RS2A, RS2B, RS2D, RS2G, RS2J, RS2K

Vishay General Semiconductor

AUTOMOTIVE

RoHS

COMPLIANT

HALOGEN FREE

Surface-Mount Fast Switching Rectifier



SMB (DO-214AA)

Cathode O Anode

ADDITIONAL RESOURCES



PRIMARY CHARACTERISTICS							
I _{F(AV)}	1.5 A						
V _{RRM}	50 V, 100 V, 200 V, 400 V, 600 V, 800 V						
I _{FSM}	50 A						
t _{rr}	150 ns, 250 ns, 500 ns						
V _F	1.3 V						
T _J max.	150 °C						
Package	SMB (DO-214AA)						
Circuit configuration	Single						

FEATURES

- Low profile package
- · Ideal for automated placement
- · Glass passivated pellet chip junction
- Fast switching for high efficiency
- · High forward surge capability
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260 °C
- AEC-Q101 qualified available
 - Automotive ordering code: base P/NHE3 or PN/HM3
- Material categorization: for definitions of compliance please see <u>www.vishay.com/doc?99912</u>

TYPICAL APPLICATIONS

For use in fast switching rectification of power supply, inverters, converters, and freewheeling diodes for consumer, automotive, and telecommunication.

MECHANICAL DATA

Case: SMB (DO-214AA)

Molding compound meets UL 94 V-0 flammability rating Base P/N-E3 - RoHS-compliant, commercial grade

Base P/N-M3 - halogen-free, RoHS-compliant, commercial grade

Base P/NHE3_X - RoHS-compliant and AEC-Q101 qualified ("_X" denotes revision code e.g. A, B,)

Terminals: matte tin plated leads, solderable per J-STD-002 and JESD 22-B102

E3, M3, and HE3 suffix meets JESD 201 class 2 whisker test

Polarity: color band denotes cathode end

MAXIMUM RATINGS (T _A = 25 °C unless otherwise noted)								
PARAMETER	SYMBOL	RS2A	RS2B	RS2D	RS2G	RS2J	RS2K	UNIT
Device marking code		RA	RB	RD	RG	RJ	RK	
Maximum repetitive peak reverse voltage	V_{RRM}	50	100	200	400	600	800	V
Maximum RMS voltage	V _{RMS}	35	70	140	280	420	500	V
Maximum DC blocking voltage	V_{DC}	50	100	200	400	600	800	V
Maximum average forward rectified current at T_L = 100 $^{\circ}$ C	I _{F(AV)}	1.5						Α
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I _{FSM}	50						А
Operating junction and storage temperature range	T _J , T _{STG}	-55 to +150						°C

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ELECTRICAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)										
PARAMETER	TEST CONDITIONS		SYMBOL	RS2A	RS2B	RS2D	RS2G	RS2J	RS2K	UNIT
Maximum instantaneous forward voltage	1.5 A		V _F	1.3						V
Maximum DC reverse current at		T _A = 25 °C	I_	5.0						μА
rated DC blocking voltage		T _A = 125 °C	IR	200						
Maximum reverse recovery time	$I_F = 0.5 \text{ A}, I_R = 1.0 \text{ A},$ $I_{rr} = 0.25 \text{ A}$		t _{rr}	150			250 500		ns	
Typical junction capacitance	4.0 V, 1 MHz		CJ	20			1	7	pF	

THERMAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)								
PARAMETER	SYMBOL RS2A RS2B RS2D RS2G RS2J RS2F				RS2K	UNIT		
Typical thermal resistance	R _{0JA} (1)	55						°C/W
Typical triefmal resistance	R _{0JL} (1)	18						C/VV

Note

⁽¹⁾ Thermal resistance from junction to ambient and from junction to lead mounted on PCB with 0.27" x 0.27" (7.0 mm x 7.0 mm) copper pad

ORDERING INFORMATION (Example)								
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE				
RS2J-E3/52T	0.096	52T	750	7" diameter plastic tape and reel				
RS2J-E3/5BT	0.096	5BT	3200	13" diameter plastic tape and reel				
RS2JHE3_A/H (1)	0.096	Н	750	7" diameter plastic tape and reel				
RS2JHE3_A/I (1)	0.096	I	3200	13" diameter plastic tape and reel				
RS2J-M3/52T	0.096	52T	750	7" diameter plastic tape and reel				
RS2J-M3/5BT	0.096	5BT	3200	13" diameter plastic tape and reel				

Note

RATINGS AND CHARACTERISTICS CURVES (T_A = 25 °C unless otherwise noted)

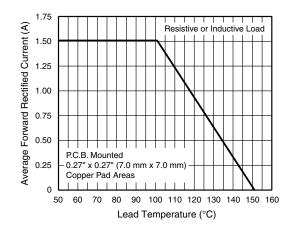


Fig. 1 - Forward Current Derating Curve

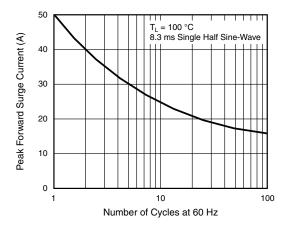


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

⁽¹⁾ AEC-Q101 qualified

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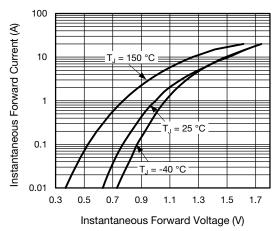


Fig. 3 - Typical Instantaneous Forward Characteristics

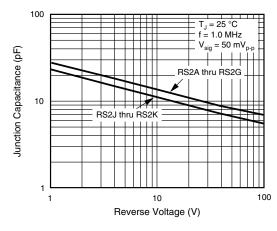
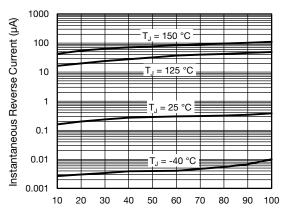


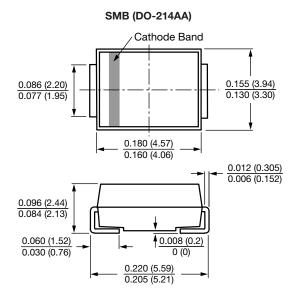
Fig. 5 - Typical Junction Capacitance

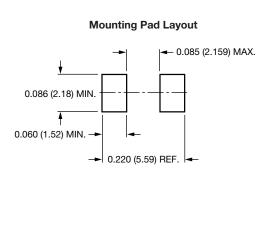


Percent of Rated Peak Reverse Voltage (%)

Fig. 4 - Typical Reverse Characteristics

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)







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