

## Achieve Peak Performance



General Purpose Surface Mount and Drivers

CW and Pulsed Power

L-Band Avionics and Radar

S-Band Radar

C-Band Radar and Communications

# General Purpose Surface Mount and Drivers

Microsemi specializes in supporting customers in the avionics, communications, and radar markets with full lineups of GaN on SiC RF power transistor products designed to meet the demanding requirements of transmitter amplifier systems operating in airborne, ground-based, missile, ship-borne, and space environments.

## GaN RF Power Transistors Features and Benefits

- Achieve highest output power with best efficiency
- Best power density and high gain enables smallest footprint amplifier designs
- Can withstand up to 225 °C junction temperature operation with MTTF >1 million hours
- High breakdown voltage provides  $V_{DD}$  to breakdown headroom ruggedness

## Surface Mount Driver Discrete Transistors to 3.5GHz

Part Number	Frequency Band	P <sub>OUT</sub> Min.	V <sub>dd</sub>	Pulse Width/CW	Duty Cycle	Gain Typ.	Drain Eff.	Θ <sub>JC</sub> Max. °C/W	Package Style	ECCN
DC35GN-15-Q4	300 MHz–500 MHz	15 W	50 V	CW		18.2 dB	65%	8.4	QFN 4x4	EAR99
DC35GN-15-Q4	960 MHz–1215 MHz	15 W	50 V	1000 μs	10%	18.5 dB	70%	3.5	QFN 4x4	EAR99
DC35GN-15-Q4	1.2 GHz–1.4 GHz	15 W	50 V	1000 μs	10%	18.2 dB	70%	3.5	QFN 4x4	EAR99
DC35GN-15-Q4	2.7 GHz–3.1 GHz	15 W	50 V	1000 μs	10%	13 dB	60%	3.5	QFN 4x4	EAR99
DC35GN-15-Q4	3.1 GHz–3.5 GHz	12 W	50 V	1000 μs	10%	10 dB	50%	3.5	QFN 4x4	EAR99
0510GN-25-CP	0.05 MHz–1.0 GHz	25 W	50 V	CW		16 dB	50%	3.2	CuPack	EAR99

## Driver Discrete Transistors to L-Band

Part Number	Frequency Band	P <sub>OUT</sub> Min.	V <sub>dd</sub>	Pulse Width/Format	Duty Cycle	Gain Typ.	Drain Eff.	Θ <sub>JC</sub> Max. °C/W	Package Style	ECCN
0912GN-15E/EL/EP	960 MHz–1215 MHz	15 W	50 V	128 μs	10%	17.8 dB	65%	8.4	55-QQ/ QQP	EAR99
"0912GN-50LE/50LEL/50LEP"	960 MHz–1215 MHz	50 W	50 V	32 μs/MIDS	2%/21%	15.6 dB	63%	3.6	55-QQ/ QQP	EAR99
0912GN-120E/EL/EP	960 MHz–1215 MHz	120 W	50 V	128 μs	10%	17 dB	65%	1.2	55-QQ/ QQP	EAR99
1214GN-15LE/LEL/LEP	1.2 GHz–1.4 GHz	15 W	50 V	300/4500 μs	10%/35%	17.8 dB	68%	8	55-QQ/ QQP	EAR99
1214GN-50E/EL/EP	1.2 GHz–1.4 GHz	50 W	50 V	300 μs	10%	15.9 dB	63%	3.2	55-QQ/ QQP	EAR99
1214GN-120E/EL/EP	1.2 GHz–1.4 GHz	120 W	50 V	300 μs	10%	17.16 dB	65%	1.25	55-QQ/ QQP	EAR99
1416GN-120E/EL/EP	1.4 GHz–1.6 GHz	120 W	50 V	300 μs	10%	17.2 dB	65%	1.25	55-QQ/ QQP	EAR99
1011GN-30E/EL/EP	1030 MHz–1090 MHz	30 W	50 V	32/128 μs	2%/10%	18.5 dB	65%	6.2	55-QQ/ QQP	EAR99
1011GN-125E/EL/EP	1030 MHz–1090 MHz	125 W	50 V	128/4500 μs	10%	18 dB	72%	1.4	55-QQ/ QQP	EAR99
1011GN-250E/EL/EP	1030 MHz–1090 MHz	250 W	50 V	128 μs	10%	20 dB	68%	0.7	55-QQ/ QQP	EAR99



