0.5	1			YES		
77	RFVS8TG6S	G	—	C9	600	600	8	60	3	8	10	600	20	0.5	1	TO-247-2L (TO-247GE-2L)	TO-247-2L (TO-247GE-2L)	—		
78	RFV8TG6S	G	—	C9	600	600	8	100	2.8	8	10	600	25	0.5	1			—		
79	RFV12TG6S	G	—	C9	600	600	12	120	2.8	12	10	600	25	0.5	1			—		
80	RFV15TG6S	G	—	C9	600	600	15	150	2.8	15	10	600	30	0.5	1			—		
81	RFV30TG6S	G	—	C9	600	600	30	200	2.8	30	10	600	40	0.5	1			—		
82	RFNL5TJ6S	G	FHG	C9	600	600	5	50	1.3	5	10	600	60	0.5	1			YES		
83	RFVS8TJ6S	G	—	C9	600	600	8	60	3	8	10	600	20	0.5	1			—		
84	RFV8TJ6S	G	—	C9	600	600	8	100	2.8	8	10	600	25	0.5	1			—		
85	RFNL10TJ6S	G	FHG	C9	600	600	10	120	1.25	8	10	600	65	0.5	1			YES		
86	RFV12TJ6S	G	—	C9	600	600	12	120	2.8	12	10	600	25	0.5	1			—		
87	RFNL15TJ6S	G	FHG	C9	600	600	15	160	1.3	15	10	600	65	0.5	1	TO-247-2L (TO-247GE-2L)	TO-247-2L (TO-247GE-2L)	YES		
88	RFV15TJ6S	G	—	C9	600	600	15	150	2.8	15	10	600	30	0.5	1			—		
89	RFNL20TJ6S	G	FHG	C9	600	600	20	200	1.3	20	10	600	70	0.5	1			YES		
90	RFN20TJ6S	G	FHG	C9	600	600	20	150	1.55	20	10	600	60	0.5	1			YES		
91	RFUH20TJ6S	G	FHG	C9	600	600	20	120	2.8	20	10	600	35	0.5	1			YES		
92	RFL30TZ6S	G	—	C13	650	650	30	200	1.5	30	5	650	55	0.5	1			—		
93	RFS30TZ6S	G	—	C13	650	650	30	160	2.3	30	5	650	35	0.5	1			—		
94	RFL60TZ6S	G	—	C13	650	650	60	320	1.5	60	10	650	75	0.5	1			—		
95	RFS60TZ6S	G	—	C13	650	650	60	250	2.3	60	10	650	55	0.5	1			—		

*General Part No. have no grade code.
Note: () : ROHM Packages.

Rectifier Diodes

●Quick Reference for Rectifier Diodes

Rectifier Diodes
Example: R | R | E | 0 | 7 | V | T | M | 4 | S | F | H | T | R
Part No. Grade Code Taping Code

			Surface Mount type									
			2514 size									
												
General Purpose Rectifier Diodes	400	0.2	RRE02VSM4S RRE02VTM4S					1				
		0.7	RRE07VSM4S RRE07VTM4S					2				
	600	0.2	RRE02VSM6S RRE02VTM6S					3				
		0.7	RRE07VSM6S RRE07VTM6S					4				
Power Rectifier Diodes	400	6							RR601BM4S			
	1,000	20										

Note: () : ROHM Packages.

General Purpose Rectifier Diodes

Quick Reference No.	Product No.			Absolute Maximum Ratings ($T_a=25^\circ\text{C}/T_c=25^\circ\text{C}/T_i=25^\circ\text{C}$)				Electrical Characteristics ($T_i=25^\circ\text{C}$)					Package	Equivalent Circuit Diagram	Automotive Grade AEC-Q101		
	Part No.	Grade Code	Taping Code	V_{RM} (V)	V_R (V)	I_o (A)	I_{FSM} (A) 60Hz,1 \sim	V_F (V) Max	I_F (A)	I_R (μA) Max	V_R (V)	t_{rr} (ns) Max	I_F (mA)	I_R (mA)			
1	RRE02VSM4S	*	—	TR	400	400	0.2	1	1.1	0.2	1	400	—	—	SOD-323HE (TUMD2SM)		—
2	RRE02VTM4S	—	FH	TR	400	400	0.2	1	1.1	0.2	1	400	—	—			YES
3	RRE07VSM4S	*	—	TR	400	400	0.7	2	1.1	0.7	1	400	—	—			—
4	RRE07VTM4S	—	FH	TR	400	400	0.7	2	1.1	0.7	1	400	—	—			YES
5	RRE02VSM6S	*	—	TR	600	600	0.2	1	1.1	0.2	1	600	—	—			—
6	RRE02VTM6S	—	FH	TR	600	600	0.2	1	1.1	0.2	1	600	—	—			YES
7	RRE07VSM6S	*	—	TR	600	600	0.7	2	1.1	0.7	1	600	—	—			—
8	RRE07VTM6S	—	FH	TR	600	600	0.7	2	1.1	0.7	1	600	—	—			YES

Power Rectifier Diodes

Quick Reference No.	Product No.			Absolute Maximum Ratings ($T_a=25^\circ\text{C}/T_c=25^\circ\text{C}/T_i=25^\circ\text{C}$)				Electrical Characteristics ($T_i=25^\circ\text{C}$)					Package	Equivalent Circuit Diagram	Automotive Grade AEC-Q101		
	Part No.	Grade Code	Taping Code	V_{RM} (V)	V_R (V)	I_o (A)	I_{FSM} (A) 60Hz,1 \sim	V_F (V) Max	I_F (A)	I_R (μA) Max	V_R (V)	t_{rr} (ns) Max	I_F (mA)	I_R (mA)			
9	RR601BM4S	—	FH	TL	400	400	6	40	1.1	6	10	400	—	—	TO-252AA D-PAK (TO-252M)		YES

*General Part No. have no grade code.

Note: () : ROHM Packages.

Zener Diodes

Zener Diodes
 Example: E D Z V F H T 2 R 3 . 6 B
 Part No. Grade Code Taping Code Zener Voltage Sub Division

Zener Diodes 1

Package	Surface Mount type											
	0603 size DSN0603-2 (SMD0603)			1006 size SOD-923 (VMN2M)			1608 size SOD-523 (EMD2)			2512 size SOD-323FL (UMD2)		
Equivalent Circuit Diagram												
Series Name	ADZ series			CDZV series			EDZV series			UFZV series		
Automotive Grade Code	—			—			FH			FH		
Power (mW)	100			100			150			500		
Taping Code	T15R			T2R			T2R			TE-17		
Electrical Characteristics ($T_a=25^\circ C$)	V_z (V)	I_z (mA)	Automotive Grade AEC-Q101	V_z (V)	I_z (mA)	Automotive Grade AEC-Q101	V_z (V)	I_z (mA)	Automotive Grade AEC-Q101	V_z (V)	I_z (mA)	Automotive Grade AEC-Q101
Voltage	—	—	—	2.0B	2.02 to 2.20	5	—	2.0B	2.02 to 2.20	5	—	—
	—	—	—	2.2B	2.22 to 2.41	5	—	2.2B	2.22 to 2.41	5	—	—
	—	—	—	2.4B	2.43 to 2.63	5	—	2.4B	2.43 to 2.63	5	—	—
	—	—	—	2.7B	2.69 to 2.91	5	—	2.7B	2.69 to 2.91	5	—	—
	—	—	—	3.0B	3.01 to 3.22	5	—	3.0B	3.01 to 3.22	5	—	—
	—	—	—	3.3B	3.32 to 3.53	5	—	3.3B	3.32 to 3.53	5	—	—
	—	—	—	3.6B	3.600 to 3.845	5	—	3.6B	3.600 to 3.845	5	YES	3.6B
	—	—	—	3.9B	3.89 to 4.16	5	—	3.9B	3.89 to 4.16	5	YES	3.9B
	—	—	—	4.3B	4.17 to 4.43	5	—	4.3B	4.17 to 4.43	5	YES	4.3B
	—	—	—	4.7B	4.55 to 4.75	5	—	4.7B	4.55 to 4.75	5	YES	4.7B
	5.1B	4.975 to 5.230	5	5.1B	4.98 to 5.20	5	—	5.1B	4.98 to 5.20	5	YES	5.1B
	5.6B	5.510 to 5.800	5	5.6B	5.49 to 5.73	5	—	5.6B	5.49 to 5.73	5	YES	5.6B
	6.2B	6.020 to 6.335	5	6.2B	6.06 to 6.33	5	—	6.2B	6.06 to 6.33	5	YES	6.2B
	6.8B	6.670 to 7.015	5	6.8B	6.65 to 6.93	5	—	6.8B	6.65 to 6.93	5	YES	6.8B
	7.5B	7.330 to 7.710	5	7.5B	7.28 to 7.60	5	—	7.5B	7.28 to 7.60	5	YES	7.5B
	8.2B	8.000 to 8.400	5	8.2B	8.02 to 8.36	5	—	8.2B	8.02 to 8.36	5	YES	8.2B
	—	—	—	9.1B	8.85 to 9.23	5	—	9.1B	8.85 to 9.23	5	YES	9.1B
	—	—	—	10B	9.77 to 10.21	5	—	10B	9.77 to 10.21	5	YES	10B
	—	—	—	11B	10.76 to 11.22	5	—	11B	10.76 to 11.22	5	YES	11B
	—	—	—	12B	11.74 to 12.24	5	—	12B	11.74 to 12.24	5	YES	12B
	—	—	—	13B	12.91 to 13.49	5	—	13B	12.91 to 13.49	5	YES	13B
	—	—	—	15B	14.34 to 14.98	5	—	15B	14.34 to 14.98	5	YES	15B
	—	—	—	16B	15.85 to 16.51	5	—	16B	15.85 to 16.51	5	YES	16B
	—	—	—	18B	17.56 to 18.35	2	—	18B	17.56 to 18.35	5	YES	18B
	—	—	—	20B	19.52 to 20.39	2	—	20B	19.52 to 20.39	5	YES	20B
	—	—	—	22B	21.54 to 22.47	2	—	22B	21.54 to 22.47	5	YES	22B
	—	—	—	24B	23.72 to 24.78	2	—	24B	23.72 to 24.78	5	YES	24B
	—	—	—	27B	26.19 to 27.53	2	—	27B	26.19 to 27.53	2	YES	27B
	—	—	—	30B	29.19 to 30.69	2	—	30B	29.19 to 30.69	2	YES	30B
	—	—	—	33B	32.15 to 33.79	2	—	33B	32.15 to 33.79	2	YES	33B
	—	—	—	36B	35.07 to 36.87	2	—	36B	35.07 to 36.87	2	YES	36B
	—	—	—	—	—	—	—	—	—	—	—	39B
	—	—	—	—	—	—	—	—	—	—	—	35.880 to 37.790
	—	—	—	—	—	—	—	—	—	—	—	5 YES

Package	Surface Mount type											
	2512 size SOD-323FL (UMD2)			2512 size SOD-323FL (UMD2)			2514 size SOD-323HE (TUMD2M)			2514 size SOD-323HE (TUMD2M)		
Equivalent Circuit Diagram												
Series Name	UDZV series			UDZLV series			TFZV series			YFZV series		
Automotive Grade Code	FH			FH			—			FH		
Power (mW)	200			200			500			500		
Taping Code	TE-17			TE-17			TR			TR		
Electrical Characteristics ($T_a=25^\circ C$)	V_z (V)	I_z (mA)	Automotive Grade AEC-Q101	V_z (V)	I_z (mA)	Automotive Grade AEC-Q101	V_z (V)	I_z (mA)	Automotive Grade AEC-Q101	V_z (V)	I_z (mA)	Automotive Grade AEC-Q101
Voltage	2.0B	2.02 to 2.20	5	YES	51	48 to 54	2	YES	2.0B	2.02 to 2.20	20	—
	2.2B	2.22 to 2.41	5	YES	56	53 to 60	2	YES	2.2B	2.22 to 2.41	20	—
	2.4B	2.43 to 2.63	5	YES	62	58 to 66	2	YES	2.4B	2.43 to 2.63	20	—
	2.7B	2.69 to 2.91	5	YES	68	64 to 72	2	YES	2.7B	2.69 to 2.91	20	—
	3.0B	3.01 to 3.22	5	YES	75	70 to 79	2	YES	3.0B	3.01 to 3.22	20	YES
	3.3B	3.32 to 3.53	5	YES	82	77 to 87	2	YES	3.3B	3.32 to 3.53	20	YES
	3.6B	3.600 to 3.845	5	YES	91	85 to 96	1	YES	3.6B	3.600 to 3.845	20	YES
	3.9B	3.89 to 4.16	5	YES	100	94 to 106	1	YES	3.9B	3.89 to 4.16	20	YES
	4.3B	4.17 to 4.43	5	YES	110	104 to 116	1	YES	4.3B	4.17 to 4.43	20	YES
	4.7B	4.55 to 4.75	5	YES	120	114 to 126	1	YES	4.7B	4.55 to 4.80	20	YES
	5.1B	4.98 to 5.20	5	YES	130	122 to 138	1	—	5.1B	4.94 to 5.20	20	YES
	5.6B	5.49 to 5.73	5	YES	150	140 to 160	1	—	5.6B	5.45 to 5.73	20	YES
	6.2B	6.06 to 6.33	5	YES	—	—	—	—	6.2B	5.96 to 6.27	20	YES
	6.8B	6.65 to 6.93	5	YES	—	—	—	—	6.8B	6.49 to 6.83	20	YES
	7.5B	7.28 to 7.60	5	YES	—	—	—	—	7.5B	7.07 to 7.45	20	YES
	8.2B	8.02 to 8.36	5	YES	—	—	—	—	8.2B	7.78 to 8.19	20	YES
	9.1B	8.85 to 9.23	5	YES	—	—	—	—	9.1B	8.57 to 9.01	20	YES
	10B	9.77 to 10.21	5	YES	—	—	—	—	10B	9.41 to 9.90	20	YES
	11B	10.76 to 11.22	5	YES	—	—	—	—	11B	10.50 to 11.05	10	YES
	12B	11.74 to 12.24	5	YES	—	—	—	—	12B	11.44 to 12.03	10	YES
	13B	12.91 to 13.49	5	YES	—	—	—	—	13B	12.55 to 13.21	10	YES
	15B	14.34 to 14.98	5	YES	—	—	—	—	15B	13.89 to 14.62	10	YES
	16B	15.85 to 16.51	5	YES	—	—	—	—	16B	15.25 to 16.04	10	YES
	18B	17.56 to 18.35	5	YES	—	—	—	—	18B	16.82 to 17.70	10	YES
	20B	19.52 to 20.39	5	YES	—	—	—	—	20B	18.63 to 19.59	10	YES
	22B	21.54 to 22.47	5	YES	—	—	—	—	22B	20.64 to 21.71	5	YES
	24B	23.72 to 24.78	5	YES	—	—	—	—	24B	22.61 to 23.77	5	YES
	27B	26.19 to 27.53	5	YES	—	—	—	—	27B	24.97 to 26.26	5	YES
	30B	29.19 to 30.69	5	YES	—	—	—	—	30B	27.70 to 29.13	5	YES
	33B	32.15 to 33.79	5	YES	—	—	—	—	33B	30.32 to 31.88	5	—
	36B	35.07 to 36.87	5	YES	—	—	—	—	36B	32.79 to 34.49	5	—
	39B	38.02 to 39.98	2	YES	—	—	—	—	39B	35.36 to 37.19	5	—
	43	40.00 to 45.00	2	YES	—	—	—					

Zener Diodes

Zener Diodes
 Example: Y D Z V F H T R 1 3
 Part No. Grade Code Taping Code Zener Voltage

Zener Diodes 2

Package	Surface Mount type												
	2514 size SOD-323HE (TUMD2M)			2514 size SOD-323HE (TUMD2M)			2924 size SOT-23 (SSD3)			2924 size SOT-23 (SSD3)			
Equivalent Circuit Diagram													
Series Name	TDZV series			YDZV series			BZX84BxxLY series			BZX84CxxLY series			
Automotive Grade Code	—			FH			FH			FH			
Power (mW)	500			500			250			250			
Taping Code	TR			TR			T116			T116			
Electrical Characteristics (T _a =25°C)	V _z (V)	I _z (mA)	Automotive Grade AEC-Q101	V _z (V)	I _z (mA)	Automotive Grade AEC-Q101	V _z (V)	I _z (mA)	Automotive Grade AEC-Q101	V _z (V)	I _z (mA)	Automotive Grade AEC-Q101	
Voltage	—	—	—	—	—	—	—	—	—	2V4	2.20 to 2.60	5 YES	
	—	—	—	—	—	—	—	—	—	2V7	2.50 to 2.90	5 YES	
	—	—	—	—	—	—	—	—	—	3V0	2.80 to 3.20	5 YES	
	—	—	—	—	—	—	—	—	—	3V3	3.10 to 3.50	5 YES	
	—	—	—	—	—	—	—	—	—	3V6	3.40 to 3.80	5 YES	
	—	—	—	—	—	—	—	—	—	3V9	3.70 to 4.10	5 YES	
	—	—	—	—	—	—	—	—	—	4V3	4.00 to 4.60	5 YES	
	—	—	—	—	—	—	—	—	—	4V7	4.40 to 5.00	5 YES	
	5.1	4.60 to 5.60	10	—	—	—	5V1	5.00 to 5.20	5 YES	5V1	4.80 to 5.40	5 YES	
	5.6	5.10 to 6.10	10	—	—	—	5V6	5.49 to 5.71	5 YES	5V6	5.20 to 6.00	5 YES	
	6.2	5.60 to 6.80	10	—	—	—	6V2	6.08 to 6.32	5 YES	6V2	5.80 to 6.60	5 YES	
	6.8	6.20 to 7.40	10	—	—	—	6V8	6.66 to 6.94	5 YES	6V8	6.40 to 7.20	5 YES	
	7.5	6.80 to 8.30	10	—	—	—	7V5	7.35 to 7.65	5 YES	7V5	7.00 to 7.90	5 YES	
	8.2	7.40 to 9.00	10	—	—	—	8V2	8.04 to 8.36	5 YES	8V2	7.70 to 8.70	5 YES	
	9.1	8.20 to 10.00	10	—	—	—	9V1	8.92 to 9.28	5 YES	9V1	8.50 to 9.60	5 YES	
	10	9.00 to 11.00	10	—	—	—	10V	9.80 to 10.20	5 YES	10V	9.40 to 10.60	5 YES	
	11	9.90 to 12.10	10	—	—	—	11V	10.80 to 11.20	5 YES	11V	10.40 to 11.60	5 YES	
	12	10.80 to 13.20	10	—	—	—	12V	11.80 to 12.20	5 YES	12V	11.40 to 12.70	5 YES	
	13	11.70 to 14.30	10	13	11.70 to 14.30	10	YES	13V	12.70 to 13.30	5 YES	13V	12.40 to 14.10	5 YES
	15	13.50 to 16.50	10	15	13.50 to 16.50	10	YES	15V	14.70 to 15.30	5 YES	15V	13.80 to 15.60	5 YES
	16	14.40 to 17.60	10	16	14.40 to 17.60	10	YES	16V	15.70 to 16.30	5 YES	16V	15.30 to 17.10	5 YES
	18	16.20 to 19.80	10	18	16.20 to 19.80	10	YES	18V	17.60 to 18.40	5 YES	18V	16.80 to 19.10	5 YES
	20	18.00 to 22.00	10	20	18.00 to 22.00	10	YES	20V	19.60 to 20.40	5 YES	20V	18.80 to 21.20	5 YES
	22	19.80 to 24.20	10	22	19.80 to 24.20	10	YES	22V	21.60 to 22.40	5 YES	22V	20.80 to 23.30	5 YES
	24	21.60 to 26.40	10	24	21.60 to 26.40	10	YES	24V	23.50 to 24.50	5 YES	24V	22.80 to 25.60	5 YES
	27	24.30 to 29.70	10	27	24.30 to 29.70	10	YES	27V	26.50 to 27.50	2 YES	27V	25.10 to 28.90	2 YES
	30	27.00 to 33.00	10	—	—	—	30V	29.40 to 30.60	2 YES	30V	28.00 to 32.00	2 YES	
	—	—	—	—	—	—	33V	32.30 to 33.70	2 YES	33V	31.00 to 35.00	2 YES	
	—	—	—	—	—	—	36V	35.30 to 36.70	2 YES	36V	34.00 to 38.00	2 YES	
Package	Surface Mount type												
													
Voltage	3516 size SOD-123FL (PMDU)			3516 size SOD-123FL (PMDU)			4725 size SOD-128 (PMDTM)			5026 size DO-214AC SMA (PMDS)			
	—	—	—	—	—	—	—	—	—	—	—	—	
	—	—	—	—	—	—	—	—	—	—	—	—	
	—	—	—	—	—	—	—	—	—	—	—	—	
	—	—	—	—	—	—	—	—	—	—	—	—	
	—	—	—	—	—	—	—	—	—	—	—	—	
	—	—	—	—	—	—	—	—	—	—	—	—	
	—	—	—	—	—	—	—	—	—	—	—	—	
	—	—	—	—	—	—	—	—	—	—	—	—	
	—	—	—	—	—	—	—	—	—	—	—	—	
Voltage	2.0B	2.00 to 2.24	40	YES	51	48 to 54	2	YES	2.0B	2.00 to 2.24	40	YES	
	2.2B	2.20 to 2.45	40	YES	56	53 to 60	2	YES	2.2B	2.20 to 2.45	40	YES	
	2.4B	2.40 to 2.70	40	YES	62	58 to 66	2	YES	2.4B	2.40 to 2.70	40	YES	
	2.7B	2.70 to 3.10	40	YES	68	64 to 72	2	YES	2.7B	2.70 to 3.10	40	YES	
	3.0B	3.00 to 3.40	40	YES	75	70 to 79	2	YES	3.0B	3.00 to 3.40	40	YES	
	3.3B	3.30 to 3.70	40	YES	82	77 to 87	2	YES	3.3B	3.30 to 3.70	40	YES	
	3.6B	3.60 to 4.00	40	YES	91	85 to 96	2	YES	3.6B	3.60 to 4.00	40	YES	
	3.9B	3.90 to 4.40	40	YES	100	94 to 106	2	YES	3.9B	3.90 to 4.40	40	YES	
	4.3B	4.30 to 4.80	40	YES	110	104 to 116	2	YES	4.3B	4.30 to 4.80	40	YES	
	4.7B	4.70 to 5.20	40	YES	120	114 to 126	2	YES	4.7B	4.70 to 5.20	40	YES	
	5.1B	5.10 to 5.70	40	YES	130	122 to 138	2	YES	5.1B	5.10 to 5.70	40	YES	
	5.6B	5.60 to 6.30	40	YES	150	140 to 160	2	YES	5.6B	5.60 to 6.30	40	YES	
	6.2B	6.20 to 7.00	40	YES	—	—	—	—	—	6.2B	6.20 to 7.00	40	YES
	6.8B	6.80 to 7.70	40	YES	—	—	—	—	—	6.8B	6.80 to 7.70	40	YES
	7.5B	7.50 to 8.40	40	YES	—	—	—	—	—	7.5B	7.50 to 8.40	40	YES
	8.2B	8.20 to 9.30	40	YES	—	—	—	—	—	8.2B	8.20 to 9.30	40	YES
	9.1B	9.10 to 10.20	40	YES	—	—	—	—	—	9.1B	9.10 to 10.20	40	YES
	10B	10.00 to 11.20	40	YES	—	—	—	—	—	10B	10.00 to 11.20	40	YES
	11B	11.00 to 12.30	20	YES	—	—	—	—	—	11B	11.00 to 12.30	20	YES
	12B	12.00 to 13.50	20	YES	—	—	—	—	—	12B	12.00 to 13.50	20	YES
	13B	13.30 to 15.00	20	YES	—	—	—	—	—	13B	13.30 to 15.00	20	YES
	15B	14.70 to 16.50	20	YES	—	—	—	—	—	15B	14.70 to 16.50	20	YES
	16B	16.20 to 18.30	20	YES	—	—	—	—	—	16B	16.20 to 18.30	20	YES
	18B	18.00 to 20.30	20	YES	—	—	—	—	—	18B	18.00 to 20.30	20	YES
	20B	20.00 to 22.40	20	YES	—	—	—	—	—	20B	20.00 to 22.40	20	YES
	22B	22.00 to 24.50	10	YES	—	—	—	—	—	22B	22.00 to 24.50	10	YES
	24B	24.00 to 27.60	10	YES	—	—	—	—	—	24B	24.00 to 27.60	10	YES
	27B	27.00 to 30.80	10	YES	—	—	—	—	—	27B	27.00 to 30.80	10	YES
	30B	30.00 to 34.00	10	YES	—	—	—	—	—	30B	30.00 to 34.00	10	YES
	33B	33.00 to 37.00	10	YES	—	—	—	—	—	33B	33.00 to 37.00	10	YES
	36B	36.00 to 40.00	10	YES	—	—	—	—	—	36B	36.00 to 40.00	10	YES
	39A	37.00 to 44.00	10	YES	—	—	—	—	—	—	—	—	—
	43A	40.00 to 46.00	10	YES	—	—	—	—	—	—	—	—	—
	47A	44.00 to 50.00	2	YES	—	—	—	—	—	—	—	—	—

*Only Automotive Grade

Note1: This table shows available voltages.

Note2: () : ROHM Packages.

Zener Diodes

Protection Device
Example: U M Z C 6 . 8 N F M F H T 1 0 6
Part No. Grade Code Taping Code

Low Capacitance Protection Devices

Product No.			Absolute Maximum Ratings (T _a =25°C)	Electrical Characteristics (T _a =25°C)					Package	Equivalent Circuit Diagram	Automotive Grade AEC-Q101	
Part No.	Grade Code		P _D (mW)	V _{BR} (V)	I _Z (mA)	C _t (pF) Typ	f (MHz)	V _R (V)				
	General	Automotive		Taping Code								
CDZCV5.1B	*	—	T2R	100	4.98 to 5.20	5	5.5	1	0	SOD-923 (VMN2M)		—
CDZCV6.8B		—	T2R	100	6.65 to 6.93	5	3	1	0			—
EDZCV6.8B		—	T2R	150	6.65 to 6.93	5	3	1	0			—
RSAC6.8CM		—	T2R	100	6.70 to 7.33	5	0.3	1	0	SOD-923 (VMN2M)		—
RSAC16CM		—	T2R	100	16.49 to 17.51	5	0.3	1	0			—
UMZC6.8NFM		FH	T106	200	6.47 to 7.14	5	3	1	0	SOT-323 (UMD3)		YES
UMZU6.2NFM		FH	T106	200	5.90 to 6.50	5	8	1	0			YES

*General Part No. have no grade code.
Note: (): ROHM Packages.

Ultra Low Capacitance Bi-Directional Zener Diodes

Product No.			Absolute Maximum Ratings (T _a =25°C)	Electrical Characteristics (T _a =25°C)					Package	Equivalent Circuit Diagram	Automotive Grade AEC-Q101			
Part No.	Grade Code		P _D (mW)	V _{BR} (V)	I _Z (mA)	C _t (pF) Typ	f (MHz)	V _R (V)						
	General	Automotive												
RSBC6.8CM	*	—	T2N	100	6.62 to 7.24	5	1	1	0	SOD-923 (VMN2M)		—		

*General Part No. have no grade code.
Note: (): ROHM Packages.

TVS

●Quick Reference TVS (ESD Protection Devices)

V _{RWM} (V)	Surface Mount type								
	0603 size	1006 size	2924 size	2513 size	3516 size	4725 size	6546 size		
									
DSN0603-2 (SMD0603B)	DSN1006-2 (SMD1006)	SOT-23 (SSD3)	(PMDE)	SOD-123FL (PMDU)	SOD-128 (PMDTM)	TO-277A (TO-277GE)	TO-252AA D-PAK (TO-252M)	TO-263AB D2PAK (TO-263S)	
3.0		MMBZ5V6ALY 6 7							
4.5		MMBZ6V8ALY 8							
5.0			VS5V0UA1VVM 22	SMF5V0 54	VS5V0UA1LAM 77				
6.0		MMBZ9V1ALY 9	VS6V0UA1VVM 23	SMF6V0 55	VS6V0UA1LAM 78				
6.3	VS6V3UC1QS 5								
6.5		MMBZ10VALY 10	VS6V5UA1VVM 24	SMF6V5 56					
7.0	VS7V0UD1HS 1			SMF7V0 57	VS7V0UA1LAM 79				
7.5			VS7V5UA1VVM 25	SMF7V5 58					
8.0				SMF8V0 59	VS8V0UA1LAM 80				
8.5		MMBZ12VALY 11							
9.0	VS9V0UD1HS 2		VS9V0UA1VVM 26	SMF9V0 60	VS9V0UA1LAM 81				
10.0				SMF10V 61	VS10VUA1LAM 82				
11.0			VS11VUA1VVM 27	SMF11V 62	VS11VUA1LAM 83				
12.0	VS12VUD1HS 3	MMBZ15VALY 12	VS12VUA1VVM 28	SMF12V 63	VS12VUA1LAM 84				
13.0		MMBZ16VALY 13	VS13VUA1VVM 29	SMF13V 64	VS13VUA1LAM 85				
14.0				SMF14V 65	VS14VUA1LAM 86				
14.5		MMBZ18VALY 14							
15.0	VS15VUD1HS 4		VS15VUA1VVM 30	SMF15V 66	VS15VUA1LAM 87				
16.0			VS16VUA1VVM 31	SMF16V 67	VS16VUA1LAM 88				
17.0		MMBZ20VALY 15	VS17VUA1VVM 32	SMF17V 68	VS17VUA1LAM 89				
18.0			VS18VUA1VVM 33	SMF18V 69	VS18VUA1LAM 90				
20.0		MMBZ24VALY 16	VS20VUA1VVM 34	SMF20V 70	VS20VUA1LAM 91				
22.0		MMBZ27VALY 17	VS22VUA1VVM 35	SMF22V 71	VS22VUA1LAM 92	RSDT27RSM 97	RSDT27BM 99	RSDT27NS 101	MMBZ27VCLY 21
24.0		MMBZ30VALY 18	VS24VUA1VVM 36	SMF24V 72	VS24VUA1LAM 93	RSDT30RSM 98	RSDT30BM 100	RSDT30NS 102	
26.0		MMBZ33VALY 19	VS26VUA1VVM 37	SMF26V 73	VS26VUA1LAM 94				
28.0		MMBZ36VALY 20		SMF28V 74	VS28VUA1LAM 95				
30.0			VS30VUA1VVM 38	SMF30V 75	VS30VUA1LAM 96				
33.0			VS33VUA1VVM 39	SMF33V 76					
36.0			VS36VUA1VVM 40						
40.0			VS40VUA1VVM 41						
43.0			VS43VLNVWM 42						
48.0			VS48VLNVWM 43						
54.0			VS54VLNVWM 44						
58.0			VS58VLNVWM 45						
64.0			VS64VLNVWM 46						
70.0			VS70VLNVWM 47						
78.0			VS78VLNVWM 48						
85.0			VS85VLNVWM 49						
90.0			VS90VLNVWM 50						
100			VS100VLNVWM 51						
110			VS110VLNVWM 52						
130			VS130VLNVWM 53						

Note: () : ROHM Packages.

●Quick Reference Bi-Directional TVS

V _{RWM} (V)	Surface Mount type								
	0402 size		0603 size			1006 size		2012 size	
									
DSN0402-2 (SMD0402)	DSN0603-2 (SMD0603)	DSN0603-2 (SMD0603B)	DSN1006-2 (SMD1006)	DSN1006-2 (SMD1006B)	DSN2012-2 (SMD2012)				SOT-23 (SSD3)
3.3	VS3V3BA1FS 103	VS3V3BA1ES 104	VS3V3BB1FS 105	VS3V3BB1ES 109	VS3V3BC1HS 110	VS3V3BL1HS 121	VS3V3BN1HS 122		
4.5						VS4V5BU1QS 115			
4.8							VS4V6BU1AR 116		
5.0	VS5V0BA1FS 106	VS5V0BA1ES 111	VS5V0BB1FS 107	VS5V0BB1ES 112	VS5V0BL1HS 123	VS5V0BN1HS 124	VS5V0BL1QS 125		
12.0					VS12VBA1HS 114				ESD16VHY 117
16.0									ESD18VHY 118
24.0									ESD27VHY 119 RESD1CANY 120

Note: () : ROHM Packages.

TVS

TVS
Example: V S 5 V 0 U A 1 V W M T F T R
Part No.
Grade Code Taping Code

Quick Reference No.	Product No.			V _{RWM} (V)	Absolute Maximum Ratings (T _a =25°C)	Electrical Characteristics (T _a =25°C)		Peak Pulse Power (W) (tp=10x1,000μs)	Package	Equivalent Circuit Diagram	Automotive Grade AEC-Q101	
	Part No.	Grade Code				P _D (mW)	V _Z (V) or V _{BR} (V)					
		General	Automotive									
1	VS7V0UD1HS	*	—	T15R	7.0	100	7.20 to 9.00	1	126 (8/20μs)	DSN0603-2 (SMD0603B)		—
2	VS9V0UD1HS		—	T15R	9.0	100	9.60 to 11.80	1	128 (8/20μs)			—
3	VS12VUD1HS		—	T15R	12.0	100	12.20 to 13.80	1	129 (8/20μs)			—
4	VS15VUD1HS		—	T15R	15.0	100	15.30 to 16.90	1	135 (8/20μs)			—
5	VS6V3UC1QS		—	T18R	6.3	200	6.70 to 7.70	1	660 (8/20μs)			—
6	MMBZ5V6ALY		FH	T116	3.0	225	5.32 to 5.88	20	24	DSN1006-2 (SMD1006)		YES
7	MMBZ6V2ALY		FH	T116	3.0	225	5.89 to 6.51	1	24			YES
8	MMBZ6V8ALY		FH	T116	4.5	225	6.46 to 7.14	1	24			YES
9	MMBZ9V1ALY		FH	T116	6.0	225	8.65 to 9.56	1	24			YES
10	MMBZ10VALY		FH	T116	6.5	225	9.50 to 10.50	1	24			YES
11	MMBZ12VALY		FH	T116	8.5	225	11.40 to 12.60	1	40			YES
12	MMBZ15VALY		FH	T116	12.0	225	14.25 to 15.75	1	40			YES
13	MMBZ16VALY		FH	T116	13.0	225	15.20 to 16.80	1	40			YES
14	MMBZ18VALY		FH	T116	14.5	225	17.10 to 18.90	1	40			YES
15	MMBZ20VALY		FH	T116	17.0	225	19.00 to 21.00	1	40			YES
16	MMBZ24VALY		FH	T116	20.0	225	22.80 to 25.20	1	40			YES
17	MMBZ27VALY		FH	T116	22.0	225	25.65 to 28.35	1	40			YES
18	MMBZ30VALY		FH	T116	24.0	225	28.50 to 31.50	1	40			YES
19	MMBZ33VALY		FH	T116	26.0	225	31.35 to 34.65	1	40			YES
20	MMBZ36VALY		FH	T116	28.0	225	34.20 to 37.80	1	40			YES
21	MMBZ27VCLY		FH	T116	22.0	225	25.65 to 28.35	1	40			YES
22	VS5V0UA1VWM		TF	TR	5.0	1,000	6.40 to 7.20	40	200	(PMDE)		YES
23	VS6V0UA1VWM		TF	TR	6.0	1,000	6.80 to 7.70	40	200			YES
24	VS6V5UA1VWM		TF	TR	6.5	1,000	7.50 to 8.40	40	200			YES
25	VS7V5UA1VWM		TF	TR	7.5	1,000	8.20 to 9.30	40	200			YES
26	VS9V0UA1VWM		TF	TR	9.0	1,000	10.0 to 11.2	40	200			YES
27	VS11VUA1VWM		TF	TR	11.0	1,000	12.0 to 12.2	20	200			YES
28	VS12VUA1VWM		TF	TR	12.0	1,000	13.3 to 15.0	20	200			YES
29	VS13VUA1VWM		TF	TR	13.0	1,000	14.7 to 16.5	20	200			YES
30	VS15VUA1VWM		TF	TR	15.0	1,000	16.2 to 18.3	20	200			YES
31	VS16VUA1VWM		TF	TR	16.0	1,000	18.0 to 20.3	20	200			YES
32	VS17VUA1VWM		TF	TR	17.0	1,000	18.8 to 21.2	20	200			YES
33	VS18VUA1VWM		TF	TR	18.0	1,000	20.0 to 22.4	20	200			YES
34	VS20VUA1VWM		TF	TR	20.0	1,000	22.0 to 24.5	10	200			YES
35	VS22VUA1VWM		TF	TR	22.0	1,000	24.0 to 27.6	10	200			YES
36	VS24VUA1VWM		TF	TR	24.0	1,000	27.0 to 30.8	10	200			YES
37	VS26VUA1VWM		TF	TR	26.0	1,000	28.6 to 32.1	10	200			YES
38	VS30VUA1VWM		TF	TR	30.0	1,000	33.0 to 37.0	10	200			YES
39	VS33VUA1VWM		TF	TR	33.0	1,000	36.0 to 40.0	10	200			YES
40	VS36VUA1VWM		TF	TR	36.0	1,000	40.0 to 46.0	10	200			YES
41	VS40VUA1VWM		TF	TR	40.0	1,000	44.0 to 50.0	10	200			YES
42	VS43VLNVWM		TF	TR	43.0	1,000	48.0 to 54.0	2	200			YES
43	VS48VLNVWM		TF	TR	48.0	1,000	53.0 to 60.0	2	200			YES
44	VS54VLNVWM		TF	TR	54.0	1,000	58.0 to 66.0	2	200			YES
45	VS58VLNVWM		TF	TR	58.0	1,000	64.0 to 72.0	2	200			YES
46	VS64VLNVWM		TF	TR	64.0	1,000	70.0 to 79.0	2	200			YES
47	VS70VLNVWM		TF	TR	70.0	1,000	77.0 to 87.0	2	200			YES
48	VS78VLNVWM		TF	TR	78.0	1,000	85.0 to 96.0	2	200			YES
49	VS85VLNVWM		TF	TR	85.0	1,000	94.0 to 106	2	200			YES
50	VS90VLNVWM		TF	TR	90.0	1,000	104 to 116	2	200			YES
51	VS100VLNVWM		TF	TR	100	1,000	114 to 126	2	200			YES
52	VS110VLNVWM		TF	TR	110	1,000	122 to 138	2	200			YES
53	VS130VLNVWM		TF	TR	130	1,000	140 to 160	2	200			YES

*General Part No. have no grade code.
Note: () : ROHM Packages.

TVS

TVS
 Example: **S M F 5 V 0 T F T R**
 Part No. Grade Code Taping Code

Quick Reference No.	Product No.			V _{RWM} (V)	Absolute Maximum Ratings (T _a =25°C)		Peak Pulse Power (W) (tp=10×1,000μs)	Package	Equivalent Circuit Diagram	Automotive Grade AEC-Q101					
	Part No.	Grade Code			P ₀ (mW)	V _Z (V) or V _{BR} (V)									
		General	Automotive												
54	SMF5V0	*	TF	TR	5.0	1,000	6.40 or more	40	200	SOD-123FL (PMDU)					
55	SMF6V0		TF	TR	6.0	1,000	6.67 or more	40	200						
56	SMF6V5		TF	TR	6.5	1,000	7.22 or more	40	200						
57	SMF7V0		TF	TR	7.0	1,000	7.78 or more	40	200						
58	SMF7V5		TF	TR	7.5	1,000	8.33 or more	40	200						
59	SMF8V0		TF	TR	8.0	1,000	8.89 or more	40	200						
60	SMF9V0		TF	TR	9.0	1,000	10.0 or more	40	200						
61	SMF10V		TF	TR	10.0	1,000	11.1 or more	20	200						
62	SMF11V		TF	TR	11.0	1,000	12.2 or more	20	200						
63	SMF12V		TF	TR	12.0	1,000	13.3 or more	20	200						
64	SMF13V		TF	TR	13.0	1,000	14.4 or more	20	200						
65	SMF14V		TF	TR	14.0	1,000	15.6 or more	20	200						
66	SMF15V		TF	TR	15.0	1,000	16.7 or more	20	200						
67	SMF16V		TF	TR	16.0	1,000	17.2 or more	20	200						
68	SMF17V		TF	TR	17.0	1,000	18.9 or more	20	200						
69	SMF18V		TF	TR	18.0	1,000	20.0 or more	20	200						
70	SMF20V		TF	TR	20.0	1,000	22.2 or more	10	200						
71	SMF22V		TF	TR	22.0	1,000	24.4 or more	10	200						
72	SMF24V		TF	TR	24.0	1,000	26.7 or more	10	200						
73	SMF26V		TF	TR	26.0	1,000	28.9 or more	10	200						
74	SMF28V		TF	TR	28.0	1,000	31.1 or more	10	200						
75	SMF30V		TF	TR	30.0	1,000	33.3 or more	10	200						
76	SMF33V		TF	TR	33.0	1,000	36.7 or more	10	200						
77	VS5V0UA1LAM	*	TF	TR	5.0	—	6.45 to 7.14	10	600	SOD-128 (PMDTM)					
78	VS6V0UA1LAM		TF	TR	6.0	—	6.67 to 7.37	10	600						
79	VS7V0UA1LAM		TF	TR	7.0	—	7.78 to 8.60	10	600						
80	VS8V0UA1LAM		TF	TR	8.0	—	8.89 to 9.83	1	600						
81	VS9V0UA1LAM		TF	TR	9.0	—	10.0 to 11.1	1	600						
82	VS10VUA1LAM		TF	TR	10.0	—	11.1 to 12.3	1	600						
83	VS11VUA1LAM		TF	TR	11.0	—	12.2 to 13.5	1	600						
84	VS12VUA1LAM		TF	TR	12.0	—	13.3 to 14.7	1	600						
85	VS13VUA1LAM		TF	TR	13.0	—	14.4 to 15.9	1	600						
86	VS14VUA1LAM		TF	TR	14.0	—	15.6 to 17.2	1	600						
87	VS15VUA1LAM		TF	TR	15.0	—	16.7 to 18.5	1	600						
88	VS16VUA1LAM		TF	TR	16.0	—	17.8 to 19.7	1	600						
89	VS17VUA1LAM		TF	TR	17.0	—	18.9 to 20.9	1	600						
90	VS18VUA1LAM		TF	TR	18.0	—	20.0 to 22.1	1	600						
91	VS20VUA1LAM		TF	TR	20.0	—	22.2 to 24.5	1	600						
92	VS22VUA1LAM		TF	TR	22.0	—	24.4 to 26.9	1	600						
93	VS24VUA1LAM		TF	TR	24.0	—	26.7 to 29.5	1	600						
94	VS26VUA1LAM		TF	TR	26.0	—	28.9 to 31.9	1	600						
95	VS28VUA1LAM		TF	TR	28.0	—	31.1 to 34.4	1	600						
96	VS30VUA1LAM		TF	TR	30.0	—	33.3 to 36.8	1	600						
97	RSDT27RSM	*	TF	TL1	22.0	1,500	24.0 to 30.0	10	1,500	TO-277A (TO-277GE)					
98	RSDT30RSM		TF	TL1	24.0	1,500	27.0 to 33.0	10	1,500						
99	RSDT27BM	—	FH	TL	22.0	2,500	24.0 to 30.0	10	2,500	TO-252AA D-PAK (TO-252M)					
100	RSDT30BM		FH	TL	24.0	2,500	27.0 to 33.0	10	2,500						
101	RSDT27NS	*	FH	TL	22.0	5,000	24.0 to 30.0	10	3,600	TO-263AB D2PAK (TO-263S)					
102	RSDT30NS	—	FH	TL	24.0	5,000	27.0 to 33.0	10	3,600						

*General Part No. have no grade code.

*1 Some automotive applications may not be supported. Please contact a ROHM sales representative for further details.

Note: (): ROHM Packages.

TVS
Example: V S 3 V 3 B C 1 H S T 1 5 R
Part No. Taping Code

Bi-Directional TVS

Quick Reference No.	Product No.			Absolute Maximum Ratings ($T_a=25^\circ\text{C}$)		Electrical Characteristics ($T_a=25^\circ\text{C}$)		Peak Pulse Power (W) ($t_p=8/20\mu\text{s}$)	Ct (pF) Typ			Package	Equivalent Circuit Diagram	Automotive Grade AEC-Q101		
	Part No.	Grade Code		Taping Code	P_D (mW)	V_{BR} (V)	I_Z (mA)			f (MHz)	V_R (V)					
		General	Automotive													
103	VS3V3BA1FS	*	—	T27N	100	4.0 or more	1	26.5	6	1	0	DSN0402-2 (SMD0402)	○—□—○	—		
104	VS3V3BB1FS		—	T27N	100	4.0 or more	1	38	10	1	0			—		
105	VS3V3BT1FS		—	T27N	100	4.0 or more	1	21	4.7	1	0			—		
106	VS5V0BA1FS		—	T27N	100	5.3 or more	1	26.5	6	1	0			—		
107	VS5V0BB1FS		—	T27N	100	5.3 or more	1	45	10	1	0			—		
108	VS3V3BC1HS		—	T15R	100	4.0 or more	1	70	18	1	0	DSN0603-2 (SMD0603B)		—		
109	VS3V3BA1ES		—	T15R	100	4.0 or more	1	28	6	1	0			—		
110	VS3V3BB1ES		—	T15R	100	4.0 or more	1	45	10	1	0			—		
111	VS5V0BA1ES		—	T15R	100	6.0 to 8.0	1	10	5	1	0			—		
112	VS5V0BB1ES		—	T15R	100	6.0 to 9.0	1	25	7	1	0	DSN0603-2 (SMD0603)		—		
113	VS5V0BC1ES		—	T15R	100	6.0 to 9.0	1	60	15	1	0			—		
114	VS12VBA1HS		—	T15R	100	12.5 to 15.0	1	70	7	1	0			—		
115	VS4V5BU1QS		—	T18R	200	5.3 to 6.5	1	600	100	1	0	DSN01006-2 (SMD1006)		—		
116	VS4V8BU1AR		—	T7R	—	4.85 to 6.00	1	1,100	480 (Max)	1	0			—		
117	ESD16VHY	FH	T116	225	15.96 to 17.64	1	100	13	1	0	SOT-23 (SSD3)	○—□—○	YES			
118	ESD18VHY		T116	225	17.86 to 19.74	1	100	12	1	0			YES			
119	ESD27VHY		T116	225	26.41 to 29.19	1	100	8	1	0			YES			
120	RESD1CANY		T116	225	26.20 to 32.00	1	350	30 (Max)	1	0			YES			

Low Capacitance Bi-Directional TVS

Quick Reference No.	Product No.			Absolute Maximum Ratings ($T_a=25^\circ\text{C}$)		Electrical Characteristics ($T_a=25^\circ\text{C}$)		Remarks	Ct (pF) Typ			Package	Equivalent Circuit Diagram	Automotive Grade AEC-Q101		
	Part No.	Grade Code		Taping Code	P_D (mW)	V_{BR} (V)	I_Z (mA)			f (MHz)	V_R (V)					
		General	Automotive													
121	VS3V3BL1HS	*	—	T15R	100	6.00 to 10.00	1	IEC61000-4-2, 150pF, 330Ω, Contact 20kV, Air 20kV	0.34	1	0	DSN0603-2 (SMD0603B)	○—□—○	—		
122	VS3V3BN1HS		—	T15R	100	6.00 to 10.00	1		0.5	1	0			—		
123	VS5V0BL1HS		—	T15R	100	6.00 to 10.00	1		0.34	1	0			—		
124	VS5V0BN1HS		—	T15R	100	6.00 to 10.00	1		0.5	1	0			—		
125	VS5V0BL1QS		—	T18R	200	7.00 or more	1	IEC61000-4-2, 150pF, 330Ω, Contact 15kV, Air 15kV	0.8	1	0	DSN01006-2 (SMD1006)		—		

*General Part No. have no grade code.
Note: (): ROHM Packages.

Switching Diodes

Quick Reference for Switching Diodes

V _R (V)	Surface Mount type							
	1006 size	1212 size	1608 size	1616 size	2120 size		2512 size	2924 size
SOD-923 (VMN2M)	SOT-723 (VMD3)	SOD-523 (EMD2)	SOT-416FL (EMD3F)	SOT-323FL (UMD3F)	SOT-323 (UMD3)	SOD-323FL (UMD2)	SOT-23 (SSD3)	
20	DA221ZM		DA221WM					
80	1SS400CM	DAN222ZM DAP222ZM	1SS400SM	DAN222WM DAP222WM DAN217WM DA204UM DA228UM BAV199UM	DAN202UM DAP202UM DAN217UM DA204UM DA228UM BAV199UM	DAN202FM DAP202FM BAV99FM BAV199FM	1SS355VM 1SS380VM	BAS16HY BAV70HY BAW56HY BAV99HY BAW156HY BAV199HY BAS116HY BAV170HY
200							BAS21VM	BAS21HY

Note: () : ROHM Packages.

Switching Diodes



High-speed type													Package	Equivalent Circuit Diagram	Automotive Grade AEC-Q101			
Part No.	Grade Code		Taping Code	Absolute Maximum Ratings (T _a =25°C) ^{*1}					Electrical Characteristics (T _a =25°C) ^{*1}									
	General	Automotive		V _{RM} (V)	V _R (V)	I _{FM} (mA)	I _o (mA)	I _{surge} (mA)	V _F (V) Max	I _F (μA) Max	I _R (μA) Max	V _R (V) Max	t _{rr} (ns)	V _R (V)	I _F (mA)			
1SS400CM	*	-	T2R	90	80	225	100	500 (1s)	1.2	100	0.1	80	4	6	10	SOD-923 (VMN2M)		-
1SS400SM		FH	T2R	90	80	225	100	500 (1s)	1.2	100	0.1	80	4	6	10	SOD-523 (EMD2)		YES
1SS355VM		FH	TE-17	90	80	225	100	500 (1s)	1.2	100	0.1	80	4	6	10	SOD-323FL (UMD2)		YES
BAS16HY		FH	T116	100	80	500	215 ^{*3}	4,000 (1μs)	1.25	150	0.1	80	4	10 ^{*2}	10	SOT-23 (SSD3)		YES
DAN222ZM		-	T2L	80	80	300	100	4,000 (1μs)	1.2	100	0.1	70	4	6	5	SOT-723 (VMD3)		-
DAN222WM		-	TL	80	80	300	100	4,000 (1μs)	1.2	100	0.1	70	4	6	5	SOT-416FL (EMD3F)		-
DAN202UM		-	TL	80	80	300	100	4,000 (1μs)	1.2	100	0.1	70	4	6	5	SOT-323FL (UMD3F)		-
DAN202FM		FH	T106	80	80	300	100	4,000 (1μs)	1.2	100	0.1	70	4	6	5	SOT-323 (UMD3)		YES
BAV70HY		FH	T116	90	80	450	215 ^{*3}	4,000 (1μs)	1.25	150	0.5	80	4	10 ^{*2}	10	SOT-23 (SSD3)		YES
DAP222ZM		-	T2L	80	80	300	100	4,000 (1μs)	1.2	100	0.1	70	4	6	5	SOT-723 (VMD3)		-
DAP222WM		-	TL	80	80	300	100	4,000 (1μs)	1.2	100	0.1	70	4	6	5	SOT-416FL (EMD3F)		-
DAP202UM		-	TL	80	80	300	100	4,000 (1μs)	1.2	100	0.1	70	4	6	5	SOT-323FL (UMD3F)		-
DAP202FM		FH	T106	80	80	300	100	4,000 (1μs)	1.2	100	0.1	70	4	6	5	SOT-323 (UMD3)		YES
BAW56HY		FH	T116	100	80	500	215 ^{*3}	4,000 (1μs)	1.25	150	0.1	80	4	10 ^{*2}	10	SOT-23 (SSD3)		YES
DAN217WM		FH	TL	80	80	300	100	4,000 (1μs)	1.2	100	0.1	70	4	6	5	SOT-416FL (EMD3F)		YES
DAN217UM		-	TL	80	80	300	100	4,000 (1μs)	1.2	100	0.2	70	4	6	5	SOT-323FL (UMD3F)		-
BAV99HY		FH	T116	100	80	500	215 ^{*3}	4,000 (1μs)	1.25	150	0.1	80	4	10 ^{*2}	10	SOT-23 (SSD3)		YES
★BAV99FM		FH	T106	100	80	500	215 ^{*3}	4,000 (1μs)	1.25	150	0.1	80	4	10 ^{*2}	10	SOT-323 (UMD3)		YES
BAS21HY		FH	T116	250	200	-	200 ^{*3}	10,000 (1μs)	1	100	0.1	200	50	30 ^{*2}	30	SOT-23 (SSD3)		YES
BAS21VM		FH	TE-17	250	200	-	200 ^{*3}	10,000 (1μs)	1	100	0.1	200	50	30 ^{*2}	30	SOD-323FL (UMD2)		YES

*General Part No. have no grade code.

