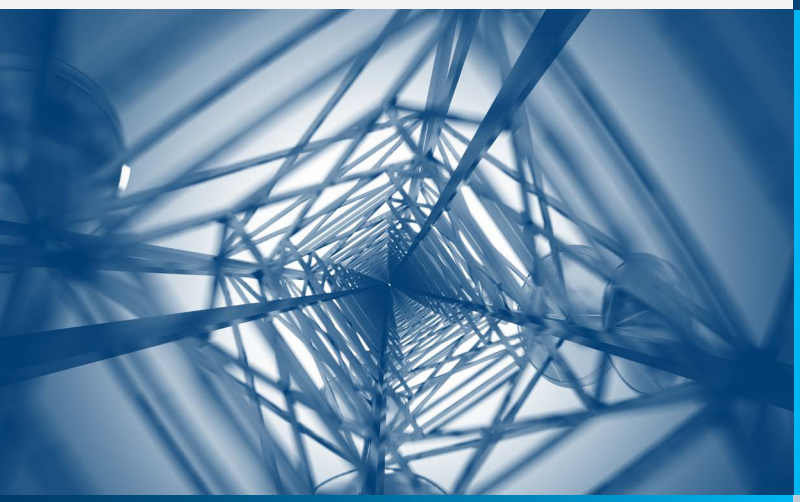
AMPLEON



Product Catalog

RF Power Solutions for **Mobile Broadband**

January 2022

The Leading Global Partner in **RF** Power

Created in 2015, Ampleon is shaped by 50 years of RF Power leadership and is set to exploit the full potential of data and energy transfer in RF. We share the passion for RF technology which is what we radiate to our customers, suppliers and partners.

Since 2019, 5G NR (New Radio) is rolling out and it translates into new, extremely challenging requirements for our RF power components. Ampleon is addressing these requirements with technology-agnostic solutions, utilizing market-leading LDMOS, GaN as well as other semiconductor technologies.

The continuous increase in cost and environmental awareness is forcing the base station efficiency requirements to reach new levels. At the same time, we see a trend towards higher power and higher bandwidth product solutions. These developments spur Ampleon's highly talented engineers to develop new architectures and design approaches which enable more compact and less visible base stations.

