

GENERAL DESCRIPTION

The 1214GN-600VHE is an internally matched, COMMON SOURCE, class AB GaN on SiC HEMT transistor capable of providing over 16.9dB gain, 60% drain efficiency, 600 Watts of pulsed RF output power at 300 μ s pulse width, 10% duty factor across the 1200 to 1400 MHz band. The transistor has internal pre-match for optimal performance. This hermetically sealed transistor can be used for Broadband Avionics Data Link 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 1200 W

Maximum Voltage and Current

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

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

Maximum Temperatures

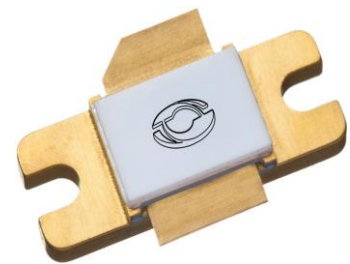
Storage Temperature (T_{STG}) -55 to +125 °C

Operating Junction Temperature +200 °C

CASE OUTLINE

55-KR

Common Source



ELECTRICAL CHARACTERISTICS @ 25°C

Symbol	Characteristics	Test Conditions	Min	Typ	Max	Units
Pout	Output Power	Pout=600W, Freq=1200, 1300, 1400 MHz	600			W
Gp	Power Gain	Pout=600W, Freq=1200, 1300, 1400 MHz	16.9	17.5		dB
η_d	Drain Efficiency	Pout=600W, Freq=1200, 1300, 1400 MHz	60	63		%
Dr	Droop	Pout=600W, Freq=1200, 1300, 1400 MHz			0.8	dB
VSWR-T	Load Mismatch Tolerance	Pout=600W, Freq=1400 MHz			3:1	
θ_{jc}	Thermal Resistance	Pulse Width=300uS, Duty=10%			0.23	°C/W

- Constant Gate Bias Condition: Vdd=+50V, Idq=100mA average current ($V_{gs} = -2.0 \sim -4.5V$)