*1 Value/Chip *2 Not V_R (V) but I_R (mA) Value *3 I_{F (mA)} Value

Note: () : ROHM Packages.

★: Under Development



Low Leak type

Part No.	Product No.			Absolute Maximum Ratings ($T_a=25^\circ\text{C}$) ^{*1}					Electrical Characteristics ($T_a=25^\circ\text{C}$) ^{*1}						Package	Equivalent Circuit Diagram	Automotive Grade AEC-Q101	
	Grade Code General	Grade Code Automotive	Taping Code	V_{RM} (V)	V_R (V)	I_{FM} (mA)	I_o (mA)	I_{surge} (mA)	V_F (V) Max	I_F (mA)	I_n (μA) Max	V_R (V)	t_{rr} (ns) Max	V_R (V)	I_F (mA)			
1SS380VM	*	FH	TE-17	80	80	225	100	400 (1s)	1.2	100	0.01	80	—	—	—	SOD-323FL (UMD2)		YES
BAW156HY		FH	T116	100	80	500	215 ^{*3}	4,000 (1μs)	1.25	150	0.005	75	3,000	10 ^{*2}	10	SOT-23 (SSD3)		YES
BAV199HY		FH	T116	100	80	500	215 ^{*3}	4,000 (1μs)	1.25	150	0.005	75	3,000	10 ^{*2}	10	SOT-23 (SSD3)		YES
★BAV199FM		FH	T106	100	80	500	215 ^{*3}	4,000 (1μs)	1.25	150	0.01	75	3,000	10 ^{*2}	10	SOT-323 (UMD3)		YES
BAV199UM		FH	TL	100	80	500	215 ^{*3}	4,000 (1μs)	1.25	150	0.005	75	3,000	10 ^{*2}	10	SOT-323FL (UMD3F)		YES
DA204UM		—	TL	20	20	200	100	300 (1μs)	1.0	10	0.1	15	—	—	—			—
DA228UM		—	TL	80	80	200	100	300 (1μs)	1.2	100	0.01	80	—	—	—	SOT-723 (VMD3)		—
DA221ZM		—	T2L	20	20	200	100	300 (1μs)	1	10	0.1	15	—	—	—			—
DA221WM		—	TL	20	20	200	100	300 (1μs)	1	10	0.1	15	—	—	—	SOT-416FL (EMD3F)		—
DA228WM		—	TL	80	80	200	100	4,000 (1μs)	1.2	100	0.1	80	—	—	—			—
BAV170HY		FH	T116	90	80	500	215 ^{*3}	4,000 (1μs)	1.25	150	0.005	75	3,000	10 ^{*2}	10	SOT-23 (SSD3)		YES
BAS116HY		FH	T116	100	80	500	215 ^{*3}	4,000 (1μs)	1.25	150	0.005	75	3,000	10 ^{*2}	10			YES

*General Part No. have no grade code.

*1 Value/Chip *2 Not V_R (V) but I_R (mA) Value *3 $I_{F (mA)}$ Value

Note: () : ROHM Packages.

★: Under Development

High Frequency Diodes

●Quick Reference for High Frequency Diodes

V _R (V)	Surface Mount type	1006 size				1608 size				2120 size				2512 size			
		DFN1006-2W (DFN1006-2W)		SOD-923 (VMN2M)		SOD-523 (EMD2)		SOT-323 (UMD3)		SOD-323FL (UMD2)		RN141CM		RN142SM		RN142VM	
		Band Switching Diode	35									1SS390SM		DAN235FM			
PIN Diode	50																
	60																
Detection Schottky Diode	5	RB886ASA				RB886CM											

Note: (): ROHM Packages.

High Frequency Diodes



Band Switching Diodes

Part No.	Product No.			Absolute Maximum Ratings (T _a =25°C)				Electrical Characteristics (T _a =25°C)						Package	Equivalent Circuit Diagram	Automotive Grade AEC-Q101
	Grade Code	Taping Code	V _R (V)	I _F (mA)	T _j (°C)	T _{stg} (°C)	C _t (pF) Max	V _R (V)	f (MHz)	rF (Ω) Max	I _F (mA)	f (MHz)				
1SS390SM	*	FH	T2R	35	150	-55 to +150	1.2	6	1	0.9	2	100	SOD-523 (EMD2)		YES	
DAN235FM		FH	T106	35	150	-55 to +150	1.2	6	1	0.9	2	100	SOT-323 (UMD3)		YES	

PIN Diodes

Part No.	Product No.			Absolute Maximum Ratings (T _a =25°C)				Electrical Characteristics (T _a =25°C)						Package	Equivalent Circuit Diagram	Automotive Grade AEC-Q101
	Grade Code	Taping Code	V _R (V)	I _F (mA)	T _j (°C)	T _{stg} (°C)	C _t (pF) Max	V _R (V)	f (MHz)	rF (Ω) Max	I _F (mA)	f (MHz)				
RN141CM	*	—	T2R	50	100	150	-55 to +150	0.8	1	1	2	3	100	SOD-923 (VMN2M)		—
RN142SM		—	T2R	60	100	150	-55 to +150	0.45	1	1	3	3	100	SOD-523 (EMD2)		—
RN142VM	—	TE-17	60	100	150	-55 to +150	0.45	1	1	3	3	100	SOD-323FL (UMD2)		—	

Detection Schottky Diodes

Part No.	Product No.			Absolute Maximum Ratings (T _a =25°C)				Electrical Characteristics (T _a =25°C)						Package	Equivalent Circuit Diagram	Automotive Grade AEC-Q101
	Grade Code	Taping Code	V _R (V)	I _F (mA)	T _j (°C)	T _{stg} (°C)	V _F (V) Max	I _F (mA)	C _t (pF) Max	V _R (V)	f (MHz)					
RB886CM	*	—	T2R	5	10	125	-40 to +125	0.35	1	0.80	1	1	SOD-923 (VMN2M)		—	
RB886ASA		—	FH	T2RB	5	10	150	-55 to +150	0.35	1	0.8	1	1	DFN1006-2W (DFN1006-2W)		YES

*General Part No. have no grade code.

Note: (): ROHM Packages.

Packages

■ Dimensions (Unit: mm)

Surface Mount Type

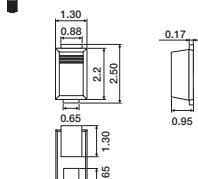
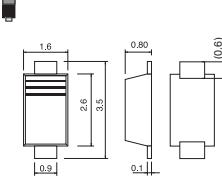
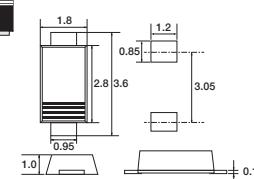
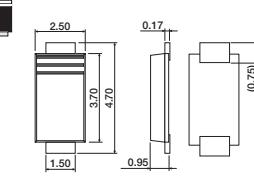
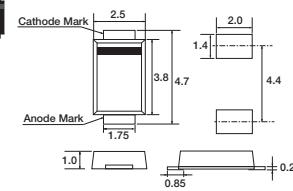
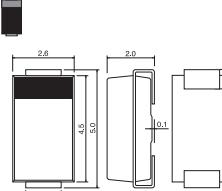
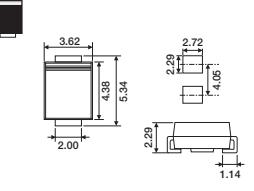
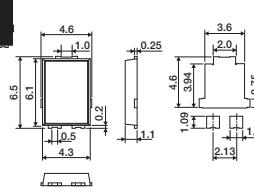
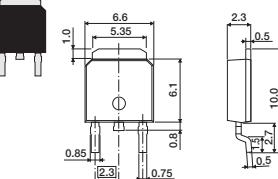
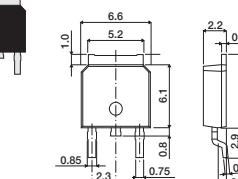
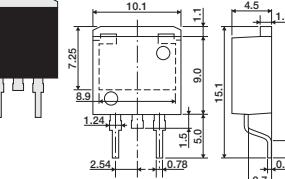
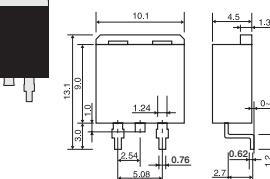
DSN0402-2 (SMD0402)	DSN0603-2 (SMD0603) (SMD0603B)	DSN1006-2 (SMD1006)	DSN2012-2 (SMD2012)
DFN1006-2W (DFN1006-2W)	SOD-923 (VMN2M)	SOT-723 (VMD3)	SOD-523 (EMD2)
SOT-416FL (EMD3F)	SOD-323FL (UMD2)	SOT-323FL (UMD3F)	SOT-323 (UMD3)
SOT-23 (SSD3)	SOD-323HE (TUMD2M)	SOD-323HE (TUMD2SM)	SOT-457T (TSMD6)
			<p>Each lead has same dimensions</p>

Note: () : ROHM Packages.

Power Packages

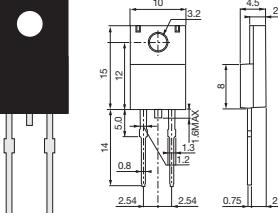
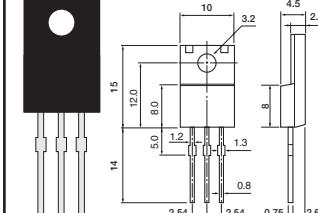
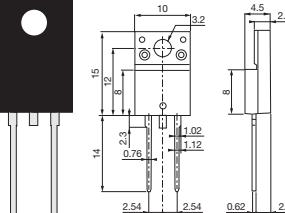
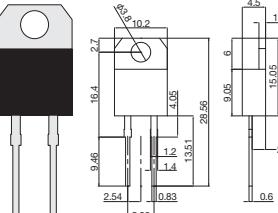
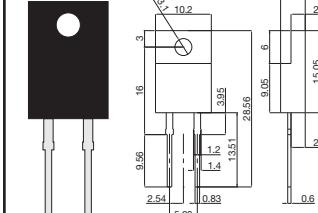
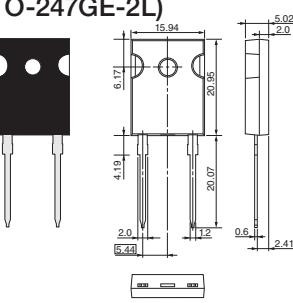
●Dimensions (Unit: mm)

Surface Mount type

(PMDE)	SOD-123FL (PMDU)	SOD-123FL (PMDUP)	SOD-128 (PMDTM)
			
SOD-128 (PMDTP)	DO-214AC SMA (PMDS)	DO-214AA SMB (SMBP)	TO-277A (TO-277GE)
			
TO-252 D-PAK (TO-252GE)	TO-252 D-PAK (TO-252M)	TO-263AB D2PAK (TO-263L)	TO-263AB D2PAK (TO-263S)
 Each lead has same dimensions	 Each lead has same dimensions	 Each lead has same dimensions	 Each lead has same dimensions

Note: () : ROHM Packages.

Through Hole type

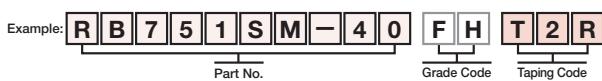
TO-220AB (TO-220FN) <2pin>	TO-220AB (TO-220FN) <3pin>	TO-220AB (TO-220NFM) <2pin>
 Each lead has same dimensions	 Each lead has same dimensions	 Each lead has same dimensions
TO-220AC (TO-220AC)	TO-220AC (TO-220ACFP)	
 Each lead has same dimensions	 Each lead has same dimensions	
TO-247-2L (TO-247GE-2L)		
 Each lead has same dimensions		

Note: () : ROHM Packages.

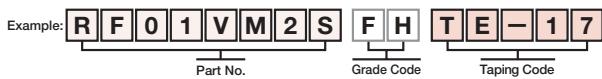
Product No. Explanation

- When ordering, specify the product number.
- Check each code against the tables shown below.
- Fill in from the left, leaving any extra boxes empty on the right.

Schottky Barrier Diodes



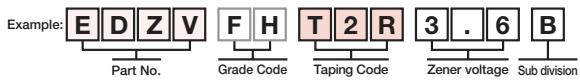
Fast Recovery Diodes



Rectifier Diodes



Zener Diodes



Packaging type

Package					Size (mm)	Height (mm)	Taping Code	Packing Specifications	Direction	Quantity (pcs)	
GENERAL Code	JEDEC Code	ROHM Package	JEITA Code								
DSN10402-2 [SOD-992]	—	(SMD0402)	—	0402	0.18	T27R	Embossed tape	Cathode on sprocket hole side	Non-direction	27,000	
DSN0603-2 [SOD-962]	—	(SMD0603)	—	0603	0.28	T15R					
DSN1006-2 [SOD-993]	—	(SMD1006)	—	1006	0.22	T18R	Embossed tape	Cathode on sprocket hole side	18,000		
DFN1006-2W [SOD-882]	—	(DFN1006-2W)	—	1006	0.4	T2RB					
SOT-723	—	(VMD3)	SC-105AA	1212	0.5	T2L	Embossed tape	One terminal on sprocket hole side	8,000		
SOD-923	—	(VMN2M)	SC-121	1006	0.37	T2R					
SOD-523	—	(EMD2)	SC-79	1608	0.6	T2R	Embossed tape	Cathode on sprocket hole side	8,000		
SOT-416FL	—	(EMD3F)	SC-89	1616	0.7	TL					
DSN2012-2	—	(SMD2012)	—	2012	0.3	T7R	Embossed tape	Cathode on sprocket hole side	7,000		
SOD-323FL	—	(UMD2)	SC-90A	25125	0.7	TE-17					
SOT-323	—	(UMD3)	SC-70	2120	0.9	T106	Embossed tape	One terminal on sprocket hole side	3,000		
SOT-323FL	—	(UMD3F)	SC-85	2120	0.9	TL					
SOT-23	—	(SSD3)	—	2429	0.95	T116	Embossed tape	One terminal on sprocket hole side	3,000		
SOD-323HE	—	(TUMD2M)	SC-108B	2514	0.6	TR					
—	—	(TUMD2SM)	—	—	—	—	Embossed tape	Cathode on sprocket hole side	3,000		
SOT-457T	—	(TSMD6)	SC-74	2829	1.10	T108					
SOD-123FL	—	(PMDU)	SC-109B	3516	0.8	TR	Embossed tape	Cathode on sprocket hole side	3,000		
SOD-128	—	(PMDUP)	—	4725	0.95	TR					
SMA	DO-214AC	(PMDS)	—	4526	2	TE25	Embossed tape	Cathode on sprocket hole side	1,500		
SMB	DO-214AA	(SMBP)	—	5336	2.3	TBR1					
—	TO-277A	(TO-277M)	—	6546	1.1	TL	Embossed tape	Cathode on sprocket hole side	4,000		
D-PAK	TO-252AA	(TO-252M)	SC-63	10066	2.3	TL					
D2PAK	TO-263AB	(TO-252GE)	—	131101	4.5	TL	Embossed tape	Fin on sprocket hole side	2,500		
Throuth Hole type	—	(TO-220FN) <2pin>	—	151101	—	C9					
—	TO-220AB	(TO-220FN) <3pin>	—	29x10	4.5	Tube	—	—	—	1,000	
—	TO-220AC	(TO-220ACFP)	—	28.56x10.2	4.5	C9	Tube	—	—	1,000	
—	TO-247-2L	(TO-247GE-2L)	—	41.0x15.9	5.0	C13	Tube	—	—	600	

Resistors

Resistors Quick Reference of Package Size (Shunt Resistors)	P.228	Resistors Quick Reference of Package Size (Thick Film Chip Resistors)	P.229		
Shunt Resistors		High Reliability			
General Purpose Chip Resistors		P.246	Class-leading Compact Size Chip Resistors (RASMID™ series)		P.252
Standard Nominal Resistance Values etc.	P.253				

"RASMIDTM" is a trademark or a registered trademark of ROHM Co., Ltd.

Click on the icon to access the product page on ROHM's website. Please check the website for the latest updates.

Resistors Quick Reference of Package Size

Shunt Resistors

High Power Metal Plate Shunt Resistors lineup

Size mm (inch)	Part No.	Terminal type Wide Terminal	Attached type Reverse Attached	Specification			Resistance Range (mΩ)	Rated Power (W) Rated Terminal Temperature	Printing Page
				General-purpose	Ultra-low resistance	High Power			
5025 (2010)	GMR50			✓	✓	5 to 220	4 (90°C) 3 (110°C)	0.2	P.232
6432 (2512)	PSR100			✓	✓	0.2	12 (120°C)	0.2	P.230
						0.3, 0.5, 1	8 (75°C) 4 (140°C)	0.3, 0.5, 1	
				2	✓	2	6 (75°C) 4 (140°C)	0.5	
						3	4 (75°C) 3 (140°C)	0.5	
	GMR100			✓	✓	5 to 220	7 (70°C) 5 (110°C)	0.1	
	☆PSR330			✓	✓	0.1	15 (120°C)	0.1	
						0.5	8 (100°C)	0.5	
				1	✓	1	6 (100°C)	1	
						5 to 100	10 (70°C) 7 (110°C)	0.5	
7.9×5.6 (3222)	PSR350			✓	✓	0.27	12 (120°C)	0.27	P.231
10×5.2 (3921)	PSR400			✓	✓	0.2	12 (75°C) 5 (130°C)	0.2	P.230
						0.3, 0.5	10 (75°C) 5 (130°C)	0.3, 0.5	
				1	✓	1	8 (75°C) 5 (130°C)	0.5	
						2	6 (75°C) 4 (115°C)	0.5	
				3	✓	3	5 (70°C) 3 (115°C)	0.5	
						0.2	15 (75°C) 10 (120°C)	0.1, 0.2	
15×7.75 (5931)	PSR500			✓	✓	0.3, 0.4, 0.5	10 (75°C) 7 (120°C)	0.3, 0.4, 0.5	P.230
						1	10 (75°C) 6 (120°C)	1	
				2	✓	2	7 (70°C) 4 (115°C)	0.5	
						0.1, 0.2	15 (75°C) 10 (120°C)	0.1, 0.2	

☆: Under Development

Metal Plate Shunt Resistors lineup

Size mm (inch)	Part No.	Terminal type Wide Terminal	Attached type Reverse Attached	Specification			Resistance Range (mΩ)	Rated Power (W)	Printing Page
				General-purpose	Ultra-low resistance	High Power			
1005 (0402)	PMR01			✓			10	0.2	P.234
1608 (0603)	PMR03			✓	✓	✓	10	0.25	P.234
							2	1	
2012 (0805)	PMR10			✓	✓	✓	3 to 10	0.5	P.234
							0.5 to 2	2	
2120 (0508)	PML10			✓	✓	✓	3 to 10	1	P.235
							1 to 2.5	0.66	
3216 (1206)	PMR18			✓	✓	✓	1, 2	1.5	P.234
							3 to 10	1	
3225 (1210)	PMR25			✓	✓	✓	0.5 to 2	3	P.235
							3 to 10	1.5	
5025 (2010)	PMR50			✓			1, 2	2	P.234
2550 (1020)	PML50		✓	✓			3 to 10	1	P.236
6432 (2512)	PMR100			✓	✓	✓	0.5 to 1.5	☆5	P.233
							1, 2	3	
3264 (1225)	PML100			✓	✓	✓	3 to 10	2	P.234
							0.5	2	
3264 (1225)	PML100			✓	✓	✓	1 to 2.2	3 (25°C)* 2 (70°C)*	P.236

*Rated Ambient Temperature

☆: Under Development

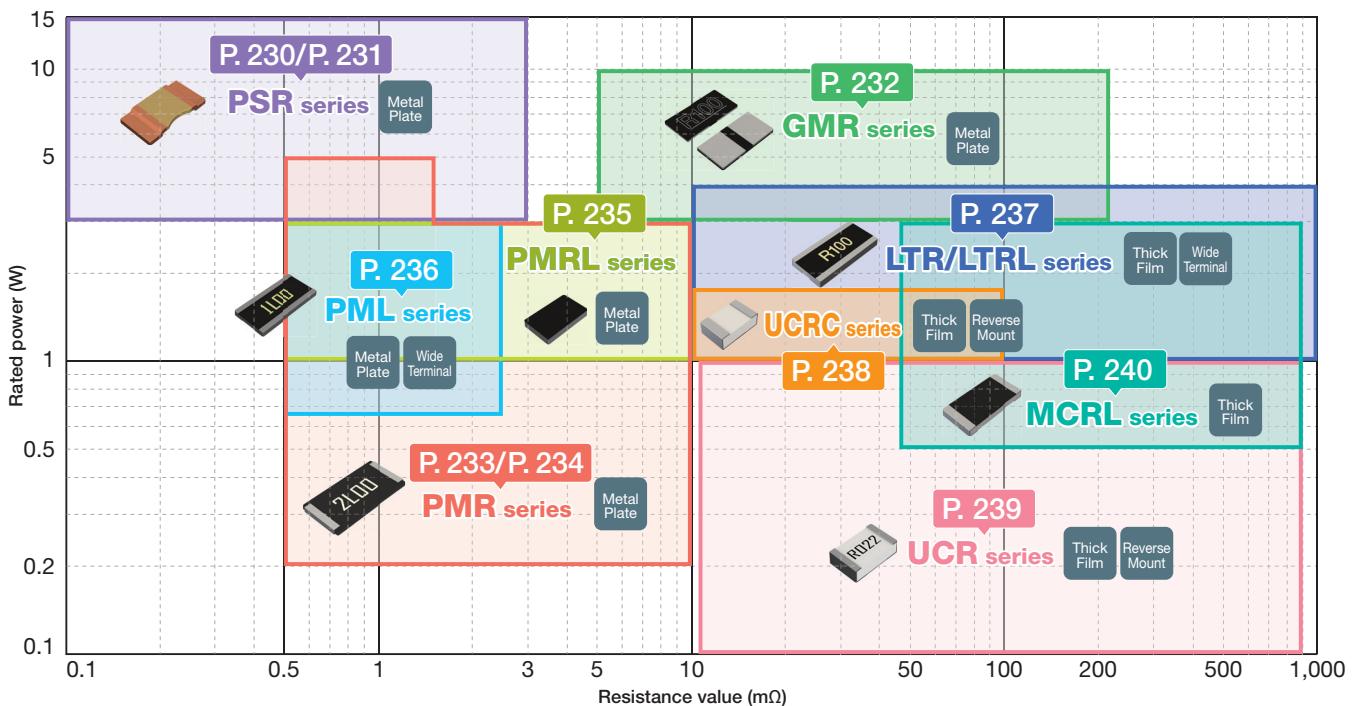
Thick Film Shunt Resistors lineup

Size mm (inch)	Part No.	Terminal type Wide Terminal	Attached type Reverse Attached	Specification			Resistance Range (mΩ)	Rated Power (W)	Printing Page
				General-purpose	Ultra-low resistance	High Power			
0603 (0201)	UCR006		✓				100 to 910	0.1	P.239
1005 (0402)	UCR01		✓	✓	✓	✓	68 to 910	0.125	P.239
							20 to 200	0.25	
1608 (0603)	UCR03		✓	✓	✓	✓	220 to 910	0.2	P.239
							10 to 12	1	
2012 (0805)	☆UCR10C		✓	✓	✓	✓	13 to 100	1.25	P.238
							11 to 100	0.33	
2120 (0508)	UCR10		✓	✓	✓	✓	47 to 910	0.5	P.240
							33 to 910	1	
3216 (1206)	UCR18		✓	✓	✓	✓	10 to 100	1.75	P.238
							11 to 39	1	
3225 (1210)	MCR18L		✓	✓	✓	✓	43 to 100	0.5	P.239
							47 to 910	0.75	
1632 (0612)	LTR18		✓				10 to 1000	1.5	P.237
3225 (1210)	☆MCR25L		✓				47 to 910	1.25	P.240
5025 (2010)	☆MCR50L		✓				47 to 910	2	P.240
2550 (1020)	LTR50		✓				10 to 910	New 3	P.237
6432 (2512)	☆MCR100L		✓				47 to 910	3	P.240
3264 (1225)	LTR100L		✓	✓	✓	✓	10 to 91	4	P.237
							100 to 910	New 3	

☆: Under Development

Resistors Quick Reference of Package Size

Shunt Resistors Table



Thick Film Chip Resistors (Standard series/High Reliability series)

Thick Film Chip Resistors (Standard series/High Reliability series) lineup

Size mm (inch)	Part No.	RASMIN™ package	Terminal type Wide Terminal	Specification					Resistance Range (Ω)	Rated Power (W)	Printing Page
				General-purpose	Tolerance for Sulfurization	Anti-surge	High Anti-surge	High Power			
03015 (0.09005)	SMR003	✓							10 to 1M	0.02	P.252
0402 (0.1005)	MCR004			✓					1 to 1M	0.031 (1/32)	P.248
New MCR004E				✓					1 to 1M	0.031 (1/32)	P.249
0603 (0.201)	MCR006			✓					1 to 10M	0.05	P.248
1005 (0.402)	ESR01				✓				1 to 10M	0.2	P.241
SFR01					✓				1 to 10M	0.063 (1/16)	P.245
MCR01S				✓				✓	1 to 10M	0.1	P.246
MCR01				✓				✓	1 to 10M	0.063 (1/16)	P.248
1608 (0.603)	SDR03					✓			1 to 10M	New 0.4	P.241
ESR03						✓			1 to 976	New 0.33 (1/3)	P.241
									1k to 10M	0.25	
KTR03								✓	1 to 10M	0.1	P.244
SFR03					✓				1 to 10M	0.1	P.245
MCR03S				✓				✓	1 to 10M	0.125	P.246
MCR03				✓				✓	1 to 10M	0.1	P.248
2012 (0.805)	SDR10					✓			1 to 10M	New 0.66 (2/3)	P.241
ESR10						✓			1 to 976	New 0.5	P.241
									1k to 10M	0.4	
KTR10								✓	1 to 30M	0.125	P.244
SFR10					✓				1 to 10M	0.125	P.245
MCR10S				✓				✓	1 to 10M	0.25	P.246
MCR10				✓				✓	10 to 1M	0.1	P.248
									1 to 10M	0.125	
1220 (0.508)	LTR10	✓				✓		✓	1 to 976	1	P.243
									1k to 1M	0.25	
									1 to 976	New 0.75	
3216 (1.206)	ESR18					✓			1k to 10M	0.5	P.241
KTR18								✓	1 to 10M	0.25	P.244
SFR18					✓				1 to 10M	0.25	P.245
MCR18S				✓				✓	1 to 10M	0.4	P.246
MCR18				✓				✓	10 to 1M	0.125	P.248
									1 to 10M	0.25	
1632 (0.612)	LTR18	✓				✓		✓	1 to 976	1.5	P.243
									1k to 1M	0.75	
									1 to 976	New 1	
3225 (1.210)	ESR25					✓			1 to 10M	0.33 (1/3)	P.241
KTR25								✓	1 to 10M	0.33 (1/3)	P.244
SFR25					✓				1 to 1M	0.5	P.245
★MCR25S				✓				✓	1 to 1M	0.5	P.246
5025 (2.010)	New MCR50S			✓				✓	1 to 4.7M	1.5	P.246
2550 (1020)	LTR50	✓				✓		✓	1 to 1M	1, ★2	P.243
6432 (2512)	New MCR100S			✓				✓	1 to 4.7M	2	P.246
3264 (1225)	LTR100	✓				✓		✓	1 to 1M	New 3	P.243

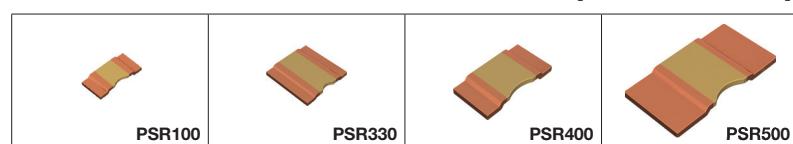
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☆: Under Development

For Current Detection

High Power Metal Plate Shunt Resistors <Ultra Low ohmic> (PSR series)

- High power 3W to 15W.
- Excellent TCR characteristics.
- Convex structure.
- Ultra low resistance range (0.1mΩ or more).



PSR series									
Part No.	Size Code mm (inch)	Rated Power (W) (Rated Terminal Temperature)		Tolerance	Temperature* Coefficient (ppm/°C)	Resistance Value (mΩ)	Operating Temperature (°C)	Automotive Grade AEC-Q200	
		Low temperature side	High temperature side						
PSR100	6432 (2512)	12 (120°C)		F (±1%)	150±50	★0.2	-65 to +175	YES	
		8 (75°C)	4 (140°C)		0 to +150	0.3			
		8 (75°C)	4 (140°C)		0 to +100	0.5			
		8 (75°C)	4 (140°C)		0 to +100	1.0			
		6 (75°C)	4 (140°C)		0 to +50	2.0			
		4 (75°C)	3 (140°C)		0 to +50	3.0			
★PSR330	6464 (2525)	15 (120°C)		F (±1%)	100±50	0.1	-65 to +175	YES	
		8 (100°C)			0 to +100	0.5			
		6 (100°C)			0 to +50	1.0			
PSR400	10x5.2 (3921)	12 (75°C)	5 (130°C)	F (±1%)	125±50	0.2	-65 to +175	YES	
		10 (75°C)	5 (130°C)		0 to +100	0.3			
		10 (75°C)	5 (130°C)		0 to +100	0.5			
		8 (75°C)	5 (130°C)		0 to +75	1.0			
		6 (75°C)	4 (115°C)		0 to +75	2.0			
		5 (70°C)	3 (115°C)		0 to +75	3.0			
PSR500	15x7.75 (5931)	15 (75°C)	10 (120°C)	F (±1%)	200±50	0.1	-65 to +175	YES	
		15 (75°C)	10 (120°C)		0 to +150	0.2			
		10 (75°C)	7 (120°C)		0 to +150	0.3			
		10 (75°C)	7 (120°C)		0 to +150	0.4			
		10 (75°C)	7 (120°C)		0 to +150	0.5			
		10 (75°C)	6 (120°C)		0 to +75	1.0			
		7 (70°C)	4 (115°C)		0 to +75	2.0			

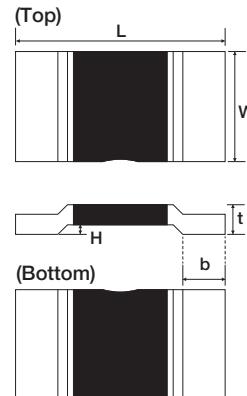
*(+20°C to +175°C)

★: Under Development

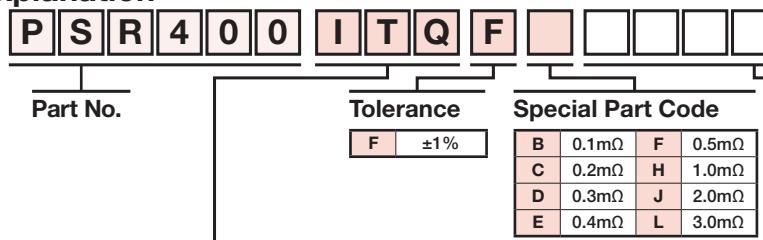
Dimensions (Unit: mm)

Part No.	Resistance (mΩ)	L	W	t	H	b
PSR100	0.2	6.35±0.15	3.05±0.25	1.80±0.15	0.35±0.15	1.12±0.3
	0.3			1.45±0.15		
	0.5			1.15±0.15		
	1.0			0.75±0.15		
	2.0			1.00±0.15		
	3.0			0.75±0.15		
PSR330	0.1	6.35±0.15	6.35±0.25	1.81±0.15	0.35±0.15	1.12±0.3
	0.5			0.75±0.15		
	1.0			1.00±0.15		
PSR400	0.2	10±0.3	5.2±0.3	1.9±0.15	0.5±0.15	2.0±0.6
	0.3			1.85±0.15		
	0.5			1.3±0.15		
	1.0			0.9±0.15		
	2.0			1.1±0.15		
	3.0			0.9±0.15		
PSR500	0.1	15±0.3	7.75±0.3	1.96±0.15	0.5±0.15	4.0±0.6
	0.2			1.85±0.15		
	0.3			1.4±0.15		
	0.4			1.15±0.15		
	0.5			1.05±0.15		
	1.0			1.35±0.15		
	2.0			0.9±0.15		

●PSR100/330/400/500



Product No. Explanation



Packaging Specifications Code

Part No.	Code	Tolerance F (±1%)	Packaging Specifications	Reel	Basic Ordering Unit (pcs)
PSR100	ITQ*	○	Embossed tape (8mm Pitch)	Φ330mm (13inch)	3,000
	KTQ*	○	Embossed tape (8mm Pitch)	Φ330mm (13inch)	5,000
PSR330	ITQ	○	Embossed tape (8mm Pitch)	Φ330mm (13inch)	3,000
PSR400	ITQ	○	Embossed tape (8mm Pitch)	Φ330mm (13inch)	3,000
PSR500	HTQ	○	Embossed tape (12mm Pitch)	Φ330mm (13inch)	2,000

*ITQ: Apply to 2mΩ

*KTQ: Apply from 0.3mΩ to 3mΩ

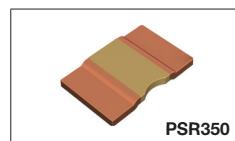
○: Standard product Reel (Φ330mm): Compatible with JEITA standard "EIAJ ET-7200B"

Resistance	F
0.1mΩ	0L10
0.2mΩ	0L20
0.3mΩ	0L30
0.4mΩ	0L40
0.5mΩ	0L50
1.0mΩ	1L00
2.0mΩ	2L00
3.0mΩ	3L00

For Current Detection

High Power Metal Plate Shunt Resistors <Ultra Low ohmic> <Low profile> (PSR350)

- Perfect for use embedded power module by low height structure.
- Circuit space can be saved by guaranteed the same rated power as one size larger product.
- Limiting current 210A.



PSR350

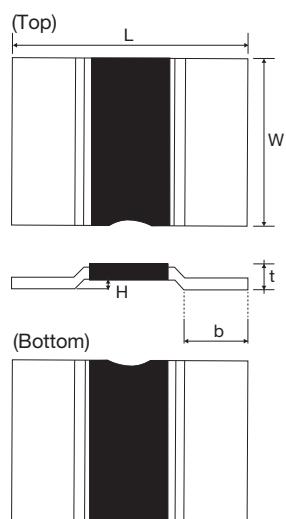
PSR350								
Part No.	Size Code mm (inch)	Rated Power (W)	Rated Terminal Temperature (°C)	Tolerance	Temperature* Coefficient (ppm/°C)	Resistance Value (mΩ)	Operating Temperature (°C)	Automotive Grade AEC-Q200
PSR350	7.9×5.6 (3222)	12	120	F (±1%)	0 to +150	0.27	-65 to +175	YES

*(+20°C to +175°C)

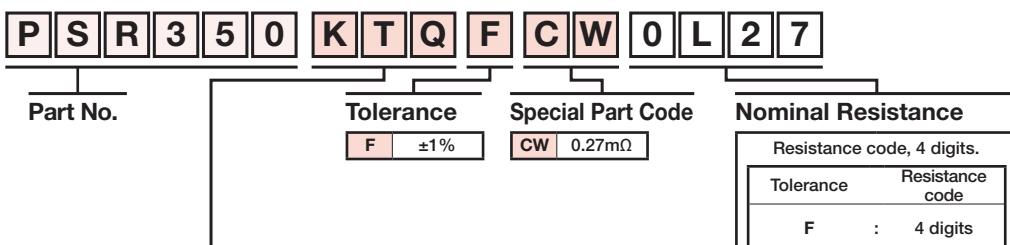
Dimensions (Unit: mm)

Part No.	Resistance (mΩ)	L	W	t	H	b
PSR350	0.27	7.9±0.1	5.6±0.3	0.85±0.15	0.35±0.15	2.1±0.20

●PSR350



■Product No. Explanation



Packaging Specifications Code

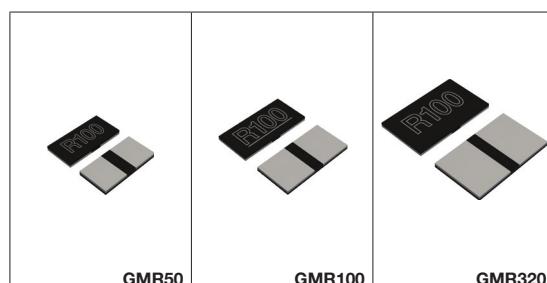
Part No.	Code	Tolerance F (±1%)	Packaging Specifications	Reel	Basic Ordering Unit (pcs)
PSR350	KTQ	○	Embossed tape (8mm Pitch)	Φ330mm (13inch)	5,000

○: Standard product Reel (Φ330mm): Compatible with JEITA standard "EIAJ ET-7200B"

For Current Detection

High Power Metal Plate Shunt Resistors (GMR series)

- High power (3W to 10W).
- High heat dissipation.
- Excellent TCR characteristics.
- Low ohmic (5mΩ to 220mΩ).



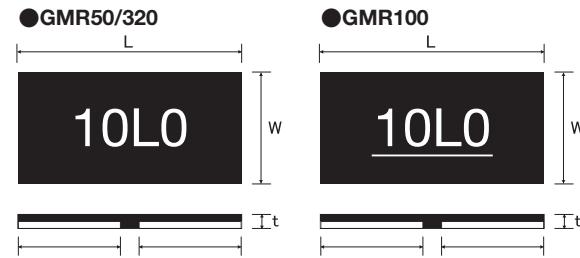
GMR series								
Part No.	Size Code mm (inch)	Rated Power (W)	Rated Terminal Temperature (°C)	Tolerance	Temperature ^{*1} Coefficient (ppm/°C)	Resistance Range	Operating Temperature (°C)	Automotive Grade AEC-Q200
GMR50	5025 (2010)	4	90	F (±1%)	0 to +25 ±25	5mΩ 10mΩ to 220mΩ (E24 series) ^{*2}	-65 to +170	YES
		3	110	F (±1%)	0 to +25 ±25	5mΩ 10mΩ to 220mΩ (E24 series) ^{*2}		
GMR100	6432 (2512)	7	70	F (±1%)	0 to +50 ±25	5mΩ 10mΩ to 220mΩ (E24 series) ^{*2}	-65 to +170	YES
		5	110	F (±1%)	0 to +50 ±25	5mΩ 10mΩ to 220mΩ (E24 series) ^{*2}		
GMR320	7142 (2817)	10	70	F (±1%)	0 to +50 ±25	5mΩ 10mΩ to 100mΩ (E24 series) ^{*2}	-65 to +170	YES
		7	110	F (±1%)	0 to +50 ±25	5mΩ 10mΩ to 100mΩ (E24 series) ^{*2}		

*1 (+20°C to +60°C)

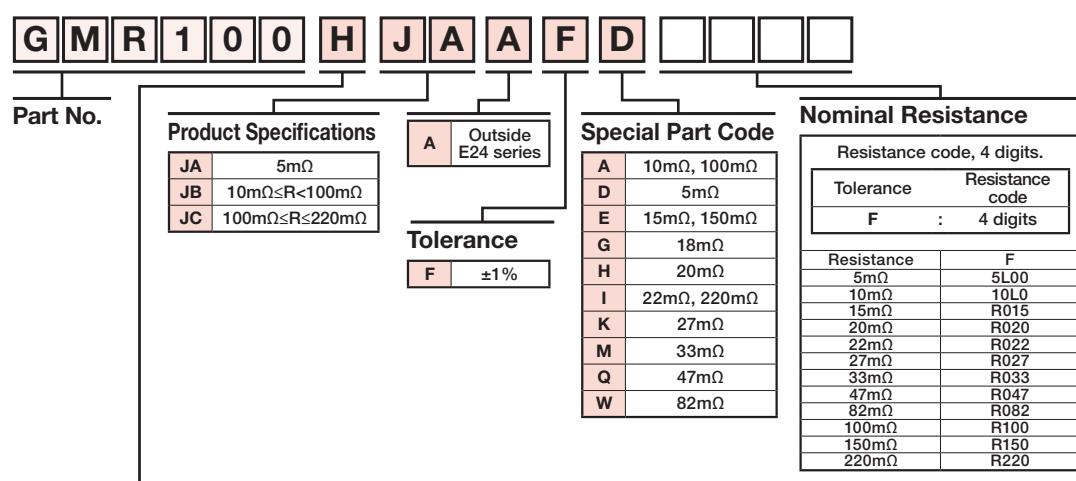
*2 Development schedule will vary depending on resistance value. Please contact us for resistance values.

Dimensions (Unit: mm)

Part No.	Size Code mm (inch)	L	W	t	a
GMR50	5025 (2010)	5.00±0.25	2.50±0.25	0.40±0.15	2.05±0.25
GMR100	6432 (2512)	6.40±0.25	3.20±0.25	0.40±0.15	2.75±0.25
GMR320	7142 (2817)	7.10±0.25	4.20±0.25	0.40±0.15	3.10±0.25



Product No. Explanation



Packaging Specifications Code

Part No.	Code	Tolerance	Packaging Specifications	Reel	Basic Ordering Unit (pcs)
GMR50	H	◎	Embossed tape (4mm Pitch)	φ180mm (7inch)	2,000
GMR100	H	◎	Embossed tape (8mm Pitch)	φ180mm (7inch)	2,000
GMR320	H	◎	Embossed tape (8mm Pitch)	φ180mm (7inch)	2,000

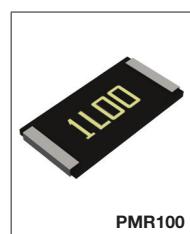
Reel (φ180mm): Compatible with JEITA standard "EIAJ ET-7200B"

◎: Standard product

For Current Detection

Metal Plate Shunt Resistors <Ultra Low ohmic> <High Power Type> (PMR100)

- Rated power of 5W realized by 2512 size, contributing to circuit space saving.
- Achieved an excellent temperature characteristics by using a special alloy for the resistive element.
- For current detection: Supported from 0.5mΩ.



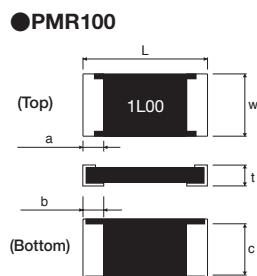
PMR100 high power type

Part No.	Size Code mm (inch)	Rated Power (W)	Rated Ambient Temperature (°C)	Rated Terminal Temperature (°C)	Tolerance	Temperature Coefficient (ppm/°C)	Resistance Value (mΩ)	Operating Temperature (°C)	Automotive Grade AEC-Q200
★PMR100	6432 (2512)	5	-	130	F (±1%)	±75	0.5	-65 to +175	YES
				110			1		
				90			1.5		

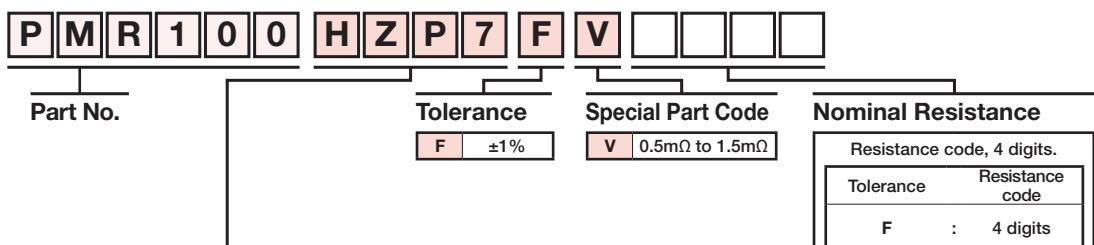
★: Under Development

Dimensions (Unit: mm)

Part No.	Size Code mm (inch)	Resistance Value (mΩ)	L	W	t	a	b	c
PMR100	6432 (2512)	0.5	6.40±0.25	3.2±0.25	0.52±0.15	0.50±0.25	2.40±0.25	2.65±0.25
		1	6.40±0.25	3.2±0.25	0.44±0.15	0.50±0.25	2.30±0.25	2.90±0.25
		1.5	6.40±0.25	3.2±0.25	0.44±0.15	0.50±0.25	1.65±0.25	2.65±0.25



Product No. Explanation



Packaging Specifications Code

Part No.	Code	Tolerance F (±1%)	Packaging Specifications	Reel	Basic Ordering Unit (pcs)
PMR100	HZP7	◎	Embossed tape (4mm Pitch)	φ180mm (7inch)	2,000

Reel (ø180mm): Compatible with JEITA standard "EIAJ ET-7200B"
 ◎: Standard product

Resistance code, 4 digits.	
Tolerance	Resistance code
F	: 4 digits
Resistance Value (Ω)	Tolerance
0.5mΩ	F
1mΩ	0L50
1.5mΩ	1L00
	1L50

For Current Detection

Metal Plate Shunt Resistors <Ultra Low ohmic> (PMR series)

- Avoiding heat concentration with trimmingless structure and the reducing the surface temperature rise.
- Achieved an excellent temperature characteristics by using a special alloy for the resistive element.
- Ultra low-ohmic resistance range (1mΩ or more).



Rated power up PMR series

Part No.	Size Code mm (inch)	Rated Power (W)	Rated Ambient Temperature (°C)	Rated Terminal Temperature (°C)	Tolerance	Temperature Coefficient (ppm/°C)	Resistance Value (mΩ)	Operating Temperature (°C)	Automotive Grade AEC-Q200
PMR10	2012 (0805)	1	—	130	F (±1%) J (±5%)	±100	2	-65 to +155	YES
PMR18	3216 (1206)	1.5	—	130	F (±1%) J (±5%)	±100	1, 2		YES
PMR25	3225 (1210)	2	—	130	F (±1%) J (±5%)	±75	1	-65 to +175	YES
PMR50	5025 (2010)	2	—	130	F (±1%) J (±5%)	±75	1, 2		YES
PMR100	6432 (2512)	3	—	130	F (±1%) J (±5%)	±75	1, 2		YES

PMR series

Part No.	Size Code mm (inch)	Rated Power (W)	Rated Ambient Temperature (°C)	Rated Terminal Temperature (°C)	Tolerance	Temperature Coefficient (ppm/°C)	Resistance Value (mΩ)	Operating Temperature (°C)	Automotive Grade AEC-Q200
PMR01	1005 (0402)	0.2	70	—	J (±5%)	0 to 200	10	-55 to +155	YES
PMR03	1608 (0603)	0.25	70	—	F (±1%) J (±5%)	0 to 150	10		YES
PMR10	2012 (0805)	0.5	70	—	F (±1%) J (±5%)	±150	3, 4, 5, 6, 7, 8, 9, 10		YES
PMR18	3216 (1206)	1	70	—	F (±1%) J (±5%)	±100	3, 4, 5, 6, 7, 8, 9, 10		YES
PMR25	3225 (1210)	1	70	—	F (±1%) J (±5%)	±100	2, 3, 4, 5		YES
PMR50	5025 (2010)	1	70	—	F (±1%) J (±5%)	±100	3, 4, 5, 6, 7, 8, 9, 10		YES
PMR100	6432 (2512)	2	70	—	F (±1%) J (±5%)	±100	3, 4, 5, 6, 7, 8, 9, 10		YES

Large Current Jumper type

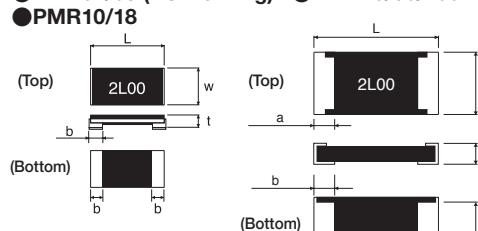
Part No.	Size Code mm (inch)	Rated Current (A)	Resistance	Operating Temperature (°C)	Automotive Grade AEC-Q200
PMR01	1005 (0402)	20.0	0.5mΩ Max	-55 to +155	YES
PMR03	1608 (0603)	22.4			YES
PMR10	2012 (0805)	31.6			YES
PMR18	3216 (1206)	38.7			YES
PMR25	3225 (1210)	44.7			YES
PMR50	5025 (2010)	50.0			YES
PMR100	6432 (2512)	63.2			YES

Dimensions (Unit: mm)

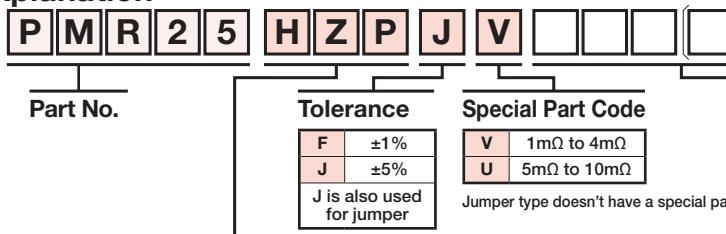
Part No.	Size Code mm (inch)	L	W	t	a	b	c
PMR01	1005 (0402)	1.0±0.05	0.5±0.05	0.25±0.1	—	0.25±0.10	—
PMR03	1608 (0603)	1.6±0.15	0.8±0.15	0.25±0.1	—	0.35±0.15	—
PMR10	2012 (0805)	2.0±0.15	1.2±0.15	0.42 to 0.28*±0.15	—	0.75 to 0.35*±0.25	—
PMR18	3216 (1206)	3.2±0.15	1.6±0.15	0.44 to 0.28*±0.15	—	1.20 to 0.5 *±0.25	—
PMR25	3225 (1210)	3.2±0.2	2.5±0.2	0.52 to 0.32*±0.15	0.5±0.2	1.00 to 0.8 *±0.2	1.95±0.2
PMR50	5025 (2010)	5.0±0.2	2.5±0.2	0.52 to 0.32*±0.15	0.5±0.2	1.85 to 0.9 *±0.2	1.95±0.2
PMR100	6432 (2512)	6.4±0.25	3.2±0.25	0.52 to 0.32*±0.15	0.5±0.25	2.3 to 1.1 *±0.25	2.65±0.25

*Each value range varies with the resistance. Please contact a ROHM sales representative for further details.

