



Aerospace & Defense

RF Power Solutions for

Radar / Commercial Avionics
Electronic Counter Measures
Military Communications



The Leading Global Partner in **RF** Power

Created in 2015, Ampleon is shaped by 50 years of RF power leadership. Recently being spun-off from NXP Semiconductors, the company is set to exploit the full potential of data and energy transfer in RF. Ampleon has more than 1,250 employees worldwide, dedicated to creating optimal value for customers. Its innovative, yet consistent portfolio offers products and solutions for a wide range of applications, such as cellular base stations, radio/TV/broadcasting, radar, air traffic control, cooking, lighting, industrial lasers and medical.



Our Company

- European Company / Headquarters in Nijmegen/Netherlands
- 1,250 employees globally in 18 sites
- Worldwide Sales, Application and R&D
- Own manufacturing facility
- Partnering with leading external manufacturers

Our Businesses

- Building transistors and RF Power products for over 50 years
- Industry leader for 35 years, addressing:
 - Mobile Broadband
 - Broadcast
 - Aerospace & Defense
 - ISM
 - RF Energy

Technologies & Products

- Broad LDMOS and GaN technology portfolio
- Comprehensive package line-up
- Outstanding product consistency

Making the World a More Predictable Place

Size, weight and power have long been the key requirements for aircraft systems. Systems need to be small, lightweight and yet still powerful enough for long range operation. But today's systems must also be cost effective and reliable (CR).

Being a market leading European vendor and strategic partner for customers in the Aerospace & Defense market for many years, we are committed to long-term support with a dedicated longevity program. This guarantees our parts will continue to be available (minimum 10 years) throughout the operational lifetime of your equipment.

For the A&D market we offer a broad portfolio of products based on LDMOS and GaN technologies that deliver high power, high efficiency and rugged solutions for radar, ECM and MILCOM applications. In addition to GaN solutions that deliver the highest performance, we also offer dedicated Gen9 LDMOS solutions that provide close to GaN performance at a much lower cost and with higher reliability and ruggedness. By being technology agnostic, we can help customers find the best possible solution for their application needs.

For applications such as Active Electronically Scanned Arrays (AESA), operational flexibility is important, requiring highly efficient power amplifiers with low heat dissipation and simplified cooling requirements. Our discretes and integrated platforms such as pallets, MMIC's and MCMs with high linearity and efficiency are enabling the development of high performance solutions.

All our A&D products (LDMOS and GaN) are also ITAR-free, simplifying logistics and paperwork for designs used outside of the United States. We also provide global application support with offices in the US, Europe and Asia.