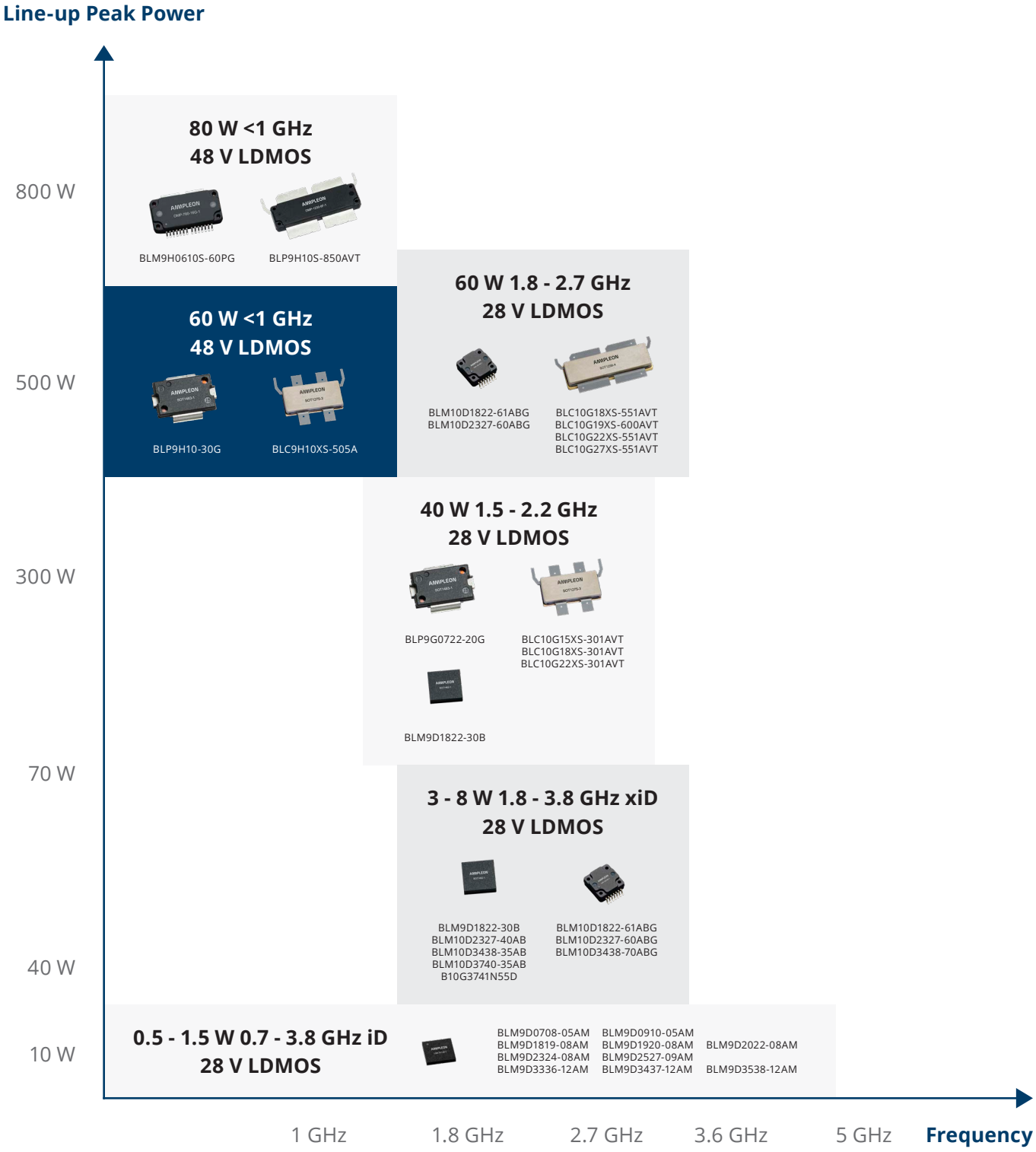
As the demand for mobile broadband services grows rapidly, operators are faced with the need to get much more capacity from their dedicated frequency spectrum. This challenge can be addressed with Multiple Input Multiple Output (MIMO) technology.

Conventional MIMO typically uses two transmit and two receive antenna elements to double the capacity. Massive MIMO (mMIMO), however, goes further and is using up to 64 simultaneous transmit and receive streams to create a much higher network capacity. Ampleon is offering integrated RF power solutions for 5G mMIMO base stations as well as for small cell and macro base stations.

Download the **Latest** Version

www.ampleon.com/mpc

Recommended PA Solutions



Macro Products

The RF Power transistor selection guide is available on: www.ampleon.com/products/mobile-broadband
Its easy-to-use-parametric filters help you choose the right RF power transistor for your design.

When selecting Ampleon's Macro Solutions you choose:

- A full line-up of solutions for which Driver and Finals work seamlessly together, covering 4G and 5G requirements as well as mobile legacies
- A combination of best-in-class, reliable and secure LDMOS technology, together with low-cost and outstanding thermal packaging and advanced design methodologies, all of which are produced and tested with highly automated volume-scale capabilities, delivering:
  - Very consistent and reliable performance
  - High line-up gain with low gain variation
  - High linearized efficiency
  - Record power and efficiency from a single packaged transistor across different frequency bands
  - Compact and cost-effective line-up solutions, thanks to integrated drivers and Doherty optimized finals