●PMR01/03 (No marking) ●PMR25/50/100



Product No. Explanation



Packaging Specifications Code

Part No.	Code	Tolerance		Packaging Specifications	Reel	Basic Ordering Unit (pcs)
		J (±5%)	F (±1%)			
PMR01	ZZP	○	—	Embossed tape (2mm Pitch)	ø180mm (7inch)	10,000
PMR03	EZP	○	○	Paper tape (4mm Pitch)	ø180mm (7inch)	5,000
PMR10	EZP	○	○	Paper tape (4mm Pitch)	ø180mm (7inch)	5,000
PMR18	EZP	○	○	Paper tape (4mm Pitch)	ø180mm (7inch)	5,000
PMR25	HZP	○	○	Embossed tape (4mm Pitch)	ø180mm (7inch)	2,000
PMR50	HZP	○	○	Embossed tape (4mm Pitch)	ø180mm (7inch)	2,000
PMR100	HZP	○	○	Embossed tape (4mm Pitch)	ø180mm (7inch)	2,000

Reel (ø180mm): Compatible with JEITA standard "EIAJ ET-7200"

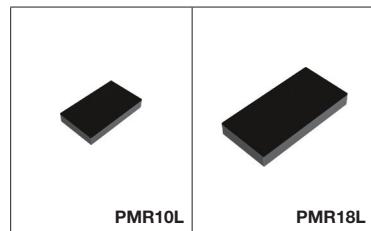
○: Standard product

Resistance Value (Ω)	Tolerance	
	J	F
000	—	—
1mΩ	1L0	1L00
2mΩ	2L0	2L00
3mΩ	3L0	3L00
4mΩ	4L0	4L00
5mΩ	5L0	5L00
6mΩ	6L0	6L00
7mΩ	7L0	7L00
8mΩ	8L0	8L00
9mΩ	9L0	9L00
10mΩ	10L	10L0

For Current Detection

High Power Metal Plate Shunt Resistors <Ultra Low ohmic> (PMRL series)

- Avoiding heat concentration with trimmingless structure and high heat dissipation thermal structure. And realizes high power consumption with reducing the surface temperature rise.
- Achieved an excellent temperature characteristics by using a special alloy for the resistive element.
- For current detection: Supported from $0.5\text{m}\Omega$.



PMRL series									
Part No.	Size Code mm (inch)	Rated Power (W)	Rated Ambient Temperature (°C)	Rated Terminal Temperature (°C)	Tolerance	Temperature Coefficient (ppm/°C)	Resistance Value (mΩ)	Operating Temperature (°C)	Automotive Grade AEC-Q200
☆PMR10L	2012 (0805)	2	—	130	F ($\pm 1\%$) J ($\pm 5\%$)	± 100	0.5, 1, 2	-65 to +175	YES
		1	—	105	F ($\pm 1\%$) J ($\pm 5\%$)	± 100	3, 4, 5, 6, 7, 8, 9, 10	-65 to +155	
☆PMR18L	3216 (1206)	3	—	130	F ($\pm 1\%$) J ($\pm 5\%$)	± 75	0.5, 1, 2	-65 to +175	YES
		1.5	—	110	F ($\pm 1\%$) J ($\pm 5\%$)	± 50	3, 4, 5, 6, 7, 8, 9, 10		

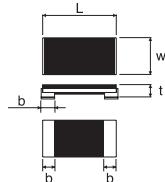
☆: Under Development

Dimensions (Unit: mm)

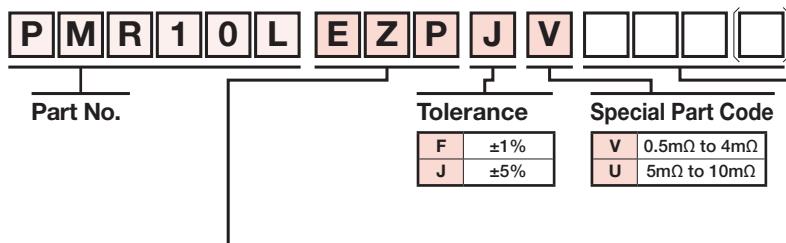
Part No.	Size Code mm (inch)	L	W	t	b
PMR10L	2012 (0805)	2.0±0.15	1.2±0.15	0.42 to 0.28* ±0.15	0.75 to 0.36* ±0.25
PMR18L	3216 (1206)	3.2±0.15	1.6±0.15	0.44 to 0.28* ±0.15	1.20 to 0.5* ±0.25

*Each value range varies with the resistance. Please contact a ROHM sales representative for further details.

●PMR10L/18L (No marking)



■Product No. Explanation



Packaging Specifications Code

Part No.	Code	Tolerance		Packaging Specifications	Reel	Basic Ordering Unit (pcs)
		J ($\pm 5\%$)	F ($\pm 1\%$)			
PMR10L	EZP	○	○	Paper tape (4mm Pitch)	φ180mm (7inch)	5,000
PMR18L	EZP	○	○	Paper tape (4mm Pitch)	φ180mm (7inch)	5,000

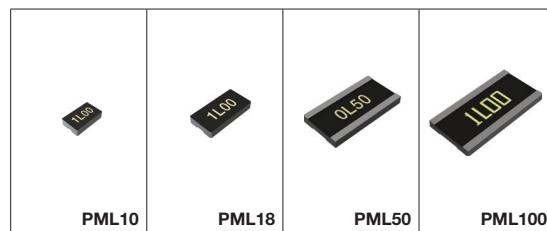
Reel (φ180mm): Compatible with JEITA standard "EIAJ ET-7200B"
○: Standard product

Resistance Value (mΩ)	Tolerance	
	J	F
0.5mΩ	0L5	0L50
1mΩ	1L0	1L00
2mΩ	2L0	2L00
3mΩ	3L0	3L00
4mΩ	4L0	4L00
5mΩ	5L0	5L00
6mΩ	6L0	6L00
7mΩ	7L0	7L00
8mΩ	8L0	8L00
9mΩ	9L0	9L00
10mΩ	10L	10L0

For Current Detection

Metal Plate Shunt Resistors <Ultra Low ohmic> <Wide Terminal type> (PML series)

- Wide terminal configuration for high joint reliability.
- Avoiding heat concentration by trimming-less structure and it reduce temperature rise.
- Ultra-low resistance range (0.5mΩ or more).

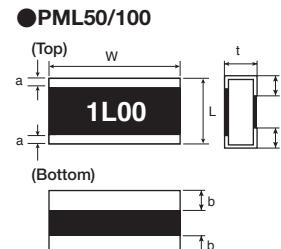
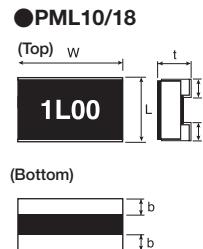


PML series								
Part No.	Size Code mm (inch)	Rated Power (W)	Rated Ambient Temperature (°C)	Tolerance	Temperature Coefficient (ppm/°C)	Resistance Value (mΩ)	Operating Temperature (°C)	Automotive Grade AEC-Q200
PML10	1220 (0508)	0.66 (2/3)	70	G (±2%) J (±5%)	±200	1.0, 1.5, 2.0, 2.5	-55 to +155	YES
PML18	1632 (0612)	1	70	G (±2%) J (±5%)	±150	0.5, 1.0, 1.5, 2.0, 2.5		YES
PML50	2550 (1020)	2	70	J (±5%)	±150 ±100	0.5 2.2		YES
PML100	3264 (1225)	2	70	J (±5%)	±150	0.5		YES
		2	70		±100	1.0, 1.5, 2.0, 2.2		
		3	25					

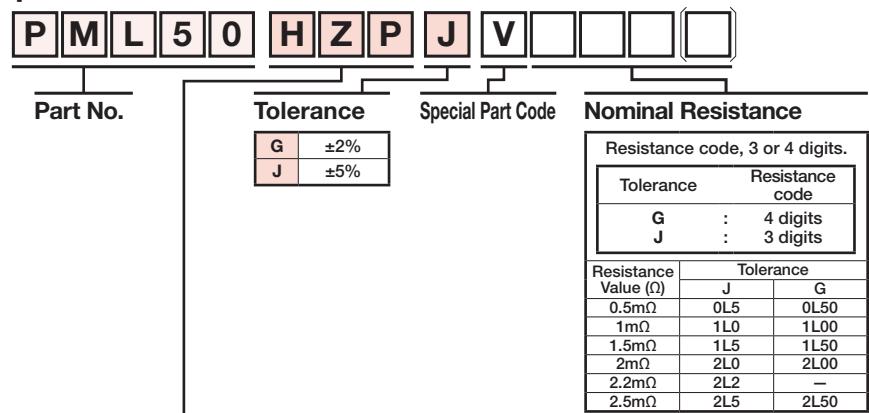
Dimensions (Unit: mm)

Part No.	Size Code mm (inch)	L	W	t	a	b
PML10	1220 (0508)	1.2±0.15	2.0±0.15	0.42 to 0.28* ±0.15	—	0.45 to 0.35* ±0.25
PML18	1632 (0612)	1.6±0.15	3.2±0.15	0.42 to 0.28* ±0.15	—	0.55 to 0.35* ±0.25
PML50	2550 (1020)	2.6±0.20	5.0±0.2	0.5 to 0.36* ±0.15	0.4±0.2	0.75 to 0.7* ±0.2
PML100	3264 (1225)	3.2±0.25	6.4±0.25	0.5 to 0.36* ±0.15	0.45±0.25	0.9 to 0.7* ±0.25

*Each value range varies with the resistance. Please contact a ROHM sales representative for further details.



Product No. Explanation



Packaging Specifications Code

Part No.	Code	Tolerance		Packaging Specifications	Reel	Basic Ordering Unit (pcs)
		J (±5%)	G (±2%)			
PML10	EZP	○	○	Paper tape (4mm Pitch)	φ180mm (7inch)	5,000
PML18	EZP	○	○	Paper tape (4mm Pitch)	φ180mm (7inch)	5,000
PML50	HZP	○	—	Embossed tape (4mm Pitch)	φ180mm (7inch)	2,000
PML100	HZP	○	—	Embossed tape (4mm Pitch)	φ180mm (7inch)	2,000

Reel (φ180mm): Compatible with JEITA standard "EIAJ ET-7200B"

○: Standard product

For Current Detection

High Power Thick Film Shunt Resistors <Wide Terminal type> (LTR/LTRL series)

- High joint reliability with long side terminations.
- Improvement of rated power enables to displace smaller size of resistors, and it contributes space savings in your set.
- Chip resistors for current detection. (10mΩ or more)



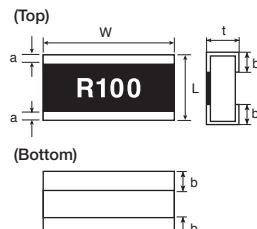
LTR/LTRL series

Part No.	Size Code mm (inch)	Rated Power (W)	Rated Ambient Temperature (°C)	Rated Terminal Temperature (°C)	Tolerance	Temperature Coefficient (ppm/°C)	Resistance Range	Operating Temperature (°C)	Automotive Grade AEC-Q200
LTR10L	1220 (0508)	1	70	125	D (±0.5%)	0 to 150 0 to 100	100mΩ to 180mΩ (E24 series) 200mΩ to 910mΩ (E24 series)	-55 to +155	YES
					F (±1%) J (±5%)	0 to 150 0 to 100	33mΩ to 180mΩ (E24 series) 200mΩ to 910mΩ (E24 series)		
LTR18	1632 (0612)	1.5	70	95	F (±1%) J (±5%)	0 to 300 0 to 200 0 to 150 ±100	10mΩ to 18mΩ (E24 series) 20mΩ to 47mΩ (E24 series) 51mΩ to 470mΩ (E24 series) 510mΩ to 1Ω (E24 series)	-55 to +155	YES
LTR50	2550 (1020)	New 3	70	110	F (±1%) J (±5%)	0 to 300 0 to 200 0 to 150 ±100	10mΩ to 18mΩ (E24 series) 20mΩ to 47mΩ (E24 series) 51mΩ to 91mΩ (E24 series) 100mΩ to 910mΩ (E24 series)	-65 to +155	YES
LTR100L	3264 (1225)	4	70	110	F (±1%) J (±5%)	0 to 300 0 to 200 0 to 150	10mΩ to 18mΩ (E24 series) 20mΩ to 47mΩ (E24 series) 51mΩ to 91mΩ (E24 series)		
LTR100		New 3	70	115	F (±1%) J (±5%)	0 to 150 0 to 100 ±200	100mΩ to 180mΩ (E24 series) 200mΩ to 910mΩ (E24 series) 100mΩ to 910mΩ (E24 series)	-55 to +155	YES

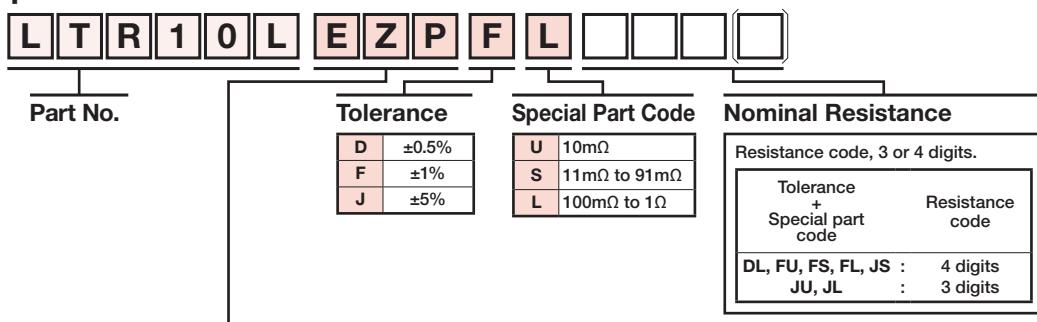
Dimensions (Unit: mm)

Part No.	Size Code mm (inch)	L	W	t	a	b
LTR10L	1220 (0508)	1.25±0.15	2.0±0.15	0.55±0.1	0.28±0.15	0.35±0.2
LTR18	1632 (0612)	1.6±0.1	3.2±0.1	0.58±0.1	0.5±0.2	0.5±0.2
LTR50	2550 (1020)	2.5±0.15	5.0±0.15	0.58±0.15	0.38±0.2	0.9±0.2
LTR100L	3264 (1225)	3.1±0.15	6.4±0.15	0.58±0.15	0.5±0.25	1.0±0.25
LTR100		3.2±0.15	6.4±0.15	0.55±0.15	0.4±0.25	1.13±0.25

- LTR10L/LTR18/LTR100L/LTR100 (No marking)
- LTR50 (Marking)



Product No. Explanation



Packaging Specifications Code

Part No.	Code	Tolerance J (±5%) F (±1%)	Packaging Specifications	Reel	Basic Ordering Unit (pcs)
LTR10L*	EZP	○ ○	Paper tape (4mm Pitch)	φ180mm (7inch)	5,000
LTR18	EZP	○ ○	Paper tape (4mm Pitch)	φ180mm (7inch)	5,000
LTR50	UZP	○ ○	Embossed tape (4mm Pitch)	φ180mm (7inch)	5,000
LTR100L	JZP	○ ○	Embossed tape (4mm Pitch)	φ180mm (7inch)	4,000
LTR100	JZP	○ ○	Embossed tape (4mm Pitch)	φ180mm (7inch)	4,000

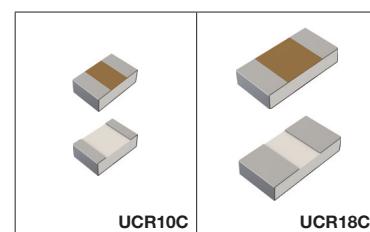
○: Standard product

*LTR10L D class (±0.5%) is available for 100mΩ to 910mΩ only

For Current Detection

High Power Thick film Shunt Resistors <Face down type> (UCRC series)

- Rated power of 1W realized by 0805 size thick film chip resistor.
- Realized low TCR (100ppm/°C or less) with thick film chip resistor.
- Supported from 10mΩ.



UCRC series

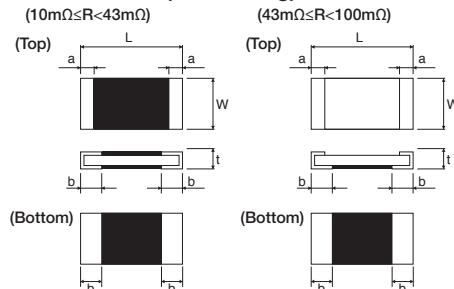
Part No.	Size Code mm (inch)	Rated Power (W)	Rated Ambient Temperature (°C)	Rated Terminal Temperature (°C)	Tolerance	Temperature Coefficient (ppm/°C)	Resistance Range	Operating Temperature (°C)	Automotive Grade AEC-Q200
☆UCR10C	2012 (0805)	1	70	125	F (±1%) J (±5%)	±75	10mΩ to 12mΩ (E24 series)	-55 to +155	YES
		1.25				±60	13mΩ to 100mΩ (E24 series)		
☆UCR18C	3216 (1206)	1.75	70	125	F (±1%) J (±5%)	±75	10mΩ to 100mΩ (E24 series)		YES

☆: Under Development

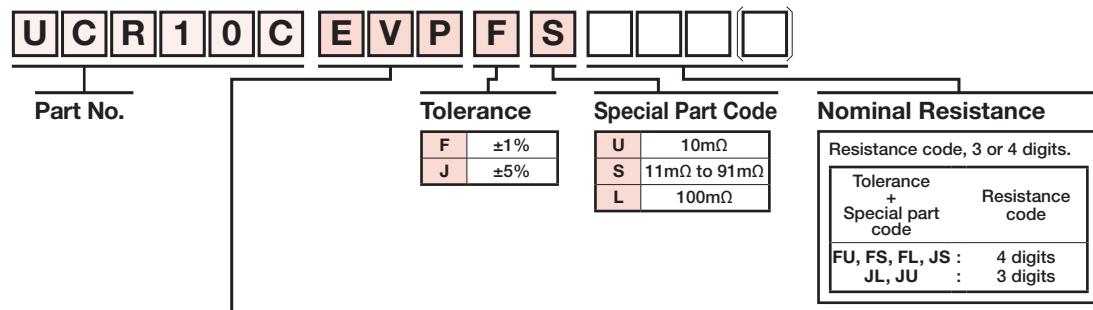
Dimensions (Unit: mm)

Part No.	Resistance Range (mΩ)	Size Code mm (inch)	L	W	t	a	b
UCR10C	10 to 39	2012 (0805)	2.05±0.20	1.30±0.2	0.65±0.10	0.60±0.20	0.60±0.20
	43 to 100					0.40±0.20	0.75±0.20
UCR18C	10 to 39	3216 (1206)	3.2±0.15	1.6±0.2	0.65±0.10	0.8±0.20	1.1±0.20
	43 to 100					1.1±0.20	1.2±0.20

●UCR10C/18C (No marking)



■Product No. Explanation



Packaging Specifications Code

Part No.	Code	Tolerance		Packaging Specifications	Reel	Basic Ordering Unit (pcs)	Remarks
		J (±5%)	F (±1%)				
UCR10C	EWP	◎	◎	Paper tape (4mm Pitch)	Φ180mm (7inch)	5,000	10mΩ to 39mΩ
	EVP	◎	◎	Paper tape (4mm Pitch)	Φ180mm (7inch)	5,000	43mΩ to 100mΩ
UCR18C	EWP	◎	◎	Paper tape (4mm Pitch)	Φ180mm (7inch)	5,000	10mΩ to 39mΩ
	EVP	◎	◎	Paper tape (4mm Pitch)	Φ180mm (7inch)	5,000	43mΩ to 100mΩ

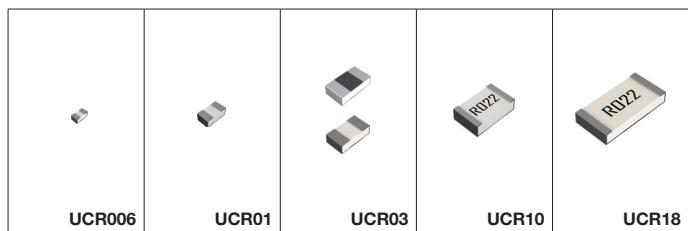
Reel (Φ180mm): Compatible with JEITA standard "EIAJ ET-7200B"

◎: Standard product

For Current Detection

Thick Film Shunt Resistors <Face down type> (UCR series)

- Resistive element is located at bottom side, which reduces the resistance shift during mounting process.
- ROHM's unique structure achieved improvement of heat.
- Chip resistors for current detection. (11mΩ or more)



UCR series							
Part No.	Size Code mm (inch)	Rated Power (W) (70°C)	Tolerance	Temperature Coefficient (ppm/°C)	Resistance Range	Operating Temperature (°C)	Automotive Grade AEC-Q200
UCR006	0603 (0201)	0.1	F (±1%) J (±5%)	0 to 300	100mΩ to 910mΩ (E24 series)	-55 to +155	YES
UCR01	1005 (0402)	0.125	F (±1%) J (±5%)	0 to 300 0 to 250 0 to 200	68mΩ to 91mΩ (E24 series) 100mΩ to 200mΩ (E24 series) 220mΩ to 910mΩ (E24 series)		YES
UCR03	1608 (0603)	0.25	F (±1%) J (±5%)	0 to 250 0 to 200 0 to 150	20mΩ to 47mΩ (E24 series) 50mΩ to 91mΩ (E24 series) 100mΩ to 200mΩ (E24 series)	-55 to +155	YES*
		0.2	F (±1%) J (±5%)	0 to 150	220mΩ to 910mΩ (E24 series)		YES
UCR10	2012 (0805)	0.33 (1/3)	F (±1%) J (±5%)	250±200 0 to 250 0 to 150	11mΩ to 18mΩ (E24 series) 20mΩ to 47mΩ (E24 series) 51mΩ to 100mΩ (E24 series)	-55 to +155	YES
UCR18	3216 (1206)	1	F (±1%) J (±5%)	0 to 350 0 to 200	11mΩ to 18mΩ (E24 series) 20mΩ to 39mΩ (E24 series)		YES
		0.5	F (±1%) J (±5%)	0 to 150	43mΩ to 100mΩ (E24 series)		YES

*Limited to 100mΩ and higher

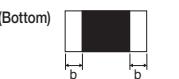
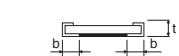
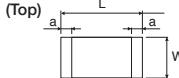
Dimensions (Unit: mm)

Part No.	Size Code mm (inch)	L	W	t	a	b
UCR006	0603 (0201)	0.62±0.05	0.32±0.05	0.24±0.05	0.18±0.1	0.22±0.1
UCR01	1005 (0402)	1.0±0.1	0.55±0.1	0.37±0.05	0.28±0.1	0.34±0.1
UCR03	1608 (0603)	1.6±0.1	0.87±0.1	0.5±0.1	0.45±0.2	0.45±0.2
UCR10	2012 (0805)	2.0±0.1	1.25±0.1	0.55±0.1	0.24±0.2	0.5±0.2
UCR18	3216 (1206)	3.2±0.15	1.6±0.15	0.55±0.1	0.3±0.2	0.9±0.25

●UCR006/01 (No marking)

●UCR03 (No marking)

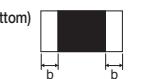
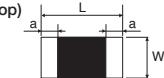
(50mΩ≤R≤910mΩ)



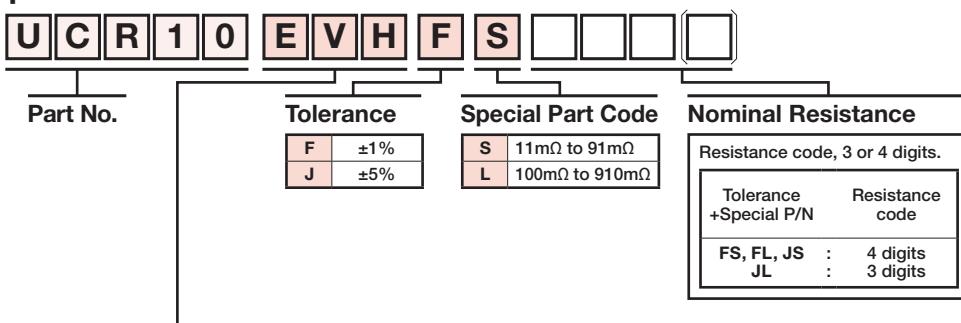
●UCR03 (No marking) (20mΩ≤R<50mΩ)

●UCR10/18 (No marking)

(20mΩ≤R<50mΩ)



Product No. Explanation



Packaging Specifications Code

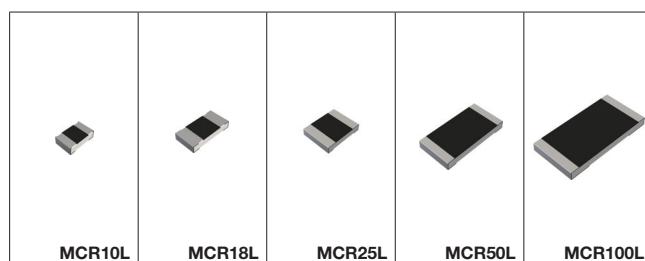
Part No.	Code	Tolerance J (±5%) F (±1%)	Packaging Specifications	Reel	Basic Ordering Unit (pcs)	Remarks
UCR006	YVP	○ ○	Paper tape (2mm Pitch)	φ180mm (7inch)	15,000	—
UCR01	MVP	○ ○	Paper tape (2mm Pitch)	φ180mm (7inch)	10,000	—
UCR03	EWP	○ ○	Paper tape (4mm Pitch)	φ180mm (7inch)	5,000	20mΩ to 47mΩ
	EVP	○ ○	Paper tape (4mm Pitch)	φ180mm (7inch)	5,000	51mΩ to 910mΩ
UCR10	EVH	○ ○	Paper tape (4mm Pitch)	φ180mm (7inch)	5,000	—
UCR18	EVH	○ ○	Paper tape (4mm Pitch)	φ180mm (7inch)	5,000	—

Reel (ø180mm): Compatible with JEITA standard "EIAJ ET-7200B"
○: Standard product

For Current Detection

General Purpose Chip Resistors: <Low ohmic> <High Power> (MCRL series)

- Guaranteed the same rated power as one size larger product by changing the design of the resistive element.
- Low ohmic resistance from 47mΩ is in lineup by thick-film resistive element.
- High-reliability chip resistor employing metal glaze as resistive element.



MCRL series

Part No.	Size Code mm (inch)	Rated Power (W)	Rated Ambient Temperature (°C)	Rated Terminal Temperature (°C)	Tolerance	Temperature Coefficient (ppm/°C)	Resistance Range	Operating Temperature (°C)	Automotive Grade AEC-Q200
MCR10L	2012 (0805)	0.5	70	—	F (±1%) J (±5%)	0 to 250	47mΩ to 110mΩ (E24 series)	-55 to +155	YES
						0 to 150	120mΩ to 910mΩ (E24 series)		
MCR18L	3216 (1206)	0.75	70	—	F (±1%) J (±5%)	0 to 250	47mΩ to 91mΩ (E24 series)	-55 to +155	YES
						0 to 150	100mΩ to 910mΩ (E24 series)		
☆MCR25L	3225 (1210)	1.25	70	125	D (±0.5%) F (±1%) J (±5%)	0 to 150	47mΩ to 91mΩ (E24 series)	-55 to +155	YES
						0 to 125	100mΩ to 200mΩ (E24 series)		
						0 to 100	220mΩ to 470mΩ (E24 series)		
						0 to 75	510mΩ to 910mΩ (E24 series)		
☆MCR50L	5025 (2010)	2	70	125	D (±0.5%) F (±1%) J (±5%)	0 to 250	47mΩ to 130mΩ (E24 series)	-55 to +155	YES
						0 to 200	150mΩ to 270mΩ (E24 series)		
						0 to 150	300mΩ to 910mΩ (E24 series)		
☆MCR100L	6432 (2512)	3	70	125	F (±1%) J (±5%)	0 to 300	47mΩ to 91mΩ (E24 series)	-55 to +155	YES
						0 to 150	100mΩ to 910mΩ (E24 series)		

☆: Under Development

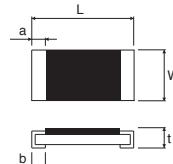
Dimensions (Unit: mm)

Part No.	Size Code mm (inch)	L	W	t	a	b
MCR10L	2012 (0805)	2.0±0.1	1.25±0.1	0.55±0.1	0.60±0.20 ^{*1} 0.45±0.20 ^{*2}	0.40±0.20
MCR18L	3216 (1206)	3.2±0.15 -0.20	1.6±0.15	0.55±0.1	0.90±0.25 ^{*1} 0.75±0.25 ^{*2}	0.50±0.25
MCR25L	3225 (1210)	3.2±0.15 -0.20	2.5±0.15	0.6±0.10	0.7±0.15	0.55±0.15
MCR50L	5025 (2010)	5.0±0.15	2.5±0.15	0.6±0.10	0.55±0.15	0.7±0.15
MCR100L	6432 (2512)	6.4±0.15	3.2±0.15	0.6±0.15	0.6±0.25	1.45±0.25

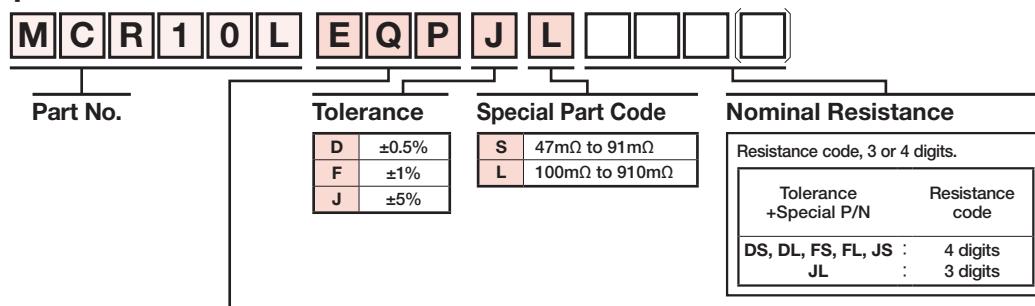
*1 Resistance range: 47mΩ to 110mΩ

*2 Resistance range: 120mΩ to 910mΩ

●MCR10L/18L/25L/50L/100L (No marking)



■Product No. Explanation



Packaging Specifications Code

Part No.	Code	Tolerance			Packaging Specifications	Reel	Basic Ordering Unit (pcs)
		J(±5%)	F(±1%)	D(±0.5%)			
MCR10L	EQP	○	○	—	Paper tape (4mm Pitch)	φ180mm (7inch)	5,000
MCR18L	EQP	○	○	—	Paper tape (4mm Pitch)	φ180mm (7inch)	5,000
MCR25L	JQP	○	○	○	Embossed tape (4mm Pitch)	φ180mm (7inch)	4,000
MCR50L	JQP	○	○	○	Embossed tape (4mm Pitch)	φ180mm (7inch)	4,000
MCR100L	JQP	○	○	—	Embossed tape (4mm Pitch)	φ180mm (7inch)	4,000

Reel (φ180mm): Compatible with JEITA standard "EIAJ ET-7200B"

○: Standard product

High Reliability

High Anti-surge Chip Resistors (SDR series)

Anti-surge Chip Resistors (ESR series)

- Exclusive resistive element pattern and laser trimming technology results in significantly improved surge resistance characteristics.
- Circuit space can be saved by superior power ratings.



SDR series															
Part No.	Size Code mm (inch)	Rated Power (W)	Rated Ambient Temperature (°C)	Rated Terminal Temperature (°C)	Limiting Element Voltage (V)	Tolerance	Temperature Coefficient (ppm/°C)	Resistance Range		Operating Temperature (°C)	Automotive Grade AEC-Q200				
SDR03	1608 (0603)	<i>New</i> 0.4	70	130	150	D (±0.5%)	±100	10Ω to 1MΩ (E24, E96 series)		-55 to +155	YES				
						F (±1%)	±200	1Ω to 9.76Ω (E24, E96 series)							
						J (±5%)	±100	10Ω to 10MΩ (E24, E96 series)							
						D (±0.5%)	±200	1Ω to 10MΩ (E24 series)							
SDR10	2012 (0805)	<i>New</i> 0.66 (2/3)	70	125	400	D (±0.5%)	±100	10Ω to 1MΩ (E24, E96 series)		-55 to +155	YES				
						F (±1%)	±100	1Ω to 10MΩ (E24, E96 series)							
						J (±5%)	±200	1Ω to 10MΩ (E24 series)							
ESR series															
Part No.	Size Code mm (inch)	Rated Power (W)	Rated Ambient Temperature (°C)	Rated Terminal Temperature (°C)	Limiting Element Voltage (V)	Tolerance	Temperature Coefficient (ppm/°C)	Resistance Range		Operating Temperature (°C)	Automotive Grade AEC-Q200				
ESR01	1005 (0402)	0.2	70	—	50	F (±1%)	±100	10Ω to 976kΩ (E24, E96 series)		-55 to +155	YES				
						J (±5%)	+500/-200	1MΩ to 2.2MΩ (E24 series)							
						J (±5%)	±200	1Ω to 9.1Ω (E24 series)							
						D (±0.5%)	±100	10Ω to 976Ω (E24, E96 series)							
ESR03	1608 (0603)	<i>New</i> 0.33 (1/3)	70	130	150	F (±1%)	±200	1Ω to 9.76Ω (E24, E96 series)		-55 to +155	YES				
						J (±5%)	±100	10Ω to 976Ω (E24, E96 series)							
						J (±5%)	±200	10Ω to 910Ω (E24 series)							
		0.25		—		D (±0.5%)	±100	1kΩ to 1MΩ (E24, E96 series)							
						F (±1%)	±100	1kΩ to 10MΩ (E24, E96 series)							
						J (±5%)	±200	1kΩ to 10MΩ (E24 series)							
						D (±0.5%)	±100	10Ω to 976Ω (E24, E96 series)							
ESR10	2012 (0805)	<i>New</i> 0.5	70	115	150	F (±1%)	±100	1Ω to 976Ω (E24, E96 series)		-55 to +155	YES				
						J (±5%)	±200	1Ω to 910Ω (E24 series)							
						D (±0.5%)	±100	1kΩ to 1MΩ (E24, E96 series)							
		0.4		125		F (±1%)	±100	1kΩ to 10MΩ (E24, E96 series)							
						J (±5%)	±200	1kΩ to 10MΩ (E24 series)							
						D (±0.5%)	±100	10Ω to 976Ω (E24, E96 series)							
ESR18	3225 (1206)	<i>New</i> 0.75	70	105	200	F (±1%)	±100	1Ω to 976Ω (E24, E96 series)		-55 to +155	YES				
						J (±5%)	±200	1Ω to 910Ω (E24 series)							
						D (±0.5%)	±100	1kΩ to 1MΩ (E24, E96 series)							
		0.5		125		F (±1%)	±100	1kΩ to 10MΩ (E24, E96 series)							
						J (±5%)	±200	1kΩ to 10MΩ (E24 series)							
						D (±0.5%)	±100	10Ω to 1MΩ (E24, E96 series)							
ESR25	3225 (1210)	<i>New</i> 1	70	95	200	F (±1%)	±100	1Ω to 10MΩ (E24, E96 series)		-55 to +155	YES				
						J (±5%)	±200	1Ω to 10MΩ (E24 series)							

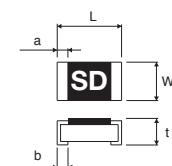
*E24: Standard products E96: Custom products

High Reliability High Anti-surge Chip Resistors (SDR series) Anti-surge Chip Resistors (ESR series)

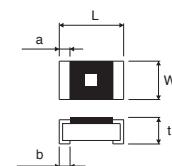
Dimensions (Unit: mm)

Part No.	Size Code mm (inch)	L	W	t	a	b
SDR03	1608 (0603)	1.6±0.1	0.8±0.1	0.45±0.1	0.25±0.1	0.25±0.1
SDR10	2012 (0805)	2.0±0.1	1.25±0.1	0.55±0.1	0.25±0.1	0.4±0.2
ESR01	1005 (0402)	1.0±0.05	0.5±0.05	0.35±0.05	0.2±0.1	0.25 ^{+0.05} _{-0.1}
ESR03	1608 (0603)	1.6±0.1	0.8±0.1	0.45±0.1	0.3±0.2	0.3±0.2
ESR10	2012 (0805)	2.0±0.1	1.25±0.1	0.55±0.1	0.3±0.2	0.4±0.2
ESR18	3216 (1206)	3.2±0.15	1.6±0.15	0.55±0.1	0.3±0.25	0.5±0.25
ESR25	3225 (1210)	3.2±0.15	2.5±0.15	0.55±0.1	0.3±0.25	0.5±0.25

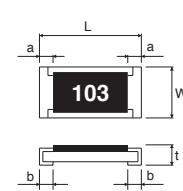
● SDR03/10
(Marked as "SD")



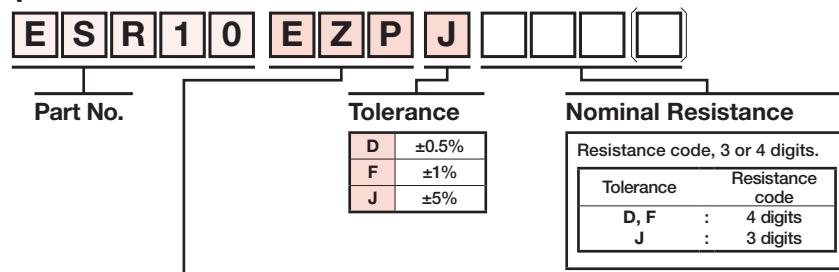
● ESR01/03
(Marked as "■")



● ESR10/18/25



Product No. Explanation



Packaging Specifications Code

Part No.	Code	Tolerance			Packaging Specifications	Reel	Basic Ordering Unit (pcs)
		J (±5%)	F (±1%)	D (±0.5%)			
SDR03	EZP	○	○	○	Paper tape (4mm Pitch)	Φ180mm (7inch)	5,000
SDR10	EZP	○	○	○	Paper tape (4mm Pitch)	Φ180mm (7inch)	5,000
ESR01	MZP	○	○	—	Paper tape (2mm Pitch)	Φ180mm (7inch)	10,000
ESR03	EZP	○	○	○	Paper tape (4mm Pitch)	Φ180mm (7inch)	5,000
ESR10	EZP	○	○	○	Paper tape (4mm Pitch)	Φ180mm (7inch)	5,000
ESR18	EZP	○	○	○	Paper tape (4mm Pitch)	Φ180mm (7inch)	5,000
ESR25	JZP	○	○	○	Embossed tape (4mm Pitch)	Φ180mm (7inch)	4,000

Reel (Φ180mm): Compatible with JEITA standard "EIAJ ET-7200B"

○: Standard product

High Reliability

High Power Chip Resistors <Wide Terminal type> <Anti-surge> (LTR series)

- High joint reliability with long side terminations.
- Highest power ratings in their class.
- Guaranteed anti-surge characteristic in all series.



LTR series														
Part No.	Size Code mm (inch)	Rated Power (W)	Rated Ambient Temperature (°C)	Rated Terminal Temperature (°C)	Limiting Element Voltage (V)	Tolerance	Temperature Coefficient (ppm/°C)	Resistance Range		Operating Temperature (°C)	Automotive Grade AEC-Q200			
LTR10	1220 (0508)	1	70	125	150	D (±0.5%)	±100	10Ω to 976Ω (E24, E96 series)		-55 to +155	YES			
						F (±1%)	±100	1Ω to 976Ω (E24, E96 series)						
						J (±5%)	±200	1Ω to 910Ω (E24 series)						
		0.25	70	95		D (±0.5%)	±100	1kΩ to 1MΩ (E24, E96 series)						
						F (±1%)	±100	1kΩ to 1MΩ (E24, E96 series)						
						J (±5%)	±200	1kΩ to 1MΩ (E24 series)						
LTR18	1632 (0612)	1.5	70	95	200	D (±0.5%)	±100	10Ω to 976Ω (E24, E96 series)			YES			
						F (±1%)	±100	1Ω to 976Ω (E24, E96 series)						
						J (±5%)	±200	1Ω to 910Ω (E24 series)						
		0.75	70	125		D (±0.5%)	±100	1kΩ to 1MΩ (E24, E96 series)						
						F (±1%)	±100	1kΩ to 1MΩ (E24, E96 series)						
						J (±5%)	±200	1kΩ to 1MΩ (E24 series)						
LTR50	2550 (1020)	1	70	—	200	D (±0.5%)	±100	10Ω to 1MΩ (E24, E96 series)			YES			
						F (±1%)	±100	1Ω to 1MΩ (E24, E96 series)						
						J (±5%)	±200	1Ω to 1MΩ (E24 series)						
		☆2	70	95		D (±0.5%)	±100	10Ω to 1MΩ (E24, E96 series)						
						F (±1%)	±100	1Ω to 1MΩ (E24, E96 series)						
						J (±5%)	±200	1Ω to 1MΩ (E24 series)						
LTR100	3264 (1225)	New 3	70	115	200	D (±0.5%)	±100	10Ω to 1MΩ (E24, E96 series)			YES			
*E24: Standard products E96: Custom products										☆: Under Development				

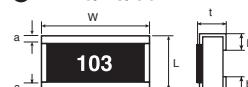
*E24: Standard products E96: Custom products

☆: Under Development

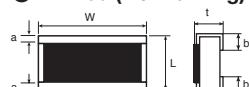
Dimensions (Unit: mm)

Part No.	Size Code mm (inch)	L	W	t	a	b
LTR10	1220 (0508)	1.2±0.1	2.0±0.1	0.55±0.1	0.25±0.1	0.35±0.2
LTR18	1632 (0612)	1.6±0.15	3.2±0.15	0.55±0.1	0.3±0.2	0.5±0.2
LTR50	2550 (1020)	2.5±0.15	5.0±0.15	0.55±0.1	0.38±0.2	0.9±0.2
LTR100	3264 (1225)	3.2±0.15	6.4±0.15	0.55±0.15	0.4±0.25	1.13±0.25

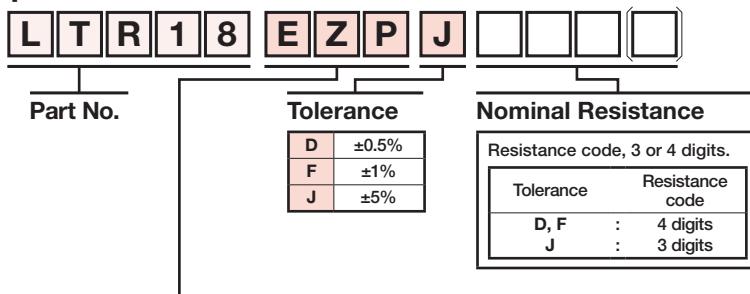
● LTR10/18/50



● LTR100 (No marking)



Product No. Explanation



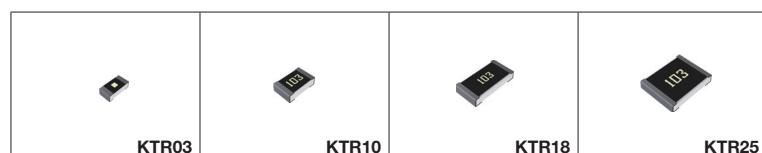
Packaging Specifications Code

Part No.	Code	Tolerance			Packaging Specifications	Reel	Basic Ordering Unit (pcs)
		J (±5%)	F (±1%)	D (±0.5%)			
LTR10	EZP	○	○	○	Paper tape (4mm Pitch)	φ180mm (7inch)	5,000
LTR18	EZP	○	○	○	Paper tape (4mm Pitch)	φ180mm (7inch)	5,000
LTR50	UZP	○	○	○	Embossed tape (4mm Pitch)	φ180mm (7inch)	5,000
LTR100	JZP	○	○	○	Embossed tape (4mm Pitch)	φ180mm (7inch)	4,000

Reel (φ180mm): Compatible with JEITA standard "EIAJ ET-7200B"
○: Standard product

High Reliability High Voltage Resistance Chip Resistors (KTR series)

- Twice the rated voltage of general purpose products.
- Ideal for high voltage divider circuits.



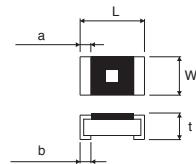
KTR series								
Part No.	Size Code mm (inch)	Rated Power (W) (70°C)	Limiting Element Voltage (V)	Tolerance	Temperature Coefficient (ppm/°C)	Resistance Range	Operating Temperature (°C)	Automotive Grade AEC-Q200
KTR03	1608 (0603)	0.1	350	F ($\pm 1\%$)	± 200	1Ω to 9.76Ω (E24, E96 series)	-55 to +155	YES
					± 100	10Ω to 10MΩ (E24, E96 series)		
					± 200	1Ω to 10MΩ (E24 series)		
KTR10	2012 (0805)	0.125	400	F ($\pm 1\%$)	± 100	1Ω to 10MΩ (E24, E96 series)	YES	YES
					± 200	1Ω to 30MΩ (E24 series)		
KTR18	3216 (1206)	0.25	500	F ($\pm 1\%$)	± 100	1Ω to 10MΩ (E24, E96 series)	YES	YES
					± 200	1Ω to 10MΩ (E24 series)		
KTR25	3225 (1210)	0.33 (1/3)	600	F ($\pm 1\%$)	± 100	1Ω to 10MΩ (E24, E96 series)	YES	YES
					± 200	1Ω to 10MΩ (E24 series)		

*E24: Standard products E96: Custom products

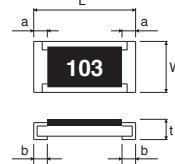
Dimensions (Unit: mm)

Part No.	Size Code mm (inch)	L	W	t	a	b
KTR03	1608 (0603)	1.6±0.1	0.8±0.1	0.45±0.1	0.3±0.2	0.3±0.2
KTR10	2012 (0805)	2.0±0.1	1.25±0.1	0.55±0.1	0.3±0.2	0.4±0.2
KTR18	3216 (1206)	3.2±0.15	1.6±0.15	0.55±0.1	0.3±0.25	0.5±0.25
KTR25	3225 (1210)	3.2±0.15	2.5±0.15	0.55±0.1	0.3±0.25	0.5±0.25

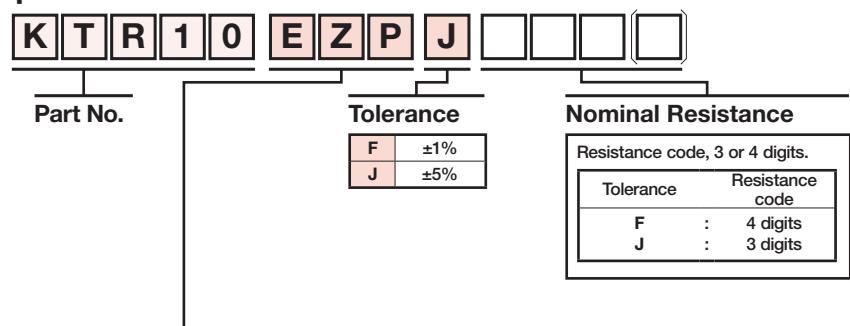
●KTR03
(Marked as "■")



●KTR10/18/25



Product No. Explanation



Packaging Specifications Code

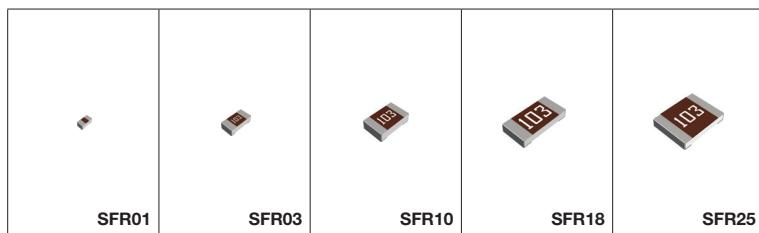
Part No.	Code	Tolerance		Packaging Specifications	Reel	Basic Ordering Unit (pcs)
		J ($\pm 5\%$)	F ($\pm 1\%$)			
KTR03	EZP	○	○	Paper tape (4mm Pitch)	ø180mm (7inch)	5,000
KTR10	EZP	○	○	Paper tape (4mm Pitch)	ø180mm (7inch)	5,000
KTR18	EZP	○	○	Paper tape (4mm Pitch)	ø180mm (7inch)	5,000
KTR25	JZP	○	○	Embossed tape (4mm Pitch)	ø180mm (7inch)	4,000

Reel (ø180mm): Compatible with JEITA standard "EIAJ ET-7200B"

○: Standard product

High Reliability Tolerance for Sulfurization Chip Resistor (SFR series)

- Improved Anti-sulfur reliability by ROHM original structure.