Choose your Solution



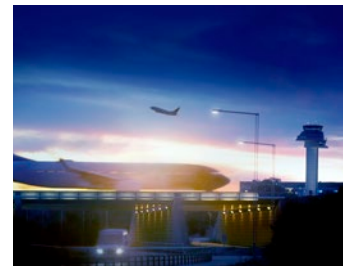
Radar



Electronic Counter Measures



Military Communications



Commercial Avionics

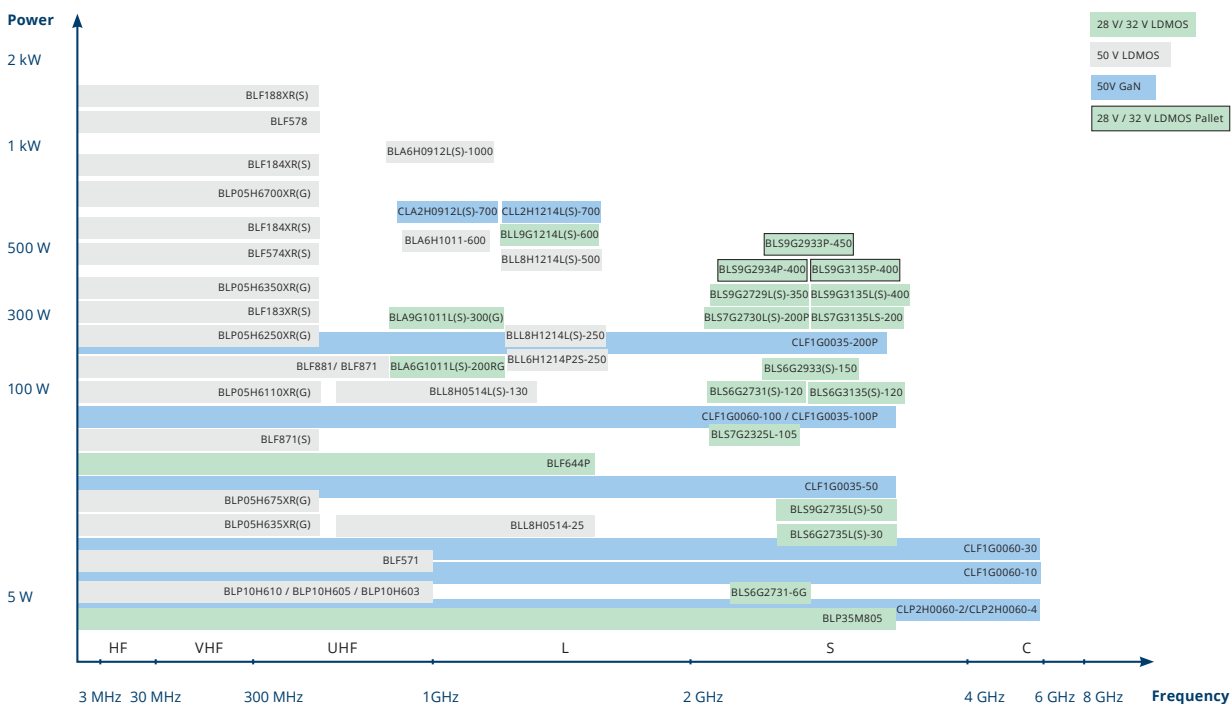


Product Portfolio

Ampleon offers a complete portfolio of products for Aerospace & Defense, addressing various radar bands, commercial avionics, ECM and military communications.

Our portfolio includes extra rugged and high voltage LDMOS solutions for broadband applications below 1 GHz as well as Gen9 LDMOS solutions for Avionics and L/S-band radar with compelling SWaP-CR benefits. Furthermore, GaN on SiC high voltage broadband solutions for applications up to C-band complement to the broad spectrum of choices.

Solutions addressing a wide Spectrum of Power and Frequency Ranges





Radar

Civil and military radar applications include adaptive cruise control, collision avoidance, weather warnings, surveillance, fire control, searching and tracking. These systems cover a wide range of operating frequencies and there is an ongoing transition to solid state solutions and from bipolar to LDMOS and GaN based solutions. Ampleon offers a broad portfolio of dedicated, highly reliable solutions for radar systems that covers all these frequency bands.

LDMOS Products for sub-1 GHz

Product	Type	Package	F _{min} (MHz)	F _{max} (MHz)	P _{L(1dB)} (W)	V _{DS} (V)	η _D (%)	G _p (dB)	Test signal
Driver	BLP10H610	SOT1352-1	10	1400	10	50	60	22	CW
	BLP10H630P	SOT1223-2	10	1000	30	50	68	18	Pulsed RF
	BLP05H635XR	SOT1223-2	10	600	35	50	75	27	Pulsed RF
	BLP10H660P	SOT1223-2	10	1000	60	50	68	18	Pulsed RF
Driver/final	BLP05H675XR	SOT1223-2	10	600	75	50	75	27	Pulsed RF
	BLP10H6120P	SOT1223-2	10	1000	120	50	68	18	Pulsed RF
	BLF182XR(S)	SOT1121A(B)	10	600	250	50	75	28	Pulsed RF
	BLF183XR(S)	SOT1121A(B)	10	600	350	50	75	28	Pulsed RF
	BLF574XR(S)	SOT1214A(B)	10	500	600	50	74.7	24	Pulsed RF
	BLF184XR(G)	SOT1214A(C)	10	600	700	50	73.5	23.9	Pulsed RF
	BLF578	SOT539A	10	500	1200	50	75	26	CW
BLCU188XRS	SOT1250-2	10	600	1400	50	73	24.4	Pulsed RF	

LDMOS Products for Avionics

Product	Type	Package	F _{min} (MHz)	F _{max} (MHz)	P _{L(1dB)} (W)	V _{DS} (V)	η _D (%)	G _p (dB)	Test signal
Driver	BLP10H610	SOT1352-1	10	1400	10	50	60	22	CW
	BLL6H0514-25	SOT467C	500	1400	25	50	50	19	Pulsed RF
	BLP10H630P	SOT1223-2	10	1000	30	50	68	18	Pulsed RF
	BLP10H660P	SOT1223-2	10	1000	60	50	68	18	Pulsed RF