QFN 4x4 Package  
4 mm × 4 mm



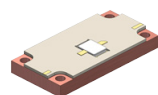
CuPack  
0.160" × 0.200"



55-QQP  
0.160" × 0.230"



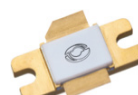
55-QQ  
0.160" × 0.550"



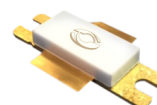
E-Series Pallet  
1.200" × 0.600" × 0.150"



55-QP  
0.230" × 0.800"



55-KR  
0.385" × 1.030"



55-Q03  
0.385" × 1.340"

# L-Band Avionics and Radar

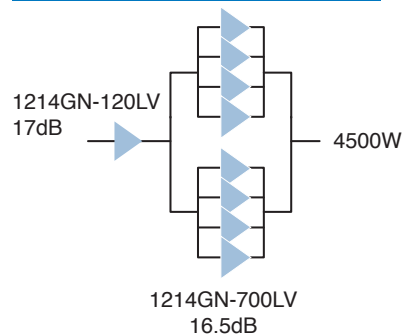
## L-Band Avionics Output Stage

Part Number	Frequency Band	P <sub>OUT</sub> Min.	V <sub>dd</sub>	Pulse Width/Format	Duty Cycle	Gain Typ.	Drain Eff.	Θ <sub>JC</sub> Max. °C/W	Package Style	ECCN
0912GN-300V	960 MHz–1215 MHz	300 W	50 V	128 μs	10%	17 dB	55%	0.44	55-KR	EAR99
0912GN-500LV	960 MHz–1215 MHz	500 W	50 V	MIDS	35%	17 dB	63%	0.37	55-KR	EAR99
0912GN-650V	960 MHz–1215 MHz	650 W	50 V	128 μs	10%	17 dB	60%	0.3	55-KR	EAR99
1012GN-800V	1025 MHz–1150 MHz	800 W	54 V	20 μs	6%	19 dB	60%	0.21	55-KR	EAR99
MDSGN-750ELMV	1030 MHz–1090 MHz	750 W	50 V	ELM	6%	19.2 dB	70%	0.44	55-KR	EAR99
1011GN-800V	1030 MHz–1090 MHz	800 W	52 V	32 μs	2%	19.3 dB	75%	0.36	55-KP	EAR99
1011GN-1000V	1030 MHz–1090 MHz	1000 W	50 V	32 μs	2%	19 dB	75%	0.29	55-Q03	EAR99
1011GN-1200V	1030 MHz–1090 MHz	1200 W	50 V	32 μs	2%	18.5 dB	75%	0.25	55-Q03	EAR99
1011GN-1600VG	1030 MHz–1090 MHz	1600 W	50 V	32 μs	2%	18.6 dB	70%	0.18	55-Q11A	EAR99
1011GN-2200VP	1030 MHz–1090 MHz	2200 W	50 V	32 μs	2%	18.0 dB	70%	0.2	Pallet	EAR99

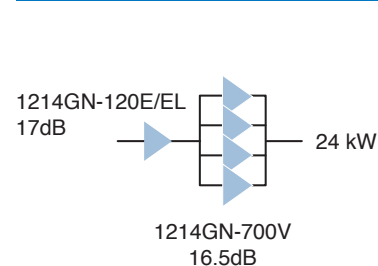
## L-Band Pulsed Primary Radar Output Stage