Macro Finals

Frequency (MHz)	Type Number	Package Name	Package Version	P_{PEAK}* (W)	V_{DS} (V)	η_D (%)	G_p (dB)	Recommended Driver	Status
600-960	BLP9H10S-500AWT	OMP-780-6F	OMP-780-6F-1	620	48	52.5	17.6	BLP9H10-30G	Production
600-960	BLP9H10S-350A	OMP-780-4F	OMP-780-4F-1	450	48	53	18.6	BLP9H10-30G	Production
616-960	BLC9H10XS-606A	ACP3-1230-4	SOT1250-4	630	48	55	18	BLM9H0610S-60PG	Production
617-960	BLC9H10XS-350A	ACP3-780-4	SOT1273-1	350	50	56	18.1	BLP9H10-30G	Production
617-960	BLC9H10XS-505A	ACP3-780-4	SOT1273-1	500	48	52	18.2	BLP9H10-30G	Production
617-960	BLP9H10S-850AVT	OMP-1230-6F	OMP-1230-6F-1	850	tbd	tbd	tbd	BLM9H0610S-60PG	Coming soon
1427-1518	BLC10G16XS-600AVT	ACP3-1230-6	SOT1258-4	720	32	49	17.5	BLP9G0722-20	Production
1452-1492	BLC10G15XS-301AVT	ACP3-780-6	SOT1275-1	305	30	50	18	BLP9G0722-20G	Production
1800-2000	C4H18W500A	ACP3-780-4	SOT1273-1	500	48	60	15	C4H2327N55P	Production
1805-1880	BLC10G18XS-301AVT	ACP3-780-6	SOT1275-1	300	30	50	15.6	BLM10D1822-61ABG	Production
1805-1880	BLC10G18XS-360AVT	ACP3-1230-6	SOT1258-4	360	28	51	15.4	BLM10D1822-61ABG	Production
1805-1880	BLC10G18XS-400AVT	ACP3-1230-6	SOT1258-4	400	28	50	15.7	BLM10D1822-61ABG	Production
1805-1880	BLC10G18XS-551AVT	ACP3-1230-6	SOT1258-4	550	32	51	16.1	BLM10D1822-61ABG	Production
1805-1880	BLC10G18XS-551AV	ACP3-1230-6	SOT1258-5	620	32	51	16.1	BLM10D1822-61ABG	Production
1805-1880	BLC10G18XS-602AVT	ACP3-1230-6	SOT1258-4	720	30	49	16	BLM10D1822-61ABG	Production

* = P_{3dB} for Final Stage; P_{1dB} for Driver Stage

Macro Finals (continued)

Frequency (MHz)	Type Number	Package Name	Package Version	P_{PEAK}* (W)	V_{DS} (V)	η_D (%)	G_p (dB)	Recommended Driver	Status
1930-1995	BLC10G19XS-600AVT	ACP3-1230-6	SOT1258-4	630	30	50	15	BLM10D1822-61ABG	Production
1930-1995	BLC10G19XS-601AVT	ACP3-1230-6	SOT1258-4	750	30	49	15	BLM9D1822S-60PBG	Production
1930-2000	BLC10G19XS-551AV	ACP3-1230-6	SOT1258-5	370	28	51.5	15.5	BLM9D1822-30B	Production
1990-2020	BLC10G19XS-401AV	ACP3-780-6	SOT1275-1	570	tbd	tbd	tbd	BLM10D1822-61ABG	Coming soon
2110-2170	BLC10G22XS-301AVT	ACP3-780-6	SOT1275-1	350	30	49	15	BLM9D1822-30B	Production
2110-2170	BLC10G22XS-551AVT	ACP3-1230-6	SOT1258-4	550	32	51	16	BLM10D1822-61ABG	Production
2110-2170	BLC10G22XS-600AVT	ACP3-1230-6	SOT1258-4	687	32	49	15	BLM10D1822-61ABG	Production
2110-2170	C4H22W500A	ACP3-780-4	SOT1273-1	500	48	57	15	C4H2327N55P	Production
2110-2170	BLC10G22XS-603AVT	ACP3-1230-6	SOT1258-4	680	30	48	15.4	BLM9D1822S-60PBG	Production
2110-2180	BLC10G22XS-570AVT	ACP3-1230-6	SOT1258-4	630	30	48	15.7	BLM9D1822S-60PBG	Production
2110-2200	BLC10G22XS-400AVT	ACP3-1230-6	SOT1258-4	400	28	47	16.3	BLM10D1822-61ABG	Production
2300-2690	C4H27W400AV	ACP3-780-6	SOT1275-1	400	50	53.7	15.4	C4H2350N05 C4H2327N55P	Production
2496-2690	BLC9G27XS-380AVT	ACP3-1230-6	SOT1258-4	330	30	43	15.2	BLM10D2327-40AB	Production
2496-2690	BLC10G27XS-400AVT	ACP3-1230-6	SOT1258-4	420	28	46	14.7	BLM9D2327S-50PBG	Production
2496-2690	BLC10G27XS-551AVT	ACP3-1230-6	SOT1258-4	550	32	46	13	BLM9D2327S-50PBG	Production