LDMOS Products for Avionics (continued)

Product	Type	Package	F _{min} (MHz)	F _{max} (MHz)	P _{L(1dB)} (W)	V _{DS} (V)	η _D (%)	G _p (dB)	Test signal
Final	BLP10H6120P	SOT1223-2	10	1000	120	50	68	18	Pulsed RF
	BLA6G1011(L)-200R(G)	SOT502A(D)	1030	1090	200	28	65	20	Pulsed RF
	BLA6G1011LS-200RG	SOT502C	1030	1090	200	28	65	20	Pulsed RF
	BLA8G1011L(S)-300	SOT502A(B)	1030	1090	300	32	56	16.5	Pulsed RF
	BLA8G1011L(S)-300G	SOT502F(E)	1030	1090	300	32	56	16.5	Pulsed RF
	BLA6H0912-500	SOT634A	960	1215	500	50	50	17	Pulsed RF
	BLA6H1011-600	SOT539A	1030	1090	600	48	52	17	Pulsed RF
	BLF988(S)	SOT539A(B)	500	1000	600	50	58	19.8	Pulsed, class-AB
	BLU6H0410L(S)-600P	SOT539A(B)	400	900	600	50	58	20	Pulsed RF
BLA6H0912L(S)-1000	SOT539A(B)	960	1215	1000	50	51	15.5	Pulsed RF	

LDMOS Products for L-band

Product	Type	Package	F _{min} (MHz)	F _{max} (MHz)	P _{L(1dB)} (W)	V _{DS} (V)	η _D (%)	G _p (dB)	Test signal
Driver	BLP10H610	SOT1352-1	10	1400	10	50	60	22	CW
	BLL6H0514-25	SOT467C	500	1400	25	50	50	19	Pulsed RF
	BLL8H0514-25	SOT467C	500	1400	25	50	59	21	Pulsed RF
Final	BLL6H0514L(S)-130	SOT1135A(B)	500	1400	130	50	50	17	Pulsed RF
	BLL8H0514L(S)-130	SOT1135A(B)	500	1400	130	50	50	17	Pulsed RF
	BLL6H1214P2S-250	SOM039	1200	1400	250	45	48	27	Pulsed RF
	BLL6G1214L-250	SOT502A	1200	1400	250	36	45	15	Pulsed RF
	BLL6H1214L(S)-250	SOT502A(B)	1200	1400	250	50	55	17	Pulsed RF
	BLL8H1214L(S)-250	SOT502A(B)	1200	1400	250	50	55	17	Pulsed RF
	BLL6H1214-500	SOT539A	1200	1400	500	50	50	17	Pulsed RF
	BLL6H1214LS-500	SOT539B	1200	1400	500	50	50	17	Pulsed RF
	BLL8H1214L(S)-500	SOT539A(B)	1200	1400	500	50	50	17	Pulsed RF
	BLL9G1214L(S)-600	SOT502A(B)	1200	1400	600	32	60	19	Pulsed RF

LDMOS Products for S-band

Product	Type	Package	F _{min} (MHz)	F _{max} (MHz)	P _{L(1dB)} (W)	V _{DS} (V)	η _D (%)	G _p (dB)	Test signal
Driver	BLP35M805	SOT1371-1	10	3500	5	28	17	18	CW pulsed, class-AB
	BLS6G2731-6G	SOT975C	2700	3100	6	32	33	15	Pulsed RF
	BLS6G3135(S)-20	SOT608A(B)	3100	3500	20	32	45	15.5	Pulsed RF
	BLS6G2735L(S)-30	SOT1135A(B)	2700	3500	30	32	50	13	Pulsed RF
	BLS9G2735L(S)-50	SOT1135A(B)	2700	3500	50	32	47	12	Pulsed RF
Driver/final	BLS7G2325L-105	SOT502A	2300	2500	105	30	55	16.5	Pulsed RF
	BLS6G2731(S)-120	SOT502A(B)	2700	3100	120	32	48	13.5	Pulsed RF
	BLS6G3135(S)-120	SOT502A(B)	3100	3500	120	32	43	11	Pulsed RF
	BLS6G2731S-130	SOT922-1	2700	3100	130	32	50	12	Pulsed RF
	BLS6G2933S-130	SOT922-1	2900	3300	130	32	47	12.5	Pulsed RF
	BLS7G2933S-150	SOT922-1	2900	3300	150	32	47	13.5	Pulsed RF
Final	BLS7G2730L(S)-200P	SOT539A(B)	2700	3000	200	32	48	12	Pulsed RF
	BLS7G3135LS-200	SOT502B	3100	3500	200	32	43	12	Pulsed RF
	BLS7G2729L(S)-350P	SOT539A(B)	2700	2900	350	32	50	13	Pulsed RF
	BLS7G3135L(S)-350P	SOT539A(B)	3100	3500	350	32	43	12	Pulsed RF
	BLS8G2731L(S)-400P	SOT539A(B)	2700	3100	400	32	47	13	Pulsed RF
	BLS9G2731L(S)-400	SOT502A(B)	2700	3100	400	32	46	13	Pulsed RF
	BLS9G2731LS-400(G)	SOT502E	2700	3100	400	32	46	13	Pulsed RF
	BLS9G2934L(S)-400	SOT502A(B)	2900	3400	400	32	44	11	Pulsed RF
BLS9G3135L(S)-400	SOT502A(B)	3100	3500	400	32	44	11	Pulsed RF	