SFR series									
Part No.	Size Code mm (inch)	Rated Power (W) (70°C)	Limiting Element Voltage (V)	Tolerance	Temperature Coefficient (ppm/°C)	Resistance Range		Operating Temperature (°C)	Automotive Grade AEC-Q200
SFR01	1005 (0402)	0.063 (1/16)	50	F ($\pm 1\%$)	± 100	10Ω to 2.2MΩ (E24, E96 series)		-55 to +155	YES
				J ($\pm 5\%$)	$\pm 500/-250 \pm 200$	1Ω to 9.1Ω (E24 series) 10Ω to 10MΩ (E24 series)			
SFR03	1608 (0603)	0.1	50	F ($\pm 1\%$)	± 100	10Ω to 10MΩ (E24, E96 series)		-55 to +155	YES
				J ($\pm 5\%$)	$\pm 400 \pm 200$	1Ω to 9.1Ω (E24 series) 10Ω to 10MΩ (E24 series)			
SFR10	2012 (0805)	0.125	150	F ($\pm 1\%$)	± 100	10Ω to 2.2MΩ (E24, E96 series)		-55 to +155	YES
				J ($\pm 5\%$)	$\pm 400 \pm 200$	1Ω to 9.1Ω (E24 series) 10Ω to 10MΩ (E24 series)			
SFR18	3216 (1206)	0.25	200	F ($\pm 1\%$)	± 100	10Ω to 2.2MΩ (E24, E96 series)		-55 to +155	YES
				J ($\pm 5\%$)	$\pm 400 \pm 200$	1Ω to 9.1Ω (E24 series) 10Ω to 10MΩ (E24 series)			
SFR25	3225 (1210)	0.5	200	F ($\pm 1\%$)	± 100	10Ω to 1MΩ (E24, E96 series)		-55 to +155	YES
				J ($\pm 5\%$)	± 200	1Ω to 1MΩ (E24 series)			

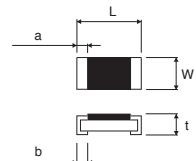
*E24: Standard products E96: Custom products

Jumper type					
Part No.	Size Code mm (inch)	Rated Current (A)	Resistance	Operating Temperature (°C)	Automotive Grade AEC-Q200
SFR01	1005 (0402)	1	50mΩ Max	-55 to +155	YES
SFR03	1608 (0603)	1			YES
SFR10	2012 (0805)	2			YES
SFR18	3216 (1206)	2			YES
SFR25	3225 (1210)	2			YES

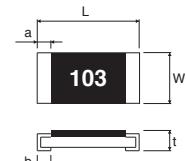
Dimensions (Unit: mm)

Part No.	Size Code mm (inch)	L	W	t	a	b
SFR01	1005 (0402)	1.0±0.05	0.5±0.05	0.35±0.05	0.33±0.08	$0.25^{+0.05}_{-0.10}$
SFR03	1608 (0603)	1.6±0.1	0.8±0.1	0.45±0.1	0.4±0.2	0.3±0.2
SFR10	2012 (0805)	2.0±0.1	1.25±0.1	0.55±0.1	0.4±0.2	0.4±0.2
SFR18	3216 (1206)	3.2 ^{+0.15} _{-0.20}	1.6±0.15	0.55±0.1	0.55±0.25	0.5±0.25
SFR25	3225 (1210)	3.2 ^{+0.15} _{-0.20}	2.5±0.15	0.55±0.1	0.55±0.25	0.5±0.25

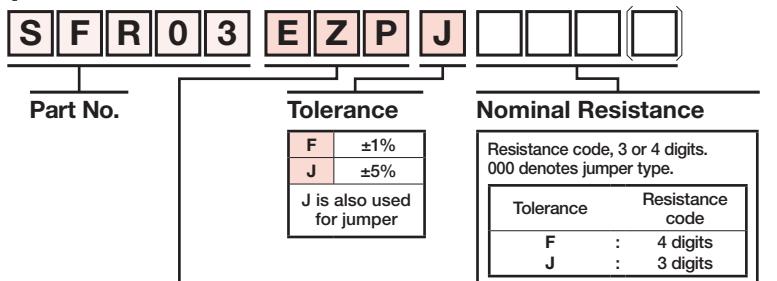
●SFR01 (No marking)



●SFR03/10/18/25



Product No. Explanation



Packaging Specifications Code

Part No.	Code	Tolerance		Packaging Specifications	Reel	Basic Ordering Unit (pcs)
		J ($\pm 5\%$)	F ($\pm 1\%$)			
SFR01	MZP	○	○	Paper tape (2mm Pitch)	ø180mm (7inch)	10,000
SFR03	EZP	○	○	Paper tape (4mm Pitch)	ø180mm (7inch)	5,000
SFR10	EZP	○	○	Paper tape (4mm Pitch)	ø180mm (7inch)	5,000
SFR18	EZP	○	○	Paper tape (4mm Pitch)	ø180mm (7inch)	5,000
SFR25	JZP	○	○	Embossed tape (4mm Pitch)	ø180mm (7inch)	4,000

Reel (ø180mm): Compatible with JEITA standard "EIAJ ET-7200B"
○: Standard product

General Purpose Chip Resistors <High Power> (MCRS series)

- In MCRS series, the same rated power is guaranteed as that of one-size larger products than conventional MCR series by changing the design of the resistive element.
- Circuit space can be saved (reducing the area by about 60% by replacing 0603 size to 0402 size)



MCRS series										Operating Temperature (°C)	Automotive Grade AEC-Q200		
Part No.	Size Code mm (inch)	Rated Power (W)	Rated Ambient Temperature (°C)	Rated Terminal Temperature (°C)	Limiting Element Voltage (V)	Tolerance	Temperature Coefficient (ppm/°C)	Resistance Range					
MCR01S	1005 (0402)	0.1	70	—	75	F (±1%)	±100	10Ω to 10MΩ (E24, E96 series)		-55 to +155	YES		
						J (±5%)	±400	1Ω to 9.1Ω (E24 series)					
							±200	10Ω to 10MΩ (E24 series)					
MCR03S	1608 (0603)	0.125	70	—	150	F (±1%)	±100	10Ω to 10MΩ (E24, E96 series)		-55 to +155	YES		
						J (±5%)	±400	1Ω to 9.1Ω (E24 series)					
							±200	10Ω to 10MΩ (E24 series)					
MCR10S	2012 (0805)	0.25	70	—	200	F (±1%)	±250	1Ω to 9.1Ω (E24 series)		-55 to +155	YES		
							±100	10Ω to 2.2MΩ (E24, E96 series)					
						J (±5%)	±400	1Ω to 9.1Ω (E24 series)					
MCR18S	3216 (1206)	0.4	70	—	200	F (±1%)	±250	1Ω to 9.1Ω (E24 series)		-55 to +155	YES		
							±100	10Ω to 2.2MΩ (E24, E96 series)					
						J (±5%)	±400	1Ω to 9.1Ω (E24 series)					
☆MCR25S	3225 (1210)	0.5	70	—	200	F (±1%)	±200	1Ω to 9.76Ω (E24, E96 series)		-55 to +155	YES		
							±100	10Ω to 1MΩ (E24, E96 series)					
						J (±5%)	±200	1Ω to 1MΩ (E24 series)					
New MCR50S	5025 (2010)	1.5	70	105	250	F (±1%)	±200	1Ω to 9.1Ω (E24 series)		-55 to +155	YES		
							+100/-150*1	10Ω to 26.7Ω (E24, E96 series)					
							±100*2	27Ω to 2.2MΩ (E24, E96 series)					
New MCR100S	6432 (2512)	2	70	105	250	F (±1%)	±100	27Ω to 2.2MΩ (E24, E96 series)		-55 to +155	YES		
							+100/-150*1	10Ω to 26.7Ω (E24, E96 series)					
							±100*2	1Ω to 9.1Ω (E24 series)					
										YES			

*1 (+25°C to -55°C)

*2 (+25°C to +125°C)

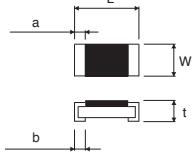
☆: Under Development

Jumper type						
Part No.	Size Code mm (inch)	Rated Current (A)	Resistance	Operating Temperature (°C)	Automotive Grade AEC-Q200	
MCR01S	1005 (0402)	1.5			YES	
MCR03S	1608 (0603)	2			YES	
MCR10S	2012 (0805)	2.5			YES	
MCR18S	3216 (1206)	2.5			YES	
MCR25S	3225 (1210)	4			YES	
MCR50S	5025 (2010)	4			YES	
MCR100S	6432 (2512)	4			YES	

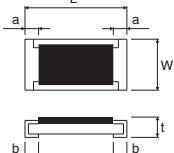
Dimensions (Unit: mm)

Part No.	Size Code mm (inch)	L	W	t	a	b
MCR01S	1005 (0402)	1.0±0.05	0.50±0.05	0.35±0.05	0.2±0.1	0.25 ^{+0.05} _{-0.1}
MCR03S	1608 (0603)	1.6±0.1	0.80±0.1	0.45±0.1	0.3±0.2	0.3±0.2
MCR10S	2012 (0805)	2.0±0.1	1.25±0.1	0.55±0.1	0.4±0.2	0.4±0.2
MCR18S	3216 (1206)	3.2 ^{+0.15} _{-0.2}	1.60±0.15	0.55±0.1	0.5±0.25	0.5±0.25
MCR25S	3225 (1210)	3.2 ^{+0.15} _{-0.20}	2.5±0.15	0.55±0.1	0.55±0.25	0.5±0.25
MCR50S	5025 (2010)	5.0±0.15	2.50±0.15	0.55±0.15	0.6±0.25	0.6±0.25
MCR100S	6432 (2512)	6.4±0.15	3.15±0.15	0.55±0.15	0.6±0.25	1.0±0.25

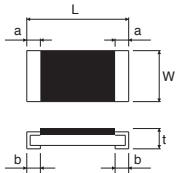
● MCR01S/03S (No marking)



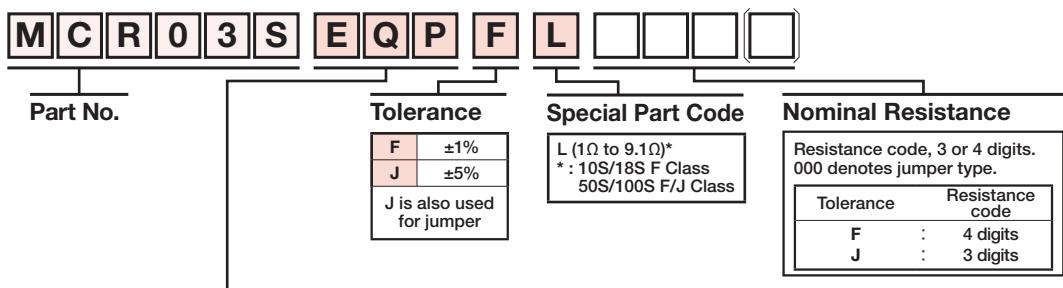
● MCR10S/18S/50S/100S (No marking)



● MCR25S (No marking)



Product No. Explanation



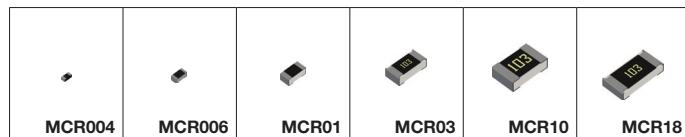
Packaging Specifications Code

Part No.	Code	Tolerance		Packaging Specifications	Reel	Basic Ordering Unit (pcs)
		J(±5%)	F(±1%)			
MCR01S	MQP	○	○	Paper tape (2mm Pitch)	φ180mm (7inch)	10,000
MCR03S	EQP	○	○	Paper tape (4mm Pitch)	φ180mm (7inch)	5,000
MCR10S	EQP	○	○	Paper tape (4mm Pitch)	φ180mm (7inch)	5,000
MCR18S	EQP	○	○	Paper tape (4mm Pitch)	φ180mm (7inch)	5,000
MCR25S	JQP	○	○	Embossed tape (4mm Pitch)	φ180mm (7inch)	4,000
MCR50S	JQP	○	○	Embossed tape (4mm Pitch)	φ180mm (7inch)	4,000
MCR100S	JQP	○	○	Embossed tape (4mm Pitch)	φ180mm (7inch)	4,000

Reel (φ180mm): Compatible with JEITA standard "EIAJ ET-7200B"
○: Standard product

General Purpose Chip Resistors (MCR series)

- Six type sizes, ranging from 01005 to 1206.
- Market-proven reliability.



MCR series									
Part No.	Size Code mm (inch)	Rated Power (W) (70°C)	Limiting Element Voltage (V)	Tolerance	Temperature Coefficient (ppm/°C)	Resistance Range		Operating Temperature (°C)	Automotive Grade AEC-Q200
MCR004	0402 (01005)	0.031 (1/32)	15	F ($\pm 1\%$)	± 300 ± 250 $+600/-100$ ± 300 ± 250	10Ω to 97.6Ω (E24, E96 series) 100Ω to 1MΩ (E24, E96 series) 1Ω to 9.1Ω (E24 series) 10Ω to 91Ω (E24 series) 100Ω to 1MΩ (E24 series)		-55 to +125	-
				J ($\pm 5\%$)	± 200 ± 100 $+600/-200$ ± 200 $+600/-200$	10Ω to 97.6Ω (E24, E96 series) 1kΩ to 1MΩ (E24, E96 series) 1Ω to 9.1Ω (E24 series) 10Ω to 10MΩ (E24, E96 series) 1Ω to 9.1Ω (E24 series)			
				D ($\pm 0.5\%$)	± 200 ± 100	10Ω to 97.6Ω (E24, E96 series) 1Ω to 9.1Ω (E24 series)			
				F ($\pm 1\%$)	± 400 ± 100	10Ω to 2.2MΩ (E24, E96 series) 1Ω to 9.1Ω (E24 series)			
MCR006	0603 (0201)	0.05	25	J ($\pm 5\%$)	$+500/-250$ ± 200	$+500/-250$ 10Ω to 10MΩ (E24 series)		-55 to +125	YES
				D ($\pm 0.5\%$)	± 100 ± 50	10Ω to 97.6Ω (E24, E96 series) 100Ω to 1MΩ (E24, E96 series)			
				F ($\pm 1\%$)	± 400 ± 100	1Ω to 9.1Ω (E24 series) 10Ω to 10MΩ (E24, E96 series)			
				J ($\pm 5\%$)	± 400 ± 200	1Ω to 9.1Ω (E24 series) 10Ω to 10MΩ (E24 series)			
MCR01	1005 (0402)	0.063 (1/16)	50	D ($\pm 0.5\%$)	± 100 ± 50	10Ω to 97.6Ω (E24, E96 series) 100Ω to 1MΩ (E24, E96 series)		-55 to +155	YES
				F ($\pm 1\%$)	± 400 ± 100	1Ω to 9.1Ω (E24 series) 10Ω to 2.2MΩ (E24, E96 series)			
				J ($\pm 5\%$)	$+500/-250$ ± 200	$+500/-250$ 10Ω to 10MΩ (E24 series)			
				D ($\pm 0.5\%$)	± 100 ± 50	10Ω to 97.6Ω (E24, E96 series) 100Ω to 1MΩ (E24, E96 series)			
MCR03	1608 (0603)	0.1	50	F ($\pm 1\%$)	± 400 ± 100	1Ω to 9.1Ω (E24 series) 10Ω to 10MΩ (E24, E96 series)		-55 to +155	YES
				J ($\pm 5\%$)	± 400 ± 200	1Ω to 9.1Ω (E24 series) 10Ω to 10MΩ (E24 series)			
				D ($\pm 0.5\%$)	± 100 ± 50	10Ω to 97.6Ω (E24, E96 series) 100Ω to 1MΩ (E24, E96 series)			
				F ($\pm 1\%$)	± 400 ± 100	1Ω to 2.2MΩ (E24, E96 series)			
MCR10	2012 (0805)	0.1	150	J ($\pm 5\%$)	± 400 ± 200	1Ω to 9.1Ω (E24 series) 10Ω to 10MΩ (E24 series)		-55 to +155	YES
		0.125		D ($\pm 0.5\%$)	± 100 ± 50	10Ω to 97.6Ω (E24, E96 series) 100Ω to 1MΩ (E24, E96 series)			
MCR18	3216 (1206)	0.125	200	F ($\pm 1\%$)	± 100 ± 50	1Ω to 2.2MΩ (E24, E96 series)		-55 to +155	YES
		0.25		J ($\pm 5\%$)	± 400 ± 200	1Ω to 9.1Ω (E24 series) 10Ω to 10MΩ (E24 series)			

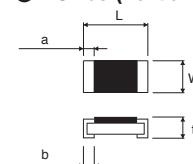
*E24: Standard products E96: Custom products

Jumper type					
Part No.	Size Code mm (inch)	Rated Current (A)	Resistance	Operating Temperature (°C)	Automotive Grade AEC-Q200
MCR004	0402 (01005)	0.5	50mΩ Max	-55 to +125	-
MCR006	0603 (0201)	0.5		-55 to +125	YES
MCR01	1005 (0402)	1		-55 to +155	YES
MCR03	1608 (0603)	1		-55 to +155	YES
MCR10	2012 (0805)	2		-55 to +155	YES
MCR18	3216 (1206)	2		-55 to +155	YES

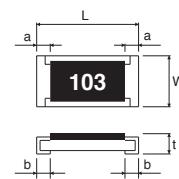
Dimensions (Unit: mm)

Part No.	Size Code mm (inch)	L	W	t	a	b
MCR004	0402 (01005)	0.4±0.02	0.2±0.02	0.13±0.02	0.1±0.03	0.1 ±0.03
MCR006	0603 (0201)	0.6±0.03	0.3±0.03	0.23±0.03	0.1±0.05	0.15±0.05
MCR01	1005 (0402)	1.0±0.05	0.5±0.05	0.35±0.05	0.2±0.1	0.25±0.05 -0.10
MCR03	1608 (0603)	1.6±0.1	0.8±0.1	0.45±0.1	0.3±0.2	0.3 ±0.2
MCR10	2012 (0805)	2.0±0.1	1.25±0.1	0.55±0.1	0.4±0.2	0.4 ±0.2
MCR18	3216 (1206)	3.2±0.15	1.6±0.15	0.55±0.1	0.5±0.25	0.5 ±0.25

- MCR004/006/01 (No marking)
- MCR03 (Partially marked)



- MCR10/18



Product No. Explanation

Part No.	Tolerance	Special Part Code	Nominal Resistance
QLP	D: ±0.5% F: ±1% J: ±5%	L: 1Ω to 9.1Ω (MCR006/01/03 F Class only) X*: ±100ppm/C	Resistance code, 3 or 4 digits. 000 denotes jumper type.
YLP	J is also used for jumper	*MCR03 F Class only	
ZP		Tolerance	Resistance code
EZP	D, F : 4 digits J : 3 digits		

Packaging Specifications Code

Part No.	Code	Tolerance	Packaging Specifications	Reel	Basic Ordering Unit (pcs)
MCR004	QLP	○	Paper tape (2mm Pitch)	ø180mm (7inch)	20,000
MCR006	YLP	○	Paper tape (2mm Pitch)	ø180mm (7inch)	15,000
MCR01	ZP	○	Paper tape (2mm Pitch)	ø180mm (7inch)	10,000
MCR03	EZP	○	Paper tape (4mm Pitch)	ø180mm (7inch)	5,000
MCR10	EZP	○	Paper tape (4mm Pitch)	ø180mm (7inch)	5,000
MCR18	EZP	○	Paper tape (4mm Pitch)	ø180mm (7inch)	5,000

Reel (ø180mm): Compatible with JEITA standard "EIAJ ET-7200B"

○: Standard product

General purpose chip resistors <Pb-free type> (MCRE series)

- Developed resistors that do not use lead-containing substances.
- Compliant with RoHS regulations (Completely Pb-free).



MCRE series											
Part No.	Size Code mm (inch)	Rated Power (W) (70°C)	Limiting Element Voltage (V)	Tolerance	Temperature Coefficient (ppm/°C)	Resistance Range		Operating Temperature (°C)	Automotive Grade AEC-Q200		
New MCR004E	0402 (01005)	0.031 (1/32)	15	F (±1%)	±300	1Ω to 97.6Ω (E24, E96 series)		-55 to +125	—		
					±250	100Ω to 1MΩ (E24, E96 series)					
				J (±5%)	±300	1Ω to 91Ω (E24 series)					
					±250	100Ω to 1MΩ (E24 series)					

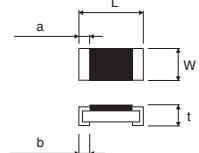
*E24: Standard products E96: Custom products

Jumper type					
Part No.	Size Code mm (inch)	Rated Current (A)	Resistance	Operating Temperature (°C)	Automotive Grade AEC-Q200
MCR004E	0402 (01005)	0.5	50mΩ Max	-55 to +125	—

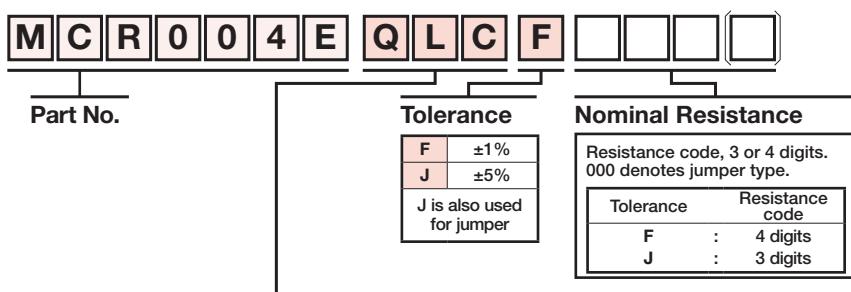
Dimensions (Unit: mm)

Part No.	Size Code mm (inch)	L	W	t	a	b
MCR004E	0402 (01005)	0.40±0.02	0.20±0.02	0.13±0.02	0.10±0.03	0.10±0.03

MCR004E (No marking)



Product No. Explanation



Packaging Specifications Code

Part No.	Code	Tolerance		Packaging Specifications	Reel	Basic Ordering Unit (pcs)
		J (±5%)	F (±1%)			
MCR004E	QLC	◎	◎	Paper tape (2mm Pitch)	φ180mm (7inch)	20,000

Reel (φ180mm): Compatible with JEITA standard "EIAJ ET-7200B"

◎: Standard product

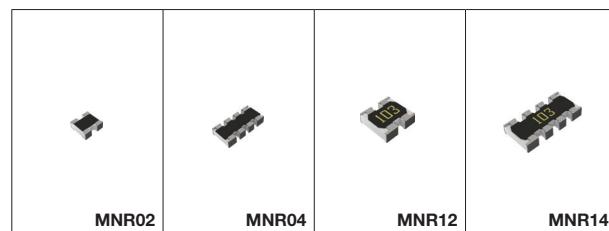
Chip resistor networks (MNR series 2-element type and 4-element type)

- Reduces cost

Use of chip networks reduces the number of components and saves mounting space.

- Easy fillet inspection

Convex type electrodes facilitate visual inspection of fillets. Inspection can be performed with automatic inspection equipment.



MNR series <0402x2 to 0603x4>

Part No.	Size Code mm (inch)	No. of Terminals	No. of Elements	Rated Power (W) (70°C)	Limiting Element Voltage (V)	Tolerance	Temperature Coefficient (ppm/°C)	Resistance Range	Operating Temperature (°C)	Automotive Grade AEC-Q200
MNR02	1005 (0402)x2	4	2	0.063/Element	25	J ($\pm 5\%$)	± 200	10Ω to 1MΩ (E24 series)	-55 to +155	YES
MNR04	1005 (0402)x4	8	4	0.063/Element	25	J ($\pm 5\%$)	+500/-250 ±200	1Ω to 9.1Ω (E24 series) 10Ω to 1MΩ (E24 series)		YES
MNR12	1608 (0603)x2	4	2	0.063/Element	50	J ($\pm 5\%$)	± 200	10Ω to 1MΩ (E24 series)		YES
MNR14	1608 (0603)x4	8	4	0.063/Element	50	J ($\pm 5\%$)	± 500 ±200	2.2Ω to 6.8Ω (E6 series) 10Ω to 1MΩ (E24 series)		YES

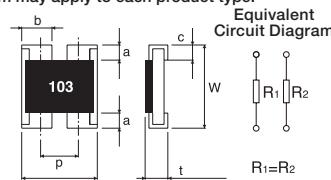
Jumper type

Part No.	Size Code mm (inch)	Rated Current	Resistance	Operating Temperature (°C)	Automotive Grade AEC-Q200
MNR02	1005 (0402)x2	1A/Element	50mΩ Max	-55 to +155	YES
MNR04	1005 (0402)x4	1A/Element			YES
MNR12	1608 (0603)x2	1A/Element			YES
MNR14	1608 (0603)x4	1A/Element			YES

Dimensions (Unit: mm)

MNR02/MNR12 (Marked except MNR02)

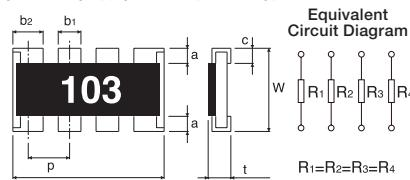
Different marking system may apply to each product type.



Part No.	L	W	t	a	b	c	p
MNR02	1.0±0.1	1.0±0.1	0.35±0.1	0.2±0.1	0.33 ^{+0.1} _{-0.05}	0.25±0.1	0.68
MNR12	1.6±0.1	1.6±0.1	0.5±0.1	0.3±0.2	0.6±0.15	0.25±0.15	0.8

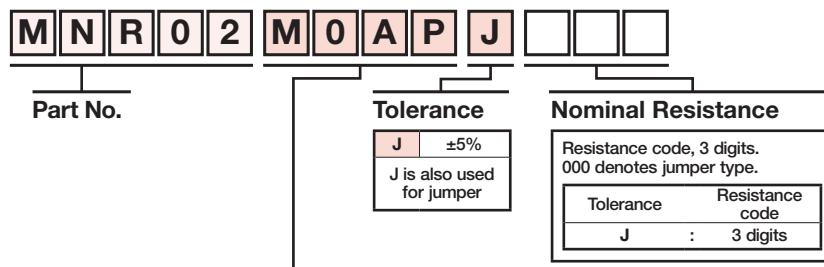
MNR04/MNR14 (Marked except MNR04)

Different marking system may apply to each product type.



Part No.	L	W	t	a	b ₁	b ₂	c	p
MNR04	2.0±0.1	1.0±0.1	0.35±0.1	0.2±0.1	0.3±0.1	0.4±0.1	0.25±0.1	0.5
MNR14	3.2±0.1	1.6±0.1	0.5±0.1	0.3±0.2	0.4±0.15	0.6±0.15	0.25±0.15	0.8

Product No. Explanation



Packaging Specifications Code

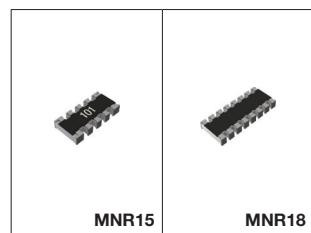
Part No.	Code	Tolerance J ($\pm 5\%$)	Packaging Specifications	Reel	Basic Ordering Unit (pcs)
MNR02	M0AP	◎	Paper tape (2mm Pitch)	ø180mm (7inch)	10,000
MNR04	M0AP	◎	Paper tape (2mm Pitch)	ø180mm (7inch)	10,000
MNR12	E0AP	◎	Paper tape (4mm Pitch)	ø180mm (7inch)	5,000
MNR14	E0AP	◎	Paper tape (4mm Pitch)	ø180mm (7inch)	5,000

Reel (ø180mm): Compatible with JEITA standard "EIAJ ET-7200B"

◎: Standard product

Chip resistor networks (MNR series 8-element type)

- One package built in 8-element chip contributes to space-saving.
- 8 resistor elements reduce mounting cost.
- Convex type electrodes facilitate visual inspection of fillets. Inspection can be performed with automatic inspection equipment.
- Suitable for pull-up resistor, damping resistor.
- No direction to be mounted.



MNR series <0603x5 to 0602x8>

Part No.	Size Code mm (inch)	No. of Terminals	No. of Elements	Rated Power (W) (70°C)	Limiting Element Voltage (V)	Tolerance	Temperature Coefficient (ppm/°C)	Resistance Range	Operating Temperature (°C)	Automotive Grade AEC-Q200
MNR15	1608 (0603)x5	10	8	0.031/Element	12.5	J ($\pm 5\%$)	± 200	56Ω to 100kΩ (E24 series)	-55 to +125	YES
MNR18	1605 (0602)x8	16	8	0.063/Element*	25	J ($\pm 5\%$)	± 200	10Ω to 1MΩ (E24 series)	-55 to +125	YES

*Power for a packing Max 0.25W in all elements

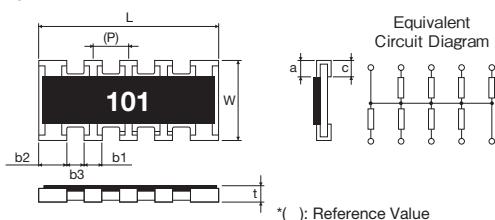
Jumper type

Part No.	Size Code mm (inch)	Rated Current	Resistance	Operating Temperature (°C)	Automotive Grade AEC-Q200
MNR18	1605 (0602)x8	1A/Element*	50mΩ Max	-55 to +125	YES

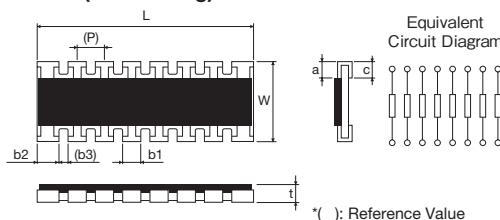
*Power for a packing Max 4A in all elements

Dimensions (Unit: mm)

●MNR15



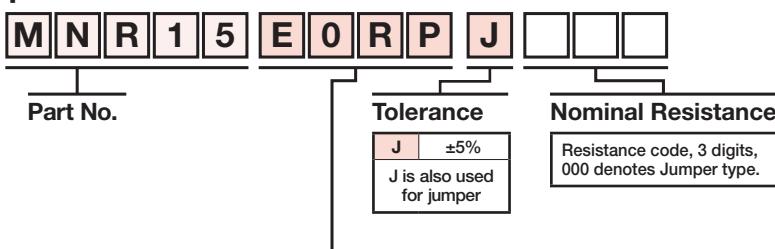
●MNR18 (No marking)



Part No.	L	W	t	a	b1	b2	b3	c	(P)
MNR15	3.2±0.1	1.6±0.1	0.5±0.1	0.3±0.2	0.32±0.15	0.48±0.15	0.32±0.15	0.3±0.2	(0.64)

Part No.	L	W	t	a	b1	b2	(b3)	c	(P)
MNR18	3.8±0.1	1.6±0.1	0.45±0.1	0.3±0.2	0.3±0.1	0.3±0.1	(0.2)	0.3±0.2	(0.5)

Product No. Explanation



Packaging Specifications Code

Part No.	Code	Tolerance	Packaging Specifications	Reel	Basic Ordering Unit (pcs)
		J ($\pm 5\%$)			
MNR15	E0RP	◎	Paper tape (4mm Pitch)	Φ180mm (7inch)	5,000
MNR18	E0AP	◎	Paper tape (4mm Pitch)	Φ180mm (7inch)	5,000

Reel (Φ180mm): Compatible with JEITA standard "EIAJ ET-7200B"

◎: Standard product

Class-leading Compact Size Chip Resistors (RASMIN™ series)

Ultra-Compact Chip Resistors (SMR003)

- Original process technology ensures greater accuracy.
- Chip dimensional precision improved from $\pm 20\mu\text{m}$ to $\pm 10\mu\text{m}$.
- Gold electrodes utilized for superior solderability and reliability.



SMR003

*Minimum order quantity is further discussion is needed

SMR003 <009005>

Part No.	Size Code mm (inch)	Rated Power (W) (70°C)	Limiting Element Voltage (V)	Tolerance	Temperature Coefficient (ppm/°C)	Resistance Range	Operating Temperature (°C)	Automotive Grade AEC-Q200
SMR003	03015 (009005)	0.02	10	F ($\pm 1\%$)	± 200	10 to 1MΩ (E24, E96 series)	-55 to +125	—
				J ($\pm 5\%$)		10 to 1MΩ (E24 series)		

*E24: Standard products E96: Custom products

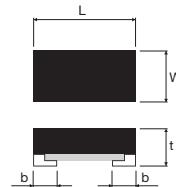
Jumper type

Part No.	Size Code mm (inch)	Rated Current (A)	Resistance	Operating Temperature (°C)	Automotive Grade AEC-Q200
SMR003	03015 (009005)	0.5	50mΩ Max	-55 to +125	—

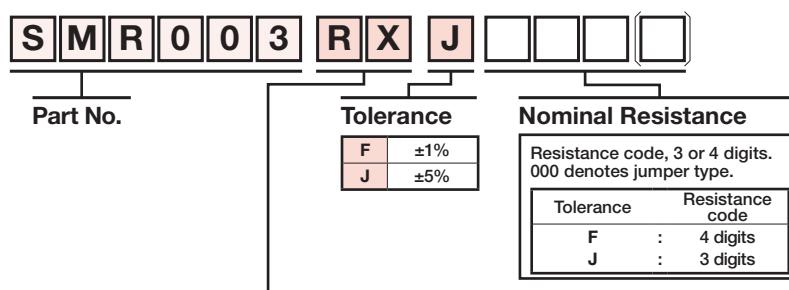
Dimensions (Unit: mm)

Part No.	Size Code mm (inch)	L	W	t	b
SMR003	03015 (009005)	0.30±0.01	0.15±0.01	0.11±0.01	0.07±0.01

●SMR003



Product No. Explanation



Packaging Specifications Code

Part No.	Code	Tolerance		Packaging Specifications	Reel	Basic Ordering Unit (pcs)
		J ($\pm 5\%$)	F ($\pm 1\%$)			
SMR003	RX	◎	◎	Embossed tape (1mm Pitch)	φ180mm (7inch)	40,000*

Reel (φ180mm): Compatible with JEITA standard "EIAJ ET-7200B"

◎: Standard product

*Minimum order quantity is further discussion is needed

"RASMIN™" is a trademark or a registered trademark of ROHM Co., Ltd.

RASMIN™: ROHM's proprietary new method that enables superior dimensional precision, making it possible to develop the ultra-compact products.

Standard Nominal Resistance Values etc.

E3	10				22				47			
E6	10		15		22		33		47		68	
E12	10	12	15	18	22	27	33	39	47	56	68	82
E24	10	11	12	13	15	16	18	20	22	24	27	30
	33	36	39	43	47	51	56	62	68	75	82	91
E96	100	102	105	107	110	113	115	118	121	124	127	130
	133	137	140	143	147	150	154	158	162	165	169	174
	178	182	187	191	196	200	205	210	215	221	226	232
	237	243	249	255	261	267	274	280	287	294	301	309
	316	324	332	340	348	357	365	374	383	392	402	412
	422	432	442	453	464	475	487	499	511	523	536	549
	562	576	590	604	619	634	649	665	681	698	715	732
	750	768	787	806	825	845	866	887	909	931	953	976

Nominal Resistance

Resistors of a series fall into one of nominal resistance ranges shown in the table above. Nominal resistance is determined by the common ratio shown right.

Resistance Coding

Nominal resistance is expressed in 3 digits when the resistance tolerance is $\pm 5\%$ and in 4 digits when $\pm 0.5\%$, $\pm 1\%$, $\pm 2\%$.

The leading 2 or 3 digits indicate significant figure while the last digit indicates the number of zeros. The letter R or L denotes the decimal point if necessary.

e.g.1 $22\Omega \rightarrow 22 \times 10^0 \Omega \rightarrow 220$ (the last digit indicates the number "0" of a multiplier)

e.g.2 $47k\Omega \rightarrow 47 \times 10^3 \Omega \rightarrow 473$ (the last digit indicates the number "3" of a multiplier)

e.g.3 $1.2M\Omega \rightarrow 12 \times 10^6 \Omega \rightarrow 125$ (the last digit indicates the number "5" of a multiplier)

e.g.4 $2.7\Omega \rightarrow 2R7$ (the decimal point indicate the letter R/the letter R apply to the low Resistance less than 10Ω)

e.g.5 $1130\Omega \rightarrow 113 \times 10^1 \Omega \rightarrow 1131$ (the last digit indicates the number "1" of a multiplier/Resistance Tolerance 1% (F) products)

e.g.6 $0.10\Omega \rightarrow R10$

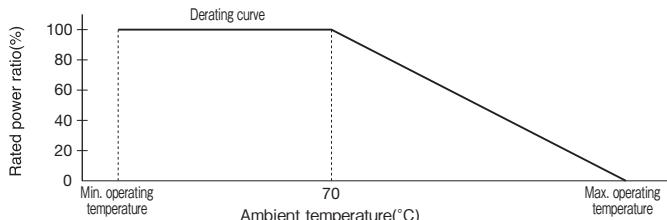
e.g.7 $1m\Omega \rightarrow 1L0$

Series	Common ratio	Remarks
E6	$\sqrt[6]{10} \approx 1.46$	Rounded off to a 2-digit figure.
E12	$\sqrt[12]{10} \approx 1.21$	
E24	$\sqrt[24]{10} \approx 1.10$	
E96	$\sqrt[96]{10} \approx 1.02$	Rounded off to a 3-digit figure.

Supplement of Rated Power

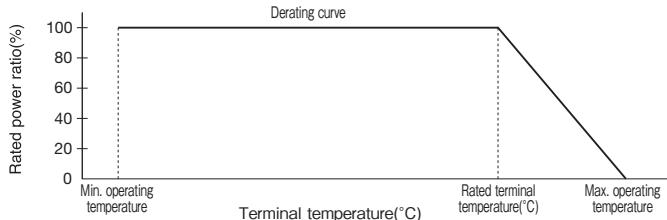
Derating curves based on ambient temperature.

When the ambient temperature exceeds the rated ambient temperature, derate the load power based on the derating curve.



Derating curves based on the terminal temperature.

When the terminal temperature with load exceeds the rated terminal temperature, derate the load power based on the derating curve.



For basic guidelines on using resistors, see the technical reports issued by Japan Electronics and Information Technology Industries Association. JEITA RCR-2121B. "Guideline of notabilia for fixed resistors for use in electronic equipment (Safety Application Guide for fixed resistors for use in electronic equipment)"

Supplementary to Notes

*¹ When resistor is to be exposed to a transient load (excessive large load, such as pulse), mount the resistor on your product and check the condition and evaluate the result. Constant application of a voltage above the rated voltage will degrade the performance and reliability of the resistor.

Do not apply a voltage exceeding the rated voltage across any ROHM resistors.

*² Rated voltage (V) = $\sqrt{\text{rated power (W)} \times \text{nominal resistance (\Omega)}}$ or the limiting element voltage, whichever smaller, is the rated voltage.

 Click on the icon to access the product page on ROHM's website. Please check the website for the latest updates.

SMD LEDs

ROHM's chip LEDs are designed for automatic surface mount processes and are available in a wide variety of package sizes (from 1.0x0.6mm)

Red (L, V, U) Quick Reference of Luminous intensity

Package Structure	Package Size (mm)	Height (mm)	Luminous Intensity (mcd) I_F (mA)	1.0 to 1.6	1.6 to 2.5	2.5 to 4.0	4.0 to 6.3	6.3 to 10.0	10 to 16	16 to 25	25 to 40	40 to 63	63 to 100	100 to 160	160 to 250	250 to 400	400 to 630	630 to 1000	1000 to 1600	1600 to 2500	2500 to 3120	
Mini-mold	1006	0.2	1	SML-P11VT (R)	SML-P11UT (R)																	
			20																			
		0.36	20																			
			2	SML-P12VT (R)	SML-P12UT (R)	SML-P12U2T (R)	SML-E12V8W	SML-E12U8W	SML-E12UW*1													
	1608	0.55	20	CSL1901VW	CSL1901UW	SML-D12L8W																
			2																			
			20																			
			20																			
		0.8	20																			
			20	SML-H12V8T	SML-H12U8T	SML-M13VT	SML-M13UT															
Reflector	3020	1.3	20	SML-010VT	SML-011VT	SML-011UT	SML-011VT (A)*	SML-012VT (A)*	SML-012V8T	SML-012U8T	SML-012UT	SML-013UT	SML-Z14V4T*	SML-Z14U4T*								
			10																			
			20																			
			20																			
			20																			
PLCC2	3528	1.9	50																			
Side View (mold)	16115	0.55	20	SML-Z14VT (A)*	SML-Z14UT (A)*	SML-A12V8T	SML-A12U8T	SML-A12UT (J)*1	SML-A12D8T	SML-A12D8W	SML-A12D1W	SML-H12D8T	SML-M13DT	SML-Z14D4T*	SML-Z14U4T*							
			20																			
			20	SML-811VT (A)*	SML-811UT (A)*	SML-811D8T	SML-811D8W	SML-811D1W	SML-811D8T	SML-811D8W	SML-811D1W	SML-811D8T	SML-811D8W	SML-811D1W	SML-811D8T	SML-811D8W	SML-811D1W	SML-811D8T	SML-811D8W	SML-811D1W	SML-811D8T	
Reverse Mount	34125	1.1	10																			
Lens	1608	1.24	20	CSL0901VT	CSL0901UT	CSL0902VT	CSL0902UT	CSL0903VT	CSL0903UT	CSL-S13VT	CSL-S13UT	CSL-S13UT	CSL-S13UT	CSL-S13UT	CSL-S13UT	CSL-S13UT	CSL-S13UT	CSL-S13UT	CSL-S13UT	CSL-S13UT	CSL-S13UT	
			20																			
			20																			
			20																			
Package Structure	Package Size (mm)	Height (mm)	Luminous Intensity (cd) I_F (mA)	4.5 to 6	6 to 7	7 to 8	8 to 9	9 to 10	10 to 12	12 to 14	14 to 16	16 to 18	18 to 20	20 to 22	22 to 24	24 to 27	27 to 30	30 to 33	33 to 36	36 to 40	40 to 45	45 to 56
Lens	2924	3.1	20																			
CSL0701UT																						

Orange (D) Quick Reference of Luminous intensity

Package Structure	Package Size (mm)	Height (mm)	Luminous Intensity (mcd) I_F (mA)	1.0 to 1.6	1.6 to 2.5	2.5 to 4.0	4.0 to 6.3	6.3 to 10.0	10 to 16	16 to 25	25 to 40	40 to 63	63 to 100	100 to 160	160 to 250	250 to 400	400 to 630	630 to 1000	1000 to 1600	1600 to 2500	2500 to 3120	
Mini-mold	1006	0.2	1	SML-P11DT (R)	SML-P11UT (R)																	
			20																			
		0.36	20																			
			2	CSL1901DW	SML-E12DW*1	SML-E12D8W	SML-D15DW	SML-D14DW (A)*	SML-D13DW (A)*	SML-D12D8W	SML-D12D1W	SML-H12D8T	SML-M13DT	SML-Z14D4T*	SML-Z14U4T*							
	1608	0.55	20																			
			2																			
			20																			
			20																			
		0.8	20																			
			20																			
Reflector	3020	1.3	20	SML-010DT	SML-011DT	SML-011DT (A)*	SML-012DT (A)*	SML-012DT (A)*	SML-012D8T	SML-012D8W	SML-012D1W	SML-013DT	SML-Z14D4T*	SML-Z14U4T*								
			10																			
			20																			
			20																			
			20																			
PLCC2	3528	1.9	50																			
Side View (mold)	16115	0.55	20	SML-A12D8T	SML-A12D8W	SML-A12D1W	SML-A12D8T	SML-A12D8W	SML-A12D1W	SML-A12D8T	SML-A12D8W	SML-A12D1W	SML-A12D8T	SML-A12D8W	SML-A12D1W	SML-A12D8T	SML-A12D8W	SML-A12D1W	SML-A12D8T	SML-A12D8W	SML-A12D1W	
			20																			
			20	SML-811DT (A)*	SML-811DT (J)*1	SML-811D8T	SML-811D8W	SML-811D1W	SML-811D8T	SML-811D8W	SML-811D1W	SML-811D8T	SML-811D8W	SML-811D1W	SML-811D8T	SML-811D8W	SML-811D1W	SML-811D8T	SML-811D8W	SML-811D1W	SML-811D8T	
Reverse Mount	34125	1.1	10																			
Lens	1608	1.24	20	CSL0901DT	CSL0901UT	CSL0902DT	CSL0902UT	CSL0903DT	CSL0903UT	CSL0904DT	CSL0904UT	CSL0905DT	CSL0905UT	CSL0906DT	CSL0906UT	CSL0907DT	CSL0907UT	CSL0908DT	CSL0908UT	CSL0909DT	CSL0909UT	
			20																			
			20																			
			20																			
Package Structure	Package Size (mm)	Height (mm)	Luminous Intensity (cd) I_F (mA)	6 to 7	7 to 8	8 to 9	9 to 10	10 to 12	12 to 14	14 to 16	16 to 18	18 to 20	20 to 22	22 to 24	24 to 27	27 to 30	30 to 33	33 to 36	36 to 40	40 to 45	45 to 56	
Lens	2924	3.1	20																			
CSL0701DT																						

*Please note that the luminous intensity of some products may fall between ranks (half rank).

*1 Luminous intensity on specification sheet include tolerance of within ±10%. Note: Please be sure to refer the specifications about the rank.

Yellow (Y, W) Quick Reference of Luminous intensity

Package Structure	Package Size (mm)	Height (mm)	Luminous Intensity (mcd) I _F (mA)	1.0 to 1.6	1.6 to 2.5	2.5 to 4.0	4.0 to 6.3	6.3 to 10.0	10 to 16	16 to 25	25 to 40	40 to 63	63 to 100	100 to 160	160 to 250	250 to 400	400 to 630	630 to 1000	1000 to 1600	1600 to 2800
Mini-mold	1006	0.2	1																	
			20																	
		0.36																		
			20																	
			2	SML-P11YT (R)																
	1608	0.55																		
			20																	
			2	SML-D11YW																
		0.55																		
			20	SML-D12W8W (A)*																
Reflector	20125	0.8	20																	
			20	SML-010YT																
		1.3																		
			20																	
			10																	
	3020	1.3																		
			20	SML-011YT (A)*																
			20																	
		1.3																		
			20	SML-012YT (A)*																
Side View (mold)	PLCC2	1.9	50																	
			20	SML-A12Y8T																
	16115	0.55	20																	
			20	SML-A12WT (J)**																
Reverse Mount	34125	1.1	10																	
Lens	1608	1.24	20																	
			20	SML-013YT																
		1.24	20	SML-Z14Y4T*																
	3216	1.85	20	SML-S13YT																

Yellow Green (M), Green (P, F) Quick Reference of Luminous intensity

Package Structure	Package Size (mm)	Height (mm)	Luminous Intensity (mcd) I _F (mA)	0.63 to 1.0	1.0 to 1.6	1.6 to 2.5	2.5 to 4.0	4.0 to 6.3	6.3 to 10.0	10 to 16	16 to 25	25 to 40	40 to 63	63 to 100	100 to 160	160 to 250	250 to 400	400 to 630	630 to 1000	1000 to 1800	1800 to 2500
Mini-mold	1006	0.2	1																		
			20																		
		0.36																			
			20	SML-P11MT (R)																	
			20	SML-P12M2T (R)																	
	1608	0.55																			
			20	SML-P12MT (R)																	
			20	SML-P13PT (R)																	
		0.55																			
			20	SML-E12P8W																	
Reflector	20125	0.8	20																		
			20	SML-E12M8W																	
		1.3																			
			20	SML-D15MW																	
			20	SML-D14MW (A)*																	
	3020	1.3																			
			20	SML-D13MW (A)*																	
			20	SML-D13FW																	
		1.3																			
			20	SML-D12M8W																	
PLCC2	3528	1.9	50																		
			20	SML-D12FW																	
		1.9																			
			20	SML-H12M8T																	
	16115	0.55	20																		
			20	SML-M13PT																	
		0.55																			
			20	SML-010MT																	
Side View (mold)	1608	1.24	20																		
			20	SML-012PT (A)*																	
	3216	1.85																			
			20	SML-012M8T																	
Reverse Mount	34125	1.1	20																		
Lens	1608	1.24	20																		
			20	SML-812MT																	
		1.24	20	CSL0901PT																	
	3216	1.85	20	CSL0902MT																	

*Please note that the luminous intensity of some products may fall between ranks (half rank).

**Luminous intensity on specification sheet include tolerance of within ±10%. Note: Please be sure to refer the specifications about the rank.

SMD LEDs

Green (E)/Blue Green (E2, E3) Quick Reference of Luminous intensity

Package Structure	Package Size (mm)	Height (mm)	Luminous Intensity (mcd)	I _f (mA)	9 to 14	14 to 22	22 to 36	36 to 56	56 to 90	90 to 140	140 to 220	220 to 360	360 to 560	560 to 900	900 to 1400	1400 to 2200	2200 to 3600	3600 to 5600
Mini-mold	1006	0.2	5	0.2														
				0.36														
				0.55														
				1.06														
Reflector	20125	0.8	5															
	3020	1.3	20															
PLCC2	3528	1.9	20															
Side View (mold)	16115	0.55	5															
Lens	1608	1.24	5	0.2														
				0.36														
				0.55														
	3216	1.85	20															

Blue (B) Quick Reference of Luminous intensity

Package Structure	Package Size (mm)	Height (mm)	Luminous Intensity (mcd)	I _f (mA)	0.9 to 1.4	1.4 to 2.2	2.2 to 3.6	3.6 to 5.6	5.6 to 9.0	9 to 14	14 to 22	22 to 36	36 to 56	56 to 90	90 to 140	140 to 220	220 to 360	360 to 560	560 to 900	900 to 1400
Mini-mold	1006	0.2	5	0.2																
				0.36																
				0.55																
				1.06	1															
Reflector	20125	0.8	5																	
	3020	1.3	20																	
PLCC2	3528	1.9	20																	
Side View (mold)	16115	0.55	5																	
Reverse Mount	34125	1.1	20																	
Lens	1608	1.24	5	0.2																
				0.36																
				0.55																
	3216	1.85	20																	

White (WB) Quick Reference of Luminous intensity

Package Structure	Package Size (mm)	Height (mm)	Luminous Intensity (mcd)	I _f (mA)	9 to 14	14 to 22	22 to 36	36 to 56	56 to 90	90 to 140	140 to 220	220 to 360	360 to 560	560 to 900	900 to 1100	1100 to 1400	1400 to 1800	1800 to 2200	2200 to 2800	2800 to 3600	3600 to 7000	7000 to 8500
Mini-mold	1006	0.2	5	0.2																		
				0.36																		
				0.55																		
				1.06																		
Reflector	1608	0.55	5	0.2																		
				0.36																		
				0.55																		
				1.06																		
PLCC2	20125	0.8	5	0.2																		
				0.36																		
				0.55																		
				1.06																		
Side View (mold)	16115	0.55	5	0.2																		
				0.36																		
				0.55																		
				1.06																		
(Reflector)	2812	0.8	20	0.2																		
				0.36																		
Reverse Mount	34125	1.1	2																			
Lens	4520	0.6	90	0.2																		
				0.36																		

*Please note that the luminous intensity of some products may fall between ranks (half rank).
 *1 Luminous intensity on specification sheet include tolerance of within ±10%. Note: Please be sure to refer the specifications about the rank.

2 Colors Quick Reference of Luminous intensity

Package Structure	Package Size (mm)	Height (mm)	I _f (mA)	Luminous Intensity (mcd) Emitting Color	2.5 to 4.0	4.0 to 6.3	6.3 to 10.0	10 to 16	16 to 25	25 to 40	40 to 63	63 to 100	100 to 160	
Mini-mold	1010	0.2	20	Red						SML-P24MUW-(R)				
				Yellow Green										
			5	Blue						SML522BUNW				
				Red										
				Yellow Green						SML-522MUW				
	1315	0.6	20	Red						SML-522MU8W				
				Yellow Green										
				Yellow Green						SML-522MD8W				
				Orange										
				Yellow Green						SML-522MY8W				
Reflector	3025	1.3	20	Yellow										
				Yellow Green						SML-D22MUW				
				Red										
				Yellow						SML-D22YVW				
				Red										
Reverse Mount	34125	1.1	20	Yellow Green						SML-020MDT				
				Orange										
				Yellow Green						SML-020MVT				
				Red										
Side View (Reflector)	29135	1.0	20	Yellow						SML-020MYT				
				Yellow Green										
				Red										
				Yellow Green						SML-822MV8W				
Side View (Reflector)	6922	2.15	20	Red										
				Yellow Green						SML-825MVW				
				Red										

3 Colors Quick Reference of Luminous intensity

Package Structure	Package Size (mm)	Height (mm)	I _f (mA)	Luminous Intensity (mcd) Emitting Color	5.6 to 9.0	9 to 14	14 to 22	22 to 36	36 to 56	56 to 90	90 to 140	140 to 220	220 to 360	360 to 560	560 to 900	900 to 1400	1400 to 1800
Mini-mold	1010	0.2	5	Red													
				Green													
			5	Blue													
				Red													
				Green													
	1510	0.2		Blue													
		20	Red														
			Green														
			Blue														
Reflector	1816	0.5	20	Red													
				Green													
				Blue													
				Red													
				Green													
	3528	0.6		Blue													
		20	Red														
			Green														
			Blue														
Side View (Reflector)	29135	1.0	20	Red													
				Green													
				Blue													
				Red													
	6922	2.15		Green													
		20	Blue														
			Red														
			Green														

*1 Luminous intensity on specification sheet include tolerance of within ±10%. Note: Please be sure to refer the specifications about the rank.

