

GENERAL DESCRIPTION

The 1214GN-400LV is an internally matched, COMMON SOURCE, class AB GaN on SiC HEMT transistor capable of providing over 16dB gain, 400 Watts of pulsed RF output power at 4.5ms pulse width, 30% duty factor across the 1200 to 1400 MHz band. The transistor has internal pre-match for optimal performance. This hermetically sealed transistor is designed for L-Band Radar applications. It utilizes gold metallization and eutectic attach to provide highest reliability and superior ruggedness.

ABSOLUTE MAXIMUM RATINGS

Maximum Power Dissipation

Device Dissipation @ 25°C 800 W

Maximum Voltage and Current

Drain-Source Voltage (V_{DSS}) 150 V

Gate-Source Voltage (V_{GS}) -8 to +0 V

Maximum Temperatures

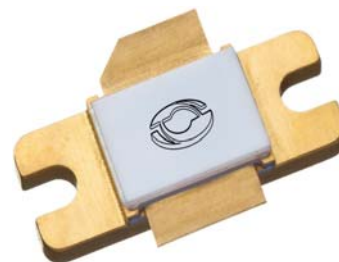
Storage Temperature (T_{STG}) -55 to +125 °C

Operating Junction Temperature +250 °C

CASE OUTLINE

55-KR

Common Source



ELECTRICAL CHARACTERISTICS @ 25°C

Symbol	Characteristics	Test Conditions	Min	Typ	Max	Units
P _{out}	Output Power	P _{out} =400W, Freq=1200, 1300, 1400 MHz	400			W
G _p	Power Gain	P _{out} =400W, Freq=1200, 1300, 1400 MHz	16	16.8		dB
η_d	Drain Efficiency	P _{out} =400W, Freq=1200, 1300, 1400 MHz	60	68		%
Dr	Droop	P _{out} =400W, Freq=1200, 1300, 1400 MHz			0.6	dB
VSWR-T	Load Mismatch Tolerance	P _{out} =400W, Freq=1200 MHz			3:1	
θ_{jc}	Thermal Resistance	Pulse Width=4.5mS, Duty=30%			0.3	°C/W

- Bias Condition: V_{dd}=+50V, I_{dq}=200mA average current (V_{gs}= -2.0 ~ -4.5V) with constant gate Bias

FUNCTIONAL CHARACTERISTICS @ 25°C

I _{D(Off)}	Drain leakage current	V _{gs} = -8V, V _D = 50V			16.8	mA
I _{G(Off)}	Gate leakage current	V _{gs} = -8V, V _D = 0V			2	mA
BV _{DSS}	Drain-source breakdown voltage	V _{gs} = -8V, I _D = 28mA	150			V