GaN Products for C-band

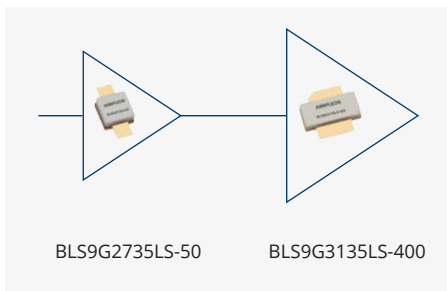
Product	Type	Package	F _{min} (MHz)	F _{max} (MHz)	P _{L(1dB)} (W)	V _{DS} (V)	η _D (%)	G _p (dB)	Test signal
Driver	CLF1G0060(S)-10	SOT1227A(B)	0	6000	10	50	55	17	Pulsed RF @ 5000 MHz
	CLF1G0060(S)-30	SOT1227A(B)	0	6000	30	50	49	14	Pulsed RF @ 4000 MHz

GaN Products for sub-1 GHz, Avionics, L-band , S-band

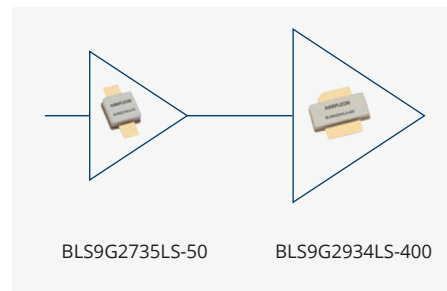
Product	Type	Package	F _{min} (MHz)	F _{max} (MHz)	P _{L(1dB)} (W)	V _{DS} (V)	η _D (%)	G _p (dB)	Test signal
Driver	CLF1G0060(S)-10	SOT1227A(B)	0	6000	> 10	50	> 55	> 12	Pulsed RF @ 3100 to 3500 MHz
	CLF1G0060(S)-30	SOT1227A(B)	0	6000	> 30	50	> 55	> 12	Pulsed RF @ 3100 to 3500 MHz
	CLF1G0035(S)-50	SOT467C(B)	0	3500	> 50	50	> 55	> 13	Pulsed RF @ 3100 to 3500 MHz
Final	CLF1G0035(S)-100P	SOT1228A(B)	0	3500	> 100	50	> 55	> 13	Pulsed RF @ 3100 to 3500 MHz
	CLF1G0035(S)-100	SOT467C(B)	0	3500	> 100	50	> 45	> 10	Pulsed RF @ 3100 to 3500 MHz
	CLF1G0035(S)-200P	SOT1228A(B)	0	3500	> 200	50	> 43	> 11	Pulsed RF @ 2500 to 3000 MHz