SMD LEDs (Automotive Grade)

Red (V, U) Quick Reference of Luminous intensity

Package Structure	Package Size (mm)	Height (mm)	Luminous Intensity (mcd) I _f (mA)	6.3 to 10	10 to 16	16 to 25	25 to 40	40 to 63	63 to 100	100 to 160	160 to 250	250 to 400	400 to 630	630 to 1000	1000 to 1600	1600 to 2500	2500 to 3120
Mini-mold	1608	0.55	20											SML-D15VW (C)			
														SML-D13VW (C)			
														SML-D12V8W (C)			
														SML-D15UW (C)			
		0.8	20											SML-D13UW (C)			SML-D15U2W (C)
														SML-D12U8W (C)			
PLCC	3528	1.9	20											SML-H12V8T (C)			
Reverse Mount	34125	1.1	10											SML-H12U8T (C)			
Lens	1608	1.24	20											SML-Z14VT (C)			SML-Z14UT (C)
														CSL0901VT (C)			
														CSL0901UT (C)			
														CSL0902VT (C)			
														CSL0902UT (C)			
														CSL0903VT (C)			
														CSL0903UT (C)			

Orange (D) Quick Reference of Luminous intensity

Package Structure	Package Size (mm)	Height (mm)	Luminous Intensity (mcd) I _f (mA)	10 to 16	16 to 25	25 to 40	40 to 63	63 to 100	100 to 160	160 to 250	250 to 400	400 to 630	630 to 1000	1000 to 1600	1600 to 2800	
Mini-mold	1608	0.55	20											SML-D15DW (C)		
														SML-D13DW (C)		
	20125	0.8	20											SML-D12D8W (C)		
PLCC	3528	1.9	20											SML-H12D8T (C)		
Reverse Mount	34125	1.1	10											SML-Z14DT (C)		
Lens	1608	1.24	20											CSL0901DT (C)		
														CSL0902DT (C)		
														CSL0903DT (C)		

Yellow (Y, W) Quick Reference of Luminous intensity

Package Structure	Package Size (mm)	Height (mm)	Luminous Intensity (mcd) I _f (mA)	2.5 to 4.0	4.0 to 6.3	6.3 to 10.0	10 to 16	16 to 25	25 to 40	40 to 63	63 to 100	100 to 160	160 to 250	250 to 400	400 to 630	630 to 1000	1000 to 1600	1600 to 2800
Mini-mold	1608	0.55	20	2											SML-D12W8W (C)			
				20										SML-D13WW (C)			SML-D15YW (C)	
														SML-D12Y8W (C)				
	20125	0.8	20											SML-H12Y8T (C)			SML-Z14YT (C)	
PLCC	3528	1.9	20												CSL0901YT (C)			
Reverse Mount	34125	1.1	10											SML-811WT (C)				
Lens	1608	1.24	20												CSL0901WT (C)			
														CSL0902YT (C)				
														CSL0903YT (C)				

Yellow Green (M), Green (P, F) Quick Reference of Luminous intensity

Package Structure	Package Size (mm)	Height (mm)	Luminous Intensity (mcd) I _f (mA)	1.6 to 2.5	2.5 to 4.0	4.0 to 6.3	6.3 to 10.0	10 to 16	16 to 25	25 to 40	40 to 63	63 to 100	100 to 160	160 to 250	250 to 400	400 to 630	630 to 1000
Mini-mold	1608	0.55	20												SML-D13MW (C)		
														SML-D12P8W (C)			
														SML-D13FW (C)			
	20125	0.8	20											SML-D12M8W (C)			
PLCC	3528	1.9	20											SML-H12M8T (C)			SML-Z14MT (C)
Lens	1608	1.24	20											SML-Z14PT (C)			SML-Z14FT (C)
														CSL0901PT (C)			CSL0901MT (C)
														CSL0902PT (C)			CSL0902MT (C)

Green (E)/Blue Green (E2) Quick Reference of Luminous intensity

Package Structure	Package Size (mm)	Height (mm)	Luminous Intensity (mcd) I _f (mA)	36 to 56	56 to 90	90 to 140	140 to 220	220 to 360	360 to 560	560 to 900	900 to 1400	1400 to 2200	2200 to 3600	3600 to 5600
Mini-mold	1608	1.06	5			CSL1001ET (C)								
Reflector	20125	0.8	5			SMLMN2ECT (C)								
PLCC	3528	1.9	20								SMLZ24E2N3T (C)			
Lens	1608	1.24	5					CSL0901ET (C)						
			20								CSL0902ET (C)			

Blue (B) Quick Reference of Luminous intensity

Package Structure	Package Size (mm)	Height (mm)	Luminous Intensity Intensity (mcd) I_F (mA)	2.2 to 3.6	3.6 to 5.6	5.6 to 9.0	9 to 14	14 to 22	22 to 36	36 to 56	56 to 90	90 to 140	140 to 220	220 to 360	360 to 560	560 to 900
Mini-mold	1608	0.55	5							SMLD12BN1W (C)						
		1.06	1		CSL1001BT (C)											
Reflector	20125	0.8	5						SMLMN2BCT (C)							
PLCC	3528	1.9	20												SMLZ24BN3T (C)	
Lens	1608	1.24	5							CSL0901BT (C)						
			20												CSL0902BT (C)	

White (WB) Quick Reference of Luminous intensity

3 Colors (RGB) Quick Reference of Luminous intensity

SMD LEDs

PICOLED™ Mold type 0402 (1006M)

Package (mm)	Emitting Color	Part No.	Electrical and Optical Characteristics ($T_a=25^\circ\text{C}$)										Absolute Maximum Ratings ($T_a=25^\circ\text{C}$)					
			Dominant Wavelength λ_{D} / Chromaticity Coordinates (x, y)		Luminous Intensity I_v				Forward Voltage V_F				Reverse Current I_R	Power Dissipation P_D (mW)	Forward Current I_F (mA)	Peak Forward Current I_{FP} (mA)	Reverse Voltage V_R (V)	Operating Temperature Topr (°C)
PICOLED™-eco 1.0×0.6 (t=0.2)	Red	SML-P11VT (R)	626	1	2	4	6	1	1.8	1	10	5	50	20	100 ^{*2}	5	-40 to +85	-40 to +100
		SML-P11UT (R)	621	1	1	3	6	1	1.8	1	10	5	50	20	100 ^{*2}	5	-40 to +85	-40 to +100
	Orange	SML-P11DT (R)	605	1	4	7	16	1	1.9	1	10	5	52	20	100 ^{*2}	5	-40 to +85	-40 to +100
	Yellow	SML-P11YT (R)	586	1	4	8	16	1	1.9	1	10	5	52	20	100 ^{*2}	5	-40 to +85	-40 to +100
PICOLED™ 1.0×0.6 (t=0.2)	Yellow Green	SML-P11MT (R)	569	1	1	2	4	1	1.9	1	10	5	54	20	100 ^{*2}	5	-40 to +85	-40 to +100
	Red	SML-P12VT (R)	630	20	25	60	100	20	2.0	20	10	5	50	20	100 ^{*2}	5	-40 to +85	-40 to +100
		SML-P12UT (R)	620	20	40	85	160	20	2.0	20	10	5	50	20	100 ^{*2}	5	-40 to +85	-40 to +100
	Orange	SML-P12U2T (R)	615	20	25	70	160	20	2.1	20	10	5	52	20	100 ^{*2}	5	-40 to +85	-40 to +100
	Yellow	SML-P12DT (R)	605	20	63	100	250	20	2.1	20	10	5	52	20	100 ^{*2}	5	-40 to +85	-40 to +100
		SML-P12Y3T (R)	596	20	40	90	250	20	2.1	20	10	5	52	20	100 ^{*2}	5	-40 to +85	-40 to +100
	Yellow	SML-P12YT (R)	590	20	40	100	160	20	2.1	20	10	5	52	20	100 ^{*2}	5	-40 to +85	-40 to +100
		SML-P12WT (R)	585	20	25	70	160	20	2.1	20	10	5	52	20	100 ^{*2}	5	-40 to +85	-40 to +100
	Yellow Green	SML-P12Y2T (R)	580	20	16	50	100	20	2.1	20	10	5	52	20	100 ^{*2}	5	-40 to +85	-40 to +100
		SML-P12M2T (R)	576	20	10	25	63	20	2.2	20	10	5	54	20	100 ^{*2}	5	-40 to +85	-40 to +100
	Green	SML-P12MT (R)	572	20	10	25	63	20	2.2	20	10	5	54	20	100 ^{*2}	5	-40 to +85	-40 to +100
PICOLED™ 1.0×0.6 (t=0.2)		SML-P13FT (R)	566	20	6	18	40	20	2.1	20	10	5	52	20	100 ^{*2}	5	-40 to +85	-40 to +100
		SML-P13PT (R)	560	20	4	10	16	20	2.1	20	10	5	52	20	100 ^{*2}	5	-40 to +85	-40 to +100
		SMLP14ECNW	527	5	56	110	220	5	3.0	5	100	5	34	10	50 ^{*2}	5	-40 to +85	-40 to +100
	Blue	SMLP14BCNW	470	5	9	25	56	5	2.9	5	100	5	33	10	50 ^{*2}	5	-40 to +85	-40 to +100
	White	SMLP14WBCN1W	(x, y) (0.30, 0.30)	5	90	180	360	5	2.9	5	100	5	33	10	50 ^{*2}	5	-40 to +85	-40 to +100

Mold type 0603 (1608M)

Package (mm)	Emitting Color	Part No.	Electrical and Optical Characteristics ($T_a=25^\circ\text{C}$)										Absolute Maximum Ratings ($T_a=25^\circ\text{C}$)					
			Dominant Wavelength λ_{D} / Chromaticity Coordinates (x, y)		Luminous Intensity I_v				Forward Voltage V_F				Reverse Current I_R	Power Dissipation P_D (mW)	Forward Current I_F (mA)	Peak Forward Current I_{FP} (mA)	Reverse Voltage V_R (V)	Operating Temperature Topr (°C)
1.6×0.8 (t=0.36)	Red	SML-E12V8W	630	20	16	40	100	20	2.2	20	10	5	54	20	100 ^{*2}	5	-40 to +85	-40 to +100
		SML-E12UW	624	20	36	85	280	20	2.0	20	10	5	62	25	60 ^{*1}	5	-30 to +85	-40 to +100
		SML-E12U8W	620	20	25	63	160	20	2.2	20	10	5	54	20	100 ^{*2}	5	-40 to +85	-40 to +100
	Orange	SML-E12DW	607	20	56	150	450	20	2.0	20	10	5	62	25	60 ^{*1}	5	-30 to +85	-40 to +100
1.6×0.8 (t=0.36)	Yellow	SML-E12Y8W	590	20	25	63	160	20	2.2	20	10	5	54	20	100 ^{*2}	5	-40 to +85	-40 to +100
		SML-E12M8W	572	20	10	25	63	20	2.2	20	10	5	54	20	100 ^{*2}	5	-40 to +85	-40 to +100
	Green	SML-E12P8W	560	20	3	6	16	20	2.2	20	10	5	54	20	100 ^{*2}	5	-40 to +85	-40 to +100
		SMLEN3EC8T	527	5	56	120	360	5	3.0	5	10	5	68	20	100 ^{*2}	5	-40 to +85	-40 to +100
1.6×0.8 (t=0.55)	Blue	SMLEN3BC8T	470	5	14	40	90	5	2.9	5	10	5	66	20	100 ^{*2}	5	-40 to +85	-40 to +100
	White	SMLEN3WBC8W	(x, y) (0.30, 0.30)	5	56	120	220	5	2.9	5	10	5	33	10	50 ^{*2}	5	-40 to +85	-40 to +100
	Red	SML-D12L8W	635	20	10	16	40	20	2.0	20	10	5	50	20	100 ^{*3}	5	-40 to +85	-40 to +100
		SML-D14VW (A)	71	100	180				2.0				72	30			-40 to +100	
		Single rank SML-D15VW	71	90	112				2.0				84	35				-40 to +100
		SML-D13VW (A)	36	55	90	20			2.0				72	30				-40 to +100
		SML-D12V8W	16	40	100				2.2				54	20				-40 to +85
		SML-D12V1W	25	63					2.2				44					
	Red	New CSL1901VW	2	1.6	4.8	6.3	2	1.8	2									
		Single rank SML-D15UW	90	112	140				2.0				84	35			-40 to +100	
1.6×0.8 (t=0.55)		SML-D13UW (A)	56	85					2.0				72	30				-40 to +100
		SML-D13U8W	40	70	160				2.1				52					
		SML-D12U8W	25	63					2.2				54	20				-40 to +85
		SML-D12U1W	40	100	100				2.2				44					
1.6×0.8 (t=0.55)	Orange	New CSL1901UW	2	2.5	6	10	2	1.8	2									
		Single rank SML-D14U2W (A)	90	160	224				2.0				84	35			-40 to +100	
		Single rank SML-D15U2W	112	140	180				2.0				72	30				-40 to +100
		SML-D15DW	180	224	280				2.0				84	35			-40 to +100	
1.6×0.8 (t=0.55)		SML-D14DW (A)	112	200	280				2.0				72	30				
		SML-D13DW (A)	71	120	180	20			2.0				54	20				
		SML-D12D8W	40	250	250				2.2				44					
		SML-D12D1W	63	100	160				2.2				44					
1.6×0.8 (t=0.55)	Yellow	New CSL1901YW	2	6.3	9.4	25	2	1.8	2									
		Single rank SML-D15YW	180	224	280				2.1				87	35			-40 to +100	
		SML-D14YW (A)	112	200	280				2.1				75	30				-40 to +100
		SML-D12Y1W	63	100	160	20			2.2				54	20				
1.6×0.8 (t=0.55)		SML-D13Y8W	25	63					2.2				44					
		SML-D12Y8W	25	45	71				2.2				87	35				
		New CSL1901YW	2	6.3	9.4	25	2	1.8	2									
		SML-D12W8W (A)	5	7	9	2			2.0				87	35			-40 to +100	
1.6×0.8 (t=0.55)	Green	SML-D11YW	2	4	6	2			1.9				67	25			-40 to +85	
		SML-D14WW (A)	112	180	280				2.1				75	30			-40 to +100	
		SML-D13WW (A)	71	110	180				2.1				75	30			-40 to +100	
		SML-D13Y2W	40	80	160	20			2.1				78	30			-40 to +85	
1.6×0.8 (t=0.55)		SML-D12Y3W	16	40	100	20			2.2				54	20			-40 to +100	
		SML-D12M1W	16															

Mold type 0603 (1608M)																				
Package (mm)	Emitting Color	Part No.	Electrical and Optical Characteristics ($T_a=25^\circ\text{C}$)												Absolute Maximum Ratings ($T_a=25^\circ\text{C}$)					
			Dominant Wavelength λ_D		Luminous Intensity I_V			Forward Voltage V_F		Reverse Current I_R		Power Dissipation P_D (mW)		Forward Current I_F (mA)	Peak Forward Current I_{FP} (mA)	Reverse Voltage V_R (V)	Operating Temperature T_{opr} ($^\circ\text{C}$)	Storage Temperature T_{stg} ($^\circ\text{C}$)		
1.6x0.8 (t=1.06)	Green	CSL1001ET (C)	527	5	90	140	224	5	3.0	5	10	5	35	10	50 ^{*2}	5	-40 to +100	-40 to +100		
	Blue	CSL1001BT (C)	470	1	4	6	9	1	2.8	1	10	5	33	10	50 ^{*2}	5	-40 to +100	-40 to +100		
Mold type 0805 (20125M)																				
Package (mm)	Emitting Color	Part No.	Electrical and Optical Characteristics ($T_a=25^\circ\text{C}$)												Absolute Maximum Ratings ($T_a=25^\circ\text{C}$)					
			Dominant Wavelength λ_D		Luminous Intensity I_V			Forward Voltage V_F		Reverse Current I_R		Power Dissipation P_D (mW)		Forward Current I_F (mA)	Peak Forward Current I_{FP} (mA)	Reverse Voltage V_R (V)	Operating Temperature T_{opr} ($^\circ\text{C}$)	Storage Temperature T_{stg} ($^\circ\text{C}$)		
2.0x1.25 (t=0.8)	Red	SML-H12V8T	630	20	16	25	63	20	2.2	20	10	5	54	20	100 ^{*2}	5	-40 to +85	-40 to +100		
	Orange	SML-H12D8T	605	20	40	63	160	20	2.2	20	10	5	54	20	100 ^{*2}	5	-40 to +85	-40 to +100		
2.0x1.25 (t=0.8)	Yellow	SML-H12Y8T	590	20	40	63	160	20	2.2	20	10	5	54	20	100 ^{*2}	5	-40 to +85	-40 to +100		
	Yellow Green	SML-H12M8T	572	20	10	25	40	20	2.2	20	10	5	54	20	100 ^{*2}	5	-40 to +85	-40 to +100		
	Green	SML-H12P8T	560	20	3	4	10	20	2.2	20	10	5	54	20	100 ^{*2}	5	-40 to +85	-40 to +100		
Reflector type 0603 (1608M)																				
Package (mm)	Emitting Color	Part No.	Electrical and Optical Characteristics ($T_a=25^\circ\text{C}$)												Absolute Maximum Ratings ($T_a=25^\circ\text{C}$)					
			Dominant Wavelength λ_D / Chromaticity Coordinates (x, y)		Luminous Intensity I_V			Forward Voltage V_F		Reverse Current I_R		Power Dissipation P_D (mW)		Forward Current I_F (mA)	Peak Forward Current I_{FP} (mA)	Reverse Voltage V_R (V)	Operating Temperature T_{opr} ($^\circ\text{C}$)	Storage Temperature T_{stg} ($^\circ\text{C}$)		
1.6x0.8 (t=0.55)	White	CSL1101WBAW	(x, y) (0.282, 0.249)	5	90	155	220	5	2.9	5	10	5	68	20	100 ^{*2}	5	-40 to +110	-40 to +110		
		CSL1101WBW	(x, y) (0.261, 0.261)	5	90	155	220	5	2.9	5	10	5	68	20	100 ^{*2}	5	-40 to +110	-40 to +110		
1.6x0.8 (t=0.55)		CSL1101WBCW	(x, y) (0.303, 0.294)	5	90	155	220	5	2.9	5	10	5	68	20	100 ^{*2}	5	-40 to +110	-40 to +110		
		CSL1101WBDW	(x, y) (0.284, 0.303)	5	90	155	220	5	2.9	5	10	5	68	20	100 ^{*2}	5	-40 to +110	-40 to +110		
1.6x0.8 (t=0.55)		CSL1102WBAW	(x, y) (0.282, 0.249)	20	710	1,000	1,400	20	3.2	20	10	5	152	40	100 ^{*2}	5	-40 to +110	-40 to +110		
		CSL1102WBWW	(x, y) (0.261, 0.261)	20	710	1,000	1,400	20	3.2	20	10	5	152	40	100 ^{*2}	5	-40 to +110	-40 to +110		
1.6x0.8 (t=0.55)		CSL1102WBCW	(x, y) (0.303, 0.294)	20	710	1,000	1,400	20	3.2	20	10	5	152	40	100 ^{*2}	5	-40 to +110	-40 to +110		
		CSL1102WBDW	(x, y) (0.284, 0.303)	20	710	1,000	1,400	20	3.2	20	10	5	152	40	100 ^{*2}	5	-40 to +110	-40 to +110		
1.6x0.8 (t=0.55)		CSL1103WBAW	(x, y) (0.282, 0.249)	20	900	1,500	2,200	20	3.2	20	10	5	152	40	100 ^{*2}	5	-40 to +110	-40 to +110		
		CSL1103WBW	(x, y) (0.261, 0.261)	20	900	1,500	2,200	20	3.2	20	10	5	152	40	100 ^{*2}	5	-40 to +110	-40 to +110		
1.6x0.8 (t=0.55)		CSL1103WBCW	(x, y) (0.303, 0.294)	20	900	1,500	2,200	20	3.2	20	10	5	152	40	100 ^{*2}	5	-40 to +110	-40 to +110		
		CSL1103WBDW	(x, y) (0.284, 0.303)	20	900	1,500	2,200	20	3.2	20	10	5	152	40	100 ^{*2}	5	-40 to +110	-40 to +110		
1.6x0.8 (t=0.55)		CSL1104WBAW	(x, y) (0.282, 0.249)	20	1,400	2,000	2,800	20	2.9	20	10	5	144	40	100 ^{*2}	5	-40 to +110	-40 to +110		
		CSL1104WBWW	(x, y) (0.261, 0.261)	20	1,400	2,000	2,800	20	2.9	20	10	5	144	40	100 ^{*2}	5	-40 to +110	-40 to +110		
1.6x0.8 (t=0.55)		CSL1104WBCW	(x, y) (0.303, 0.294)	20	1,400	2,000	2,800	20	2.9	20	10	5	144	40	100 ^{*2}	5	-40 to +110	-40 to +110		
		CSL1104WBDW	(x, y) (0.284, 0.303)	20	1,400	2,000	2,800	20	2.9	20	10	5	144	40	100 ^{*2}	5	-40 to +110	-40 to +110		
Reflector type 0805 (20125M)																				
Package (mm)	Emitting Color	Part No.	Electrical and Optical Characteristics ($T_a=25^\circ\text{C}$)												Absolute Maximum Ratings ($T_a=25^\circ\text{C}$)					
			Dominant Wavelength λ_D / Chromaticity Coordinates (x, y)		Luminous Intensity I_V			Forward Voltage V_F		Reverse Current I_R		Power Dissipation P_D (mW)		Forward Current I_F (mA)	Peak Forward Current I_{FP} (mA)	Reverse Voltage V_R (V)	Operating Temperature T_{opr} ($^\circ\text{C}$)	Storage Temperature T_{stg} ($^\circ\text{C}$)		
2.0x1.25 (t=0.8)	Red	SML-M13VT	630	20	40	75	100	20	2.0	20	10	5	75	30	100 ^{*2}	5	-40 to +85	-40 to +100		
	Orange	SML-M13UT	620	20	63	120	160	20	2.0	20	10	5	75	30	100 ^{*2}	5	-40 to +85	-40 to +100		
2.0x1.25 (t=0.8)	Yellow	SML-M13DT	605	20	100	160	250	20	2.0	20	10	5	75	30	100 ^{*2}	5	-40 to +85	-40 to +100		
	Yellow Green	SML-M13YT	590	20	100	160	250	20	2.0	20	10	5	75	30	100 ^{*2}	5	-40 to +85	-40 to +100		
2.0x1.25 (t=0.8)	Green	SML-M13MT	572	20	25	45	100	20	2.2	20	10	5	81	30	100 ^{*2}	5	-40 to +85	-40 to +100		
	Green	SML-M13PT	560	20	6	16	25	20	2.2	20	10	5	81	30	100 ^{*2}	5	-40 to +85	-40 to +100		
2.0x1.25 (t=0.8)	White	SMLMN2ECT (C)	527	5	14	36	90	5	3.0	5	10	12	70	20	100 ^{*2}	12	-40 to +100	-40 to +100		
	White	SMLMN2BCT (C)	470	5	56	140	220	5	2.9	5	10	12	68	20	100 ^{*2}	12	-40 to +100	-40 to +100		
Reflector type (3020M)																				
Package (mm)	Emitting Color	Part No.	Electrical and Optical Characteristics ($T_a=25^\circ\text{C}$)												Absolute Maximum Ratings ($T_a=25^\circ\text{C}$)					
			Dominant Wavelength λ_D		Luminous Intensity I_V			Forward Voltage V_F		Reverse Current I_R		Power Dissipation P_D (mW)		Forward Current I_F (mA)	Peak Forward Current I_{FP} (mA)	Reverse Voltage V_R (V)	Operating Temperature T_{opr} ($^\circ\text{C}$)	Storage Temperature T_{stg} ($^\circ\text{C}$)		
3.0x2.0 (t=1.3)	Red	SML-010VT	650 ^{*3}	20	2	6	18	20	2.0	20	10	4	70	25	60 ^{*1}	4	-30 to +85	-40 to +100		
		SML-011VT (A)	639 ^{*3}	10	14	28	56	10	2.0	10	10	5	75	30	100 ^{*2}	5	-40 to +100	-40 to +100		
3.0x2.0 (t=1.3)	Red	SML-011UT	630 ^{*3}	20	22	63	180	20	2.0	20	10	5	75	30	100 ^{*2}	5	-40 to +100	-40 to +100		
		SML-012VT (A)	630	20	25	63	160	20	2.2	20	10	5	54	20	100 ^{*2}	5	-40 to +85	-40 to +100		
3.0x2.0 (t=1.3)	Orange	SML-013UT	624	20	90	220	710	20	2.0	20	10	5	75	30	100 ^{*2}	5	-30 to +85	-40 to +100		
		SML-012UT	620	20	40	100	250	20	2.2	20	10	5	54	20	100 ^{*2}	5	-40 to +85	-40 to +100		
3.0x2.0 (t=1.3)	Orange	SML-011DT	611 ^{*3}	10	22	45	90	10	2.0	10</td										

SMD LEDs

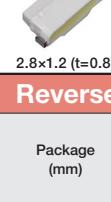
Reflector type PLCC (3528M)

Package (mm)	Emitting Color	Part No.	Electrical and Optical Characteristics ($T_a=25^\circ\text{C}$)										Absolute Maximum Ratings ($T_a=25^\circ\text{C}$)					
			Dominant Wavelength λ_d / Chromaticity Coordinates (x, y)		Luminous Intensity I_v			Forward Voltage V_F		Reverse Current I_R		Power Dissipation P_D	Forward Current I_F	Peak Forward Current I_{FP}	Reverse Voltage V_R	Operating Temperature Topr	Storage Temperature Tstg	
Typ* (nm)		I_F (mA)	Min (mcd)	Typ (mcd)	Max (mcd)	I_F (mA)	Typ (V)	I_F (mA)	Max (μA)	V_R (V)	(mA)	(mA)	(V)	(°C)	(°C)			
 (WB)	Red	SML-Z14V4T	630	50	140	280	560	50	2.0	50	10	12	189	70	200 ^{*2}	12	-40 to 100	-40 to 100
		SML-Z14VT (A)		20	56	112	180	20	1.9	20			168					
	Orange	SML-Z14U4T	620	50	280	560	1,120	50	2.0	50	10	12	189	70	200 ^{*2}	12	-40 to 100	-40 to 100
		SML-Z14UT (A)		20	112	224	355	20	1.9	20			168					
	Yellow	SML-Z14D4T	605	50	355	710	1,400	50	2.0	50	10	12	189	70	200 ^{*2}	12	-40 to 100	-40 to 100
		SML-Z14DT (A)		20	140	280	450	20	1.9	20			168					
	Yellow Green	SML-Z14Y4T	590	50	355	710	1,400	50	2.1	50	10	12	189	70	200 ^{*2}	12	-40 to 100	-40 to 100
		SML-Z14YT (A)		20	140	280	450	20	2.0	20	10	12	175	70	200 ^{*2}	12	-40 to 100	-40 to 100
	Green	SML-Z14M4T	572	50	112	224	450	50	2.1	50	10	12	189	70	200 ^{*2}	12	-40 to 100	-40 to 100
		SML-Z14MT (A)		20	45	90	140	20	2.0	20	10	12	175	70	200 ^{*2}	12	-40 to 100	-40 to 100
 3.5x2.8 (t=1.9)	SML-Z14F4T	565	56	50	56	120	180	50	2.1	50	10	12	189	70	200 ^{*2}	12	-40 to 100	-40 to 100
		SML-Z14FT (A)		20	22	45	71	20	2.0	20	10	12	175	70	200 ^{*2}	12	-40 to 100	-40 to 100
	SML-Z14P4T	561	56	50	22	56	90	50	2.1	50	10	12	189	70	200 ^{*2}	12	-40 to 100	-40 to 100
		SML-Z14PT (A)		20	11	22	36	20	2.0	20	10	12	175	70	200 ^{*2}	12	-40 to 100	-40 to 100
	SMLZN4EGT (A)	528	20	900	1,500	2,200	20	3.4	20	10	5	120	30	100 ^{*2}	5	-40 to 100	-40 to 100	
		SMLZ24E2N3T (C)		20	900	1,140	1,800	20	3.2	20	—	—	152	40	100 ^{*2}	—	-40 to 100	-40 to 100
	Blue Green	SMLZ24BN3T (C)	470	20	220	300	450	20	3.3	20	—	—	114	30	100 ^{*2}	0.9	-40 to 100	-40 to 85
		SMLZN4BGT (A)		20	140	—	—	—	—	—	—	—	114	30	100 ^{*2}	0.9	-40 to 85	-40 to 100
	White	SMLZN4WBGUW (A)	(x, y) (0.30, 0.28)	20	1,800	2,400	3,600	20	3.3	20	—	—	114	30	100 ^{*2}	0.9	-40 to 85	-40 to 100

Reflector type (4520M)

Package (mm)	Emitting Color	Part No.	Electrical and Optical Characteristics ($T_a=25^\circ\text{C}$)										Absolute Maximum Ratings ($T_a=25^\circ\text{C}$)					
			Chromaticity Coordinates* (x, y)		Luminous Intensity I_v			Forward Voltage V_F		Reverse Current I_R		Power Dissipation P_D	Forward Current I_F	Peak Forward Current I_{FP}	Reverse Voltage V_R	Operating Temperature Topr	Storage Temperature Tstg	
Typ* (nm)		I_F (mA)	Min (mcd)	Typ (mcd)	Max (mcd)	I_F (mA)	Typ (V)	I_F (mA)	Max (μA)	V_R (V)	(mA)	(mA)	(V)	(°C)	(°C)			
 4.5x2.0 (t=0.6)	White	SMLK18WBNCW	(0.30, 0.28)	90	4,800	5,900	8,500	90	3.9	90	10	5				5		
		New SMLK28WBNCW								150	—	—	675	150	230 ^{*3}	—	-40 to +100	-40 to +100

Side View type

Package (mm)	Emitting Color	Part No.	Electrical and Optical Characteristics ($T_a=25^\circ\text{C}$)										Absolute Maximum Ratings ($T_a=25^\circ\text{C}$)					
			Dominant Wavelength λ_d / Chromaticity Coordinates (x, y)		Luminous Intensity I_v			Forward Voltage V_F		Reverse Current I_R		Power Dissipation P_D	Forward Current I_F	Peak Forward Current I_{FP}	Reverse Voltage V_R	Operating Temperature Topr	Storage Temperature Tstg	
Typ* (nm)		I_F (mA)	Min (mcd)	Typ (mcd)	Max (mcd)	I_F (mA)	Typ (V)	I_F (mA)	Max (μA)	V_R (V)	(mA)	(mA)	(V)	(°C)	(°C)			
 1.6x1.15 (t=0.55)	Red	SML-A12V8T	630	20	16	40	100	20	2.2	20	10	5	54	20	100 ^{*2}	5	-40 to +85	-40 to +100
		SML-A12UT (J)	624	20	36	100	280	20	2.0	20	10	5	75	30	100 ^{*2}	5	-40 to +85	-40 to +100
	Orange	SML-A12U8T	620	20	25	63	160	20	2.2	20	10	5	54	20	100 ^{*2}	5	-40 to +85	-40 to +100
		SML-A12DT (J)	606	20	36	100	280	20	2.0	20	10	5	75	30	100 ^{*2}	5	-40 to +85	-40 to +100
	Yellow	SML-A12D8T	605	20	40	100	250	20	2.2	20	10	5	54	20	100 ^{*2}	5	-40 to +85	-40 to +100
		SML-A12WT (J)	590	36	63	180		2.0			10	5	75	30	100 ^{*2}	5	-40 to +85	-40 to +100
		SML-A12Y8T		25	63	160	20	2.2	20	10	5	54	20	100 ^{*2}	5	-40 to +85	-40 to +100	
	Yellow Green	SML-A12M8T	572	20	10	25	63	20	2.2	20	10	5	54	20	100 ^{*2}	5	-40 to +85	-40 to +100
		SML-A12MT (J)	570	20	14	40	110	20	2.1	20	100	5	65	25	100 ^{*2}	5	-30 to +85	-40 to +85
	Green	SML-A12P8T	560	20	3	6	16	20	2.2	20	10	5	54	20	100 ^{*2}	5	-40 to +85	-40 to +100
		SMLA12ENT	527	5	56	140	220	5	3.0	5	100	5	68	20	100 ^{*2}	5	-40 to +85	-40 to +100
 2.8x1.2 (t=0.8)	Blue	SMLA12BN8T	470	5	9	36	56	5	2.9	5	10	5	66	20	100 ^{*2}	5	-40 to +85	-40 to +100
		White	SMLA12WBN7W	(x, y) (0.30, 0.30)	5	22	56	140	5	2.9	5	10	5	33	10	50 ^{*2}	5	-40 to +85

Reverse Mount type

Package (mm)	Emitting Color	Part No.	Electrical and Optical Characteristics ($T_a=25^\circ\text{C}$)										Absolute Maximum Ratings ($T_a=25^\circ\text{C}$)					
			Dominant Wavelength <															

Surface Mount Circular type

2 Colors type

Package (mm)	Emitting Color	Part No.	Electrical and Optical Characteristics (Ta=25°C)										Absolute Maximum Ratings (Ta=25°C)							
			Dominant Wavelength λD		Luminous Intensity Iv			Forward Voltage VF		Reverse Current IR		Power Dissipation PD		Forward Current IF		Peak Forward Current IP		Reverse Voltage VR	Operating Temperature Topr (°C)	Storage Temperature Tstg (°C)
			Type (nm)	I _F (mA)	Min (mcd)	Type (mcd)	Max (mcd)	I _F (mA)	Type (V)	I _F (mA)	Max (μA)	V _R (V)	(mW)	I _F (mA)	I _P (mA)	V _R (V)				
 PICOLED™-DUO 1.0x1.0 (t=0.2)	Yellow Green	SML-P24MUW (R)	572	20	10	21	40	20	2.2	20	10	5	54	20	100 ^{*2}	5	-40 to +85	-40 to +100		
	Red		620	20	25	52	100	20	2.1	20	10	5	52	20	100 ^{*2}	5	-40 to +85	-40 to +100		
 1.6x0.8 (t=0.55)	Yellow Green	SML-D22MUW	570	5	6	10	16	5	2.0	5	10	5	67	25	100 ^{*2}	5	-40 to +105	-40 to +110		
	Red		620	5	10	16	25	5	1.9	5	10	5	65	25	100 ^{*2}	5	-40 to +105	-40 to +110		
	Yellow	SML-D22YVW	588	5	16	25	40	5	2.0	5	10	5	67	25	100 ^{*2}	5	-40 to +105	-40 to +110		
	Red		629	5	10	16	25	5	1.9	5	10	5	65	25	100 ^{*2}	5	-40 to +105	-40 to +110		
 1.3x1.5 (t=0.6)	Blue	SML522BUNW	470	5	9	22	36	5	2.9	5	10	5	66	20	60 ^{*2}	5	-40 to +85	-40 to +100		
	Red		624	5	10	21	40	5	1.9	5	10	5	50	20	60 ^{*2}	5	-40 to +85	-40 to +100		
	Yellow Green	SML-522MUW	570	20	14	40	71	20	2.1	20	100	4	52	20	60 ^{*2}	4	-30 to +85	-40 to +85		
	Red		630	20	22	63	110	20	1.9	20	100	4	50	20	60 ^{*2}	4	-30 to +85	-40 to +85		
	Yellow Green	SML-522MU8W	572	20	16	40	63	20	2.2	20	100	4	54	20	100 ^{*2}	4	-40 to +85	-40 to +100		
	Red		620	20	25	63	100	20	2.2	20	100	4	54	20	100 ^{*2}	4	-40 to +85	-40 to +100		
	Yellow Green	SML-522MD8W	572	20	10	25	40	20	2.2	20	100	4	54	20	100 ^{*2}	4	-40 to +85	-40 to +100		
	Orange		605	20	40	100	160	20	2.2	20	100	4	54	20	100 ^{*2}	4	-40 to +85	-40 to +100		
	Yellow Green	SML-522MY8W	572	20	16	40	63	20	2.2	20	100	4	54	20	100 ^{*2}	4	-40 to +85	-40 to +100		
	Yellow		590	20	40	63	160	20	2.2	20	100	4	54	20	100 ^{*2}	4	-40 to +85	-40 to +100		
 3.0x2.5 (t=1.3)	Yellow Green	SML-020MDT	570 ^{*3}	20	9	20	45	20	2.2	20	100	4	60	25	60 ^{*1}	4	-30 to +85	-40 to +85		
	Orange		610 ^{*3}	20	6	10	18	20	2.0	20	100	4	60	25	60 ^{*1}	4	-30 to +85	-40 to +85		
	Yellow Green	SML-020MVT	570 ^{*3}	20	9	20	45	20	2.2	20	100	4	60	25	60 ^{*1}	4	-30 to +85	-40 to +85		
	Red		650 ^{*3}	20	4	6	11	20	2.0	20	100	4	60	25	60 ^{*1}	4	-30 to +85	-40 to +85		
	Yellow Green	SML-020MYT	570 ^{*3}	20	9	21	45	20	2.2	20	100	4	60	25	60 ^{*1}	4	-30 to +85	-40 to +85		
	Yellow		585 ^{*3}	20	6	10	18	20	2.1	20	100	4	60	25	60 ^{*1}	4	-30 to +85	-40 to +85		

*1 Duty≤1/5, 200Hz *2 Duty≤1/10, 1kHz *3 Peak wavelength
Note: PICOLED™ is a trademark or a registered trademark of ROHM Co., Ltd.

SMD LEDs

3 Colors type

Package (mm)	Emitting Color	Part No.	Electrical and Optical Characteristics ($T_a=25^\circ\text{C}$)												Absolute Maximum Ratings ($T_a=25^\circ\text{C}$)					
			Dominant Wavelength λ_D		Luminous Intensity I_v				Forward Voltage V_F		Reverse Current I_R		Power Dissipation P_D		Forward Current I_F	Peak Forward Current I_{FP}	Reverse Voltage V_R	Operating Temperature Topr	Storage Temperature Tstg	
			Type (nm)	I_F (mA)	Min (mcd)	Typ (mcd)	Max (mcd)	I_F (mA)	Type (V)	I_F (mA)	Max (μA)	V_R (V)	Power P_D	(mW)	Current I_F (mA)	Current I_{FP} (mA)	Voltage V_R (V)	($^\circ\text{C}$)	($^\circ\text{C}$)	
1.0x1.0 (t=0.2)	Red	SMLP34RGBN1W	624	5	36	80	140	5	2.1	5	10	5	35	10	50 ^{*1}	5	-40 to +85	-40 to +100		
	Green		527	5	140	220	360	5	3.1	5	10	5	35	10	50 ^{*1}	5	-40 to +85	-40 to +100		
	Blue		470	5	36	60	140	5	3.0	5	10	5	35	10	50 ^{*1}	5	-40 to +85	-40 to +100		
1.5x1.0 (t=0.2)	Red	SMLP36RGBNW	624	5	36	80	140	5	1.9	5	10	5	35	10	50 ^{*1}	5	-40 to +85	-40 to +100		
	Green		527	5	140	220	360	5	2.9	5	10	5	35	10	50 ^{*1}	5	-40 to +85	-40 to +100		
	Blue		470	5	36	60	140	5	2.95	5	10	5	35	10	50 ^{*1}	5	-40 to +85	-40 to +100		
1.8x1.6 (t=0.5)	Red	MSL0402RGBU ^{*5}	624	20	220	400	560	20	2.1	20	10	5	180 ^{*2}	30	100	5	-40 to +85	-40 to +100		
	Green		527	20	360	550	900	20	3.5	20	100	5	180 ^{*2}	30	100	5	-40 to +85	-40 to +100		
	Blue		470	20	90	180	360	20	3.3	20	100	5	180 ^{*2}	30	100	5	-40 to +85	-40 to +100		
3.5x2.8 (t=0.6)	Red	SMLVN6RGB1U ^{*5}	624	20	450	700	1,100	20	2.1	20	10	5	400 ^{*2}	50	100	5	-40 to +85	-40 to +100		
	Green		527	20	710	1,200	1,800	20	3.3	20	—	—	400 ^{*2}	40	100	—	-40 to +85	-40 to +100		
	Blue		470	20	220	400	560	20	3.3	20	—	—	400 ^{*2}	40	100	—	-40 to +85	-40 to +100		
	Red	SMLVN6RGB1W ^{*4}	624	20	450	700	1,100	20	2.1	20	10	5	400 ^{*2}	50	100	5	-40 to +85	-40 to +100		
	Green		527	20	710	1,200	1,800	20	3.3	20	—	—	400 ^{*2}	40	100	—	-40 to +85	-40 to +100		
	Blue		470	20	220	400	560	20	3.3	20	—	—	400 ^{*2}	40	100	—	-40 to +85	-40 to +100		
	Red	SMLVN6RGB7W	624	20	280	500	900	20	2.1	20	10	5	180 ^{*2}	30	100	5	-40 to +85	-40 to +100		
	Green		527	20	560	1,000	1,800	20	3.5	20	—	—	180 ^{*2}	30	100	—	-40 to +85	-40 to +100		
	Blue		470	20	140	300	560	20	3.3	20	—	—	180 ^{*2}	30	100	—	-40 to +85	-40 to +100		

3 Colors Side View type

Package (mm)	Emitting Color	Part No.	Electrical and Optical Characteristics ($T_a=25^\circ\text{C}$)												Absolute Maximum Ratings ($T_a=25^\circ\text{C}$)					
			Dominant Wavelength λ_D		Luminous Intensity I_v				Forward Voltage V_F		Reverse Current I_R		Power Dissipation		Forward Current I_F	Peak Forward Current I_{FP}	Reverse Voltage V_R	Operating Temperature Topr	Storage Temperature Tstg	
			Type (nm)	I_F (mA)	Min (mcd)	Typ (mcd)	Max (mcd)	I_F (mA)	Type (V)	I_F (mA)	Max (μA)	V_R (V)	Power P_D	(mW)	Current I_F (mA)	Current I_{FP} (mA)	Voltage V_R (V)	($^\circ\text{C}$)	($^\circ\text{C}$)	
3 Colors Side View type 6.9x2.2 (t=2.15)	Red	MSL0104RGBU ^{*5}	624	20	450	700	1,100	20	2.1	20	10	5	400 ^{*2}	50	100	5	-40 to +85	-40 to +100		
	Green		527	20	710	1,200	1,800	20	3.3	20	—	—	400 ^{*2}	40	100	—	-40 to +85	-40 to +100		
	Blue		470	20	220	400	560	20	3.2	20	—	—	400 ^{*2}	40	100	—	-40 to +85	-40 to +100		
2.9x1.35 (t=1.0)	Red	MSL0104RGBW ^{*4}	624	20	600	700	830	20	2.1	20	10	5	300 ^{*2}	40	100	5	-40 to +85	-40 to +100		
	Green		527	20	710	1,200	1,800	20	3.3	20	—	—	400 ^{*2}	40	100	—	-40 to +85	-40 to +100		
	Blue		470	20	220	400	560	20	3.2	20	—	—	400 ^{*2}	40	100	—	-40 to +85	-40 to +100		

*1 Duty≤1/20, 1ms

*2 Total power dissipation in case of lighting three colors. (when lighting three colors, it will be reduced down to 30% of it.)

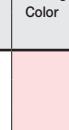
*3 50mm×50mm, Substrate: FR4: t=1.6mm Cu foil: t=0.07mm *4 Epoxy resin

*5 Silicon resin

Package (mm)	Emitting Color	Part No.	Electrical and Optical Characteristics ($T_a=25^\circ\text{C}$)												Absolute Maximum Ratings ($T_a=25^\circ\text{C}$)					
			Dominant Wavelength/ Chromaticity Coordinates (x, y)		Luminous Intensity I_v				Forward Voltage V_F		Reverse Current I_R		Power Dissipation		Forward Current I_F	Peak Forward Current I_{FP}	Reverse Voltage V_R	Operating Temperature Topr	Storage Temperature Tstg	
			Type (nm)	I_F (mA)	Min (mcd)	Typ (mcd)	Max (mcd)	I_F (mA)	Type (V)	I_F (mA)	Max (μA)	V_R (V)	Power P_D	(mW)	Current I_F (mA)	Current I_{FP} (mA)	Voltage V_R (V)	($^\circ\text{C}$)	($^\circ\text{C}$)	
PICOLED™-eco 1.0x0.6 (t=0.2)	Red	SML-P11VT (R)	626	1	2	4	6	1	1.8	1	10	5	50	20	100 ^{*1}	5	-40 to +85	-40 to +100		
	Orange		621	1	1	3	6	1	1.8	1	10	5	50	20	100 ^{*1}	5	-40 to +85	-40 to +100		
	Yellow	SML-P11DT (R)	605	1	4	7	16	1	1.9	1	10	5	52	20	100 ^{*1}	5	-40 to +85	-40 to +100		
PICOLED™ 1.0x0.6 (t=0.2)	Yellow Green	SML-P11YT (R)	586	1	4	8	16	1	1.9	1	10	5	52	20	100 ^{*1}	5	-40 to +85	-40 to +100		
	Green	SMLP14ECNW	527	5	56	110	220	5	3.0	5	100	5	34	10	50 ^{*1}	5	-40 to +85	-40 to +100		
	Blue	SMLP14BCNW	470	5	9	25	56	5	2.9	5	100	5	33	10	50 ^{*1}	5	-40 to +85	-40 to +100		
1.6x0.8 (t=0.55)	White	SMLP14WBCN1W	(x, y) (0.30, 0.30)	5	90	180	360	5	2.9	5	100	5	33	10	50 ^{*1}	5	-40 to +85	-40 to +100		
	Red	New CSL1901VW	630	2	1.6	4.8	6.3	2	1.8	2	10	5	44	20	100 ^{*1}	5	-40 to +85	-40 to +100		
	Green	New CSL1901UW	620	2	2.5	6	10	2	1.8	2	10	5	44	20	100 ^{*1}	5	-40 to +85	-40 to +100		
1.6x0.8 (t=0.55)	Orange	New CSL1901DW	605	2	6.3	9.4	25	2	1.8	2	10	5	44	20	100 ^{*1}	5	-40 to +85	-40 to +100		
	Yellow	New CSL1901YW	590	2	6.3	9.4	25	2	1.8	2	10	5	44	20	100 ^{*1}	5	-40 to +85	-40 to +100		
	Yellow Green	New CSL1901MW	570	2	1	3	4	2	1.8	2	10	5	44	20	100 ^{*1}	5	-40 to +85	-40 to +100		
1.6x0.8 (t=0.55)	Green	SMLD12EN1W	527	5	56	140	220	5	3.0	5	10	5	70	20	100 ^{*1}	5	-			

SMD LEDs (Automotive Grade)

Automotive mold type 0603 (1608M)

Electrical and Optical Characteristics ($T_a=25^\circ\text{C}$)											Absolute Maximum Ratings ($T_a=25^\circ\text{C}$)							Automotive Grade AEC-Q101/ AEC-Q102	
Package (mm)	Emitting Color	Part No.	Dominant Wavelength λ_d / Chromaticity Coordinates (x, y)		Luminous Intensity I_v		Forward Voltage V_F		Reverse Current I_R		Power Dissipation P_D (mW)	Forward Current I_F (mA)	Peak Forward Current I_{FP} (mA)	Reverse Voltage V_R (V)	Operating Temperature T_{OPR} ($^\circ\text{C}$)	Storage Temperature T_{STG} ($^\circ\text{C}$)			
			Type* (nm)	I_F (mA)	Min (mcd)	Typ (mcd)	Max (mcd)	I_F (mA)	Type (V)	I_F (mA)	Max (μA)	V_R (V)							
	Red	SML-D15VW (C)	630	20	71	90	112	2.0	20	10	12	84	35	100 ^{*1}	12	-40 to +100	-40 to +100	YES	
		SML-D13VW (C)			35.5	55	90			10	12	72	30					YES	
		SML-D12V8W (C)			16	40	100			20	5	54	20					YES	
		SML-D15UW (C)	620	20	90	112	140	2.0	20	10	12	84	35	100 ^{*1}	12	-40 to +100	-40 to +100	YES	
		SML-D13UW (C)			56	85	85			10	12	72	30					YES	
		SML-D12U8W (C)			25	63	160			20	5	54	20					YES	
	Orange	SML-D15U2W (C)	615	20	112	140	180	2.0	20	10	12	84	35	100 ^{*1}	12	-40 to +100	-40 to +100	YES	
		SML-D15DW (C)			180	224	280			10	12	84	35					YES	
		SML-D13DW (C)			71	120	180			20	10	72	30					YES	
	Yellow (WB)	SML-D12D8W (C)	605	20	40	100	250	2.0	20	10	12	5	54	100 ^{*1}	12	-40 to +100	-40 to +100	YES	
		SML-D15YW (C)			180	224	280			10	12	87	35					YES	
		SML-D12Y8W (C)			25	63	160			20	10	5	54					YES	
	Yellow Green	SML-D12W8W (C)	587.5	2	4.5	7.1	11.2	2	2.0	2	10	12	52	20	100 ^{*1}	12	-40 to +100	-40 to +100	YES
		SML-D13WW (C)	587	20	71	110	180	20	2.1	20	10	12	75	30				YES	
		SML-D12M8W (C)	572	20	10	25	63	20	2.2	20	10	5	54	20				YES	
	Green	SML-D15MW (C)	571	20	56	71	90	2.1	20	10	12	87	35	100 ^{*1}	12	-40 to +100	-40 to +100	YES	
		SML-D13MW (C)			28	45	71			20	10	75	30					YES	
	Green	SML-D13FW (C)	564	20	14	22	35.5	20	2.1	20	10	12	75	30	100 ^{*1}	12	-40 to +100	-40 to +100	YES
		SML-D12P8W (C)	560	20	2.5	6.3	16	20	2.2	20	10	5	54	20				YES	
	Blue	SMLD12BN1W (C)	470	5	14	40	56	5	2.9	5	10	12	66	20	100 ^{*1}	12	-40 to +100	-40 to +100	YES
		SMLD12WBN1W (C) (x, y) (0.295, 0.28)	470	5	56	120	220	5	2.9	5	10	12	66	20				YES	
	Green	CSL1001ET (C)	527	5	90	140	224	5	3.0	5	10	5	35	10	50 ^{*1}	5	-40 to +100	-40 to +100	YES
	Blue	CSL1001BT (C)	470	1	4	6	8	1	2.8	1	10	5	33	10	50 ^{*1}	5	-40 to +100	-40 to +100	YES

Automotive Mold type 0805 (20125M)

Package (mm)	Emitting Color	Part No.	Electrical and Optical Characteristics (Ta=25°C)									Absolute Maximum Ratings (Ta=25°C)						Automotive Grade AEC-Q101/AEC-Q102	
			Dominant Wavelength λd/ Chromaticity Coordinates (x, y)		Luminous Intensity Iv		Forward Voltage VF		Reverse Current IR		Power Dissipation PD	Forward Current IF	Peak Forward Current IPK	Reverse Voltage VR	Operating Temperature Topr	Storage Temperature Tsig			
			Type (nm)	I _F (mA)	Min (mcd)	Typ (mcd)	Max (mcd)	I _F (mA)	Typ (V)	I _F (mA)	Max (μA)	V _R (V)	(mW)	(mA)	(mA)	(°C)	(°C)		
2.0x1.25 (t=0.8)	Red	SML-H12V8T (C)	630	20	16	25	63	20	2.2	20	10	5	54	20	100 ^{a2}	5	-40 to +85	-40 to +100	YES
		SML-H12U8T (C)	620	20	25	40	100	20	2.2	20	10	5	54	20	100 ^{a2}	5	-40 to +85	-40 to +100	YES
	Orange	SML-H12D8T (C)	605	20	40	63	160	20	2.2	20	10	5	54	20	100 ^{a2}	5	-40 to +85	-40 to +100	YES
	Yellow	SML-H12Y8T (C)	590	20	40	63	160	20	2.2	20	10	5	54	20	100 ^{a2}	5	-40 to +85	-40 to +100	YES
	Yellow Green	SML-H12M8T (C)	572	20	10	25	40	20	2.2	20	10	5	54	20	100 ^{a2}	5	-40 to +85	-40 to +100	YES
	Green	SML-H12P8T (C)	560	20	2.5	4	10	20	2.2	20	10	5	54	20	100 ^{a2}	5	-40 to +85	-40 to +100	YES

Automotive reflector type 0603 (1608M)