Macro Drivers

Frequency (MHz)	Type Number	Package Name	Package Version	P_{PEAK}* (W)	V_{DS} (V)	η_D (%)	G_p (dB)	Status
100-2700	BLP9G0722-20	TO-270-2	SOT1482-1	20	28	22	19	Production
100-2700	BLP9G0722-20G	TO-270-2G	SOT1483-1	20	28	22	19	Production
600-1000	BLM9H0610S-60PG	OMP-780-16G	OMP-780-16G-1	60	48	11	35.5	Production
617-960	BLP9H10-30G	TO-270-2G	SOT1483-1	30	50	14	18.3	Production
1800-2200	BLM9D1822-30B	PQFN 8x8	SOT1462-1	39	28	26	30	Production
1800-2200	BLM10D1822-61ABG	OMP-400-8G	OMP-400-8G-1	60	28	29	28.5	Production
2300-2700	BLM9D2327-26B	PQFN 8x8	SOT1462-1	31.6	28	27	29.3	Production
2300-2700	BLM9D2327S-50PBG	OMP-780-16G	OMP-780-16G-1	58	28	25.7	29	Production
3400-3800	BLM10D3438-35AB	PQFN 8x8	SOT1462-1	35	28	23	33.4	Production
3400-3800	BLM10D3438-70ABG	OMP-400-8G	OMP-400-8G-1	66	28	20	31.5	Production

* = P_{3dB} for Final Stage; P_{1dB} for Driver Stage

Massive MIMO Products

The RF Power transistor selection guide is available on: www.ampleon.com/products/mobile-broadband
Its easy-to-use-parametric filters help you choose the right RF power transistor for your design.

When selecting Ampleon's massive MIMO (mMIMO) solutions you choose:

- Ampleon's Massive MIMO portfolio based on LDMOS and GaN integrated Doherty solutions, offers high consistent performance in a compact size. Enabling cost efficiency and ease of use in 4G and 5G mMIMO PA's:
  - Excellent DPD linearization with Ampleon's LDMOS and GaN technology
  - Compact footprint to meet space requirements in mMIMO antennas
  - High line-up gain
  - Very consistent performance
  - Proven track record in high volume supply

mMIMO Line-up

Frequency (MHz)	Type Number	Package Name	Package Version	P_{3dB}* (W)	V_{DS} (V)	η_D (%)	G_p (dB)	Technology	Status
1800-2200	BLM10D1822-61ABG	OMP-400-8G	OMP-400-8G-1	67	28	43	28	LDMOS	Production
2300-2700	BLM9D2327-26B	PQFN 8x8	SOT1462-1	32	28	42	29	LDMOS	Production
2300-2690	C4H2327N110A	DFN	DFN-7x6.5-6-1	110	50	57	15	GaN	Production
2300-2700	BLM10D2327-60ABG	OMP-400-8G	OMP-400-8G-1	69	28	43	28	LDMOS	Production
2300-5000	C4H2350N10	DFN	DFN-4.5x4-6-1	10	50	15.5	19	GaN	Production
2500-2700	BLM10D2327-40AB	PQFN 8x8	SOT1462-1	43	28	45	29	LDMOS	Production
3400-3800	BLM10D3438-35AB	PQFN 8x8	SOT1462-1	35	28	41	33	LDMOS	Production
3400-3800	BLM10D3438-70ABG	OMP-400-8G	OMP-400-8G-1	72	28	38	32	LDMOS	Production
3400-3800	B10G3438N55D	PQFN 8x8	SOT1462-1	55	28	37	34	LDMOS	Production
3700-4000	BLM10D3740-35AB	PQFN 8x8	SOT1462-1	32	28	32	32	LDMOS	Production
3700-4100	B10G3741N55D	PQFN 8x8	SOT1462-1	50	28	35	33	LDMOS	Production