Export Classification: EAR -99

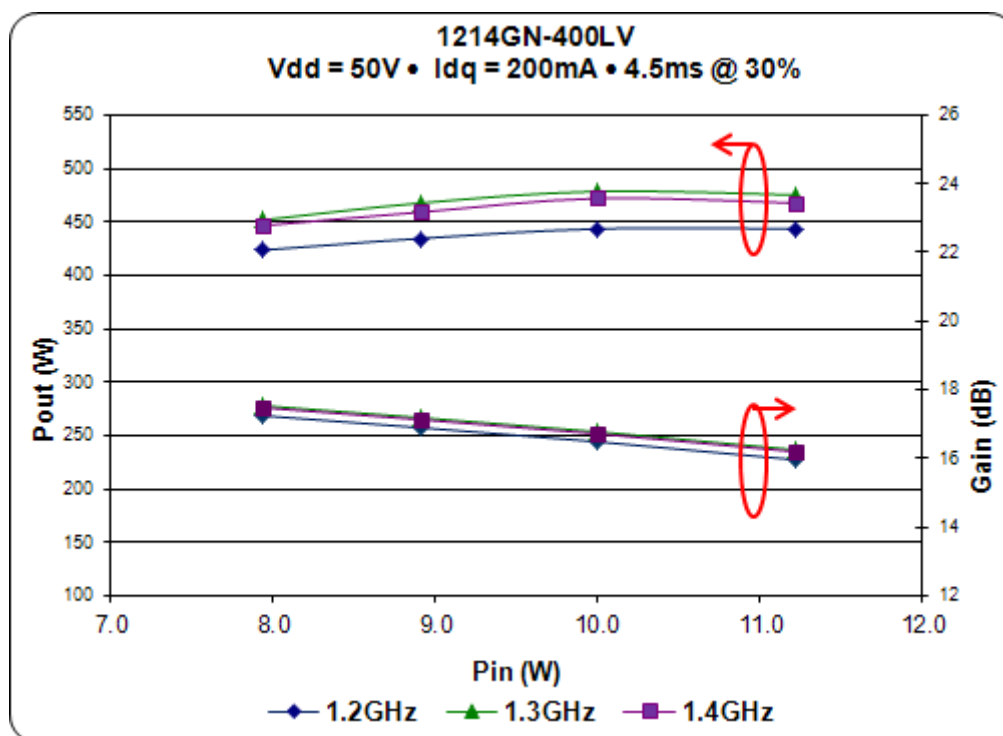


1214GN-400LV

400 Watts - 50 Volts, 4.5ms, 30%
Broad Band 1200 - 1400 MHz

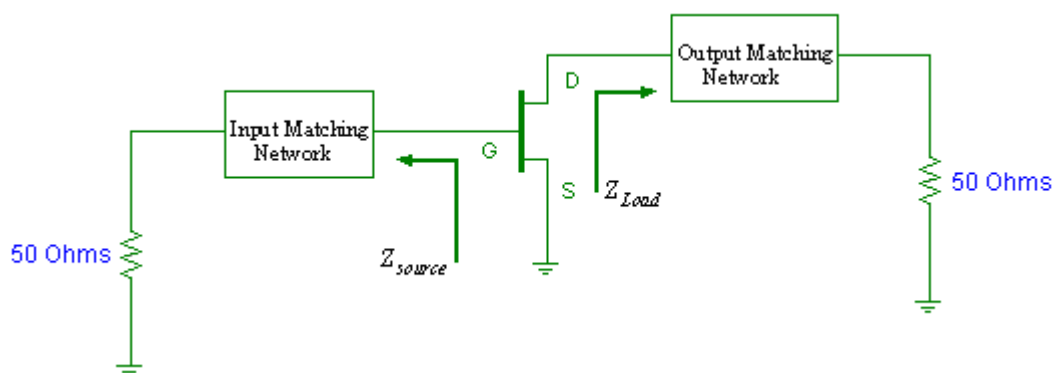
Typical Performance Data

Freq(GH)	Pin (W)	Pout (W)	Id (A)	RL (dB)	Eff (%)	G (dB)	Droop (dB)
1.2	8.9	443	3.67	-8.1	72%	16.97	0.11
1.3	8.9	461	4.05	-19	68%	17.12	0.24
1.4	8.9	444	3.82	-7.8	68%	16.98	0.21



For the most current data, consult MICROSEMI's website: www.MICROSEMI.com
Specifications are subject to change, consult the RFIS factory at [\(408\) 986-8031](tel:4089868031) for the latest information

Transistor Impedance Information

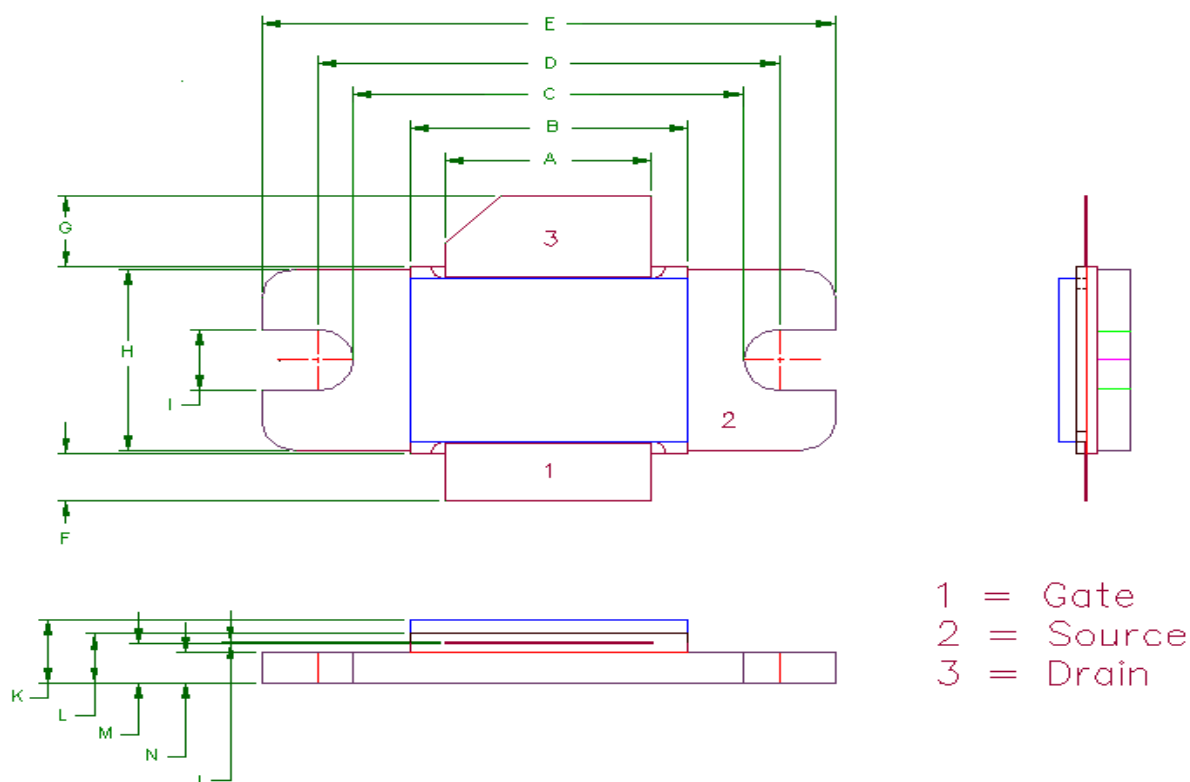


Note: Z_{in} is looking into the input circuit;
 Z_{Load} is looking into the output circuit.

Impedance Data		
Freq (GHz)	Zs	ZI
1.2	2.25-j1.89	0.36 - j0.19
1.3	2.15-j1.25	0.24 + j0.36
1.4	2.04-j0.61	0.18 + j0.9

Please contact us for the test circuit

55-KR PACKAGE DIMENSION



Dimension	Min (mil)	Min (mm)	Max (mil)	Max (mm)
A	370	9.40	372	9.44
B	498	12.65	500	12.7
C	700	17.78	702	17.83
D	830	21.08	832	21.13
E	1030	26.16	1032	26.21
F	86	2.18	116	2.946
G	136	3.45	166	4.22
H	385	9.78	387	9.83
I	130	3.30	132	3.35
J	003	.076	004	0.10
K	120	3.04	144	3.66
L	100	2.54	114	2.90
M	080	2.03	90	2.29
N	065	1.65	66	1.68



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Broad Band 1200 - 1400 MHz

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Revision History

Revision Level / Date	Para. Affected	Description
0.2/ April 9, 2014	-	Initial Preliminary Release

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