Package (mm)	Emitting Color	Part No.	Electrical and Optical Characteristics (T _A =25°C)										Absolute Maximum Ratings (T _A =25°C)						Automotive Grade AEC-Q101/AEC-Q102
			Dominant Wavelength λ _D /Chromaticity Coordinates (x, y)		Luminous Intensity I _V			Forward Voltage V _F			Reverse Current I _R		Power Dissipation P _D (mW)	Forward Current I _F (mA)	Peak Forward Current I _{FP} (mA)	Reverse Voltage V _R (V)	Operating Temperature T _{OPR} (°C)	Storage Temperature T _{STG} (°C)	
			Type* (nm)	I _r (mA)	Min (mcd)	Typ (mcd)	Max (mcd)	I _r (mA)	Typ (V)	I _r (mA)	Max (μA)	V _R (V)							
1.6×0.8 (t=0.55) 	White	CSL1101WBAW (C)	(x, y) (0.282, 0.249)	5	90	155	220	5	2.9	5	10	5	68	20	100 [†]	5	-40 to +110	-40 to +110	YES
		CSL1101WBW (C)	(x, y) (0.261, 0.261)	5	90	155	220	5	2.9	5	10	5	68	20	100 [†]	5	-40 to +110	-40 to +110	YES
		CSL1101WBCW (C)	(x, y) (0.303, 0.294)	5	90	155	220	5	2.9	5	10	5	68	20	100 [†]	5	-40 to +110	-40 to +110	YES
		CSL1101WBDW (C)	(x, y) (0.284, 0.303)	5	90	155	220	5	2.9	5	10	5	68	20	100 [†]	5	-40 to +110	-40 to +110	YES
		CSL1102WBAW (C)	(x, y) (0.282, 0.249)	20	710	1,000	1,400	20	3.2	20	10	5	152	40	100 [†]	5	-40 to +110	-40 to +110	YES
		CSL1102WBW (C)	(x, y) (0.261, 0.261)	20	710	1,000	1,400	20	3.2	20	10	5	152	40	100 [†]	5	-40 to +110	-40 to +110	YES
		CSL1102WBCW (C)	(x, y) (0.303, 0.294)	20	710	1,000	1,400	20	3.2	20	10	5	152	40	100 [†]	5	-40 to +110	-40 to +110	YES
		CSL1102WBDW (C)	(x, y) (0.284, 0.303)	20	710	1,000	1,400	20	3.2	20	10	5	152	40	100 [†]	5	-40 to +110	-40 to +110	YES

Automotive reflector type 0805 (201258M)

Package (mm)	Emitting Color	Part No.	Electrical and Optical Characteristics ($T_a=25^\circ\text{C}$)								Absolute Maximum Ratings ($T_a=25^\circ\text{C}$)							Automotive Grade AEC-Q101/AEC-Q102	
			Dominant Wavelength λ_d /Chromaticity Coordinates (x, y)		Luminous Intensity I_v		Forward Voltage V_F		Reverse Current I_R		Power Dissipation P_0 (mW)	Forward Current I_F (mA)	Peak Forward Current I_{FP} (mA)	Reverse Voltage V_R (V)	Operating Temperature T_{OPR} (°C)	Storage Temperature T_{STG} (°C)			
			Type* (nm)	I_F (mA)	Min (mcd)	Typ (mcd)	Max (mcd)	I_r (mA)	Typ (V)	I_r (mA)									
(WB) 2.0x1.25 (t=0.8)	Green	SMLMN2ECT (C)	527	5	56	140	360	5	3.0	5	10	12	70	20	100 ^{*2}	12	-40 to +100	-40 to +100	YES
	Blue	SMLMN2BCT (C)	470	5	14	36	90	5	2.9	5	10	12	68	20	100 ^{*2}	12	-40 to +100	-40 to +100	YES
	White	SMLMN2WB1CW (C)	(x, y) (0.30, 0.28)	5	56	140	220	5	2.9	5	10	12	68	20	100 ^{*2}	12	-40 to +100	-40 to +100	YES

*1 Duty≤1/10, 1kHz *2 Duty≤1/10, 1kHz

*1 Duty≤1/10, 1kHz *2 Duty≤1/10, 1kHz
 *I Luminous intensity for white color is noted with chromaticity coordinate (x, y)

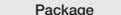
SMD LEDs (Automotive Grade)

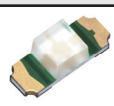
Automotive reflector type PLCC (3528M)

Package (mm)	Emitting Color	Part No.	Electrical and Optical Characteristics (Ta=25°C)									Absolute Maximum Ratings (Ta=25°C)							Automotive Grade AEC-Q101/AEC-Q102
			Dominant Wavelength λ_d		Luminous Intensity I_v			Forward Voltage V_F		Reverse Current I_R		Power Dissipation P_D	Forward Current I_F	Peak Forward Current I_{FP}	Reverse Voltage V_R	Operating Temperature T_{OPR}	Storage Temperature T_{STG}		
			Typ (nm)	I_F (mA)	Min (mcd)	Typ (mcd)	Max (mcd)	I_F (mA)	Typ (V)	I_F (mA)	Max (μ A)	V_R (V)	(mW)	(mA)	(mA)	(V)	(°C)	(°C)	
	Red	SML-Z14VT (C)	630	20	56	112	180	20	1.9	20	10	12	168	70	200*	12	-40 to +100	-40 to +100	YES
		SML-Z14UT (C)	620	20	112	224	355	20	1.9	20	10	12	168	70	200*	12	-40 to +100	-40 to +100	YES
	Orange	SML-Z14DT (C)	605	20	140	280	450	20	1.9	20	10	12	168	70	200*	12	-40 to +100	-40 to +100	YES
	Yellow	SML-Z14YT (C)	589	20	140	280	450	20	2.0	20	10	12	175	70	200*	12	-40 to +100	-40 to +100	YES
	Yellow Green	SML-Z14MT (C)	571	20	45	90	140	20	2.0	20	10	12	175	70	200*	12	-40 to +100	-40 to +100	YES
	Green	SML-Z14FT (C)	564	20	22.4	45	71	20	2.0	20	10	12	175	70	200*	12	-40 to +100	-40 to +100	YES
		SML-Z14PT (C)	560	20	11.2	22.4	35.5	20	2.0	20	10	12	175	70	200*	12	-40 to +100	-40 to +100	YES
	Blue Green	SMLZ24E2N3T (C)	505	20	900	1,140	1,800	20	3.2	20	—	—	152	40	100*	—	-40 to +100	-40 to +100	YES
3.5x2.8 (t=1.9)	Blue	SMLZ24BN3T (C)	470	20	220	300	450	20	3.3	20	—	—	114	30	100*	—	-40 to +100	-40 to +100	YES



Automotive Reverse Mount type

Package (mm)	Emitting Color	Part No.	Electrical and Optical Characteristics ($T_e=25^\circ\text{C}$)								Absolute Maximum Ratings ($T_e=25^\circ\text{C}$)							Automotive Grade AEC-Q101/AEC-Q102	
			Dominant Wavelength λ_d		Luminous Intensity I_v			Forward Voltage V_F		Reverse Current I_R		Power Dissipation P_D	Forward Current I_F	Forward Current I_F	Peak Forward Current I_{FP}	Reverse Voltage V_R	Operating Temperature T_{OPR}	Storage Temperature T_{STG}	
			Type (nm)	Typ (nm)	Min (mcd)	Typ (mcd)	Max (mcd)	Typ (mA)	Max (mA)	Typ (V)	Max (μA)	Max (V)	(mW)	(mA)	(mA)	(mA)	(V)	(°C)	(°C)
 3.4x1.25 (t=1.1)	Red	SML-811VT (C)	630	10	11.2	22.4	45	10	1.95	10	100	5	62	25	100 ^a	5	-40 to +85	-40 to +100	YES
		SML-811UT (C)	620	10	11.2	22.4	45	10	1.95	10	100	5	62	25	100 ^a	5	-40 to +85	-40 to +100	YES
Orange	SML-811DT (C)	605	10	11	22	45	10	2.0	10	100	5	62	25	100 ^a	5	-40 to +85	-40 to +100	YES	
Yellow	SML-811WT (C)	590	10	14	28	56	10	1.95	10	100	5	62	25	100 ^a	5	-40 to +85	-40 to +100	YES	



Automotive Reverse Surface Mount Circular type



Automotive 3color type

Package (mm)	Emitting Color	Part No.	Electrical and Optical Characteristics (T _s =25°C)								Absolute Maximum Ratings (T _s =25°C)						Automotive Grade AEC-Q101/AEC-Q102		
			Dominant Wavelength λ_D		Luminous Intensity I_V			Forward Voltage V_F		Reverse Current I_R		Power Dissipation P_D	Forward Current I_F	Peak Forward Current I_{FP}	Reverse Voltage V_R	Operating Temperature T_{OPR}	Storage Temperature T_{STG}		
			Type (nm)	Typ (nm)	Min (mcd)	Typ (mcd)	Max (mcd)	Typ (mA)	Max (mA)	Typ (V)	Max (μ A)	Max (V)	(mW)	(mA)	(mA)	(V)	(°C)	(°C)	
3.5x2.8 (t=0.6)	Red	SMLVN6RGBFU1 (C)	621	20	600	750	900	20	2.1	20	10	5	400	50	100	5	-40 to +100	-40 to +100	YES
	Green		525	20	1,440	1,800	2,160	20	3.3	20	-	-	400	40	100	-	-40 to +100	-40 to +100	
	Blue		470	20	320	430	540	20	3.3	20	-	-	400	40	100	-	-40 to +100	-40 to +100	



*1 Duty≤1/10, 1kHz *2 Duty≤1/10, 1kHz

*1 Duty≤1/10, THz *2 Duty≤1/10, THz

SMD LEDs

● Product No. Configuration

⟨Chip LEDs⟩

[SML series/SCM series]

Exclude Mono-color (Blue (B), Green (E), White (WB), RGB, 2 Colors Blue/Red)

Structure name (Series (S), Chip shape (M), Type of Element (L), Color (D), Resin color (1), Packaging type (2))										Chip control symbol	Remarks	Special control symbol
Series name	Package shape		Type of Element	Color		Resin color	Packaging type				Luminous intensity rank	
SML chip LED series	P1	1.0×0.6 t=0.2mm	0	Low luminous intensity type	L Red	M Yellow green	T Transparent colorless	T86 Cathode at sprocket hole side (the top)				
	E1	1.6×0.8 t=0.36mm	1	Low current type	V Red	F Green	W Milky white	(in case of S1 series)				
	D1/D2	1.6×0.8 t=0.55mm	2	High luminous intensity type	U Red	P Green	B Black	T86 Cathode at sprocket hole side (the back)				
	H1	2.0×1.25 t=0.8mm	3	Ultra high luminous intensity type	U2 Red	MV Yellow green/Red		T68 Cathode at sprocket hole side (the top)				
	M1	2.0×1.25 t=0.8mm	4		D Orange	Y3 Yellow						
	01/02	3.0×2.0 t=1.3mm	5		Y Yellow	Y Yellow						
	Z1/Y1	3.5×2.8 t=1.9mm	6		W Yellow	W Yellow						
	A1	1.6×1.15 t=0.55mm	7		Y2 Yellow	MD Yellow green/Orange						
	81/82	3.4×1.25 t=1.1mm	8		M2 Yellow green	MY Yellow green/ Yellow						
	S1	3.2×1.6 t=0.85mm				YV Yellow/Red						
	P2	1.0×1.0 t=0.2mm				R Infrared						
	S2	1.5×1.3 t=0.6mm				T Phototransistor						
SCM chip LED series	01	3.0×1.5 t=2.2mm										Refer to specification

[SML series/SCM series]

■ Mono-color (Blue (B), Green (E), White (WB), RGB,
2 Colors Blue/Red

[CSL series]

[CCL Series]					Chip control symbol	Remarks	Chromaticity rank (for white LED)		Special control symbol	
C	S	L	0	7	0 1 D		5			
Series name	Package shape	Color	Resin color	Packaging type	Luminous intensity rank					
CSL chip LED series	04 2.8x1.15 t=0.8mm 07 2.9x2.4 t=3.1mm 09 1.6x0.8 t=1.24mm 10 1.6x0.8 t=1.06mm 11 1.6x0.8 t=0.55mm 19 1.6x0.8 t=0.55mm	V Red U Red D Orange Y Yellow W Yellow	M Yellow green P Green E Green B Blue WB White SB Sapphire blue	T Transparent Colorless W Milky white	1 Cathode at sprocket hole side (the top) 5 Cathode at sprocket hole side (big reel)	Refer to specification				

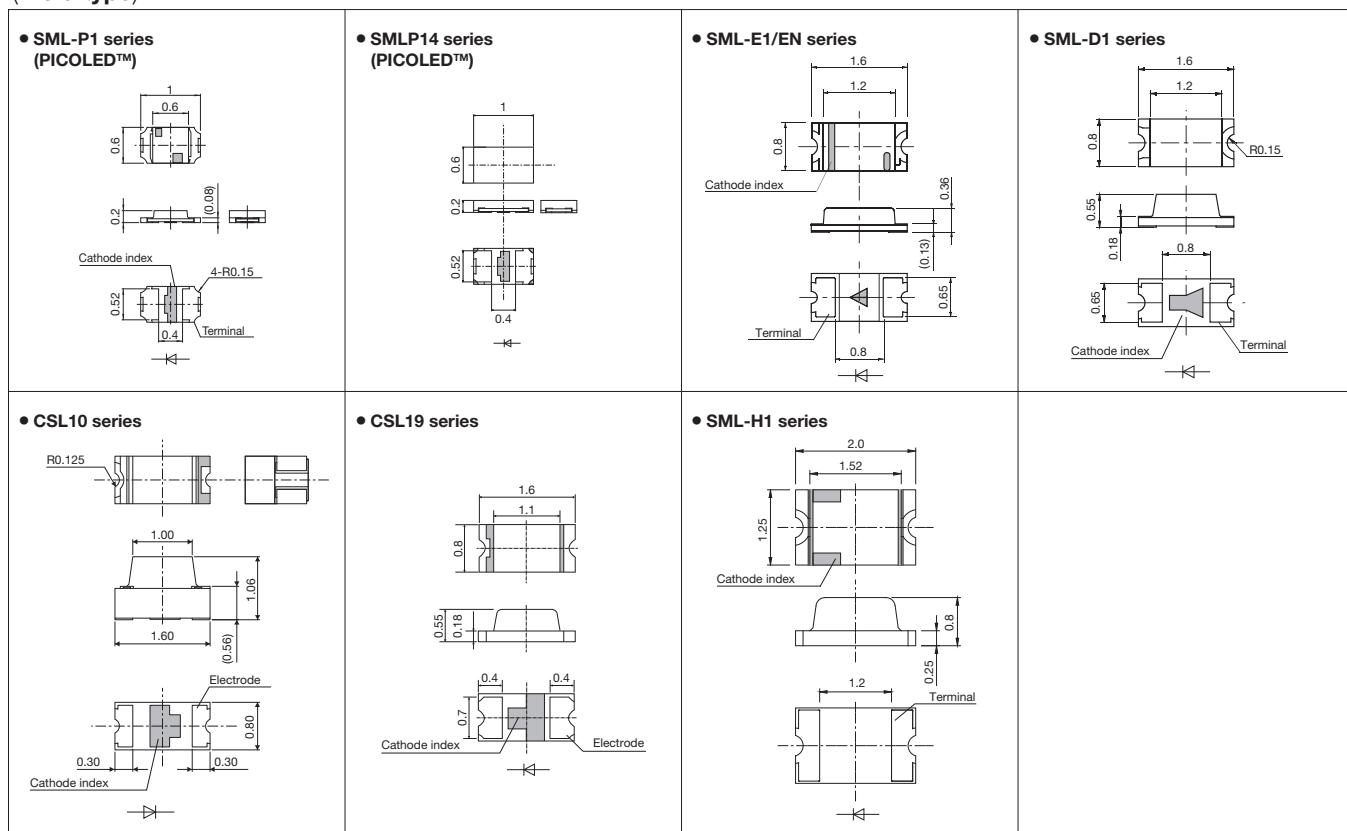
[MSL series]

[MSL Series]		Chip control symbol	Remarks	*MSL0601RGBU is not applied.	Special control symbol
M	S	L	0	1	0 4 R G B
Series name	Package shape	Color	Resin color	Packaging type	Luminous intensity rank
MSL Multi color series	01 6.9x2.2 t=2.15mm 06 2.9x1.35 t=1.0mm	RGB Red/Green/Blue	U	1 Cathode at sprocket hole side (the top)	Refer to specification

SMD LEDs

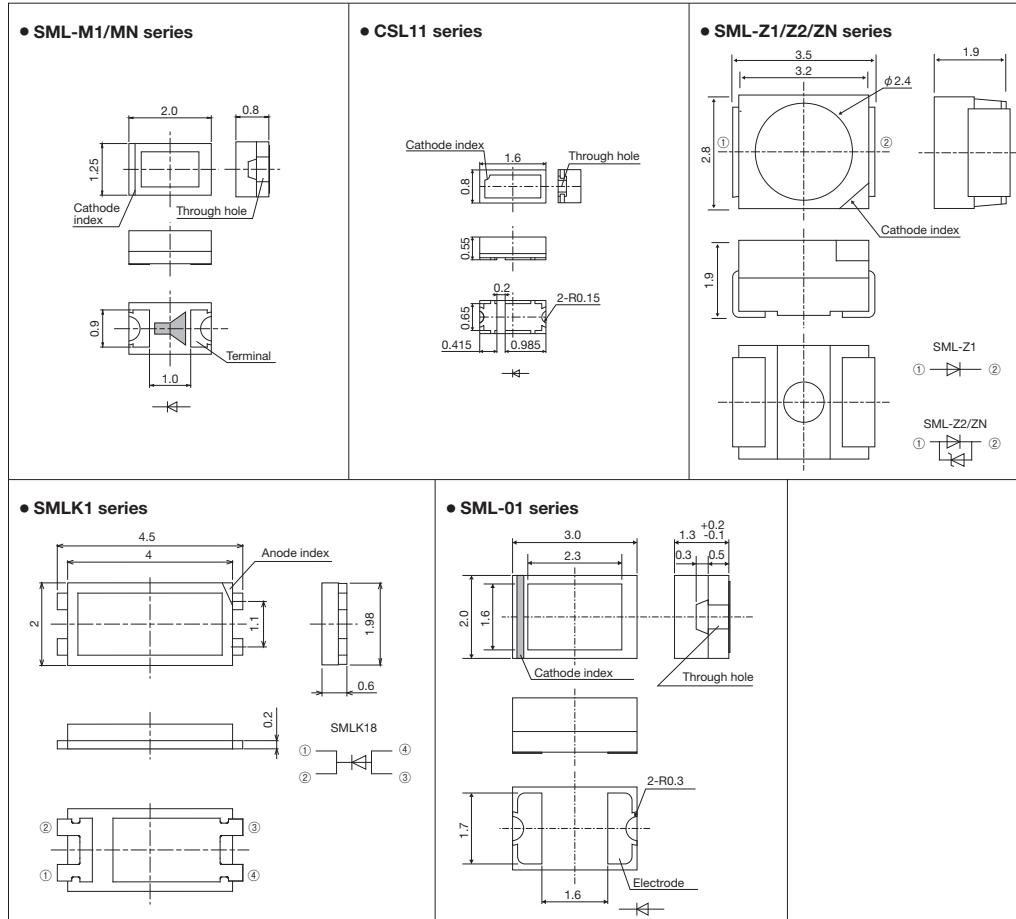
● Dimensions (Unit: mm)

⟨Mold type⟩

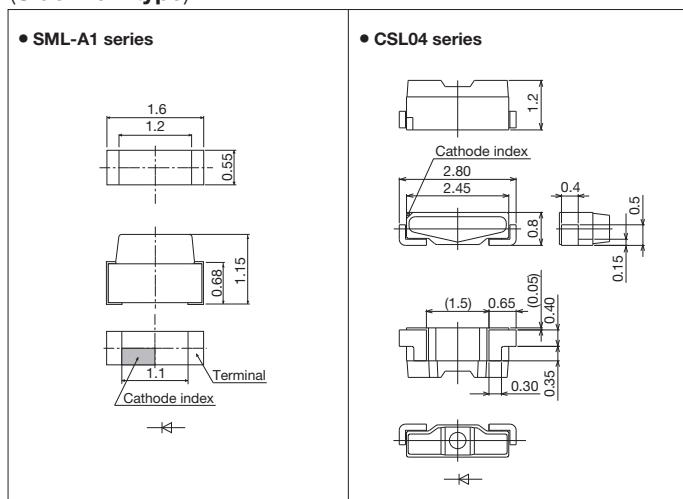
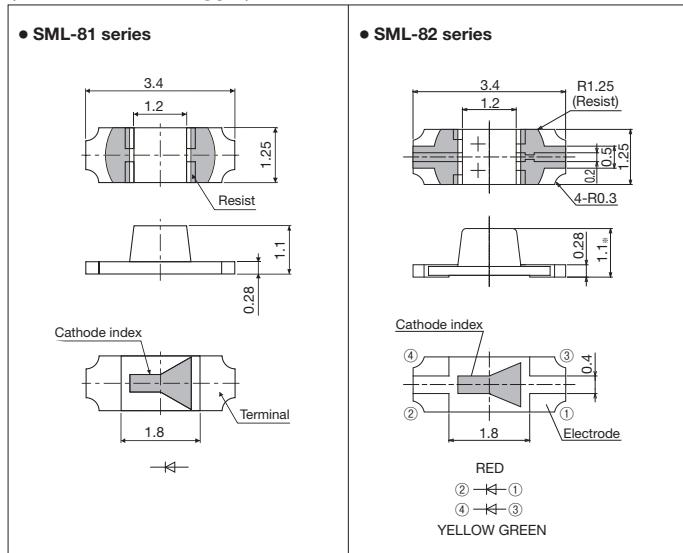
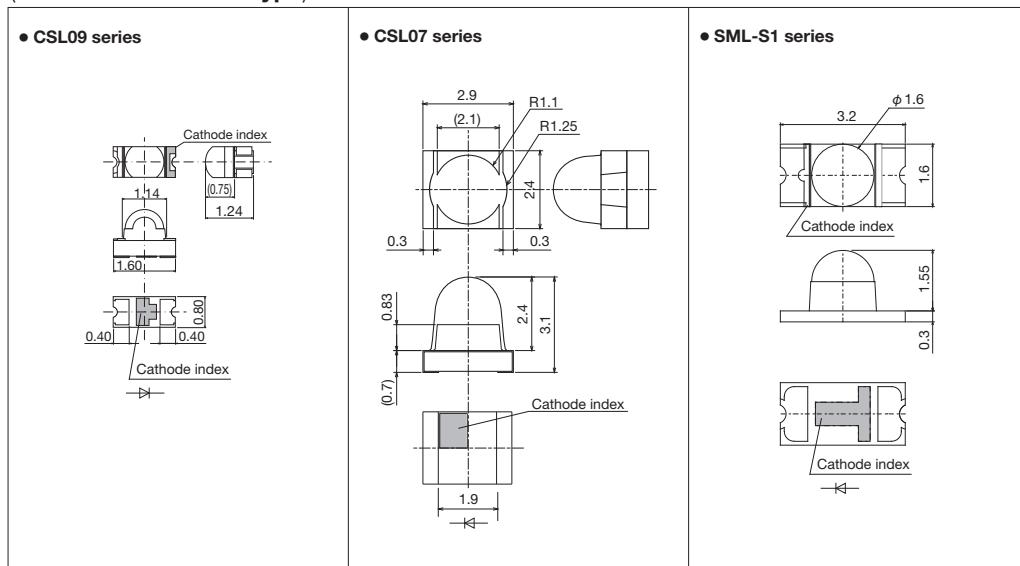


Note: PICOLED™ is a trademark or a registered trademark of ROHM Co., Ltd.

⟨Reflector type⟩



*For further information, please refer to the data sheets.

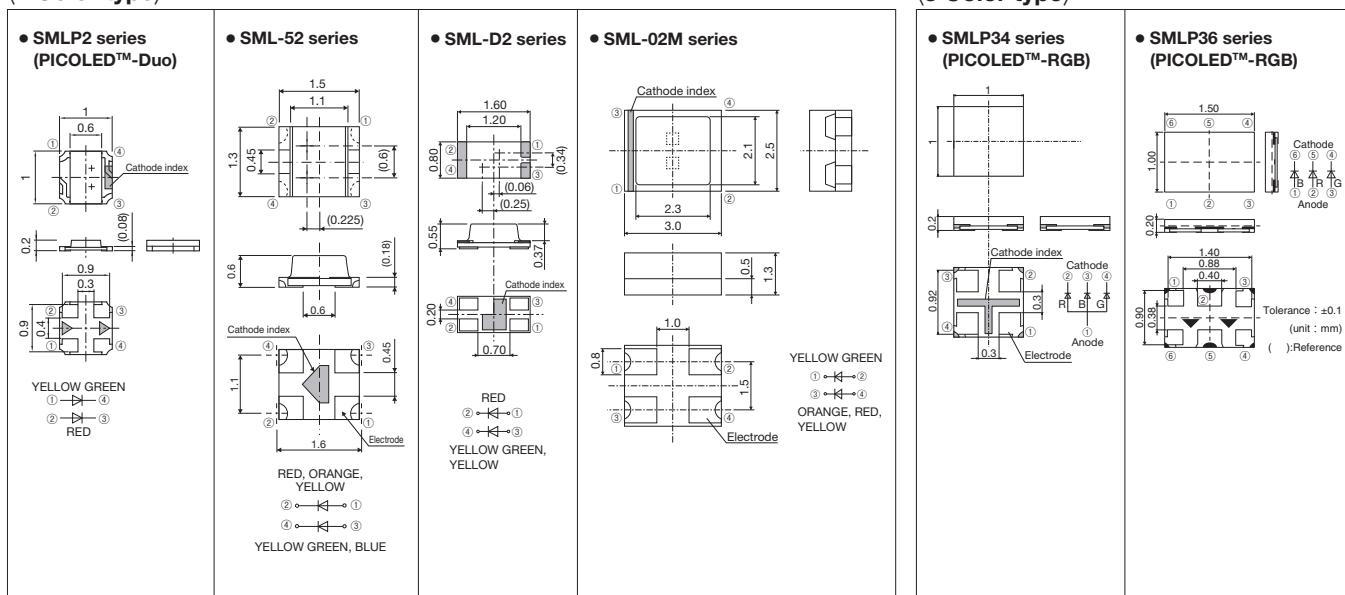
●Dimensions (Unit: mm)**<Side View type>****<Reverse Mount type>****<Surface Mount Lens type>**

*For further information, please refer to the data sheets.

SMD LEDs

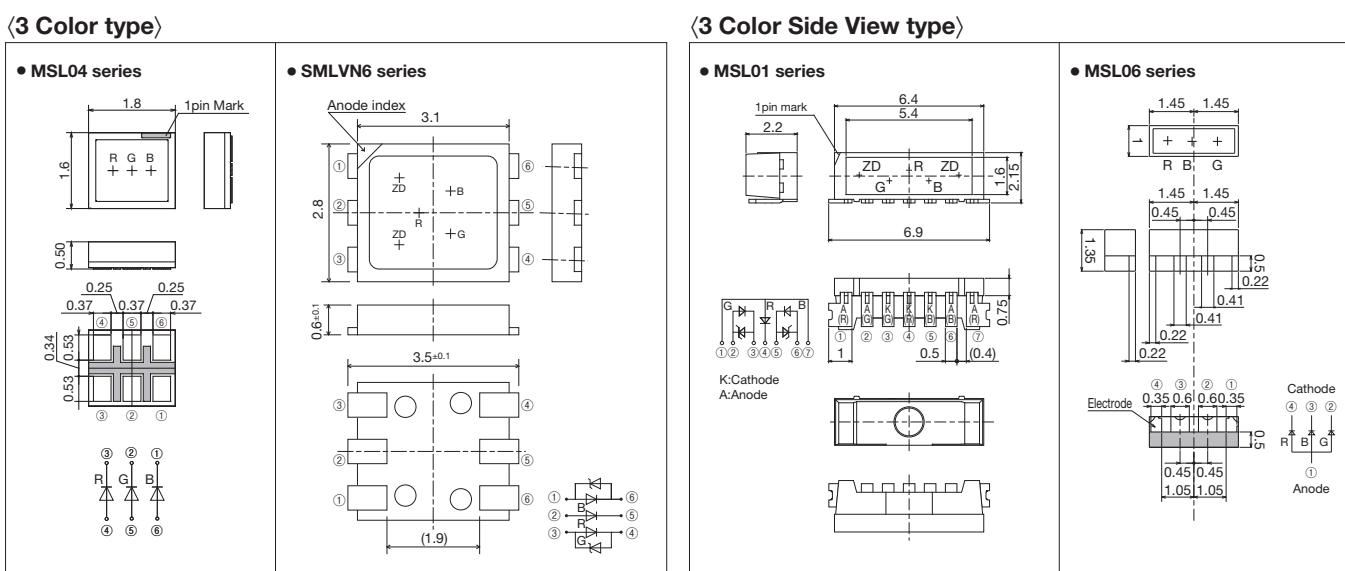
● Dimensions (Unit: mm)

⟨2 Color type⟩



Note: PICOLED™ is a trademark or a registered trademark of ROHM Co., Ltd.

⟨3 Color type⟩



*For further information, please refer to the data sheets.

Through-hole LEDs

ROHM offers a wide variety of through-hole LEDs, including lamps that can be automatically mounted onto the PCB as well as high luminous intensity units suitable for public outdoor displays.

Red (V, U) Quick Reference of Luminous intensity

	Viewing angle (2θ1/2)	Resin Color	Luminous intensity I_F (mA)	3.6 to 5.6	5.6 to 9	9 to 16	16 to 25	25 to 40	40 to 63	63 to 100	100 to 160	160 to 250	250 to 400	400 to 630	630 to 680	680 to 1000	1000 to 1500	1500 to 2200	2200 to 3300	3300 to 4700	4700 to 6800	6800 to 10000	10000 to 15000	
$\phi 3$ Circular type	40°	Transparent Colored	20																					
		Diffused Colored	20																					
	85°	Transparent Colored	10																					
		Diffused Colored	10																					
$\phi 3$ Circular type (Direct mount 5mm pitch type)	40°	Transparent Colored	20																					
		Diffused Colored	20																					
	35°	Transparent Colored	10																					
	50°	Diffused Colored	10																					
$\phi 4$ Oval type $\phi 5$ Circular type	140°	Diffused Colored	20																					
	10°	Transparent Colorless	20																					
	20°																							
	40°	Transparent Colored	10																					
		Diffused Colored	10																					

Note: Luminous intensity on specification sheet include tolerance of within $\pm 10\%$.

Orange (D) Quick Reference of Luminous intensity

	Viewing angle (2θ1/2)	Resin Color	Luminous intensity I_F (mA)	2.2 to 3.6	3.6 to 5.6	5.6 to 9	9 to 18	18 to 28	28 to 45	45 to 56	56 to 90	90 to 220	220 to 280	280 to 330	330 to 710	710 to 900	900 to 1000	1000 to 1350	1350 to 1500	1500 to 1650	1650 to 3000	3000 to 5200	5200 to 7500	
$\phi 3$ Circular type	40°	Transparent Colored	20																					
		Diffused Colored	20																					
	85°	Transparent Colored	10																					
		Diffused Colored	10																					
$\phi 3$ Circular type (Direct mount 5mm pitch type) $\phi 3$ Flat disc type $\phi 4$ Oval type	40°	Transparent Colored	20																					
		Diffused Colored	20																					
	35°	Transparent Colored	10																					
	50°	Diffused Colored	10																					
	140°	Diffused Colored	20																					
	10°	Transparent Colorless	20																					
	20°																							
	40°	Transparent Colored	10																					
		Diffused Colored	10																					

Note: Luminous intensity on specification sheet include tolerance of within $\pm 10\%$.

Yellow (Y) Quick Reference of Luminous intensity

	Viewing angle (2θ1/2)	Resin Color	Luminous intensity I_F (mA)	2.2 to 3.6	3.6 to 5.6	5.6 to 9	9 to 18	18 to 28	28 to 45	45 to 56	56 to 90	90 to 220	220 to 280	280 to 330	330 to 710	710 to 900	900 to 1000	1000 to 1350	1350 to 1500	1500 to 1650	1650 to 2200	2200 to 3600	3600 to 7500	7500 to 10000
$\phi 3$ Circular type	40°	Transparent Colored	20																					
		Diffused Colored	20																					
	85°	Transparent Colored	10																					
		Diffused Colored	10																					
$\phi 3$ Circular type (Direct mount 5mm pitch type) $\phi 3$ Flat disc type $\phi 4$ Oval type	40°	Transparent Colored	20																					
		Diffused Colored	20																					
	35°	Transparent Colored	10																					
	50°	Diffused Colored	10																					
	140°	Diffused Colored	20																					
	10°	Transparent Colorless	20																					
	20°																							
	40°	Transparent Colored	10																					
		Diffused Colored	10																					

Note: Luminous intensity on specification sheet include tolerance of within $\pm 10\%$.

Through-hole LEDs

Green (M, P, E) Quick Reference of Luminous intensity

	Viewing angle (201/2)	Resin Color	Luminous intensity I _F (mA)	2.2 to 3.6	3.6 to 5.6	5.6 to 9	9 to 18	18 to 28	28 to 45	45 to 56	56 to 71	71 to 110	110 to 220	220 to 330	330 to 710	710 to 900	900 to 1100	1100 to 1350	1350 to 1650	1650 to 2200	2200 to 3600	3600 to 5200	5200 to 7500	7500 to 10000	10000 to 20000	20000 to 36000
40°	Transparent Colored	20																								
			10																							
	Diffused Colored	20																								
			10																							
	Transparent Colorless	20																								
85°	Diffused Colored	10																								
φ3 Circular type (Direct mount 5mm pitch type)	40°	Transparent Colored	10																							
	Diffused Colored	10																								
φ3 Flat disc type	35°	Transparent Colored	10																							
	50°	Diffused Colored	10																							
φ5 Circular type	140°	Diffused Colored	20																							
	10°	Transparent Colorless	20																							
	20°																									
	40°	Transparent Colored	10																							
	Diffused Colored	10																								
	10°	Transparent Colorless	20																							
	40°																									
	10°																									
	40°																									
	10°																									
	40°																									

Note: Luminous intensity on specification sheet include tolerance of within ±10%.

Blue (B) Quick Reference of Luminous intensity

	Viewing angle (201/2)	Resin Color	Luminous intensity I _F (mA)	110 to 220	220 to 300	300 to 470	470 to 1000	1000 to 1350	1350 to 1500	1500 to 1650	1650 to 2200	2200 to 3000	3000 to 4700	4700 to 5500	5500 to 7500	7500 to 10000	10000 to 20000
φ3 Circular type	40°	Transparent Colorless	20														
φ5 Circular type	40°	Transparent Colorless	20														

Note: Luminous intensity on specification sheet include tolerance of within ±10%.

White (WB) Quick Reference of Luminous intensity

	Viewing angle (201/2)	Resin Color	Luminous intensity I _F (mA)	220 to 330	330 to 470	470 to 680	680 to 1000	1000 to 1500	1500 to 2200	2200 to 3300	3300 to 4700	4700 to 6800	6800 to 10000	10000 to 15000
φ3 Circular type	40°	Transparent Colorless	20											
φ5 Circular type	40°	Transparent Colorless	20											

Note: Luminous intensity on specification sheet include tolerance of within ±10%.

Through-hole LEDs

Φ3 type																				
Shape	Package Image	Viewing Angle 201/2 (Element type)	Emitting Color	Part No.	Electrical and Optical Characteristics ($T_a=25^\circ\text{C}$)										Absolute Maximum Ratings ($T_a=25^\circ\text{C}$)					
					Dominant Wavelength λ_d / Chromaticity Coordinates (x, y)		Luminous Intensity I_v			Forward Voltage V_F		Reverse Current I_R		Power Dissipation P_D (mW)	Forward Current I_F (mA)	Peak Forward Current I_{FP} (mA)	Reverse Voltage V_R (V)	Operating Temperature T_{op} (°C)	Storage Temperature T_{stg} (°C)	
Φ3 Circular type		40° Standard	Red	SLI-343V8RC	639	20	150	330 (680)	20	2.2	20	10	9	54	20	100*2	9	-30 to +85	-40 to +100	
				SLI-343V8R	100	220 (470)														
				SLI-343U8RC	630	20	150	330 (680)	20	2.2	20	10	9	54	20	100*2	9	-30 to +85	-40 to +100	
				SLI-343U8R	100	220 (470)														
			Orange	SLI-343D8C	611	20	330	680 (1,500)	20	2.2	20	10	9	54	20	100*2	9	-30 to +85	-40 to +100	
				SLI-343D8U	220	470 (1,000)														
			Yellow	SLI-343Y8C	593	20	330	680 (1,500)	20	2.2	20	10	9	54	20	100*2	9	-30 to +85	-40 to +100	
				SLI-343Y8Y	220	470 (1,000)														
			Yellow Green	SLI-343M8C	572	20	68	150 (330)	20	2.2	20	10	9	54	20	100*2	9	-30 to +85	-40 to +100	
				SLI-343M8G																
			Green	SLI-343P8C	560	20	10	22 (47)	20	2.2	20	10	9	54	20	100*2	9	-30 to +85	-40 to +100	
				SLI-343P8G																
		40° High Luminous intensity	Red	SLI-343URC	630	20	90	450 (710)	20	1.9	20	100	9	125	50	200*2	9	-25 to +85	-30 to +100	
				SLI-343UR	350															
			Orange	SLI-343DC	611	20	90	500 (710)	20	1.9	20	100	9	125	50	200*2	9	-25 to +85	-30 to +100	
				SLI-343DU	350															
			Yellow	SLI-343YC	591	20	90	350 (710)	20	1.9	20	100	9	125	50	200*2	9	-25 to +85	-30 to +100	
				SLI-343YY	300															
			Yellow Green	SLI-343MC	572	20	56	200 (180)	—	2.1	20	100	9	62	25	100*2	9	-25 to +80	-30 to +100	
				SLI-343MG																
			Blue	New SLR343BN2T	470	20	470	1,000 (2,200)	20	3.2	20	10	5	126	30	100*2	5	-20 to +80	-30 to +100	
				New SLR343WBN2PT	(x, y) (0.31, 0.31)	20	1,500	3,300	—	20	3.2	20	10	5	126	30	100*2	5	-20 to +80	-30 to +100
		40° Standard	Red	SLR-343VC	650	10	9	25 (71)	10	2.0	10	10	3	60	20	60*1	3	-25 to +85	-30 to +100	
				SLR-343VR	6	16 (45)														
			Orange	SLR-343DC	610	10	9	25 (71)	10	2.0	10	10	3	60	20	60*1	3	-25 to +85	-30 to +100	
				SLR-343DU	6	16 (45)														
			Yellow	SLR-343YC	585	10	6	16 (45)	10	2.1	10	10	3	60	20	60*1	3	-25 to +85	-30 to +100	
				SLR-343YY	4	10 (28)														
			Yellow Green	SLR-343MC	563	10	9	25 (71)	10	2.1	10	10	3	75	25	60*1	3	-25 to +85	-30 to +100	
				SLR-343MG	6	16 (45)														
			Green	New SLR343EN4T	523	20	900	2,200	—	20	3.2	20	100	5	120	30	100*2	5	-20 to +80	-30 to +100
				New SLR343BN4T	468	20	300	680	—	20	3.2	20	100	5	120	30	100*2	5	-20 to +80	-30 to +100
		40° Low Current	Red	SLR-343UR (W)	630	20	36	200 (280)	20	1.9	20	100	9	125	50	200*2	9	-25 to +85	-30 to +100	
				SLR-343UR (W)	160															
			Orange	SLR-343DC (W)	611	20	56	300 (450)	20	1.9	20	100	9	125	50	200*2	9	-25 to +85	-30 to +100	
				SLR-343DU (W)	250															
			Yellow	SLR-343YC (W)	591	20	200	2,000 (280)	20	1.9	20	100	9	125	50	200*2	9	-25 to +85	-30 to +100	
				SLR-343YY (W)	160															
			Yellow Green	SLR-332VC	650	10	4	10 (28)	10	2.0	10	10	3	60	20	60*1	3	-25 to +85	-30 to +100	
				SLR-332VR	6	16 (45)														
		85° Standard	Red	SLR-332DC	610	10	4	10 (28)	10	2.0	10	10	3	60	20	60*1	3	-25 to +85	-30 to +100	
				SLR-332DU	4	10 (28)														
			Orange	SLR-332YC	585	10	4	10 (28)	10	2.1	10	10	3	60	20	60*1	3	-25 to +85	-30 to +100	
				SLR-332YY	2	6 (18)														
			Yellow	SLR-332MC	563	10	6	16 (45)	10	2.1	10	10	3	75	25	60*1	3	-25 to +85	-30 to +100	
				SLR-332MG	6	16 (45)														
			Green	New SLR343BN4T	523	20	1,350	3,000	—	20	3.2	20	100	5	120	30	100*2	5	-20 to +80	-30 to +100
				New SLR343BN4T	468	20	300	680	—	20	3.2	20	100	5	120	30	100*2	5	-20 to +80	-30 to +100
Φ5 Circular type		10° High Luminous intensity	Red	SLI-580UT	630	20	2,000	5,000 (11,000)	20	1.9	20	100	9	125	50	200*2	9	-30 to +85	-40 to +100	
				SLI-580DT	611	20	1,350	5,000 (7,500)	20	1.9	20	100	9	125	50	200*2	9	-30 to +85	-40 to +100	
			Yellow	SLI-580YT	591	20	1,350	5,000 (7,500)	20	1.9	20	100	9	125	50	200*2	9	-30 to +85	-40 to +100	
				SLA-580MT	563	20	200	470 (1,100)	20	2.3	20	10	4	75	25	60*1	4	-25 to +85	-30 to +100	
			Green	New SLA580ENT	518	20	6,100	27,000	—	20	3.3	20	100	5	120	30	100*2	5	-20 to +80	-30 to +100
				New SLA580BNT	468	20	1,350	4,000	—	20	3.3	20	100	5	120	30	100*2	5	-20 to +80	-30 to +100
			Blue	SLI-570UT	630	20	900	3,000 (5,200)	20	1.9	20	100	9	125	50	200*2	9	-30 to +85	-40 to +100	
				SLI-570UT2	2,200	4,000 (10,000)														
			Orange	SLI-570DT	611	20	900	3,000 (5,200)	20	1.9	20	100	9	125	50	200*2	9	-30 to +85	-40 to +100	
				SLI-570YT	591	20	610	2,500 (3,600)	20	1.9	20	100	9	125	50	200*2	9	-30 to +85	-40 to +100	
			Yellow	SLI-570YT2	585	20	2,200	5,200 (10,000)	20	2.1	20	100	9	125	50	200*2	9	-30 to +85	-40 to +100	
				SLA-570MT	563	20	200	470 (1,100)	20	2.3	20	10	4	75	25	60*1	4	-25 to +85	-30 to +100	
		40° Standard	Red	SLI-560UT	630	20	300	1,000 (1,650)	20	1.9	20	100	9	125	50	200*2	9	-30 to +85	-40 to +100	

Through-hole LEDs

Oval type

Shape	Package Image	Viewing Angle 201/2 (Element type)	Emitting Color	Part No.	Electrical and Optical Characteristics ($T_a=25^\circ\text{C}$)										Absolute Maximum Ratings ($T_a=25^\circ\text{C}$)					
					Dominant Wavelength λ_D		Luminous Intensity I_V			Forward Voltage V_F		Reverse Current I_R		Power Dissipation P_D		Forward Current I_F	Peak Forward Current I_{FP}	Reverse Voltage V_R	Operating Temperature T_{OPR}	Storage Temperature T_{STG}
Typ (nm)		I_F (mA)	Min (mcd)	Typ (mcd)	Max (mcd)	I_F (mA)	Typ (V)	I_F (mA)	Max (μA)	V_R (V)	P_D (mW)	(mA)	(mA)	(V)	($^\circ\text{C}$)	($^\circ\text{C}$)				
Oval type ø4	140° Standard	Red	SLI-430U2R	620 ^{*3}	20	220	400 (680)	20	2.0	20	10	9	75	30	100 ^{*2}	9	-40 to +85	-40 to +100		
		Orange	SLI-430DU	605 ^{*3}	20	220	470 (680)	20	2.1	20	10	9	75	30	100 ^{*2}	9	-40 to +85	-40 to +100		
		Yellow	SLI-430Y2U	590 ^{*3}	20	330	500 (900)	20	2.1	20	10	9	75	30	100 ^{*2}	9	-40 to +85	-40 to +100		
		Yellow Green	SLI-430MG	570 ^{*3}	20	68	120 (220)	20	2.1	20	10	9	75	30	100 ^{*2}	9	-40 to +85	-40 to +100		

Other

Shape	Package Image	Viewing Angle 201/2 (Element type)	Emitting Color	Part No.	Electrical and Optical Characteristics ($T_a=25^\circ\text{C}$)										Absolute Maximum Ratings ($T_a=25^\circ\text{C}$)					
					Dominant Wavelength λ_D		Luminous Intensity I_V			Forward Voltage V_F		Reverse Current I_R		Power Dissipation P_D		Forward Current I_F	Peak Forward Current I_{FP}	Reverse Voltage V_R	Operating Temperature T_{OPR}	Storage Temperature T_{STG}
Typ (nm)		I_F (mA)	Min (mcd)	Typ (mcd)	Max (mcd)	I_F (mA)	Typ (V)	I_F (mA)	Max (μA)	V_R (V)	P_D (mW)	(mA)	(mA)	(V)	($^\circ\text{C}$)	($^\circ\text{C}$)				
ø3.2 Circular type	40° Low Current	Red	SLI-325UR (W) ^{*1}	630	20	36	160 (280)	20	1.9	20	100	4	48	20	60 ^{*1}	4	-25 to +85	-30 to +100		
		Orange	SLI-325UR (W) ^{*1}	611	20	36	160 (100)	20	1.9	20	100	4	48	20	60 ^{*1}	4	-25 to +85	-30 to +100		
		Yellow	SLI-325CY (W) ^{*1}	591	20	36	160 (100)	20	1.9	20	100	4	48	20	60 ^{*1}	4	-25 to +85	-30 to +100		
		Yellow	SLI-325YY (W) ^{*1}	585	10	6	16 (45)	10	2.1	10	10	3	60	20	60 ^{*1}	3	-25 to +85	-30 to +100		
Direct Mount 5mm Pitch type	40° Standard	Red	SLR-325VC ^{*1}	650	10	6	16 (4)	10	2.0	10	10	3	60	20	60 ^{*1}	3	-25 to +85	-30 to +100		
		Orange	SLR-325VR ^{*1}	610	10	6	16 (4)	10	2.0	10	10	3	60	20	60 ^{*1}	3	-25 to +85	-30 to +100		
		Yellow	SLR-325DC ^{*1}	591	10	6	16 (45)	10	2.0	10	10	3	60	20	60 ^{*1}	3	-25 to +85	-30 to +100		
		Yellow	SLR-325DU ^{*1}	585	10	6	16 (45)	10	2.1	10	10	3	60	20	60 ^{*1}	3	-25 to +85	-30 to +100		
		Yellow Green	SLR-325MC ^{*1}	563	10	9	25 (71)	10	2.1	10	10	3	60	20	60 ^{*1}	3	-25 to +85	-30 to +100		
ø3 Flat Disc type	35° Standard	Red	SLR-322VC	650	10	6	16 (45)	10	2.0	10	10	3	60	20	60 ^{*1}	3	-25 to +85	-30 to +100		
		Orange	SLR-322DC	610	10	6	16 (45)	10	2.0	10	10	3	60	20	60 ^{*1}	3	-25 to +85	-30 to +100		
		Yellow	SLR-322YC	585	10	4	10 (28)	10	2.1	10	10	3	60	20	60 ^{*1}	3	-25 to +85	-30 to +100		
		Yellow Green	SLR-322MC	563	10	9	25 (71)	10	2.1	10	10	3	75	25	60 ^{*1}	3	-25 to +85	-30 to +100		
		Red	SLR-322VR	650	10	4	10 (45)	10	2.0	10	10	3	60	20	60 ^{*1}	3	-25 to +85	-30 to +100		
50°	Standard	Orange	SLR-322DU	610	10	2	6 (18)	10	2.0	10	10	3	60	20	60 ^{*1}	3	-25 to +85	-30 to +100		
		Yellow	SLR-322YY	585	10	4	10 (28)	10	2.1	10	10	3	60	20	60 ^{*1}	3	-25 to +85	-30 to +100		
		Yellow Green	SLR-322MG	563	10	6	16 (45)	10	2.1	10	10	3	75	25	60 ^{*1}	3	-25 to +85	-30 to +100		

*SLI-325/SLR-325 series: straight taping only.

*1 Duty<1/5, 200Hz *2 Duty<1/10, 1kHz *3 Dominant Wavelength

(): Reference

Mono-color (Blue (B), Green (E), White (WB))

Series name		Package shape		Color		Resin color		Packaging type		Luminous intensity rank		Special control symbol	
SLA	1-Die Circular type High Luminous intensity LED Lamps	343	ø3 Circular type	V	Red	R	<Red>	C	3	1-Die straight bulk	3F	Refer to specification	
SLI	1-Die Circular type Low Current High Luminous intensity LED Lamps	332	ø3 Circular type	U	Red	U	<Orange>	3	2	T31	T32	Refer to taping specification	
SLR	1-Die Circular type LED Lamp	56	ø5 Circular type	U2	Red	Y	<Yellow>	F	2	2	2	Refer to specification	
		560	ø5 Circular type	D	Orange	Y2	<Yellowish green>						
		570	ø5 Circular type	Y	Yellow	Y2	Yellow						
		580	ø5 Circular type	M	Yellowish green	T	Transparent colorless						
		430	Oval type ø4	P	Green								
		325	ø3.2 Circular type										
		322	ø3 Flat disc type										

Mono-color (Blue (B), Green (E), White (WB))

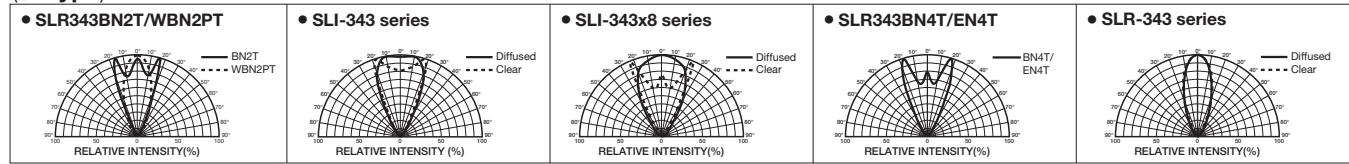
Series name		Package shape		Color		Resin color		Packaging type		Chromaticity rank (for white LED) *SLA560WBD2PT is not applied.		Special control symbol	
SLA	1-Die Circular type High Luminous intensity LED Lamps	343	ø3 Circular type	BN	Blue	T	Transparent colorless	2	P	2	2	2	Refer to specification
SLR	1-Die Circular type LED Lamp	332	ø3 Circular type	EN	Green	W	Milky white						

<in case of white>													
3	1-Die straight bulk	3	Refer to specification (same as T31)	2	Refer to specification (same as T32)								

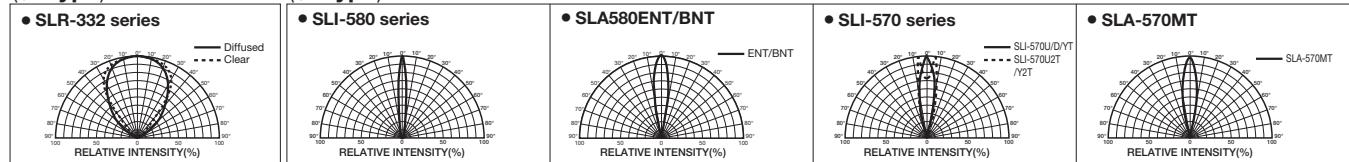
Through-hole LEDs

● Viewing Angle (Unit: deg)

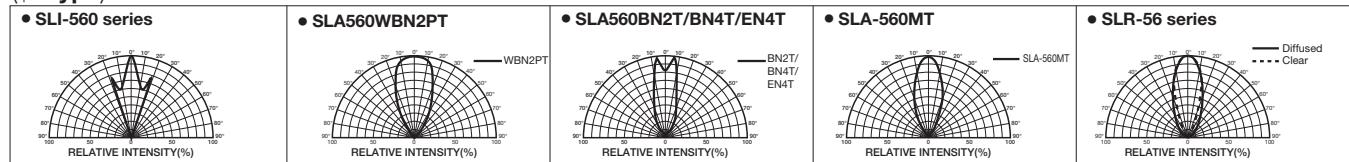
(Φ3 type)



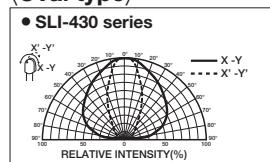
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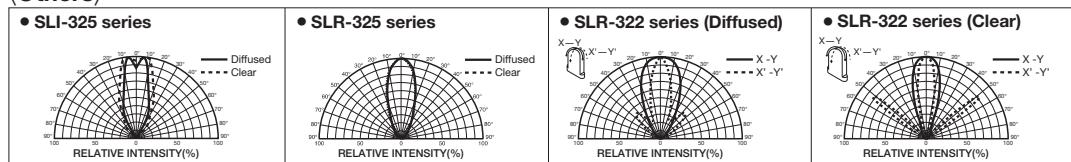
(Φ5 type)



(Oval type)



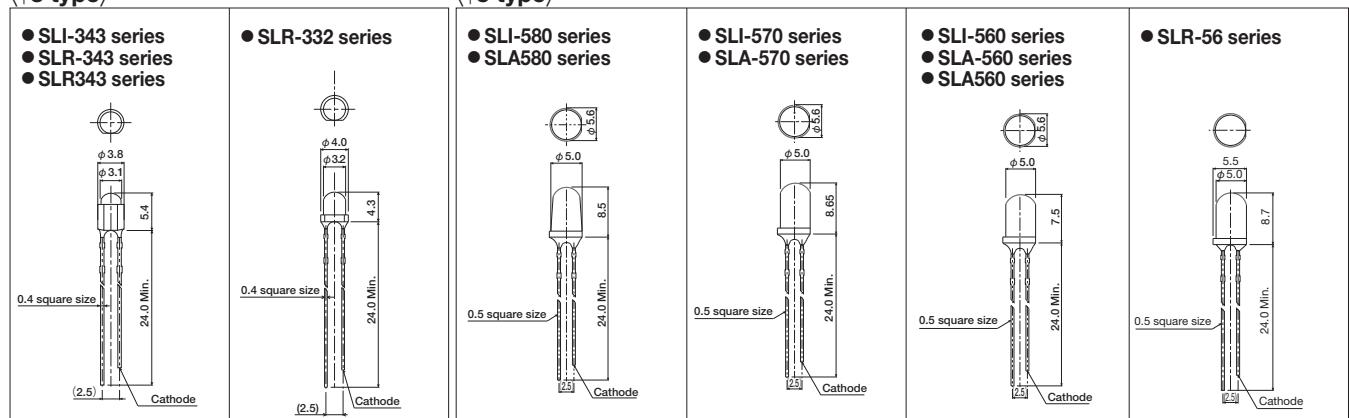
(Others)



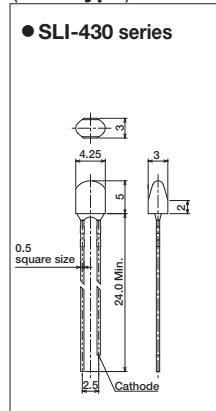
Note: Viewing Angle shown above are the reference data from standard product. For the part numbers other than the above, please contact us.