mMIMO Finals

Frequency (MHz)	Type Number	Package Name	Package Version	P_{PEAK}* (W)	V_{DS} (V)	η_D (%)	G_p (dB)	Technology	Status
2300-2690	C4H2327N55P	DFN	DFN-7x6.5-6-1	50	50	55	16.7	GaN	Production
2300-2690	C4H2327N110A	DFN	DFN-7x6.5-6-1	110	50	57	15	GaN	Production

mMIMO Drivers

Frequency (MHz)	Type Number	Package Name	Package Version	P_{PEAK}* (W)	V_{DS} (V)	η_D (%)	G_p (dB)	Technology	Status
1800-2200	B11G1822N60D	PQFN-12x7	PQFN-12x7-36-1	70	28	29	30	LDMOS	Production

* = P_{3dB} for Final Stage; P_{1dB} for Driver Stage

mMIMO Drivers (continued)

Frequency (MHz)	Type Number	Package Name	Package Version	P_{PEAK}* (W)	V_{DS} (V)	η_D (%)	G_p (dB)	Technology	Status
1805-1880	BLM9D1819-08AM	LGA 7x7	LGA-7x7-20-1	8	28	43.5	27.5	LDMOS	Production
1880-2025	BLM9D1920-08AM	LGA 7x7	LGA-7x7-20-1	8.9	28	42	26.8	LDMOS	Production
2110-2170	BLM9D2022-08AM	LGA 7x7	LGA-7x7-20-1	8	28	40.7	26.6	LDMOS	Production
2300-2400	BLM9D2324-08AM	LGA 7x7	LGA-7x7-20-1	8	28	42.5	27	LDMOS	Production
2300-5000	C4H2350N05	DFN	DFN-4.5x4-6-1	5	48	13	18.5	GaN	Production
2300-5000	C4H2350N10	DFN	DFN-4.5x4-6-1	10	50	15.5	19	GaN	Production
2300-2700	B11G2327N70D	PQFN-12x7	PQFN-12x7-36-1	85	28	22	30	LDMOS	Production
2496-2700	BLM9D2527-09AM	LGA 7x7	LGA-7x7-20-1	9	28	46.6	26.5	LDMOS	Production
3300-3650	BLM9D3336-12AM	LGA 7x7	LGA-7x7-20-2	12	28	30	31.8	LDMOS	Production
3300-3650	BLM9D3336-14AM	LGA 7x7	LGA-7x7-20-2	14	28	33.7	32.4	LDMOS	Production
3400-3800	B11G3338N80D	PQFN-12x7	PQFN-12x7-36-1	80	28	25	34	LDMOS	Production
3400-3800	BLM9D3438-16AM	LGA 7x7	LGA-7x7-20-2	16	28	24.3@ 0.8 W	32.5	LDMOS	Production
3500-3800	BLM9D3538-12AM	LGA 7x7	LGA-7x7-20-2	12	28	30.8	32	LDMOS	Production
3700-4000	BLM9D3740-16AM	LGA 7x7	LGA-7x7-20-2	16	28	31.3@ 1.6 W	31.2	LDMOS	Production

* = P_{3dB} for Final Stage; P_{1dB} for Driver Stage

Small Cell Products

The RF Power transistor selection guide is available on: www.ampleon.com/products/mobile-broadband
Its easy-to-use-parametric filters help you choose the right RF power transistor for your design.