LDMOS Gen9 S-band Line-ups

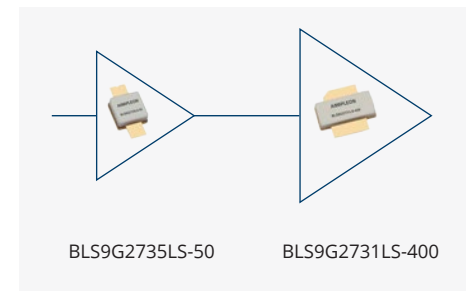
3.1 to 3.5 GHz, 400 W, 23 dB Gain



2.9 to 3.4 GHz, 400 W, 24 dB Gain

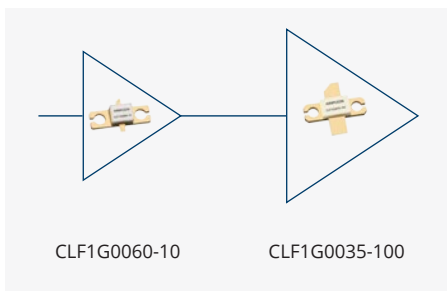


2.7 to 3.1 GHz, 400 W, 26 dB Gain

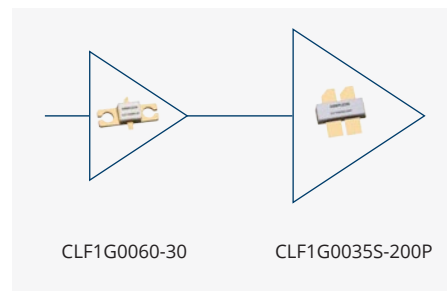


GaN S-band Line-ups

3.1 to 3.5 GHz, 100 W, 25 dB Gain



3.1 to 3.5 GHz, 200 W, 22 dB Gain



Electronic Counter Measures

Electronic counter measures (ECM) are used in all walks of life, from improvised explosive device (IED) jammers to cellular jammers in examination rooms. High power is critical for this market along with a wide frequency range and high efficiency. Our solutions ensure effective coverage across a broad bandwidth with the highest power GaN products on the market.

LDMOS Products for ECM

Product	Type	Package	F _{min} (MHz)	F _{max} (MHz)	P _{L(1dB)} (W)	V _{DS} (V)	η _D (%)	G _p (dB)	Linearity, (2-tone IMD3)	Test signal
Driver	BLP35M805	SOT1371-1	10	3500	5	28	17	18	-	CW pulsed, class-AB
	BLP10H610	SOT1352-1	10	1400	10	50	35 to 57	> 22	-40 dBc, PEP 5 W	CW @ 20 to 512 MHz
	BLF571	SOT467C	10	500	20	50	40 to 53	> 14	-38 dBc, PEP 10 W	CW @ 200 to 800 MHz
	BLF642	SOT467C	1	1400	35	32	71	> 22	-40 dBc, PEP 10 W	CW @ 30 to 512 MHz
	BLF644P	SOT1228A	10	1300	70	32	30 to 38	> 18	-39 dBc, PEP 15 W	CW @ 10 to 600 MHz
	BLF645	SOT540A	1	1400	100	32	50 to 70	>22	-30 dBc, PEP 100 W	CW @ 20 to 512 MHz
Final	BLF881(S)	SOT467C(B)	1	1000	140	50	60 to 75	> 17	-30 dBc, PEP 100 W	CW @ 30 to 512 MHz
	BLF647P(S)	SOT1121A(B)	10	1500	200	32	50 to 64	> 22	-36 dBc, PEP 100 W	CW @ 10 to 600 MHz
	BLF183XR(S)	SOT1121A(B)	10	600	350	50	54 to 61	> 14	-40 dBc, PEP 220 W	CW @ 30 to 512 MHz
	BLF574	SOT539A	10	500	600	50	45 to 60	> 20	-35 dBc, PEP 400 W	CW @ 20 to 550 MHz
	BLF574XR(S)	SOT1214A(B)	10	500	600	50	74.7	24	-	Pulsed RF
	BLF184XR(G)	SOT1214A(C)	10	600	700	50	73.5	23.9	-	Pulsed RF
	BLCU188XRS	SOT1250-2	10	600	1400	50	73	24.4	-	Pulsed RF