● Dimensions (Unit: mm)

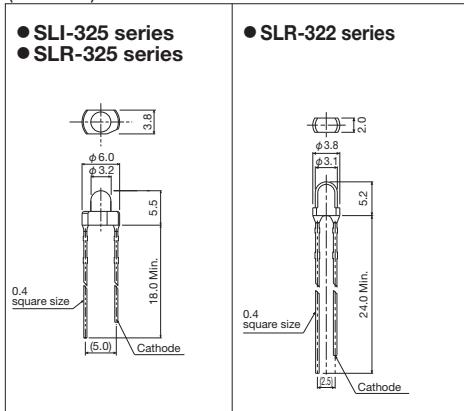
(Φ3 type)



(Oval type)



(Others)



*For further information, please refer to specification.

LED Displays

High luminous intensity LED Numeric Displays

P.276

LED Numeric Displays

P.277

Surface Mount LED Numeric Displays

P.277

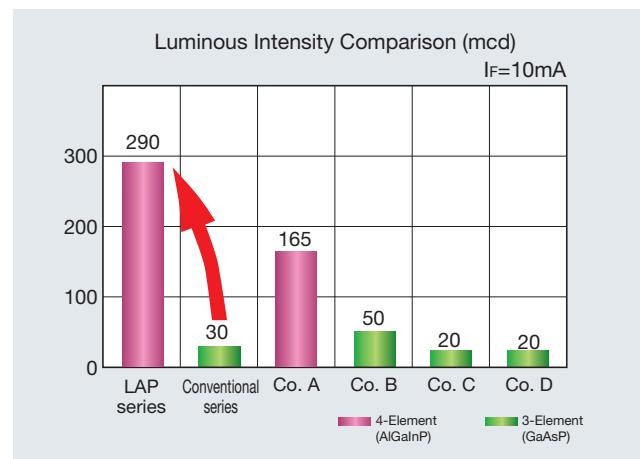
Click on the icon to access the product page on ROHM's website. Please check the website for the latest updates.

Good point of High luminous intensity LED Numeric Displays series

All-around type that High luminous intensity, Low Power Consumption and High Reliability

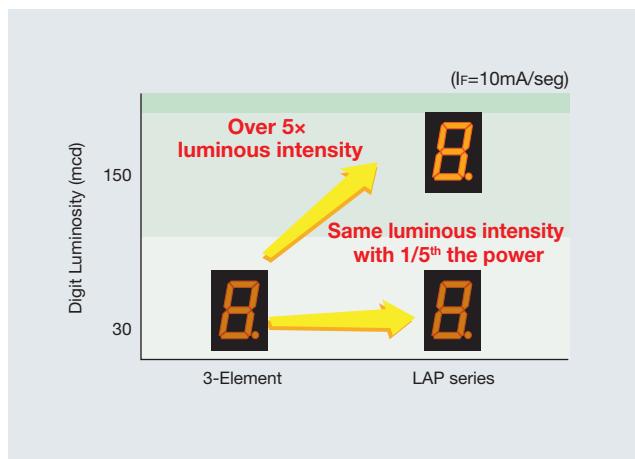
■ High luminous intensity

The brighter 4-element construction significantly increases luminosity compared with conventional numeric displays (orange emission ratio).



■ Low Power

Achieves equivalent luminous intensity with 5x less current, contributing to greater energy savings.



High luminous intensity LED Numeric Displays

High luminous intensity, low power consumption, and high reliability.

Shape	Part No.	Emitting Color	Absolute Maximum Ratings ($T_a=25^\circ\text{C}$)				Absolute Maximum Ratings				Electrical and Optical Characteristics ($T_a=25^\circ\text{C}$)							
			Power Dissipation P_D (mW)	Forward Current I_F (mA)	Peak Forward Current I_{FP}^* (mA)	Reverse Voltage V_R (V)	Operating Temperature T_{opr} ($^\circ\text{C}$)	Storage Temperature T_{STG} ($^\circ\text{C}$)	Forward Voltage V_F Typ (V)	Reverse Current I_R (mA)	Max (μA)	V_R (V)	Light Wavelength Peak λ_{WP} (nm)	$\Delta\lambda_{WP}$ (nm)	I_F (mA)	Min (mcd)	Typ (mcd)	I_F (mA)
	LAP-301VB/VL	Red	448	20	60	5	-25 to +75	-30 to +85	1.9	10	100	3	650	20	10	14	36	10
	LAP-301MB/ML	Green	448	20	60	5	-25 to +75	-30 to +85	1.9	10	100	3	572	20	10	36	100	10
	LAP-301DB/DL	Orange	448	20	60	5	-25 to +75	-30 to +85	1.9	10	100	3	605	20	10	56	250	10
	LAP-401VD/VN	Red	448	20	60	5	-25 to +75	-30 to +85	1.9	10	100	3	650	20	10	14	36	10
	LAP-401MD/MN	Green	448	20	60	5	-25 to +75	-30 to +85	1.9	10	100	3	572	20	10	36	100	10
	LAP-401DD/DD	Orange	448	20	60	5	-25 to +75	-30 to +85	1.9	10	100	3	605	20	10	56	250	10
	LAP-601VB/VL	Red	448	20	60	5	-25 to +75	-30 to +85	1.9	10	100	3	650	20	10	14	36	10
	LAP-601MB/ML	Green	448	20	60	5	-25 to +75	-30 to +85	1.9	10	100	3	572	20	10	36	100	10
	LAP-601DB	Orange	448	20	60	5	-25 to +75	-30 to +85	1.9	10	100	3	605	20	10	56	250	10

Note: * I_{FP} measured under duty:1/5, Pulse width:1ms

Shape	Part No.	Emitting Color	Absolute Maximum Ratings ($T_a=25^\circ\text{C}$)				Absolute Maximum Ratings				Electrical and Optical Characteristics ($T_a=25^\circ\text{C}$)							
			Power Dissipation P_D (mW)	Forward Current I_F (mA)	Peak Forward Current I_{FP}^* (mA)	Reverse Voltage V_R (V)	Operating Temperature T_{opr} ($^\circ\text{C}$)	Storage Temperature T_{STG} ($^\circ\text{C}$)	Forward Voltage V_F Typ (V)	Reverse Current I_R (mA)	Max (μA)	V_R (V)	Light Wavelength Peak λ_{WP} (nm)	$\Delta\lambda_{WP}$ (nm)	I_F (mA)	Min (mcd)	Typ (mcd)	I_F (mA)
	LBP-602VA2/VK2	Red	896	20	60	5	-25 to +75	-30 to +85	1.9	10	100	3	650	20	10	14	36	10
	LBP-602MA2/MK2	Green	896	20	60	5	-25 to +75	-30 to +85	1.9	10	100	3	572	20	10	36	100	10
	LBP-602DA2/DK2	Orange	896	20	60	5	-25 to +75	-30 to +85	1.9	10	100	3	605	20	10	56	250	10

Note: * I_{FP} measured under duty:1/5, Pulse width:1ms

LED Numeric Displays

These single digit numeric displays are 8 to 14.6mm in height and available in a range of colors.

Single Digit LED Numeric Displays																			
Shape	Part No.	Emitting Color	Absolute Maximum Ratings ($T_a=25^\circ C$)				Absolute Maximum Ratings			Electrical and Optical Characteristics ($T_a=25^\circ C$)									
			Power Dissipation P_D (mW)	Forward Current I_F (mA)	Peak Forward Current I_{FP}^* (mA)	Reverse Voltage V_R (V)	Operating Temperature T_{opr} ($^\circ C$)	Storage Temperature T_{stg} ($^\circ C$)	Forward Voltage V_F	Reverse Current I_R	Light Wavelength Peak Half-wave	Luminous Intensity/Digit I_V	Typ (V)	I_E (mA)	Max (μA)	V_R (V)	$\lambda_{\text{P}}^{\text{TYP}}$ (nm)	$\Delta\lambda_{\text{P}}^{\text{TYP}}$ (nm)	I_F (mA)
Character Height: 8mm External Dimensions: (7x11)	LA-301VB/VL	Red	320	15	60	5	-25 to +75	-30 to +85	2.0	10	100	3	650	40	10	3.6	10	10	
	LA-301MB/ML	Green	480	20	60	5	-25 to +75	-30 to +85	2.1	10	100	3	563	40	10	3.6	10	10	
	LA-301AB/AL	High luminous intensity Red	520	25	50	5	-25 to +75	-30 to +85	2.05	20	100	3	626	18	20	36	90	10	
	LA-301EB/EL	High luminous intensity Orange	520	25	50	5	-25 to +75	-30 to +85	2.05	20	100	3	610	17	20	36	90	10	
Character Height: 10.16mm External Dimensions: (9.6x13)	LA-401VD/VN	Red	320	15	60	5	-25 to +75	-30 to +85	2.0	10	100	3	650	40	10	5.6	16	10	
	LA-401MD/MN	Green	480	20	60	5	-25 to +75	-30 to +85	2.1	10	100	3	563	40	10	5.6	16	10	
	LA-401AD/AN	High luminous intensity Red	520	25	50	5	-25 to +75	-30 to +85	2.05	20	100	3	626	18	20	36	90	10	
	LA-401ED/EN	High luminous intensity Orange	520	25	50	5	-25 to +75	-30 to +85	2.05	20	100	3	610	17	20	36	90	10	
Character Height: 13mm External Dimensions: (12.5x17.5)	LA-501VD/VN	Red	480	20	60	5	-25 to +75	-30 to +85	2.0	10	100	3	650	40	10	5.6	16	10	
	LA-501MD/MN	Green	480	20	60	5	-25 to +75	-30 to +85	2.1	10	100	3	563	40	10	5.6	16	10	
Character Height: 14.6mm External Dimensions: (12.5x19)	LA-601VB/VL	Red	480	20	60	5	-25 to +75	-30 to +85	2.0	10	100	3	650	40	10	5.6	14	10	
	LA-601MB/ML	Green	480	20	60	5	-25 to +75	-30 to +85	2.1	10	100	3	563	40	10	9.0	22	10	
	LA-601AB/AL	High luminous intensity Red	520	25	50	5	-25 to +75	-30 to +85	2.05	20	100	3	626	18	20	36	90	10	
	LA-601EB/EL	High luminous intensity Orange	520	25	50	5	-25 to +75	-30 to +85	2.05	20	100	3	610	17	20	36	90	10	

Note: * I_{FP} measured under duty≤1/5, Pulse width≤1ms, High luminous intensity under duty≤1/10, Pulse width≤0.1 ms

These two digit numeric displays are 10.16 to 14.3mm in height and available in a range of colors.

Two Digit LED Numeric Displays																			
Shape	Part No.	Emitting Color	Absolute Maximum Ratings ($T_a=25^\circ C$)				Absolute Maximum Ratings			Electrical and Optical Characteristics ($T_a=25^\circ C$)									
			Power Dissipation P_D (mW)	Forward Current I_F (mA)	Peak Forward Current I_{FP}^* (mA)	Reverse Voltage V_R (V)	Operating Temperature T_{opr} ($^\circ C$)	Storage Temperature T_{stg} ($^\circ C$)	Forward Voltage V_F	Reverse Current I_R	Light Wavelength Peak Half-wave	Luminous Intensity/Digit I_V	Typ (V)	I_E (mA)	Max (μA)	V_R (V)	$\lambda_{\text{P}}^{\text{TYP}}$ (nm)	$\Delta\lambda_{\text{P}}^{\text{TYP}}$ (nm)	I_F (mA)
Character Height: 10.16mm External Dimensions: (24x18)	LB-402VD/VN	Red	640	15	60	5	-25 to +75	-30 to +85	2.0	10	100	3	650	40	10	5.6	16	10	
	LB-402MD/MN	Green	960	20	60	5	-25 to +75	-30 to +85	2.1	10	100	3	563	40	10	9.0	25	10	
Character Height: 13mm External Dimensions: (25x17.5)	LB-502VD/VN	Red	960	20	60	5	-25 to +75	-30 to +85	2.0	10	100	3	650	40	10	5.6	16	10	
	LB-502MD/MN	Green	960	20	60	5	-25 to +75	-30 to +85	2.1	10	100	3	563	40	10	9.0	25	10	
Character Height: 14.3mm External Dimensions: (25x19)	LB-602VA2/VK2	Red	960	20	60	5	-25 to +75	-30 to +85	2.0	10	100	3	650	40	10	5.6	16	10	
	LB-602MA2/MK2	Green	960	20	60	5	-25 to +75	-30 to +85	2.1	10	100	3	563	40	10	9.0	25	10	
	LB-602AA2/AK2	High luminous intensity Red	1,040	25	50	5	-25 to +75	-30 to +85	2.05	20	100	3	626	18	20	36	90	10	
	LB-602EA2/EK2	High luminous intensity Orange	1,040	25	50	5	-25 to +75	-30 to +85	2.05	20	100	3	610	17	20	36	90	10	

Note: * I_{FP} measured under duty≤1/5, Pulse width≤1ms, High luminous intensity under duty≤1/10, Pulse width≤0.1 ms

Three Digit LED Numeric Display																			
Shape	Part No.	Emitting Color	Absolute Maximum Ratings ($T_a=25^\circ C$)				Absolute Maximum Ratings			Electrical and Optical Characteristics ($T_a=25^\circ C$)									
			Power Dissipation P_D (mW)	Forward Current I_F (mA)	Peak Forward Current I_{FP}^* (mA)	Reverse Voltage V_R (V)	Operating Temperature T_{opr} ($^\circ C$)	Storage Temperature T_{stg} ($^\circ C$)	Forward Voltage V_F	Reverse Current I_R	Light Wavelength Peak Half-wave	Luminous Intensity/Digit I_V	Typ (V)	I_E (mA)	Max (μA)	V_R (V)	$\lambda_{\text{P}}^{\text{TYP}}$ (nm)	$\Delta\lambda_{\text{P}}^{\text{TYP}}$ (nm)	I_F (mA)
Character Height: 14.3mm External Dimensions: (37.5x18)	LB-603VF/VP	Red	960	15	60	5	-25 to +75	-30 to +85	2.0	10	100	3	650	40	10	5.6	16	10	
	LB-603MD/MN	Green	960	20	60	5	-25 to +75	-30 to +85	2.1	10	100	3	563	40	10	9.0	25	10	

Note: * I_{FP} measured under duty≤1/5, Pulse width≤1ms

Surface Mount LED Numeric Displays

ROHM's LED numeric displays are compatible with automatic reflow processes.

Single Digit LED Numeric Displays																			
Shape	Part No.	Emitting Color	Absolute Maximum Ratings ($T_a=25^\circ C$)				Absolute Maximum Ratings			Electrical and Optical Characteristics ($T_a=25^\circ C$)									
			Power Dissipation P_D (mW)	Forward Current I_F (mA)	Peak Forward Current I_{FP}^* (mA)	Reverse Voltage V_R (V)	Operating Temperature T_{opr} ($^\circ C$)	Storage Temperature T_{stg} ($^\circ C$)	Forward Voltage V_F	Reverse Current I_R	Light Wavelength Peak Half-wave	Luminous Intensity/Digit I_V	Typ (V)	I_E (mA)	Max (μA)	V_R (V)	$\lambda_{\text{P}}^{\text{TYP}}$ (nm)	$\Delta\lambda_{\text{P}}^{\text{TYP}}$ (nm)	I_F (mA)
Character Height: 8mm External Dimensions: (6.8x11)	LF-3011VA/VK	Red	320	15	60	5	-25 to +75	-30 to +85	2.0	10	100	3	650	40	10	3.6	10	10	
	LF-3011MA/MK	Green	480	20	60	5	-25 to +75	-30 to +85	2.1	10	100	3	563	40	10	3.6	10	10	

Note: * I_{FP} measured under duty≤1/5, Pulse width≤1ms

Laser Diodes

Red Laser Diodes	P.278	Infrared Laser Diodes	P.279	
Multi beam Laser Diode	P.279	High Output Laser Diodes	P.280	
VCSEL	P.280	Product No. Explanation, Symbols and Definitions P.281		
Packaging Specifications	P.282			

Click on the icon to access the product page on ROHM's website. Please check the website for the latest updates.

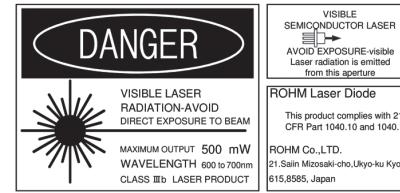
Laser Diodes

Red Laser Diodes														
Part No.	Wavelength λ_P (nm)	Absolute Maximum Ratings (T _c =25°C)			Electrical and Optical Characteristics (T _c =25°C)							P _o (mW)	Package	Equivalent Circuit
		P _o (mW)	V _R (V)	T _{opR} Max (°C)	I _{TH} (mA)	I _{op} (mA)	η (W/A)	V _{op} (V)	I _m (mA)	θ_{\perp} (deg)	$\theta//$ (deg)			
RLD65MZT7	659	7	2	70	20	28	0.70	2.3	0.24	27.0	8.0	5	φ5.6mm	
RLD63NPC5 (Pure red)	635	6	2	40	24	33	0.55	2.2	0.18	32.0	8.0	5	φ5.6mm (Open)	
RLD63NPC6 (Pure red)	638	12	2	50	28	43	0.70	2.3	0.15	32.0	8.0	10	φ5.6mm (Open)	
RLD63NPC7 (Pure red)	638	17	2	50	32	57	0.60	2.2	0.16	30.0	8.0	15	φ5.6mm (Open)	
RLD63NPC8 (Pure red)	638	24	2	50	32	65	0.60	2.25	0.20	30.0	8.0	20	φ5.6mm (Open)	
New RLD65NZN5	660	10	2	60	11	20	0.75	2.25	0.65	25	9	7	φ5.6mm	
RLD65NZX1 (Higher temp.)	663	10	2	80	15	24	0.85	2.3	0.30	27.0	9.0	7	φ5.6mm	
RLD65NZX2 (Higher ESD)	658	7	2	70	25	33	0.60	2.3	0.20	28.0	8.5	5	φ5.6mm	
RLD63PZCA (Pure red)	638	7	2	50	28	33	0.80	2.2	0.08	32.0	8.0	5	φ5.6mm	
RLD65PZX2 (Higher ESD)	658	7	2	70	25	33	0.60	2.3	0.20	28.0	8.5	5	φ5.6mm	
RLD65PZX3 (Higher ESD)	658	12	2	70	25	42	0.60	2.3	0.30	28.0	8.5	10	φ5.6mm	

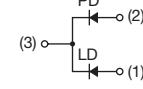
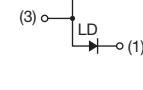
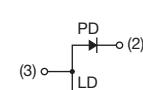
Note: Unless otherwise specified, the Electrical and Optical Characteristics are typical values.

About open package products

With the open package product (Package mark is P), the external environment could deteriorate the characteristics and reliability of Laser Diodes. Please be careful to foreign matter including toner, human substance and smoke, corrosion due to ion, the volatilization component from the glue and flux, condensation, optical tweezers effect and etc. Do not touch the components including the laser chip emission point.

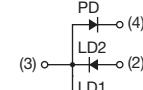


Infrared Laser Diodes

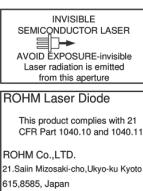
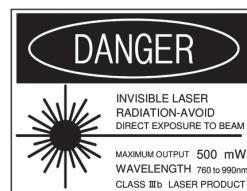
Part No.	Wavelength λ_p (nm)	Absolute Maximum Ratings (T _c =25°C)			Electrical and Optical Characteristics (T _c =25°C)							P _o (mW)	Package	Equivalent Circuit
		P _o (mW)	V _R (V)	Topr Max (°C)	I _{TH} (mA)	I _{op} (mA)	η (W/A)	V _{op} (V)	I _m (mA)	θ_{\perp} (deg)	$\theta_{//}$ (deg)			
RLD78MZA6	790	4.5	2	70	25	35	0.35	1.9	0.15	37.0	11.0	3	 φ5.6mm	
RLD78MZM7	792	20	2	60	11	33	0.65	1.8	0.50	24.0	8.5	15	 φ5.6mm	
RLD78NZM5	793	10	2	60	10	20	0.55	1.8	1.15	28.0	9.0	6	 φ5.6mm	
RLD78NZM7	792	20	2	60	11	33	0.65	1.8	0.90	24.0	8.5	15	 φ5.6mm	
RLD82NZJ1	822	220	2	60	50	255	0.95	2.4	0.30	17.0	9.5	200	 φ5.6mm	
RLD84NZJ2	842	220	2	60	40	250	0.95	2.4	0.40	19.0	9.5	200	 φ5.6mm	
RLD85NZJ4	852	220	2	60	40	250	0.95	2.4	0.40	19.0	9.5	200	 φ5.6mm	
RLD78PZM7	792	20	2	60	11	33	0.65	1.8	0.65	24.0	8.5	15	 φ5.6mm	
RLD82PZJ1	822	220	2	60	50	255	0.95	2.4	0.30	17.0	9.5	200	 φ5.6mm	
RLD84PZJ2	842	220	2	60	40	250	0.95	2.4	0.40	19.0	9.5	200	 φ5.6mm	
RLD85PZJ4	852	220	2	60	40	250	0.95	2.4	0.40	19.0	9.5	200	 φ5.6mm	
RLD94PZJ5	942	285	2	65	55	325	0.75	2.2	0.90	30.0	35.0	200	 φ5.6mm	

Note: Unless otherwise specified, the Electrical and Optical Characteristics are typical values.

Multi beam Laser Diodes

Part No.	Wavelength λ_p (nm)	Absolute Maximum Ratings (T _c =25°C)			Electrical and Optical Characteristics (T _c =25°C)							P _o (mW)	Package	Equivalent Circuit
		P _o (mW)	V _R (V)	Topr Max (°C)	I _{TH} (mA)	I _{op} (mA)	η (W/A)	V _{op} (V)	I _m (mA)	θ_{\perp} (deg)	$\theta_{//}$ (deg)			
New RLD2BPNG5	792	25	2	60	10	42	0.8	1.8	0.7	27.5	9.5	25	 φ5.6mm CAN (4PIN)	

Note: Unless otherwise specified, the Electrical and Optical Characteristics are typical values.



Laser Diodes

High Output Laser Diodes

Part No.	Wavelength λ_p (nm)	Absolute Maximum Ratings (T _c =25°C)			Electrical and Optical Characteristics (T _c =25°C)							Measurement pulse condition	Package	Equivalent Circuit
		I _F (A)	P _O (W)	Topr Max (°C)	I _F (A)	P _O (W)	I _{TH} (A)	V _F (V)	θ _⊥ (deg)	θ// (deg)	Emission area (μm×μm)			
New RLD90QZWA	905	6	17	85	5	15	0.3	13	20	14	35x10	Pulse width 50ns duty ratio 0.05%		(3) o LD o (1)
RLD90QZWJ		9	25		9	25	0.4	15	20	14	50x10			
New RLD90QZWB		11	30		9	25	0.4	13	25	14	50x10			
RLD90QZW5		9	25		9	25	0.4	14	25	12	70x10			
New RLD90QZWC		11	30		9	25	0.4	12	25	13	70x10			
RLD90QZWD		13	40		12	35	0.5	11	25	13	100x10			
RLD90QZW3		28	90		23	75	0.9	11	25	12	225x10			
New RLD90QZW8		46	145		38	120	—	13	20	11	270x10			

Note: Unless otherwise specified, the Electrical and Optical Characteristics are typical values.

VCSEL*													
Part No.	Wavelength λ_p (nm)	Electrical and Optical Characteristics (T _c =25°C)							Emission area (mm×mm)	Measurement pulse condition	Package	Equivalent Circuit	
		P _O (mW)	I _F (mA)	V _F (V)	I _{TH} (mA)	PCE (%)	θ [FWHM] (deg)	η (W/A)					
★RLD94SAQ6	940	200	300	2	70	33	13	0.85	0.41x0.23	Pulse width 800μs 1shot			(2) o LD o (1)
★RLD94SAQ8	940	2,400	3,000	2	750	40	-00A: 20 -10A: 60x45 -20A: 72x55 -30A: 90x69 -40A: 110x85	1	1.10x0.82	Pulse width 400μs 1shot			

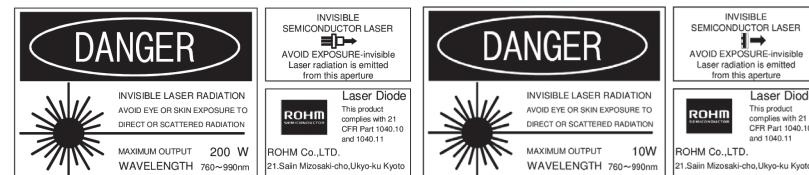
Note: Unless otherwise specified, the Electrical and Optical Characteristics are typical values.

*Bar chip sales are going to support, too. Please contact to ROHM's sales department.

★: Under Development

Safety

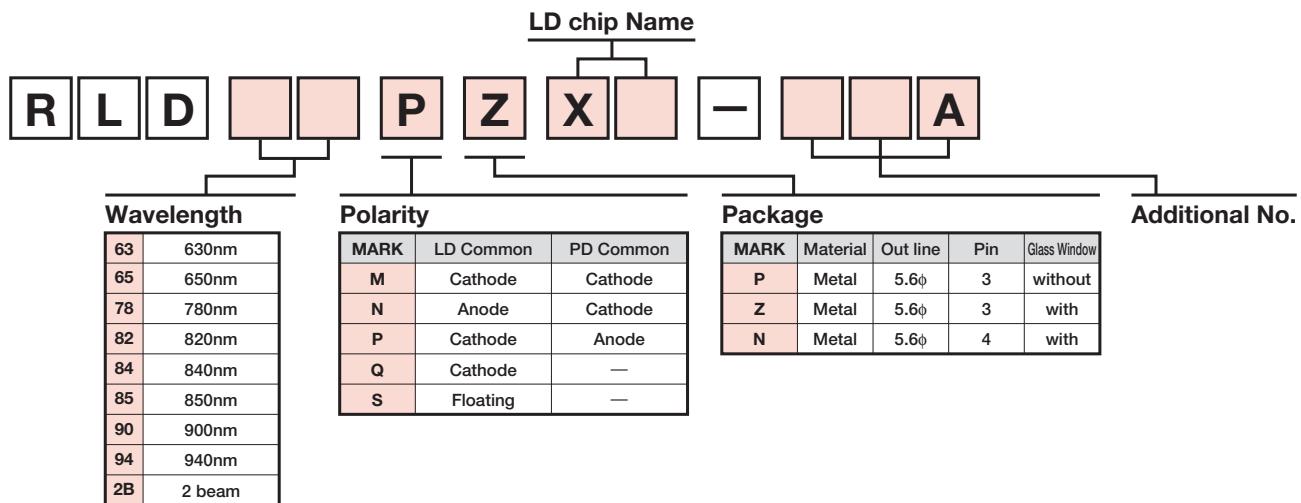
The light emitted from laser diodes, can cause retinal damage if viewed directly. Never look directly into the laser beam or through any lenses or fibers when the system is operating. For optical axis alignment or other operations, we recommend the use of an infrared-sensitive camera (ITV) or wearing protective goggles.



The products described in this specification are designed to be used with ordinary electronic equipment or devices (such as audio-visual equipment, office-automation equipment, communication device, electrical appliances, and electronic toys). If you intend to use these products or devices which require an extremely high level of reliability and malfunction of which would directly endanger human life (such as medical instruments, transportation equipment, aerospace machinery, nuclear-reactor controllers, fuel controllers and other safety devices), please be sure to consult with our sales representative in advance.

Laser Diodes

●Product No. Explanation



●Symbols and Definitions

■Absolute Maximum Ratings

Absolute maximum ratings are values which must not be exceeded even momentarily regardless of external conditions.

These values are specified for a case temperature T_c of 25°C.

Parameter	Symbol	Definition
Optical Output	P_o	Maximum allowable optical output during continuous or pulse operation. No kinks will appear in the output vs. forward current curve up to this output value. (Fig.1)
Reverse Voltage	V_R	The maximum allowable voltage when a reverse bias is applied to the device. Lasers and photo diodes are rated separately.
Operating Temperature	T_{opr}	Allowed ambient temperature range when the device is in operation. Defined to be the case temperature of the device.
Storage Temperature	T_{stg}	Allowed temperature range when the device is being stored.

■Electrical and Optical Characteristics

Item	Symbol	Definition
Threshold Current	I_{TH}	In Fig.2, A is the spontaneous emission range and B is the stimulated emission range. The threshold current is the current at which laser emission begins.
Operating Current	I_{OP}	The forward current required to generate the specified optical output.
Operating Voltage	V_{OP}	The forward voltage required to generate the specified optical output.
Differential Efficiency	η	The average increase in the output per unit of drive current. In the laser emission range, this is the slope of the linear optical output vs. forward current curve. (Fig.2)
Monitor Current	I_m	When the specified optical output is generated, this is the output current of the photodiode when a specified reverse voltage is applied to the monitor photodiode.
Parallel Divergence Angle Perpendicular Divergence Angle	$\theta_{//}$ θ_{\perp}	Light emitted from the laser spreads as shown in Fig.3. The result of measurements of this spread in the parallel (x) and perpendicular (y) directions with respect to the junction surface is shown in Fig.3. The widths of the spread at the points where the strength drops to 1/2 the peak strength (half value full angles) are defined as angles and called $\theta_{//}$ and θ_{\perp} . (Fig.4)
Parallel Deviation Angle Perpendicular Deviation Angle	$\Delta\phi_{//}$ $\Delta\phi_{\perp}$	These values express the deviation of the optical axis with respect to the reference plane, and are defined for the parallel and perpendicular spread angles (Fig.4) to be $(a - b)/2$ (Fig.5).
Emission Point Accuracy	$\Delta X, \Delta Y, \Delta Z$	This indicates the amount of deviation of the emission point. ΔX and ΔY indicate deviation from the center of the package, and ΔZ indicates deviation from the reference plane. (Fig.6)
Peak Emission Wavelength	λ_p	Peak emission wavelength when generating the specified output. As shown in Fig.7, the emission spectrum has both a single mode and a multimode. In the multimode, the wavelength is defined as the wavelength with the highest intensity.
Power Conversion Efficiency	PCE	This indicates the ratio of optical output to input electric power.

Laser Diodes

Fig.1 Optical Output vs. Forward Current

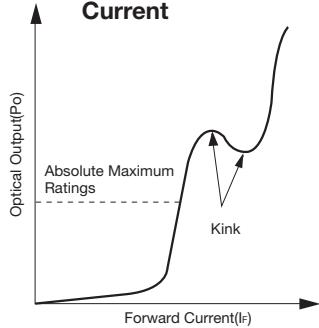


Fig.2 Optical Output vs. Forward Current

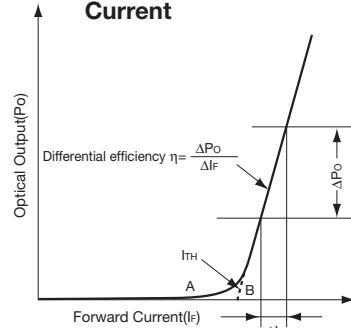


Fig.3 Radiation Characteristics

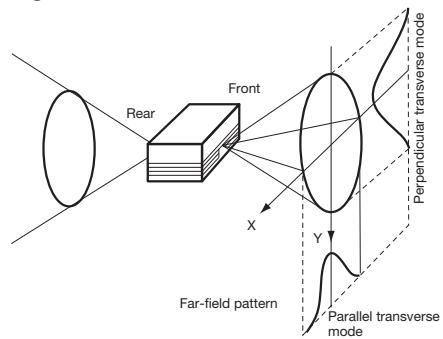


Fig.4 Radiation Characteristics

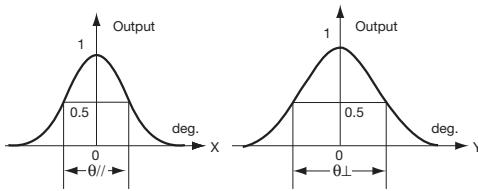


Fig.5 Deviation Angle

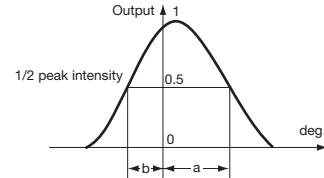


Fig.6 Deviation Angle

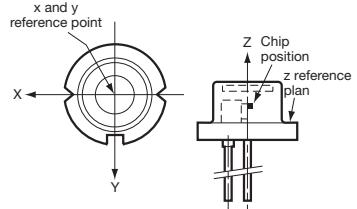
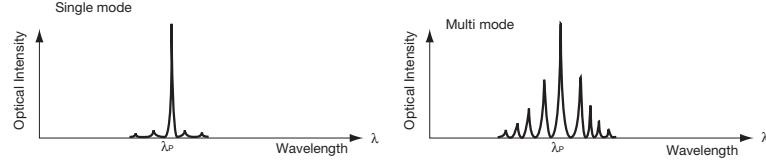
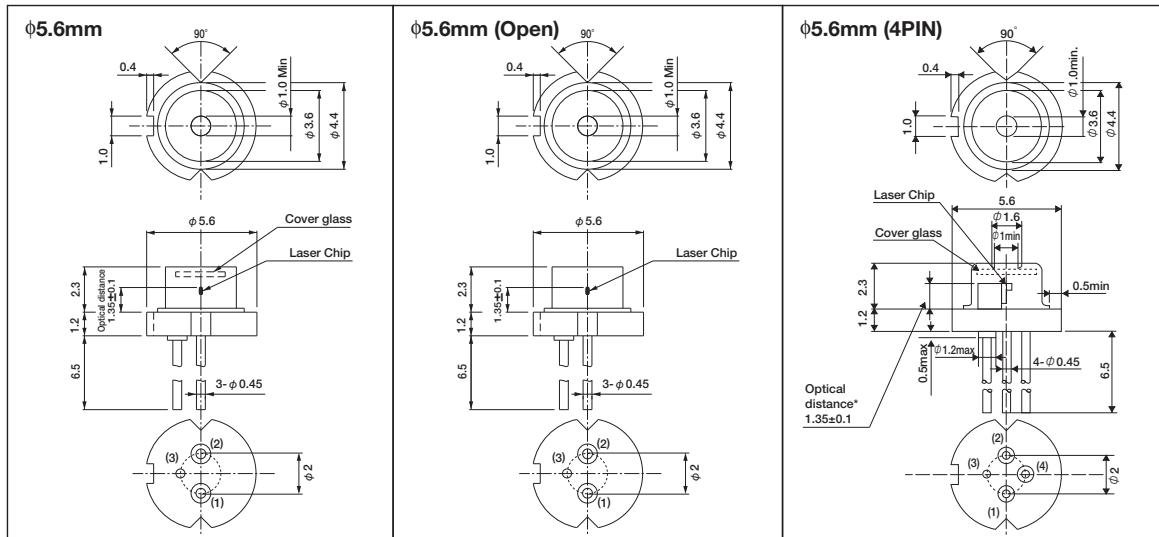


Fig.7 Emission Spectrum

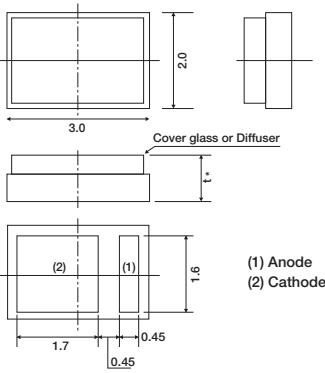


Packaging Specifications

Dimensions (Unit: mm)



**Infrared VCSEL
RLD94SAQ6/RLD94SAQ8**



*Please note that differences may exist depending on the part number.
Therefore, it is strongly recommended that the customer verify the actual specifications before usage.

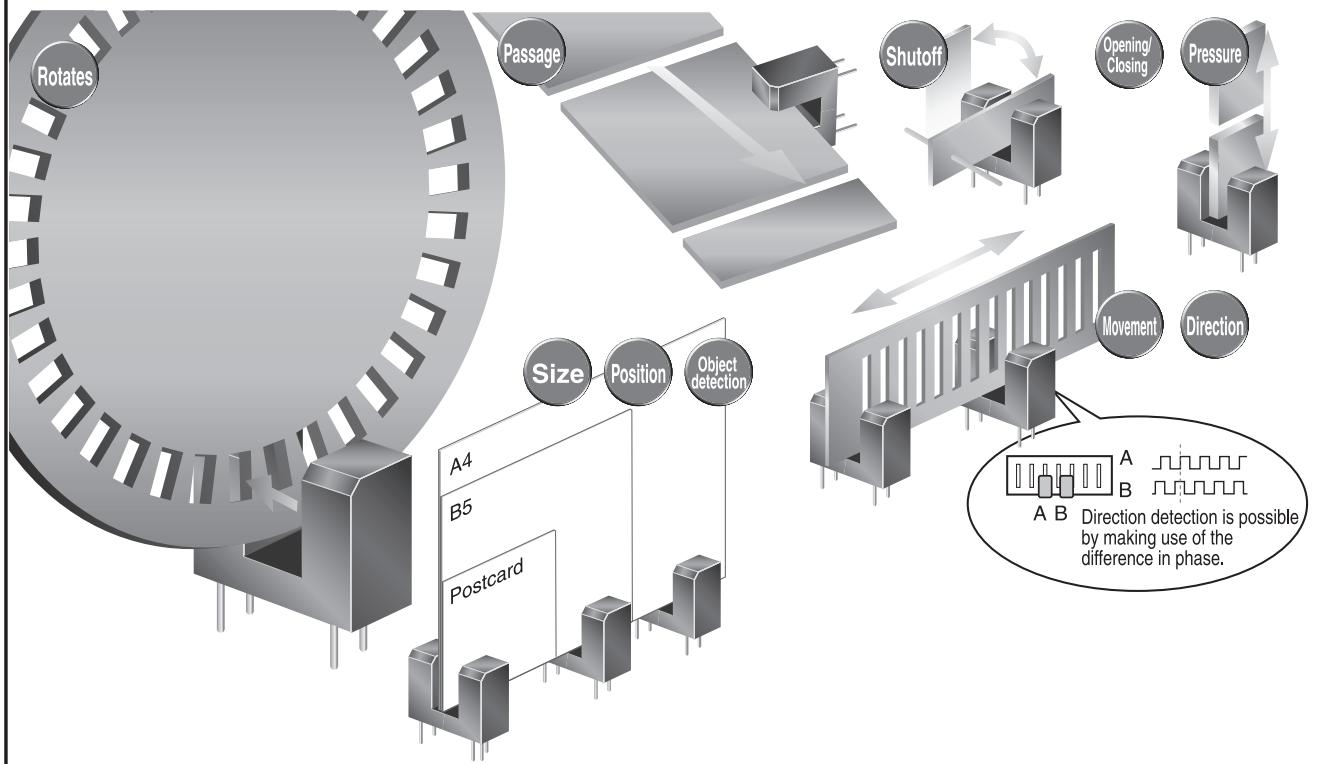
MEMO

Optical Sensors

Transmission Type Photointerrupters	P.285	Reflective Type Photosensors	P.285
Infrared Light Emitting Diodes (NIR: Near Infrared)	P.286	Phototransistors (NIR: Near Infrared)	P.287
Infrared Light Emitting Diodes (SWIR: Short Wavelength Infrared)	P.287	Photodiodes (SWIR: Short Wavelength Infrared)	P.287
Packages	P.288		

 Click on the icon to access the product page on ROHM's website. Please check the website for the latest updates.

Detection of all movements



● Product No. Explanation

Transmission type_Phototransistor output

● 7 characters		● 8 characters				
R	P	I	-	1	2	5
ROHM	Photo	Interrupter	Gap Width	Additional Number	ROHM	Photo

0 Surface mount type

Reflective type_Digital output

● 8 characters							
R	P	R	-	0	7	2	0
ROHM	Photo	Reflector	0	Surface mount type			

Reflective type_Phototransistor output

● 8 characters							
R	P	R	-	2	2	0	U
ROHM	Photo	Reflector	U	630nm light source			

Transmission Type Photointerrupters

Linear Phototransistor Output											
Package	Exterior	Part No.	Output type	Standard Characteristics							
				Detection Groove Width (mm)	Slit Width (mm)	I _c (mA)	V _{CE} (V)	I _f (mA)	t _r , t _f (μs)		
Surface Mount type		New RPI-0128	Phototransistor	1.2	0.2	1.0 Min 5.0 Max	5	5	10	Taping	Ultra-Compact
		RPI-0125		1.2	0.3	0.45 Min 4.95 Max	5	20	10		Ultra-Compact
		RPI-0226		2.0	0.3	0.1 Min	5	5	50		✓ Compact
		RPI-0352E		3.0	0.4	0.18 Min	5	10	10		✓ Wide Gap, Energy Saving, High Efficiency
		RPI-0451E		4.5	0.5	0.16 Min	5	10	10		✓ Wide Gap, Energy Saving, High Efficiency
Lead type		RPI-122		0.8	0.25	0.18 Min 1.08 Max	0.7	3	10	Bulk	Ultra-Compact
		RPI-121		0.8	0.4	0.7 Min	5	20	10		Ultra-Compact
		RPI-125		1.2	0.3	0.45 Min 4.95 Max	5	20	10		Ultra-Compact
		RPI-221		2.3	0.4	0.2 Min	5	20	10		
		RPI-222		2.0	0.2	0.18 Min 0.95 Max	5	10	10		
		RPI-243		2.0	0.4	0.5 Min	5	20	10		
		RPI-246		2.0	0.2	0.35 Min 1.2 Max	5	20	10		
		RPI-352		3.0	0.4	0.2 Min	5	20	10		✓ Wide Gap
		RPI-441C1		4.0	0.5	0.2 Min	5	20	10		✓ Wide Gap
		RPI-441C1E		4.0	0.5	0.2 Min	5	10	10		✓ Wide Gap, Energy Saving, High Efficiency

Reflective Type Photosensors

Digital Output									
Package	Part No.	Type	Interface	Features	Visible Light Filter	Supply Voltage		Emitter Wavelength (nm)	Recommended Operating Distances (mm)
						V _{DD} /V _{CC} (V)	V _{LEDA} /V _{VCSELA} (V)		
 2.0x1.0x0.55t	New RPR-0720	SMD	Digital (I ² C)	VCSEL Drvr. Proximity Sensor	Built-in Noise Cancellation Function	1.7 to 3.6	2.7 to 4.5	940	<10
 3.94x2.36x1.35t	RPR-0521RS	SMD	Digital (I ² C)	LED Drvr. Proximity Sensor Ambient Light Sensor	Built-in Noise Cancellation Function	2.5 to 3.6	2.8 to 5.5	940	<50
Phototransistor Output									
Package	Part No.	Type	Interface	Features	Visible Light Filter	Absolute maximum ratings		Emitter Wavelength (nm)	Focus Length (mm)
						I _f (mA)	V _{CEO} (V)		
 6.4x4.9x6.5t Without Leadframe	RPR-220	DIP	Analog	Visible light filter	✓	50	30	940	6.0
 6.4x4.9x6.5t Without Leadframe	RPR-220UC30N	DIP	Analog	Red LED	—	30	30	630	6.0



Infrared Light Emitting Diodes (NIR: Near Infrared)

These Ir-LEDs can be used for various remote control applications.

Infrared Light Emitting Diodes													
Package	Part No.	Type	Features			Absolute Maximum Rating	Standard Characteristics						
						I _F (mA)	I _E (mW/sr)	I _R (mA)	V _F (V)	I _F (mA)	λ _P (nm)	tr, tf (μs)	θ1/2 (deg)
Ø3mm	SIR-34ST3F	DIP	Optimized for remote controls			100	10.5	50	1.3	100	950	1	27
	SIR-341ST3F	DIP	Compact, high power			75	18.1	50	1.3	50	940	1	16
Ø5mm	SIR-56ST3F	DIP	Optimized for remote controls			100	15	50	1.3	100	950	1	15
	SIR-563ST3F	DIP	High power, Optimized for remote controls			100	21	50	1.34	50	940	1	15

Surface Mount type Infrared LEDs Top View Type

Package (mm)	Part No.	LED Chip	Emitting Color	Electrical and Optical Characteristics (T _a =25°C)								Absolute Maximum Rating (T _a =25°C)							
				Peak Wavelength λ _P		Radiant Intensity			Forward Voltage V _F		Reverse Current I _R		Power Dissipation P _D		Forward Voltage I _F (mA)	Peak Forward Current I _{FP} (mA)	Reverse Voltage V _R (V)	Operating Temperature T _{op} (°C)	Storage Temperature T _{stg} (°C)
				Typ (nm)	I _F (mA)	Min (mW/sr)	Typ (mW/sr)	Max (mW/sr)	I _F (mA)	Typ (V)	I _F (mA)	Typ (μA)	V _R (V)	(mW)	(mA)	(V)	(mA)	(°C)	
1.0×0.6 (t=0.2)	New SML-P14RW	AlGaAs	Infrared	860	30	1.8	2.8	4.5	30	1.5	30	10	5	100	50	200* ¹	5	-40 to +85	-40 to +100
1.6×0.8 (t=1.24)	New SML-P14R3W	AlGaAs	Infrared	940	30	1.8	2.8	4.5	30	1.5	30	10	5	100	50	200* ¹	5	-40 to +85	-40 to +100
1.6×0.8 (t=1.06)	New CSL0902RT	AlGaAs	Infrared	850	20	2.8	4.6	5.6	20	1.4	20	10	5	60	30	100* ¹	5	-40 to +85	-40 to +100
1.6×0.8 (t=1.06)	New CSL0902R3T	AlGaAs	Infrared	940	20	(2.8)	(4.6)	(7.1)	20	1.4	20	10	5	60	30	100* ¹	5	-40 to +85	-40 to +100
2.0×1.25 (t=0.8)	New CSL1002RT	AlGaAs	Infrared	850	20	1.4	1.9	2.8	20	1.4	20	10	5	60	30	100* ¹	5	-40 to +85	-40 to +100
2.0×1.25 (t=0.8)	New CSL1002R3T	AlGaAs	Infrared	940	20	(1.4)	(1.9)	(2.8)	20	1.4	20	10	5	60	30	100* ¹	5	-40 to +85	-40 to +100
2.0×1.25 (t=0.8)	SML-M13RT	AlGaAs	Infrared	870	20	0.5	1.7	3.5	20	1.4	20	10	5	60	30	100* ¹	5	-40 to +85	-40 to +100
3.0×1.5 (t=2.2)	SCM-013RT	AlGaAs	Infrared	850	20	0.5	2.0	5.0	20	1.4	20	10	5	57	30	300* ¹	5	-40 to +85	-40 to +100
3.2×1.6 (t=1.85)	SML-S13RT	AlGaAs	Infrared	850	20	1.5	2.5	3.6	20	1.4	20	10	5	60	30	300* ¹	5	-40 to +85	-40 to +100
3.2×1.6 (t=1.85)	SML-S15R2T	AlGaAs	Infrared	870	20	5.6	12	22	20	1.4	20	10	5	100	50	300* ¹	5	-40 to +85	-40 to +100

Surface Mount type Infrared LEDs Side View Type

Package (mm)	Part No.	LED Chip	Emitting Color	Electrical and Optical Characteristics (T _a =25°C)								Absolute Maximum Rating (T _a =25°C)							
				Peak Wavelength λ _P		Radiant Intensity			Forward Voltage V _F		Reverse Current I _R		Power Dissipation P _D		Forward Voltage I _F (mA)	Peak Forward Current I _{FP} (mA)	Reverse Voltage V _R (V)	Operating Temperature T _{op} (°C)	Storage Temperature T _{stg} (°C)
				Typ (nm)	I _F (mA)	Min (mW/sr)	Typ (mW/sr)	Max (mW/sr)	I _F (mA)	Typ (V)	I _F (mA)	Typ (μA)	V _R (V)	(mW)	(mA)	(V)	(mA)	(°C)	
1.0×0.55 (t=0.5)	New CSL1501RW	AlGaAs	Infrared	860	30	1.9	2.5	3.4	30	1.5	30	10	5	100	50	200* ¹	5	-40 to +85	-40 to +100
1.0×0.55 (t=0.5)	New CSL1501RT	AlGaAs	Infrared	860	30	1.9	2.5	3.4	30	1.5	30	10	5	100	50	200* ¹	5	-40 to +85	-40 to +100
1.0×0.55 (t=0.5)	New CSL1501R3T	AlGaAs	Infrared	940	30	1.9	2.5	3.4	30	1.5	30	10	5	100	50	200* ¹	5	-40 to +85	-40 to +100

*1 Duty≤1/10, 1kHz

(): Reference

●Product No. Explanation

S I R	-	3 4 1	S T	3 F	R P T	-	3 4	□	P B	3 F
Series Name		Additional Number	Output configuration	Package color	Series Name		Additional Number		Package color	Terminal shape
SIR Ø3 and Ø5 types lamp infrared LED		S Infrared LED	T Clear	3F Straight	RPT Ø3 type Photo Detector		P Phototransistor	B Colored	3F Straight	
S M L	-	S 1 3 R		T	C S L	0 9 0 2 R		T		
Series name	Package shape	Type of Element	Color	Chip control symbol	Series name	Package shape	Chip control symbol	Color	Remarks	
SML chip LED	P1 1.0×0.6 t=0.2mm	0 Low current type	R Infrared		CSL chip LED	O9 1.6×0.8 t=1.24mm				
SCM chip LED	D1 1.6×0.8 t=0.55mm	2 High luminous intensity type	T Phototransistor			O10 1.6×0.8 t=1.06mm				
	H1 2.0×1.25 t=0.8mm	3 Ultra high luminous intensity type	PD Photodiode			O15 1.0×0.55 t=0.5mm				
	M1 2.0×1.25 t=0.8mm	4	S10 Infrared SWIR							
	S1 3.2×1.6 t=1.85mm	5	S12 Infrared SWIR							
	01 3.5×1.5 t=2.2mm		S13 Infrared SWIR							
	81 3.4×1.25 t=1.1mm		S14 Infrared SWIR							
			S15 Infrared SWIR							
				Resin color						
				T Transparent colorless						
				W Milky white						
				B Black						

Phototransistors (NIR: Near Infrared)

ROHM phototransistors are used in a variety of compact precision devices due to their high reliability and high output.