Part Number	Frequency Band	P <sub>OUT</sub> Min.	V <sub>dd</sub>	Pulse Width	Duty Cycle	Gain Typ.	Drain Eff.	Θ <sub>JC</sub> Max. °C/W	Case Style	ECCN
1416GN-600V	1.4 GHz–1.6 GHz	600 W	50 V	300 μs	10%	17.4 dB	62%	0.28	55-KR	EAR99
1214GN-180LV	1.2 GHz–1.4 GHz	180 W	50 V	3000 μs	30%	17 dB	52%	0.73	55-KR	EAR99
1214GN-280LV	1.2 GHz–1.4 GHz	280 W	50 V	200/3000 μs	30%	17 dB	60%	0.75	55-KR	EAR99
1214GN-400LV	1.2 GHz–1.4 GHz	400 W	50 V	4500 μs	30%	16.8 dB	65%	0.30	55-KR	EAR99
1214GN-600VHE	1.2 GHz–1.4 GHz	600 W	50 V	300 μs	10%	17.5 dB	63%	0.23	55-KR	EAR99
1214GN-650V	1.2 GHz–1.4 GHz	650 W	50 V	150 μs	10%	17 dB	65%	0.23	55-KR	EAR99
1214GN-700V	1.2 GHz–1.4 GHz	700 W	50 V	300 μs	10%	16.5 dB	63%	0.22	55-Q03	EAR99
1214GN-900V	1.2 GHz–1.4 GHz	900 W	50 V	300 μs	10%	16.0 dB	61%	0.18	55-Q03	EAR99
1214GN-1200V	1.2 GHz–1.4 GHz	1200W	50 V	300 μs	10%	16.0 dB	60%	0.12	55-Q11A	EAR99

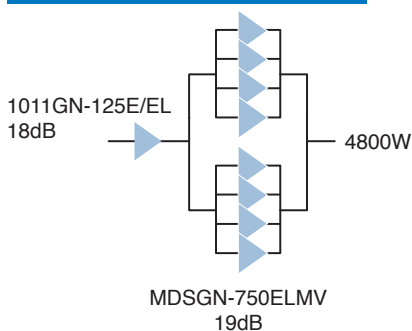
L-Band 1200-1400 MHz  
300μS– 10%



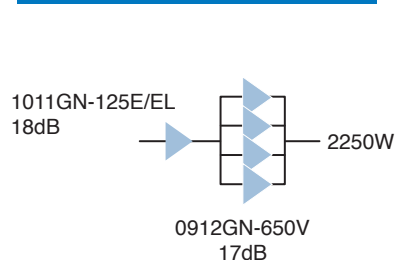
L-Band 1200-1400 MHz  
300μS– 10%



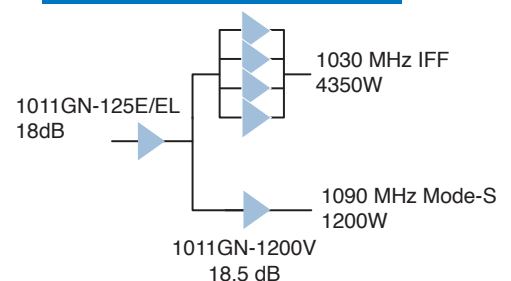
Avionics 1030 MHz  
Mode-S ELM Burst



Avionics Datalinks 960-1215 MHz  
128μS– 10%



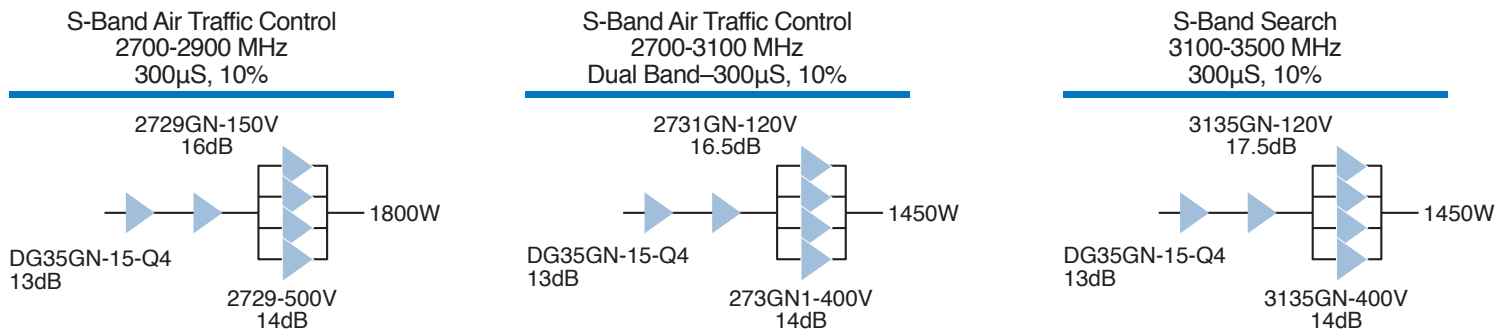
IFF/Mode-S ELM Transponder  
1030-1090 MHz