GaN Products for ECM

Product	Type	Package	F _{min} (MHz)	F _{max} (MHz)	P _{L(1dB)} (W)	V _{DS} (V)	η _D (%)	G _p (dB)	Linearity, (2-tone IMD3, Δf= 1 MHz)	Test signal
Driver	CLF1G0060(S)-10	SOT1227A(B)	0	6000	> 10	50	30 to 60	> 14	-40 dBc, PEP 5 W	Pulsed RF @ 200 to 3200 MHz
	CLF1G0060(S)-30	SOT1227A(B)	0	6000	> 30	50	45 to 70	> 11	-40 dBc, PEP 15 W	Pulsed RF @ 500 to 3000 MHz
	CLF1G0035(S)-50	SOT467C(B)	0	3500	> 50	50	40 to 65	> 14	-40 dBc, PEP 10 W	CW @ 500 to 2500 MHz
Final	CLF1G0035(S)-100P	SOT1228A(B)	0	3500	> 100	50	50 to 55	> 13	-40 dBc, PEP 20 W	Pulsed RF @ 2500 to 3000 MHz
	CLF1G0035(S)-100	SOT467C(B)	0	3500	> 100	50	47 to 80	> 14	-40 dBc, PEP 20 W	Pulsed RF @ 500 to 2500 MHz
	CLF1G0035(S)-200P	SOT1228A(B)	0	3500	> 200	50	40 to 55	> 12	-40 dBc, PEP 120 W	Pulsed RF @ 1700 to 2300 MHz



Military Communications

RF solutions for Milcom applications require the highest linearity to ensure clear, interference-free communication. Ampleon offers dedicated solutions for Milcom applications that perform up to 10 dBc (IMD3 linearity) better than competitive products. Our portfolio includes both GaN and LDMOS devices.

LDMOS Products for Milcom

Product	Type	Package	F _{min} (MHz)	F _{max} (MHz)	P _{L(1dB)} (W)	V _{DS} (V)	η _o (%)	G _p (dB)	Linearity, (2-tone IMD3)	Test signal
Driver	BLP35M805	SOT1371-1	10	3500	5	28	17	18	-	CW pulsed, class-AB
	BLP10H610	SOT1352-1	10	1400	10	50	35 to 57	> 22	-40 dBc, PEP 5 W	CW @ 20 to 512 MHz
	BLF571	SOT467C	10	500	20	50	40 to 53	> 14	-38 dBc, PEP 10 W	CW @ 200 to 800 MHz
	BLF642	SOT467C	1	1400	35	32	71	> 22	-40 dBc, PEP 10 W	CW @ 30 to 512 MHz
	BLF644P	SOT1228A	10	1300	70	32	30 to 38	> 18	-39 dBc, PEP 15 W	CW @ 10 to 600 MHz
	BLF645	SOT540A	1	1400	100	32	50 to 70	>22	-30 dBc, PEP 100 W	CW @ 20 to 512 MHz
	BLF881(S)	SOT467C(B)	1	1000	140	50	60 to 75	> 17	-30 dBc, PEP 100 W	CW @ 30 to 512 MHz
Final	BLF647P(S)	SOT1121A(B)	10	1500	200	32	50 to 64	> 22	-36 dBc, PEP 100 W	CW @ 10 to 600 MHz
	BLF183XR(S)	SOT1121A(B)	10	600	350	50	54 to 61	> 14	-40 dBc, PEP 220 W	CW @ 30 to 512 MHz
	BLF574	SOT539A	10	500	600	50	45 to 60	> 20	-35 dBc, PEP 400 W	CW @ 20 to 550 MHz
	BLF574XR(S)	SOT1214A(B)	10	500	600	50	74.7	24	-	Pulsed RF
	BLF184XR(G)	SOT1214A(C)	10	600	700	50	73.5	23.9	-	Pulsed RF
	BLCU188XRS	SOT1250-2	10	600	1400	50	73	24.4	-	Pulsed RF

GaN Products for Milcom

Product	Type	Package	F _{min} (MHz)	F _{max} (MHz)	P _{L(1dB)} (W)	V _{DS} (V)	η _o (%)	G _p (dB)	Linearity, (2-tone IMD3, Δf= 1 MHz)	Test signal
Driver	CLF1G0060(S)-10	SOT1227A(B)	0	6000	> 10	50	30 to 60	> 14	-40 dBc, PEP 5 W	Pulsed RF @ 200 to 3200 MHz
	CLF1G0060(S)-30	SOT1227A(B)	0	6000	> 30	50	45 to 70	> 11	-40 dBc, PEP15 W	Pulsed RF @ 500 to 3000 MHz
	CLF1G0035(S)-50	SOT467C(B)	0	3500	> 50	50	40 to 65	> 14	-40 dBc, PEP 10 W	CW @ 500 to 2500 MHz
Final	CLF1G0035(S)-100P	SOT1228A(B)	0	3500	> 100	50	50 to 55	> 13	-40 dBc, PEP 20 W	Pulsed RF @ 2500 to 3000 MHz
	CLF1G0035(S)-100	SOT467C(B)	0	3500	> 100	50	47 to 80	> 14	-40 dBc, PEP 20 W	Pulsed RF @ 500 to 2500 MHz
	CLF1G0035(S)-200P	SOT1228A(B)	0	3500	> 200	50	40 to 55	> 12	-40 dBc, PEP 120 W	Pulsed RF @ 1700 to 2300 MHz