Phototransistors																		
Package	Part No.	Type	Feature				Visible Light Filter	Visible Light Filter		Standard Characteristics								
								V _{CEO} (V)	P _C Max (mW)	I _{CEO} Max (μA)	V _{CE} (V)	I _C (mA)	λ _P (nm)	tr, tf (μs)	θ1/2 (deg)			
 φ3mm	RPT-34PB3F	DIP	Visible light filter				✓	32	150	0.5	10	2.0 Min	800	10	36			
	RPT-37PB3F	DIP	Visible light filter, Polarity discrimination				✓	32	150	0.5	10	2.0 Min	800	10	36			
	RPT-38PB3F	DIP	Visible light filter				✓	32	150	0.5	10	2.0 Min	800	10	36			
Phototransistors (NIR: Near Infrared)																		
Package (mm)	Part No.	LED Chip	Electrical and Optical Characteristics (T _a =25°C)									Absolute Maximum Ratings (T _a =25°C)						
			Light Current			Dark Current		Sensitivity Wavelength	Collector-Emitter Saturation Voltage			Collector-Emitter Voltage (V)	Emitter-Collector Voltage (V)	Collector Current (mA)	Collector Power Dissipation (mW)	Operating Temperature Topr (°C)	Storage Temperature Tstg (°C)	
 2.0×1.25 (t=0.8)	SML-H10TB	Si	2.0	4.0	5/ 500	0.5	10	800	—	—	0.4	0.1/ 500	32	5	30	80	-30 to +85	-30 to +100
 3.0×1.5 (t=2.2)	SCM-014TB	Si	0.3	3.8	5/ 500	0.5	10	800	—	—	0.4	0.1/ 500	32	5	30	100	-30 to +85	-30 to +100
 Reverse Mount Available 3.4×1.25 (t=1.1)	SML-810TB	Si	2.3	3.8	5/ 500	0.5	10	800	—	—	0.4	0.1/ 500	32	5	30	80	-30 to +85	-30 to +100

Infrared Light Emitting Diodes (SWIR: Short Wavelength Infrared)

Surface Mount type Infrared LEDs																			
Package (mm)	Part No.	LED Chip	Emitting Color	Electrical and Optical Characteristics (T _a =25°C)								Absolute Maximum Rating (T _a =25°C)							
				Peak Wavelength λ _P		Radiant Intensity				Forward Voltage V _F		Reverse Current I _R		Power Dissipation P _D (mW)		Forward Current I _F (mA)		Peak Forward Current I _{FP} (mA)	
				Typ (nm)	I _F (mA)	Min (mW/sr)	Typ (mW/sr)	Max (mW/sr)	I _F (mA)	Typ (V)	I _F (mA)	Typ (μA)	V _R (V)	P _D (mW)	I _F (mA)	Topr (°C)	V _R (V)	Operating Temperature Topr (°C)	Storage Temperature Tstg (°C)
 1.6×0.8 (t=1.24)	New CSL0901S10T	AlGaAs	Infrared	(1050)	50	(7.1)	(13)	(18)	50	1.2	50	10	5	150	80	100*1	5	-40 to +85	-40 to +100
	New CSL0901S13T	InAlGaAs	Infrared	(1300)	50	(3.6)	(6.0)	(9.0)	50	1.0	50	10	5	150	80	100*1	5	-40 to +85	-40 to +100

*1 Duty≤1/10, 1kHz

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Photodiodes (SWIR: Short Wavelength Infrared)

Photo diodes (SWIR: Short Wavelength Infrared)																
Package (mm)	Part No.	Electrical and Optical Characteristics (T _a =25°C)									Absolute Maximum Rating (T _a =25°C)					
		Photo Sensitive Area (μm)	Sensitivity Wavelength (Typ) (nm)		Dark Current (nA)			Responsivity (A/W) λ _P =1550nm			Reverse Voltage (V)	Operation Temperature Topr (°C)		Storage Temperature Tstg (°C)		
					Typ	Max	Max									
 2.0×1.25 (t=0.8)	New SML-H10PD2B	φ200	1550		(0.04)		(0.80)		1		5	-25 to +85		-40 to +100		

(): Reference



Packages

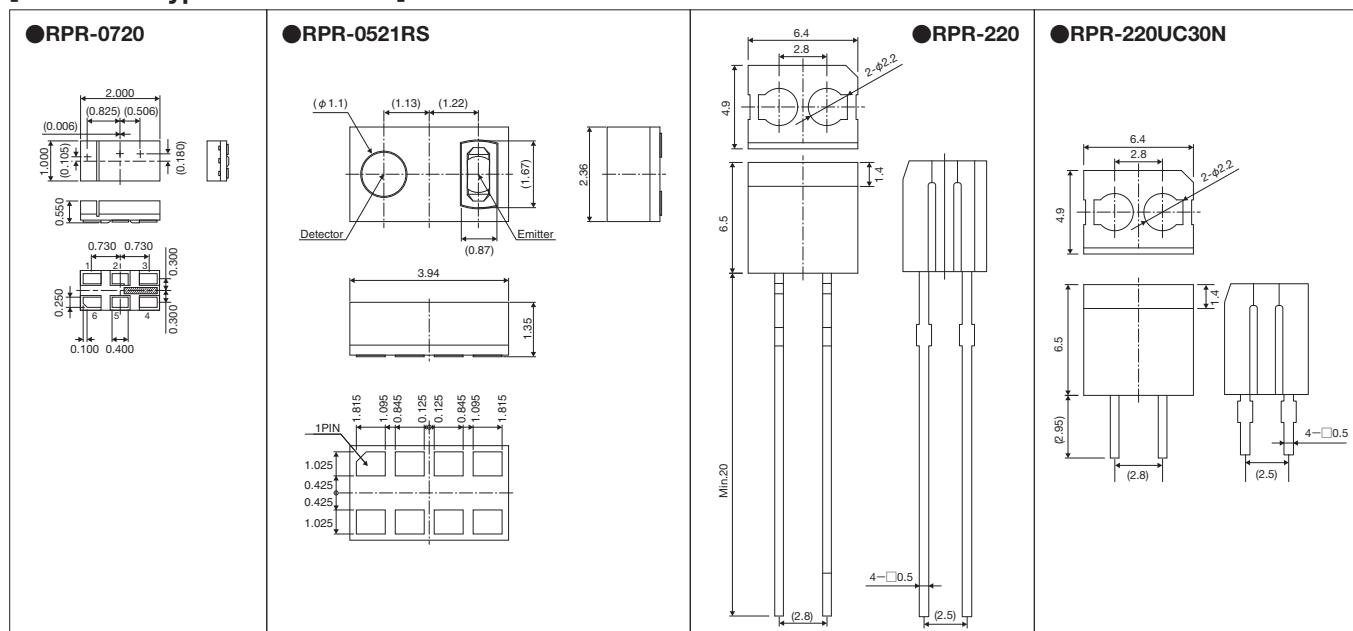
● Dimensions (Unit: mm)

[Transmission Type Photointerrupters]

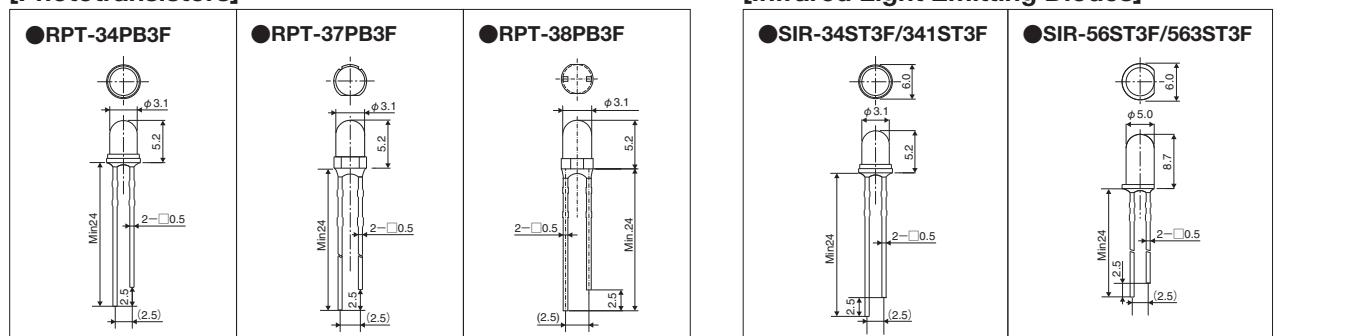
● RPI-0128	● RPI-0125	● RPI-0226	● RPI-122
● RPI-121	● RPI-125	● RPI-221	● RPI-222, RPI-222G
● RPI-243	● RPI-246	● RPI-0352E	● RPI-352
● RPI-441C1, RPI-441C1E	● RPI-0451E		

●Dimensions (Unit: mm)

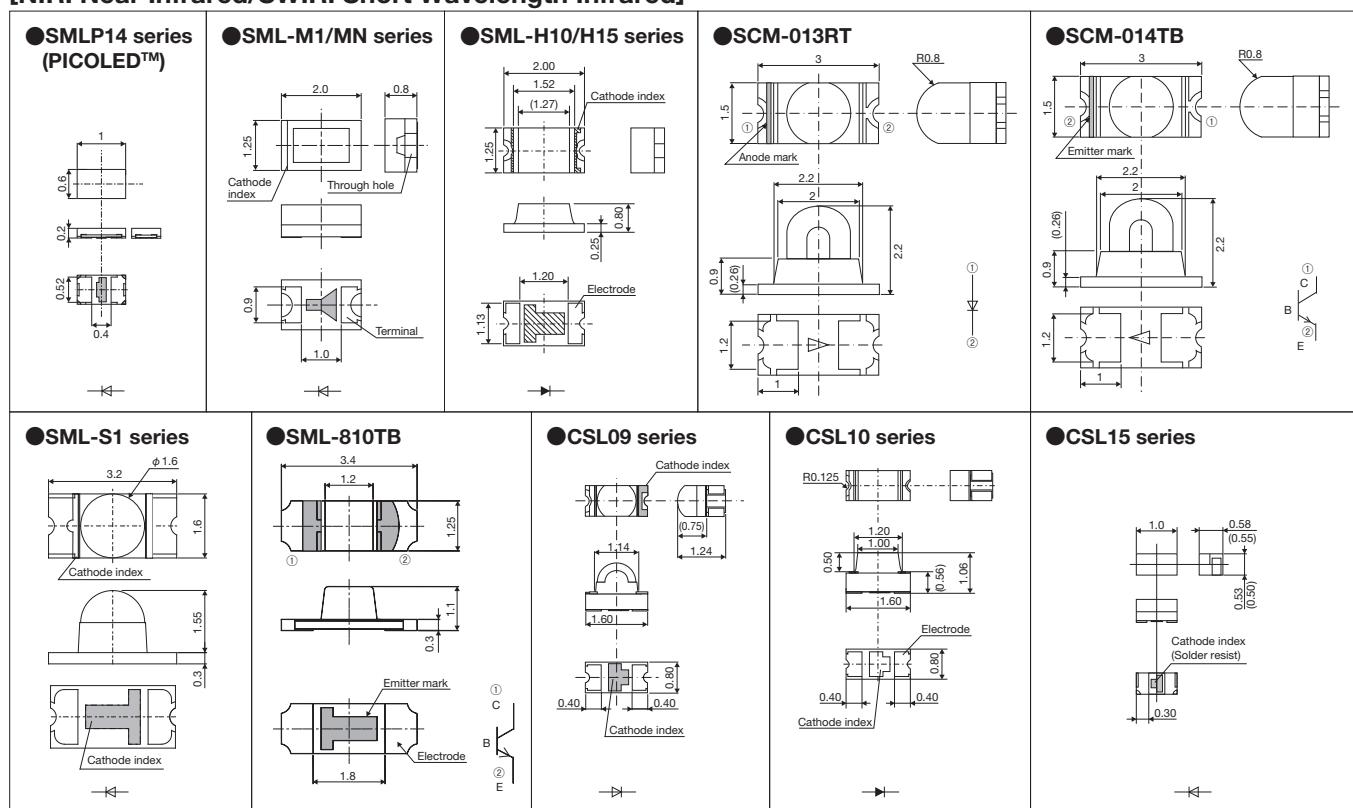
[Reflective Type Photosensors]



[Phototransistors]



[NIR: Near Infrared/SWIR: Short Wavelength Infrared]



Wireless Modules

ROHM Wireless Module Technologies P.290

Bluetooth® Modules P.291

13.56MHz (NFC) Wireless Charger Modules P.291

Wi-SUN Communication Modules (Specified Low Power Radio Modules) P.290

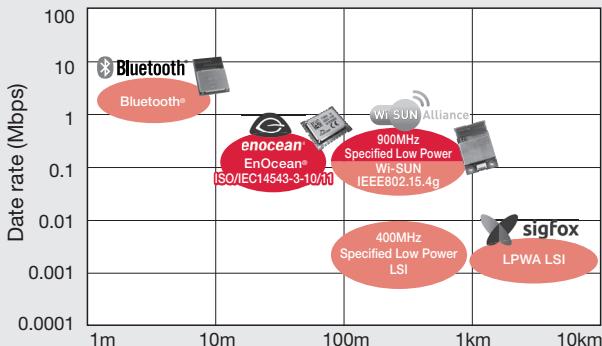
EnOcean® Communication Modules P.291

 Click on the icon to access the product page on ROHM's website. Please check the website for the latest updates.

ROHM Wireless Module Technologies

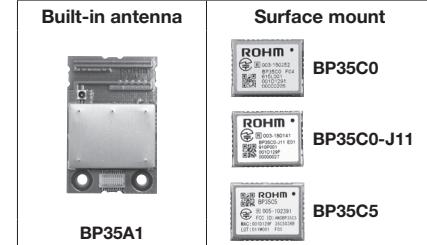
ROHM group is developing Wireless Communication devices in a broad range of fields.

The correspondence of various wireless specifications



Wi-SUN Communication Modules (Specified Low Power Radio Modules)

- 920MHz specified low-power wireless module
- Excellent receiver sensitivity
- Built-in antenna eliminates the need for high-frequency designs
- Transmitting power pre-adjusted
- MAC address included
- Japan radio law certified
- Built-in system LSI that made in LAPIS Technology



Wi-SUN Communication Modules (Specified Low Power Radio Modules)

Part No.	Supply Voltage (V)	Operating Temperature (°C)	Host I/F	Compatible Standards	Radio law Certification	Dimensions (mm)	Pakcage
BP35A1	2.7 to 3.6 (Single power)	-20 to +80	UART	Wi-SUN Route-B	TELEC	22.0×33.5×3.9	Connector joint type 0.5mm pitch, 20pin
BP35C0	2.6 to 3.6 (Single power)	-30 to +85	UART	Wi-SUN Route-B/HAN	TELEC	15.0×19.0×2.6	SMD 1.27mm pitch, 28pin
BP35C0-J11	2.6 to 3.6 (Single power)	-30 to +85	UART	Wi-SUN Route-B/HAN/ Enhanced HAN	TELEC	15.0×19.0×2.6	SMD 1.27mm pitch, 28pin
BP35C5	2.6 to 3.6 (Single power)	-30 to +85	UART	Wi-SUN FAN	TELEC/FCC	15.0×19.0×2.6	SMD 1.27mm pitch, 30pin

Bluetooth® Modules Bluetooth®

- Low power consumption and the best solution for the instruments required a long-life of coin type/button battery
- Bluetooth® low energy single mode module
- Built-in pattern antenna and RF characteristic adjusted before shipment
- Certified radio regulation: TELEC, FCC, ISED, CE



MK71511-NNN

Bluetooth® low energy Modules

(LAPIS Technology products)

Part No.	Supply Voltage (V)	Operating Temperature (°C)	Host I/F	Bluetooth Certification	Radio law Certification	Module Specification	Built-in Flash/RAM	Built-in Crystal Oscillator	Built-in Antenna	Dimension (mm)	Package
MK71511-NNN	1.7 to 3.6	-40 to +85	UART SPI	Ver5.4 (Single mode) QDID: 146733 (RF-PHY Component)	TELEC/FCC/ISED/CE	Role: Master/Slave Application: Blank	Flash: 192KB RAM: 24KB	32MHz 32.768kHz	Pattern	9.7x13.4x2.0	M-FLGA54-9.7x13.4-0.80-9Y
MK71511A-NNN				Ver5.4 (Single mode) QDID: 146740 (RF-PHY Component)			Flash: 512KB RAM: 64KB	32MHz 32.768kHz			M-FLGA54-9.7x13.4-0.80-9Y
MK71521-NNN				Ver5.4 (Single mode) QDID: 146740 (RF-PHY Component)			Flash: 512KB RAM: 64KB	32MHz			M-FLGA54-9.7x13.4-0.80-9Y
MK71521A-NNN				Ver5.4 (Single mode) QDID: 146740 (RF-PHY Component)			Flash: 512KB RAM: 64KB	32MHz			M-FLGA54-9.7x13.4-0.80-9Y

Bluetooth® is a registered trademark of Bluetooth® SIG.

EnOcean® Communication Modules

EnOcean® products are based on energy harvesting battery-less/wireless telecommunication technology.

- EnOcean® Wireless Standard (ISO/IEC 14543-3-10/11)
- Built-in antenna eliminates the need for high-frequency designs
- Japan radio law certified

*This product (928MHz frequency band) is permitted as "specified low-power radio station" in Japanese radio law.

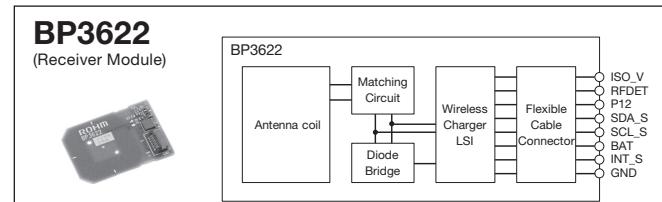
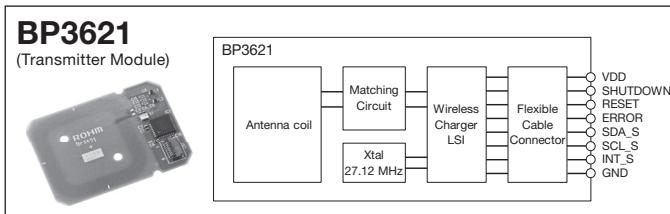
EnOcean® Communication Modules/Devices

Frequency Band	Use Target Area	Products								
		Energy converter for motion energy harvesting (for the switch module)	Transmitter module (for switch module)	Push button multi-channel switch module	Energy harvesting wireless transceiver module	Programmable transceiver module	Energy harvesting magnet contact module	Energy harvesting temperature sensor module	Humidity sensor module	Receiver USB module
928MHz	Japan	ECO 260	PTM 535J	PTM 215J	STM 400J	TCM 410J/ TCM 515J	STM 429J	STM 431J	HSM 100	USB 500J
868MHz	Europe·China	ECO 260	PTM 535	PTM 210/ PTM 215	STM 300	TCM 310/ TCM 515	STM 329	STM 331	HSM 100	USB 300
902MHz	North America	ECO 260	PTM 535U	PTM 215U	STM 300U	TCM 310U/ TCM 515U	STM 320U	STM 331U	HSM 100	USB 500U
921MHz	Asia	ECO 260	—	—	—	—	—	STM 431T	HSM 100	USB 500T

*EnOcean® is a registered trademark of EnOcean GmbH.

13.56MHz (NFC) Wireless Charger Modules

ROHM's 13.56MHz wireless charger module is a board-integrated module with an antenna. Since the development resources for antenna design and matching adjustment can be significantly reduced, the wireless charging function can be easily realized. It contributes to the compact, connectorless, waterproof and dustproof housing design required for wearable devices and IoT devices.



Extensive feeding type 13.56MHz Power Transmitter Wireless Charger Modules

Part No.	Transmitter/Receiver	Module type	Module size (mm)	Weight (g)	Supply Voltage (V)	Output Power (Max) (mW)	Feeding Distance (d) (mm)	Operating Temperature (°C)	Interface
BP3621	Power Transmitter	Wide Range type	35.0×26.0×1.5	0.80	4.5 to 5.5	—	10	-10 to +50	8pin, 0.5mm pitch, FPC connector

Extensive feeding type 13.56MHz Power Receiver Wireless Charger Modules

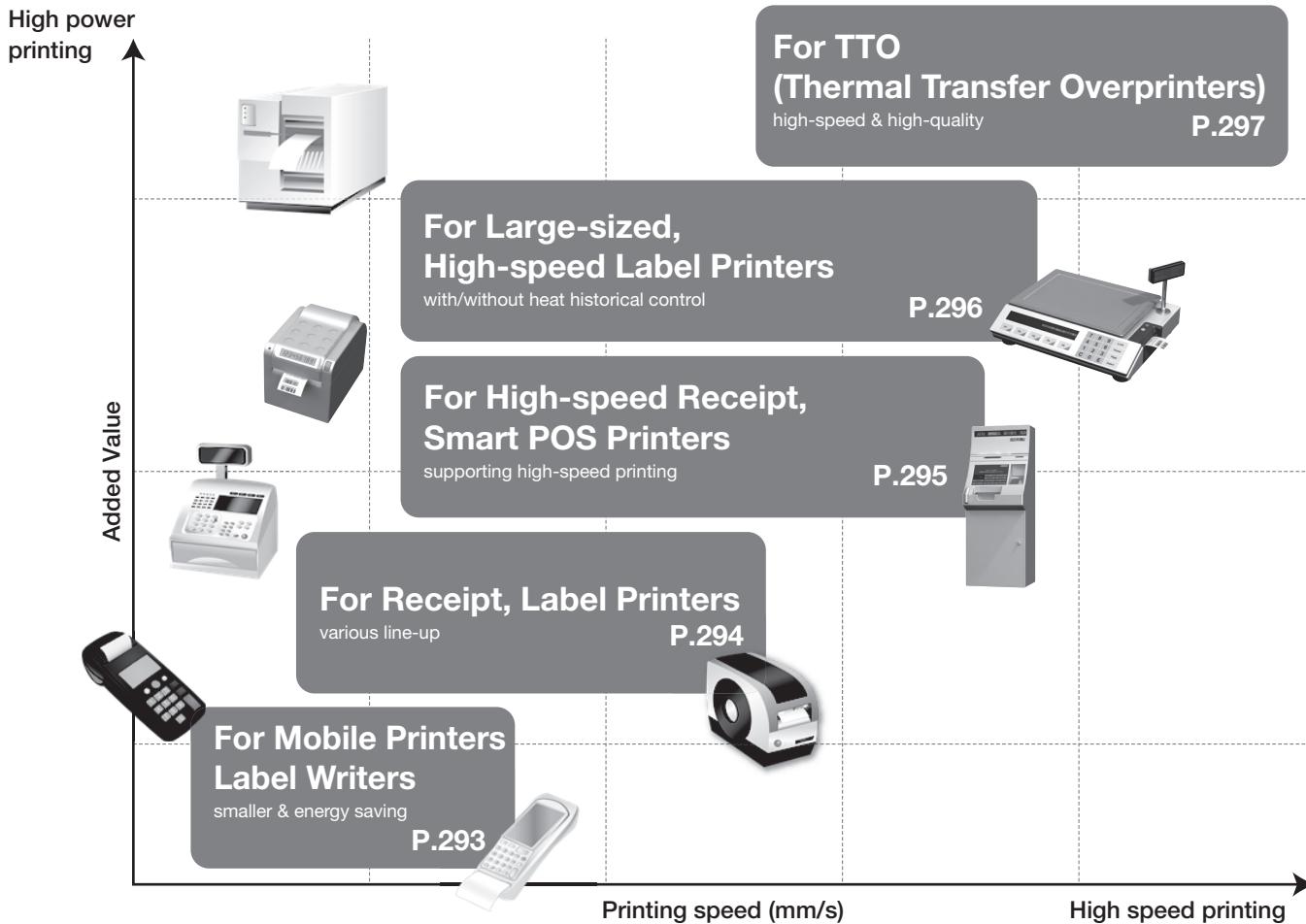
Part No.	Transmitter/Receiver	Module type	Module size (mm)	Weight (g)	Supply Voltage (V)	Output Power (Max) (mW)	Feeding Distance (d) (mm)	Operating Temperature (°C)	Interface
BP3622	Power Receiver	Wide Range type	24.0×17.0×1.5	0.38	—	200	10	-10 to +50	8pin, 0.5mm pitch, FPC connector

Thermal Printheads

Selection guide	P.292	Part No. Configuration	P.292
For Mobile Printers series	P.293	For Label writers series	P.293
For Receipt, Label Printers series	P.294	For High-speed Receipt, Smart POS Printers series	P.295
For Large-sized, High-speed Label Printers series	P.296	For Large-sized, High-speed Label Printers with The Heat historical control	P.296
For TTO (Thermal Transfer Overprinters) series	P.297		

 Click on the icon to access the product page on ROHM's website. Please check the website for the latest updates.

Selection guide



We have various line-up to response the customer requests. Please feel free to contact ROHM sales representative for further details if the product you are looking for is not listed.

Part No. Configuration

Totally 13 digit

K D 2 0 0 4	-	D 1 F W 0 0 A
Structure of TPH e.g. KAF Flat structure, KR Full glaze	Resolution e.g. 10 100dpi 15 150dpi 18 180dpi 20 203dpi 30 300dpi 36 360dpi 60 600dpi etc.	Print Width e.g. 01 1inch 02 2inch 03 3inch 04 4inch 05 5inch 06 6inch 08 8inch 10 10inch
Option e.g. DA Both side type connectors with Heatsink D1 Both side type connectors without Heatsink etc.	Discrimination Number	

Totally 11 digit

K D 2 0 0 4	-	D F 1 0 A
Structure of TPH e.g. KAF Flat structure, KR Full glaze	Resolution e.g. 10 100dpi 15 150dpi 18 180dpi 20 203dpi 30 300dpi 36 360dpi 60 600dpi etc.	Print Width e.g. 01 1inch 02 2inch 03 3inch 04 4inch 05 5inch 06 6inch 08 8inch 10 10inch
Option e.g. DF Both side type connectors with Heatsink DG Center type connector with Heatsink etc.	Discrimination Number	



For Mobile Printers series



■Features

In addition to the 7.2V drive industry standard type that matches Li-ion battery drive, the lineup includes a 4.2V drive energy saving type and a 12V drive high-speed printing type. A thermal print head that supports a variety of sets.

■Applications

It is ideal for mobile printers with low voltage and strict current capacity restrictions, EFT-POS terminals with high demands for small size and energy savings, receipt printers, and small label printers.

For Mobile Printers series																			
Part No.	Resolutions (dpi)	Print Width (mm)	Number of dot (dots)	Resistance variation (Ω)	Platen diameter (Max) (mm)	Print Speed (mm/s)	Print voltage (VH)	Logic Voltage (V _{D0})	Connector type	Abrasion life (km)	Pulse life (million pulses)								
KR2002-D06B71A	203	48	384	80	8	100	4.2	2.70 to 5.25	—	100	50								
KR3002-B06N1BA	300	48.787	576			50													
KA2002-B05B70A	203	48	384	176	100	7.2	3.30 to 5.25	—	Flat Cable	100	50								
KA2002-H05N00A																			
KA2002-B35N00A		72	576																
KA2003-B35N00A																			
KA2003-H05N20A		104	832																
KA2004-D35N90A																			
KA2004-H05N20A	300	48.787	576	210	8	75	2.70 to 5.25	—	Flat Cable	100	50								
KA3002-B05N00A																			
KA3003-H05N20A		73.181	864																
KA3004-303N00A	203	108.416	1280	395	14	100	4.2	—	Flat Cable	100	100								
KD2002-G0JB10A		48	384																
KA3008-C03N10A		219.542	2592																

We can also develop a thermal printhead per customized specifications. Please contact a ROHM sales representative for further details.

For Label writers series



■Features

ROHM's unique structure contributes to making printers smaller and lighter. A thick film structure with high contactability to the label, high corrosion resistance and excellent reliability. Adopts a heat generating structure with excellent energy efficiency, contributing to long battery life.

■Applications

Ideal for label writers that print on storage labels, name labels, wrapping ribbons, etc.

For Label writers series												
Part No.	Resolutions (dpi)	Print Width (mm)	Number of dot (dots)	Resistance variation (Ω)	Platen diameter (Max) (mm)	Print Speed (mm/s)	Print voltage (VH)	Logic Voltage (V _{D0})	Connector type	Abrasion life (km)	Pulse life (million pulses)	
KL0643-BB11A	180	9.024	64	281	14	50	7.2	3.00 to 5.25	—	30	50	
KL2000-E0KN60A	203	12	96	142	17			2.70 to 5.25		50		
KL1801-DB92A	180	18.048	128	400	14			4.75 to 5.25		30		
KA2001-B05N30	203	24	192	123				2.70 to 5.25		50	100	

We can also develop a thermal printhead per customized specifications. Please contact a ROHM sales representative for further details.

For Receipt, Label Printers series



■Features

Adopting a heating element structure optimal for various printing speeds and media achieves both printing quality and energy saving. A thermal print head that supports high-level control by supporting a high-frequency clock.



■Applications

It is ideal for POS terminals used in a wide range of fields, receipt printing for ATMs, label printers, slot machines and lottery printers.

For Receipt, Label Printers series																		
Part No.	Resolutions (dpi)	Print Width (mm)	Number of dot (dots)	Resistance variation (Ω)	Platen diameter (Max) (mm)	Print Speed (mm/s)	Print voltage (V _H)	Logic Voltage (V _{D0})	Connector type	Heat sink	Abrasion life (km)	Pulse life (million pulses)						
KD2002-CAFW00A	203	54	432	800	14	150	3.13 to 5.25	Wire Cable	YES	150	100							
KD2003-CAFW00A		72	576							NO								
KD2004-C1GW00A		108	864															
KD2002-LEFW00A		54	432						Flat Cable	YES	50	100						
KD2003-CG11A		72	576															
KD2004-CG11A		108	864															
KD2008-CF10A	300	216	1728	800	20	100	24	Wire Cable	NO	50	50	50						
KD2008-CF16A																		
KD3008-CF10A																		
KD2008-CG50A		216	1728			125	150	4.75 to 5.25	Flat Cable									
KD2003-L0GBA0A																		

We can also develop a thermal printhead per customized specifications. Please contact a ROHM sales representative for further details.

For High-speed Receipt, Smart POS Printers series



■Features

By adopting a unique heating element structure that supports high-speed printing, clear print quality can be obtained even at high-speed printing. This series achieves high-quality printing on various media.



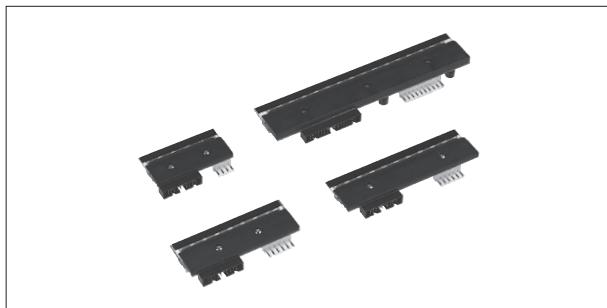
■Applications

Ideal for Smart POS printers that support high-speed printing, ECR printers, and small label printers such as cardboard labels.

For High-speed Receipt, Smart POS Printers series													
Part No.	Resolutions (dpi)	Print Width (mm)	Number of dot (dots)	Resistance variation (Ω)	Platen diameter (Max) (mm)	Print Speed (mm/s)	Print voltage (VH)	Logic Voltage (V _{cc})	Connector type	Heat sink	Abrasion life (km)	Pulse life (million pulses)	
KD2002-D5FW00A	203	56	448	650	20	250	3.13 to 5.25	Wire Cable	NO	150	100		
KD2003-F0GB00A		80	640		14					50	50		
KD2003-F0FW00A		104	832		20					150	100		
KD2004-D0GW00A		144	1152	800		125				50	50		
KD2005-UAGX00A		54.208	640	1000	18	200	24	Wire Cable	YES				
KD3002-KAFW00A	300	81.312	960		14	250							
KD3002-GEFW00A		108.416	1280		20	200		Flat Cable		150	100		
KD3003-K5FW00A		216.832	2560		18								
KD3003-KAFW00A					25	100							
KD3004-KAGW00A													
KD3008-DF54A													

We can also develop a thermal printhead per customized specifications. Please contact a ROHM sales representative for further details.

For Large-sized, High-speed Label Printers series



■Features

This series responds to the high reliability required for industrial equipment by applying a heating element structure that supports high-speed printing, a highly durable protective film, and a structure that supports large currents.

■Applications

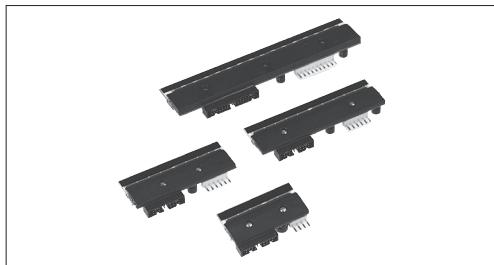
It is ideal for ticket machines, label printers, and food measuring instruments that are used outdoors or issue tickets continuously.

For Large-sized, High-speed Label Printers series

Part No.	Resolutions (dpi)	Print Width (mm)	Number of dot (dots)	Resistance variation (Ω)	Platen diameter (Max) (mm)	Print Speed (mm/s)	Print voltage (VH)	Logic Voltage (V _{DD})	Connector type	Heat sink	Abrasion life (km)	Pulse life (million pulses)						
KD2002-TQFW00A	203	56	448	550	20	250	24	3.13 to 5.25	Wire Cable	YES	150	100						
KD2003-TQFW00A		80	640															
KD2004-TQFW00A		104	832															
KD2006-TQFW00A		168	1344	570		500												
TE2004-QP1W00A		104	832			250												
KD3002-TQFW00A	300	54.208	640	850	20	250												
KD3003-TQFW00A		81.312	960															
KD3004-TQFW00A		108.416	1280															
KD3006-TQFW00A		162.624	1920															
TE3004-TP1W00A		105.706	1248	570		500												

We can also develop a thermal printhead per customized specifications. Please contact a ROHM sales representative for further details.

For Large-sized, High-speed Label Printers with The Heat historical control



■Features

These thermal printheads are ideal for barcode label printers for industrial equipment that require high print quality. This series can control the heat generation time of each heating element from the heat generation history.

■Applications

Ideal for barcode label printers used in assembly lines and distribution centers in factories that require 24-hour operation and continuous printing for a long time.

For Large-sized, High-speed Label Printers with The Heat historical control

Part No.	Resolutions (dpi)	Print Width (mm)	Number of dot (dots)	Resistance variation (Ω)	Platen diameter (Max) (mm)	Print Speed (mm/s)	Print voltage (VH)	Logic Voltage (V _{DD})	Connector type	Heat sink	Abrasion life (km)	Pulse life (million pulses)							
KD2002-RQFW00A	203	56	448	550	20	300	24	3.13 to 5.25	Wire Cable	YES	150	100							
KD2003-RQFW00A		80	640																
KD2004-RQFW00A		104	832																
KD2006-RQFW00A		168	1344																
KD3002-RQFW00A	300	54.208	640	850		250													
KD3003-RQFW00A		81.312	960																
KD3004-RQFW00A		108.416	1280																
KD3006-RQFW00A		162.624	1920																

We can also develop a thermal printhead per customized specifications. Please contact a ROHM sales representative for further details.



For TTO (Thermal Transfer Overprinters) series



■Features

This thermal printhead is capable of high-speed printing and high-quality image quality even using a resin-based ink ribbon with excellent scratch resistance, which is considered difficult for high-speed printing.

■Applications

Ideal for label printers that print electronic tags used in logistics management and unmanned cash registers, environment-friendly packaging materials, and label printers that print date code labels required for complex logistics management. It contributes to productivity improvement at food processing sites and distribution sites.

For TTO (Thermal Transfer Overprinters) series

Part No.	Resolutions (dpi)	Print Width (mm)	Number of dot (dots)	Resistance variation (Ω)	Platen diameter (Max) (mm)	Print Speed (mm/s)	Print voltage (V) _H	Logic Voltage (V _{cc})	Connector type	Heat sink	Abrasion life (km)	Pulse life (million pulses)
TH3001-2P1W00A	305	31.987	384	570	50	1000	24	3.13 to 5.25	Wire Cable	YES	150	100
TH3002-2P1W00A		53.312	640									

We can also develop a thermal printhead per customized specifications. Please contact a ROHM sales representative for further details.

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Part No. List

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1SS380VM	223	2SB1689	164	2SCR572D3	171	BA178M06 (BA78M06)	29	BA90BC0W	33
1SS390SM	224	2SB1690	168	2SCR573D3	171	BA178M07 (BA78M07)	29	BA90DD0	31
1SS400CM	222	2SB1690K	164	2SCR574D3	171	BA178M08 (BA78M08)	29	BA90DD0W	31
1SS400SM	222	2SB1694	164	2SCR582D3	171	BA178M09 (BA78M09)	29	BA90JC5T	33
2SA1036K	164	2SB1695	168	2SCR583D3	171	BA178M10 (BA78M10)	29	BA9741F	47
2SA1037AK	164	2SB1695K	164	2SCR586D3	171	BA178M12 (BA78M12)	29	BA9741FS	47
2SA1514K	164	2SB1697	170	2SCR586J	171	BA178M15 (BA78M15)	29	BA9743AFV	47
2SA1576U3	164	2SB1705	168	2SCR587D3	171	BA178M18 (BA78M18)	29	BA9744FV	47
2SA1576UB	163	2SB1706	168	2SCR642P	170	BA178M20 (BA78M20)	29	BAJ0BC0	33
2SA1577	164	2SB1707	168	2SCRC41C	164	BA178M24 (BA78M24)	29	BAJ0BC0W	33
2SA1579U3	164	2SB1708	168	2SD1383K	166	BA18BC0	33	BAJ0CC0	32
2SA1774E3	164	2SB1709	168	2SD1484K	164	BA18BC0W	33	BAJ0CC0W	32
2SA1774EB	163	2SB1710	168	2SD1757K	164	BA18DD0	31	BAJ2CC0	32
2SA2018E3	164	2SB1730	168	2SD1781K	164	BA18DD0W	31	BAJ2CC0W	32
2SA2029	163	2SB1731	168	2SD1782K	164	BA18JC5T	33	BAJ2DD0	31
2SA2030	163	2SB1732	168	2SD1834	170	BA2107	15	BAJ2DD0W	31
2SA2071P5	170	2SB1733	168	2SD1949	164	BA25BC0	33	BAJ5CC0	32
2SA2088U3	164	2SB852K	166	2SD2114K	166	BA25BC0W	33	BAJ6DD0	31
2SA2094	168	2SC2411K	164	2SD2142K	166	BA25DD0	31	BAJ6DD0W	31
2SA2119K	164	2SC2412K	164	2SD2153	170	BA25DD0W	31	BAS116HY	223
2SAR293P	170	2SC3906K	164	2SD2226K	166	BA25JC5T	33	BAS16HY	222
2SAR293P5	170	2SC4061K	164	2SD2444K	164	BA2901/BA2901S	19	BAS21HY	222
2SAR340P	170	2SC4081U3	164	2SD2537	170	BA2901Y	19	BAS21VM	222
2SAR340Q	168	2SC4081UB	163	2SD2652	164	BA2902/BA2902S	18	BAS40-04HY	199
2SAR372P	170	2SC4097	164	2SD2653	168	BA2902Y	17, 18	BAS40-05HY	199
2SAR372P5	170	2SC4102U3	164	2SD2653K	164	BA2903/BA2903S	19	BAS40-06HY	199
2SAR375P	170	2SC4617E3	164	2SD2654E3	166	BA2903Y	19	BAS40HY	199
2SAR375P5	170	2SC4617EB	163	2SD2656	164	BA2904/BA2904S	18	BAT54AHY	199
2SAR502E3	164	2SC5585E3	164	2SD2657	168	BA2904Y	17, 18	BAT54CHY	199
2SAR502EB	163	2SC5658	163	2SD2657K	164	BA30BC0	33	BAT54HY	199
2SAR502U3	164	2SC5663	163	2SD2661	170	BA30BC0W	33	BAT54SHY	199
2SAR502UB	163	2SC5824	170	2SD2670	168	BA30DD0	31	BAV170HY	223
2SAR512P	170	2SC5866	168	2SD2671	168	BA30DD0W	31	BAV199FM	223
2SAR512P5	170	2SC5876U3	164	2SD2672	168	BA30JC5T	33	BAV199HY	223
2SAR512R	168	2SCR293P	170	2SD2673	168	BA3121F	86	BAV199UM	223
2SAR513P	170	2SCR293P5	170	2SD2674	168	BA3123F	86	BAV70HY	222
2SAR513P5	170	2SCR341Q	168	2SD2675	168	BA33BC0	33	BAV99FM	222
2SAR513R	168	2SCR346P	170	2SD2696	163	BA33BC0W	33	BAV99HY	222
2SAR514P	170	2SCR372P	170	2SD2700	168	BA33DD0	31	BAW156HY	223
2SAR514P5	170	2SCR372P5	170	2SD2701	168	BA33DD0W	31	BAW56HY	222
2SAR514R	168	2SCR375P	170	2SD2702	168	BA33JC5T	33	BC807-16	165
2SAR522EB	163	2SCR375P5	170	2SD2703	168	BA3404	18	BC807-25	165
2SAR522M	163	2SCR502E3	164	2SD2704K	166	BA3472	18	BC807-40	165
2SAR522UB	163	2SCR502EB	163	2SD2707	166	BA3472R	18	BC817-16	165
2SAR523EB	163	2SCR502U3	164	ADZ series	215	BA3472Y	18	BC817-25	165
2SAR523M	163	2SCR502UB	163	BA00BC0W	33	BA3472Y/BA3472W	17	BC817-40	165
2SAR523UB	163	2SCR512P	170	BA00CC0W	32	BA3474	18	BC846B	165
2SAR533P	170	2SCR512P5	170	BA00DD0W	31	BA3474R	18	BC847B	165
2SAR533P5	170	2SCR512R	168	BA00JC5WT	33	BA3474Y/BA3474W	17	BC847BU3	165
2SAR542F3	170	2SCR513P	170	BA033CC0	32	BA3662CP-V5	33	BC847C	165
2SAR542P	170	2SCR513P5	170	BA033CC0W	32	BA4510	14	BC848B	165
2SAR543R	168	2SCR513R	168	BA03CC0	32	BA4558Y	14	BC848BW	165
2SAR544P	170	2SCR514P	170	BA03CC0W	32	BA4560Y	14	BC856B	165
2SAR544P5	170	2SCR514P5	170	BA05CC0	32	BA4564R	14	BC857B	165
2SAR544R	168	2SCR514R	168	BA05CC0W	32	BA4564W	14	BC857BU3	165
2SAR552P	170	2SCR522EB	163	BA06CC0	32	BA4580Y	14	BC857C	165
2SAR552P5	170	2SCR522M	163	BA06CC0W	32	BA4584	14	BC858B	165
2SAR553P	170	2SCR522UB	163	BA07CC0	32	BA4584R	14	BC858BW	165
2SAR553P5	170	2SCR523EB	163	BA07CC0W	32	BA4584Y	14	BCX17	165
2SAR553R	168	2SCR523M	163	BA08CC0	32	BA50BC0	33	BCX19	165
2SAR554P	170	2SCR523UB	163	BA08CC0W	32	BA50BC0W	33	BD00C0AW	32
2SAR554P5	170	2SCR533P	170	BA09CC0	32	BA50DD0	31	BD00EA5W	30
2SAR554R	168	2SCR533P5	170	BA09CC0W	32	BA50DD0W	31	BD00FA1WEFJ	33
2SAR562F3	170	2SCR542F3	170	BA1117FP	29	BA50JC5T	33	BD00FC0W	32
2SAR563F3	170	2SCR542P	170	BA15BC0	33	BA60BC0	33	BD00FD0W	31
2SAR564F3	170	2SCR543R	168	BA15BC0W	33	BA60BC0W	33	BD00FDAW	31
2SAR567F3	170	2SCR544P	170	BA15D0	31	BA60JC5T	33	BD00GA3V	35
2SAR572D3	171	2SCR544P5	170	BA15DD0W	31	BA6406F	70	BD00GA3W	35
2SAR573D3	171	2SCR544R	168	BA15JC5T	33	BA70BC0	33	BD00GA5VEFJ-LB	34
2SAR574D3	171	2SCR552P	170	BA17805 (BA7805)	29	BA70BC0W	33	BD00GA5WEFJ-BD00GA5VEFJ-M	34
2SAR582D3	171	2SCR552P5	170	BA17806 (BA7806)	29	BA80BC0	33	BD00GC0VEFJ-LB	34
2SAR583D3	171	2SCR553P	170	BA17807 (BA7807)	29	BA80BC0W	33	BD00GC0WEFJ/BD00GC0VEFJ-M	34
2SAR586D3	171	2SCR553P5	170	BA17808 (BA7808)	29	BA80JC5T	33	BD00HA3VEFJ-LB	37
2SAR586J	171	2SCR553R	168	BA17809 (BA7809)	29	BA82901Y	19	BD00HA3WEFJ/BD00HA3VEFJ-M	36
2SAR587D3	171	2SCR554P	170	BA17810 (BA7810)	29	BA82902Y	17	BD00HA5WEFJ/BD00HA5VEFJ-M	36
2SAR642P	170	2SCR554P5	170	BA17812 (BA7812)	29	BA82903Y	19	BD00HC0WEFJ/BD00HC0VEFJ-M	36
2SARA41C	164	2SCR554R	168	BA17815 (BA7815)	29	BA82904Y	17	BD00HC5VEFJ-LB	35
2SB1197K	164	2SCR562F3	170	BA17818 (BA7818)	29	BA83472Y	17	BD00HC5WEFJ/BD00HC5VEFJ-M	35
2SB1198K	164	2SCR563F3	170	BA17820 (BA7820)	29	BA83474Y	17	BD00IA5VEFJ-LB	38
2SB1427	170	2SCR564F3	170	BA17824 (BA7824)	29	BA8391	19	BD00IA5VEFJ-LB	38

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BD001A5WEFJ	38	BD18353EFV-M	75	BD22641G-M	57	BD33GA5WEFJ/BD33GA5VEFJ-M	34	BD37A41FVM	62
BD001COV	37	BD18353MUF-M	75	BD2264G-M	57	BD33GC0VEFJ-LB	34	BD3812F	86
BD001C0VEFJ-LB	37	BD18362EFV-M	76	BD2265G-M	57	BD33GC0WEFJ/BD33GC0VEFJ-M	34	BD3814FV	86
BD001C0W	37	BD18364EFV-M	76	BD2266G-M	57	BD33HA3VEFJ-LB	37	BD3841FS	87
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BD00KA5W	38	BD18397EUV-M	75	BD2268G-M	57	BD33HA5WEFJ/BD33HA5VEFJ-M	36	BD3852MUZ-Z	82
BD1020HFV	82	BD18398EUV-M	75	BD2269G-M	57	BD33HC0VEFJ-LB	36	BD3870FS	87
BD10IA5VEFJ-LB	38	BD18398RUV-M	75	BD2270HFV-LB	58	BD33HC0WEFJ/BD33HC0VEFJ-M	36	BD3871FS	87
BD10IA5VEFJ-M	38	BD18FD0W	31	BD2310G	56	BD33HC5VEFJ-LB	35	BD3883FS	88
BD10IA5WEFJ	38	BD18GA3V	35	BD2320UEFJ-LA	56	BD33HC5WEFJ/BD33HC5VEFJ-M	35	BD39012EFV-C	50
BD10IC0V	37	BD18GA3W	35	BD25FD0W	31	BD33IA5VEFJ-LB	38	BD39031MUF-C	50
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BD10IC0W	37	BD18GA5WEFJ/BD18GA5VEFJ-M	34	BD25GA3W	35	BD33IC0V	37	BD39042MUF-C	62
BD10KA5	38	BD18GC0VEFJ-LB	34	BD25GA5VEFJ-LB	34	BD33IC0VEFJ-LB	37	BD3925FP-C	42
BD10KA5W	38	BD18GC0WEFJ/LB	34	BD25GC0WEFJ/BD18GC0VEFJ-M	34	BD33ICOW	37	BD3925HFP-C	42
BD11600NUX	23	BD18GC0WEFJ/BD18GC0VEFJ-M	34	BD25GC0WEFJ/LB	34	BD33K5A	38	BD41003FJ-C	27
BD11601NUX	23	BD18HA3VEFJ-LB	37	BD25GC5VEFJ-LB	34	BD33K5A5	38	BD41030FJ-C	27
BD11603MWX	23	BD18HA3WEFJ/BD18HA3VEFJ-M	36	BD25GC0WEFJ/BD25GC0VEFJ-M	34	BD33K5A5W	38	BD41030HFN-C	27
BD11670GWL	23	BD18HA5WEFJ/BD18HA5VEFJ-M	36	BD25HA3VEFJ-LB	37	BD3403FV	88	BD41033FJ-C	27
BD12730	14	BD18HC0VEFJ-LB	36	BD25HA3WEFJ/BD25HA3VEFJ-M	36	BD34301EKV	89	BD41041FJ-C	27
BD12732	14	BD18HC0WEFJ/BD18HC0VEFJ-M	36	BD25HA5WEFJ/BD25HA5VEFJ-M	36	BD34352EKV	89	BD41044FJ-C	27
BD12734	14	BD18HC5VEFJ-LB	35	BD25HC0VEFJ-LB	36	BD34602FS-M	88	BD4142HFV	61
BD12801MUF-M	76	BD18HC5WEFJ/BD18HC5VEFJ-M	35	BD25HC0WEFJ/BD25HC0VEFJ-M	36	BD3460FS	88	BD4234NUX	50
BD12IA5VEFJ-LB	38	BD18IA5VEFJ-LB	38	BD25HC5VEFJ-LB	35	BD3461FS	88	BD42500G-C	42
BD12IA5VEFJ-M	38	BD18IA5WEFJ	38	BD25HC5WEFJ/BD25HC5VEFJ-M	35	BD3464FV	88	BD42530FP2-C	42
BD12IA5WEFJ	38	BD18IC0V	37	BD25IA5VEFJ-LB	38	BD3465FV	88	BD42530FPJ-C	42
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