# S-Band Radar

## S-Band Pulsed Primary Radar Output Stage

Part Number	Frequency Band	P <sub>OUT</sub> Min.	V <sub>dd</sub>	Pulse Width	Duty Cycle	Gain Typ.	Drain Eff.	θ <sub>JC</sub> Max. °C/W	Case Style	ECCN
2729GN-150V	2.7 GHz–2.9 GHz	150 W	50 V	100 us	10%	16.2 dB	69%	0.91	55-QP	EAR99
2729GN-270V	2.7 GHz–2.9 GHz	270 W	50 V	100 us	10%	15.6 dB	68%	0.5	55-QP	EAR99
2729GN-500V	2.7 GHz–2.9 GHz	500 W	50 V	100 us	10%	14 dB	64%	0.22	55-KR	3A001.b.3.a.1
2731GN-120V	2.7 GHz–3.1 GHz	120 W	50 V	200 us	10%	16.5 dB	64%	1.13	55-QP	EAR99
2731GN-220V	2.7 GHz–3.1 GHz	220 W	50 V	200 us	10%	16 dB	65%	0.33	55-QP	3A001.b.3.a.2
2731GN-280LV	2.7 GHz–3.1 GHz	280 W	50 V	200 us	15%	15.4 dB	65%	0.37	55-KR	3A001.b.3.a.2
2731GN-400V	2.7 GHz–3.1 GHz	400 W	50 V	200 us	10%	14 dB	55%	0.18	55-Q03	3A001.b.3.a.2
3135GN-120V	3.1 GHz–3.5 GHz	120 W	50 V	200 us	10%	17.8 dB	65%	1.14	55-QP	3A001.b.3.a.3
3135GN-200V	3.1 GHz–3.5 GHz	200 W	50 V	200 us	10%	14.5 dB	58%	0.56	55-QP	3A001.b.3.a.3
3135GN-280LV	3.1 GHz–3.5 GHz	280 W	50 V	200 us	20%	13.7 dB	58%	0.39	55-KR	3A001.b.3.a.3
3135GN-400V	3.1 GHz–3.5 GHz	400 W	50 V	200 us	10%	14 dB	50%	0.3	55-Q03	3A001.b.3.a.3
3135GN-400LVP	3.1 GHz–3.5 GHz	400 W	50 V	300 us	10%	13.5 dB	52%	0.03	Pallet	3A001.b.3.a.3
2933GN-400LVP	2.9 GHz–3.3 GHz	400 W	50 V	300 us	10%	14 dB	52%	0.03	Pallet	3A001.b.3.a.3



## C-Band Pulsed Primary Radar and Communications Output Stage

Part Number	Frequency Band	P <sub>OUT</sub> Min.	V <sub>dd</sub>	Pulsing	Duty Cycle	Gain Typ.	Eff. Typ.	θ <sub>JC</sub> °C/W	Case Style	ECCN
3942GN-120V	3.9 GHz–4.2 GHz	120 W	50 V	200 us	10%	15.2 dB	62%	0.92	55-QP	3A001.b.3.a.4
4450GN-110V	4.4 GHz–5.0 GHz	110 W	50 V	200 us	10%	12.8 dB	65%	0.98	55-QP	3A001.b.3.a.4
5359GN-70V	5.3 GHz–5.9 GHz	70 W	50 V	200 us	10%	11 dB	42%	0.55	55-QP	3A001.b.3.a.4
5359GN-120V	5.3 GHz–5.9 GHz	120 W	50 V	200 us	10%	11 dB	40%	0.55	55-QP	3A001.b.3.a.4



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