When selecting Ampleon's Small Cell solutions you choose:

- LDMOS technology breakthrough within the GaAs dominated small cell market, offering:
  - Up to 300 MHz instantaneous bandwidth
  - Higher output power for coverage increase
  - Higher linearizable efficiency
  - Excellent DPD linearization
  - Very compact product family in standardized package footprint for ease of deployment

Small Cell

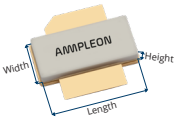
Frequency (MHz)	Type Number	Package Name	Package Version	P_{PEAK}* (W)	V_{DS} (V)	η_D (%)	G_p (dB)	Status
728-821	BLM9D0708-05AM	LGA 7x7	LGA-7x7-20-2	5	28	39.5	17.8	Production
859-960	BLM9D0910-05AM	LGA 7x7	LGA-7x7-20-2	5	28	38.4	18	Production
1805-1880	BLM9D1819-08AM	LGA 7x7	LGA-7x7-20-1	8	28	43.5	27.5	Production
1880-2025	BLM9D1920-08AM	LGA 7x7	LGA-7x7-20-1	8.9	28	42	26.8	Production
2110-2170	BLM9D2022-08AM	LGA 7x7	LGA-7x7-20-1	8	28	40.7	26.6	Production
2300-2400	BLM9D2324-08AM	LGA 7x7	LGA-7x7-20-1	8	28	42.5	27	Production
2496-2700	BLM9D2527-09AM	LGA 7x7	LGA-7x7-20-1	9	28	46.6	26.5	Production
3300-3650	BLM9D3336-12AM	LGA 7x7	LGA-7x7-20-2	12	28	30	31.8	Production
3300-3650	BLM9D3336-14AM	LGA 7x7	LGA-7x7-20-2	14	28	33.7	32.4	Production
3400-3800	BLM9D3538-12AM	LGA 7x7	LGA-7x7-20-2	12	28	30.8	32	Production
3400-3800	BLM9D3438-16AM	LGA 7x7	LGA-7x7-20-2	16	28	24.3@ 0.8 W	32.5	Production
3700-4000	BLM9D3740-16AM	LGA 7x7	LGA-7x7-20-2	16	28	31.3@ 1.6 W	31.2	Production

* = P_{3dB} for Final Stage; P_{1dB} for Driver Stage

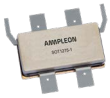
Package Portfolio

Ampleon`s package overview is available on www.ampleon.com/packages

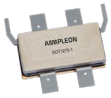
Air-Cavity Plastic (ACP) Packages*



Package name
Package version
(L x W x H (mm))



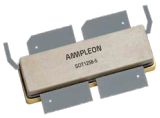
ACP2-780-6
SOT1275-1
(20.6 x 9.8 x max 4.0 (mm))



ACP3-780-6
SOT1275-1
(20.6 x 9.8 x max 4.0 (mm))

ACP3-1230-4
SOT1250-4
(32.2 x 10.1 x max 4.52 (mm))

ACP3-1230-6
SOT1258-4
(32.2 x 10.1 x max 4.5 (mm))



ACP3-1230-6
SOT1258-5
(32.2 x 10.1 x max 4.5 (mm))

ACP3-780-4
SOT1273-1
(20.6 x 9.8 x max 3.7 (mm))

Overmolded Plastic (OMP) Packages*

LGA 7x7
LGA-7x7-20-1
(7.0 x 7.0 x max 1.0 (mm))

LGA 7x7
LGA-7x7-20-2
(7.0 x 7.0 x max. 1.0 (mm))

OMP-400-8G
OMP-400-8G-1
(10.3 x 10.3 x max 4.0 (mm))

OMP-780-4F
OMP-780-4F-1
(20.57 x 9.96 x max 4.0 (mm))

OMP-780-6F
OMP-780-6F-1
(20.57 x 9.78 x max 4.0 (mm))