Package Portfolio

Packaging is an important element in RF power transistors, influencing both the cost-efficiency and performance of a given device. Since peak powers can vary widely, from as low as 5 W to more than 1 kW, a range of packages is needed to cover every application. The choice of package format (air-cavity or overmolded plastic) often depends on the design requirements and any trade-offs to be made between performance and cost.

Air Cavity Packages

The heatsink material is CPC (Cu/Mo70Cu/Cu). This material has been selected for its thermal properties, providing a low thermal resistance (R_{TH}) as well as a good CTE (Thermal Expansion Coefficient) match with the active dies and passive components, resulting in high performance.

Air-Cavity Ceramic (ACC) Packages

- Are widely used today for RF power applications
- Have proved their reliability and performance over the years
- Exist in a variety of sizes and power levels

Air-Cavity Plastic (ACP) Packages

- The structure is similar to ACC but the lid and the ring frame are made of polymers instead of ceramic
- Improved ACP3 package replaces the traditional CPC flange with a Cu flange which gives a 30 % improvement in thermal performance as well as simplifying the board level assembly to provide a highly effective cost-efficient RF package solution
- Best option for performance critical applications

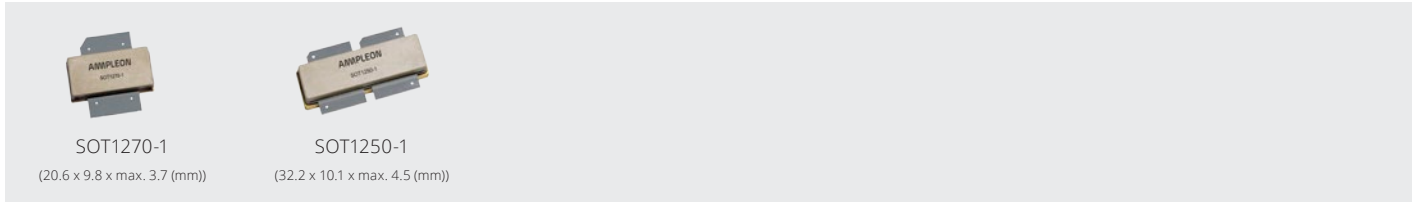
Overmolded Plastic (OMP) Packages

- The structure is similar to that of an integrated circuit, with a copper flange and a molded body, however, discrete wire bonds are used in the matching network
- Includes HVQFN package, PQFN package and the SOT 502 format of packages for dual path MMICs, and discretes outlines.
- Ideal package for low frequency and low power applications

Air-Cavity Ceramic (ACC) Packages*



Air-Cavity Plastic (ACP) Packages*



Overmolded Plastic (OMP) Packages*



* 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 (FAE) as part of our distribution network. Whether you require load-pull data, application boards, samples, ADS /AWR models or other, you will be accompanied every step of the way to success.

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

Support

Datasheets, test reports and simulation models are available online for all types on www.ampleon.com

To support customers in designing new products, Ampleon supplies samples and demonstration boards. For inquiries please contact: samples.demos@ampleon.com

Product Longevity

Ampleon offers a dedicated longevity program covering many of our products, ensuring a reliable supply to our customers. Life cycles for participating Ampleon products start from the launch of the product series and will be available for a minimum period of 10 years. The program is subject to Ampleon's standard end-of-life notification policy.

Ampleon manufactures through own factories, qualified external foundries and other manufacturing resources. In the event that transfer of a longevity product to another facility becomes necessary, Ampleon will re-qualify the participating product.

Ampleon offers the longevity program under its general terms and conditions of commercial sale and reserves the right to provide a longevity product substitution or a successor version within a product series which do not adversely affect the form, fit or function of the participating product.

Check the Product Longevity list on: www.ampleon.com/support/Product-Longevity

Additional Information

For more information, please visit: www.ampleon.com/aerospace-defense