OMP-780-16G
OMP-780-16G-1
(20.75 x 9.96 x max 4.0 (mm))

OMP-1230-6F
OMP-1230-6F-1
(32.25 x 9.78 x max 4.0 (mm))

PQFN 8x8
SOT1462-1
(8.0 x 8.0 x max 2.2 (mm))

PQFN 12x7
PQFN-12x7-36-1
(12.0 x 7.0 x max 2.2 (mm))

TO-270-2
SOT1482-1
(10.67 x 6.1 x max 2.0 (mm))

TO-270-2G
SOT1483-1
(10.67 x 6.1 x max 2.0 (mm))

* Not drawn to scale

Committed to Your **Success**

At Ampleon, we are passionate about your success. Rest assured that we deliver world class innovation for a broad range of applications. In line with your challenges increasing, we continuously improve and enhance our LDMOS technology and strengthen our footprint in GaN.

During the entire process from design to delivery, you will enjoy outstanding technical support from well trained staff and knowledgeable Field Application Engineers (FAEs) as part of our distribution network. Whether you require load-pull data, application boards, samples, ADS / AWR models or other, you will be accompanied in every step on the way to success.

Our application engineering resources are spread around the globe, with our offices (Nijmegen / The Netherlands, Toulouse / France, Smithfield / USA, Shanghai / China) providing local customer support.

Support

Datasheets, test reports and simulation models are available online on: www.ampleon.com/support/documentation

To make sure your request is processed quickly and directed to the right contact partner at Ampleon, please contact us via: www.ampleon.com/contact

Order Samples

To support customers in designing new products, Ampleon supplies samples and demonstration boards.
Samples can be requested via our online e-samples store: www.ampleon.com/samples (please register at first log-in).

For inquiries, please contact your local sales representative listed on: www.ampleon.com/contact

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- www.ampleon.com/products
- www.ampleon.com/applications

Naming **Conventions**

Device Naming Convention

B L C 10 G F LS P_{1dB} A G V T *Italic = Optional*

- T: M: 50 ohm matched output; T: Internal video decoupling
- V: Leads for external decoupling; W: Supply through decoupling leads
- Gullwing shaped leads
- A: Asymmetric Doherty (PAD); asymmetric integrated Doherty; P: Symmetric Doherty - push-pull configuration
- P_{1dB} power level @ the supply voltage of Datasheet; PAD and GaN = P_{3dB}
- - - PQFN / LGA / TO270; LS ACC / ACP2; S OMP780 / OMP400; XS ACP3; C OMC
- Operation frequency, for single band = highest frequency (22 = 2200 MHz), for multi-band (1822 = 1800 to 2200 MHz)
- G: 28-32 V supply voltage; D: Integrated Doherty (28 V); AD: Advanced integrated Doherty (28 V); H: 50 V supply voltage
- Technology generation
- F: Ceramic package; C: Air-cavity plasic (ACP) package; M: MMIC; P: Overmolded plastic (OMP) package
- M: Multi-chip device; L: High-frequency power transistor

B: Semiconductor die made of Si
C: Semiconductor die made of GaN

Package Naming Convention

OMP - 1230 - 08 F - 1

- Outline versoin number
- None: No Leads (DFN / PQFN / MCM / PAM); F: Straight Lead (standard); G: Gull-Wing Lead (standard); S: Straight Wide Lead; W: Gull-Wing Wide Lead
- Total I/O count, excluding GND / heatsink / exposed die pad, including voltages
- 1230: SOT539; 780: SOT502; 650: SOT1228; 400: 10 x 10 mm; L x B in mm for DFN / PQFN / MCM / PAM / FEM

ACP: Air-Cavity Plastic Package
MCM: Multi-Chip Modle
OMC: Overmold Air-Cavity Package
OMP: Overmold Plastic Package
PAM: Power Amplifier Module
FEM: Front-End Module Tx / Rx
PQFN: Power Quad Flat No-Lead Package
LGA: Land-Grid Array Package

www.ampleon.com

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