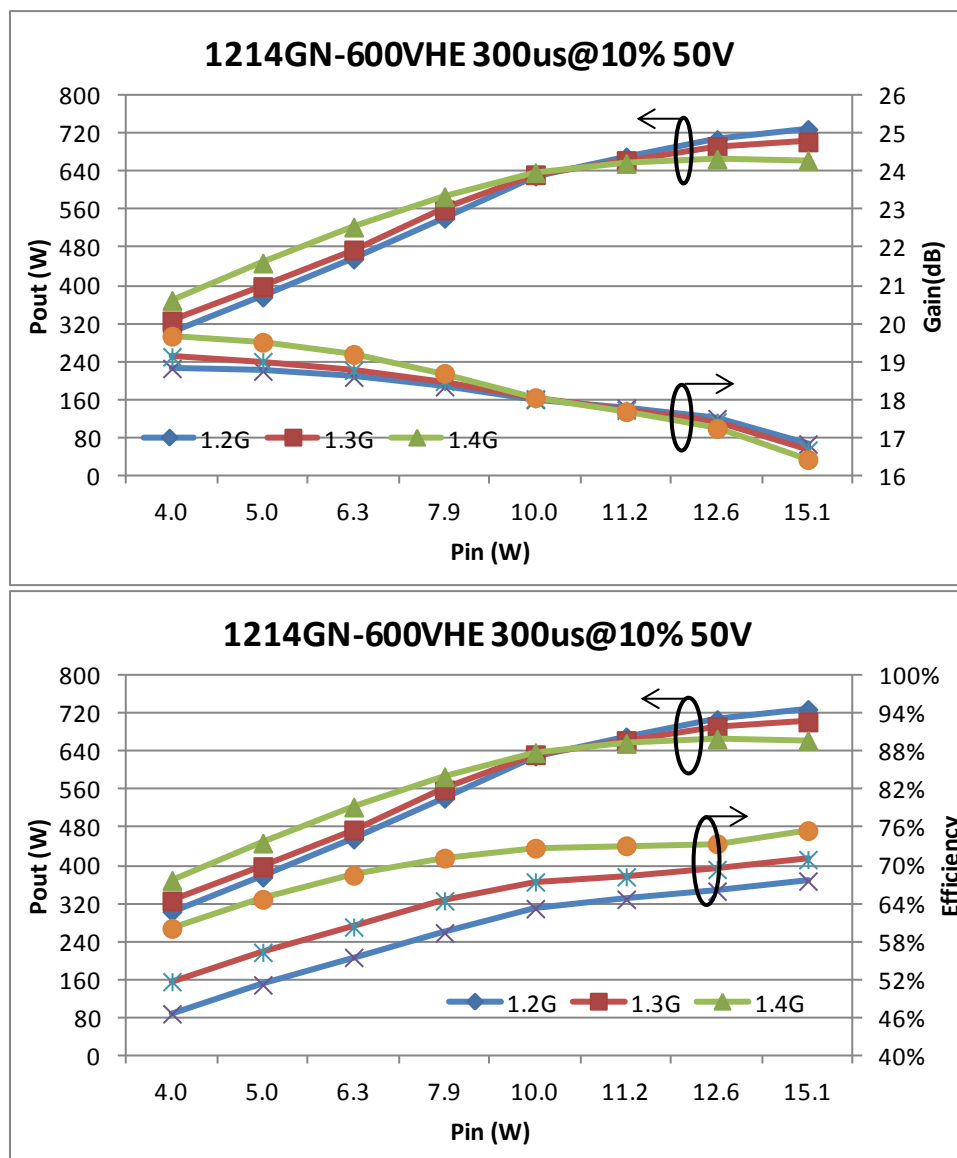
FUNCTIONAL CHARACTERISTICS @ 25°C

$I_{D(Off)}$	Drain leakage current	$V_{gs} = -8V, V_D = 50V$			64	mA
$I_{G(Off)}$	Gate leakage current	$V_{gs} = -8V, V_D = 0V$			20	mA
BV_{DSS}	Drain-source breakdown voltage	$V_{gs} = -8V, I_D = 64mA$	150			V

Export Classification: EAR-99

TYPICAL BROAD BAND PERFORMANCE DATA

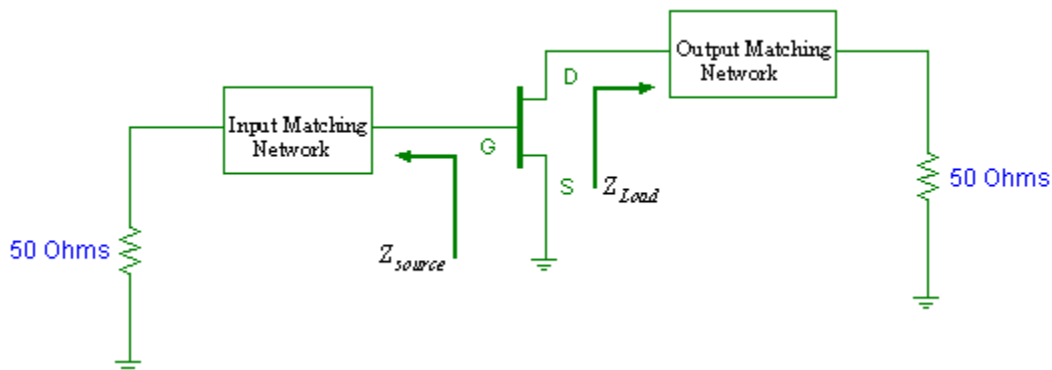
Freq(GH)	Pin (W)	Pout (W)	Id (A)	RL (dB)	Eff(%)	G (dB)	Droop (dB)
1.2	11.2	656	2.20	-10.0	63%	17.67	0.5
1.3	11.2	644	2.06	-8.8	66%	17.59	0.4
1.4	11.2	647	1.94	-15.0	70%	17.61	0.3



1214GN-600V

600 Watts - 50 Volts, 300 μ s, 10%
Broad Band 1200 - 1400 MHz

TRANSISTOR IMPEDANCE INFORMATION

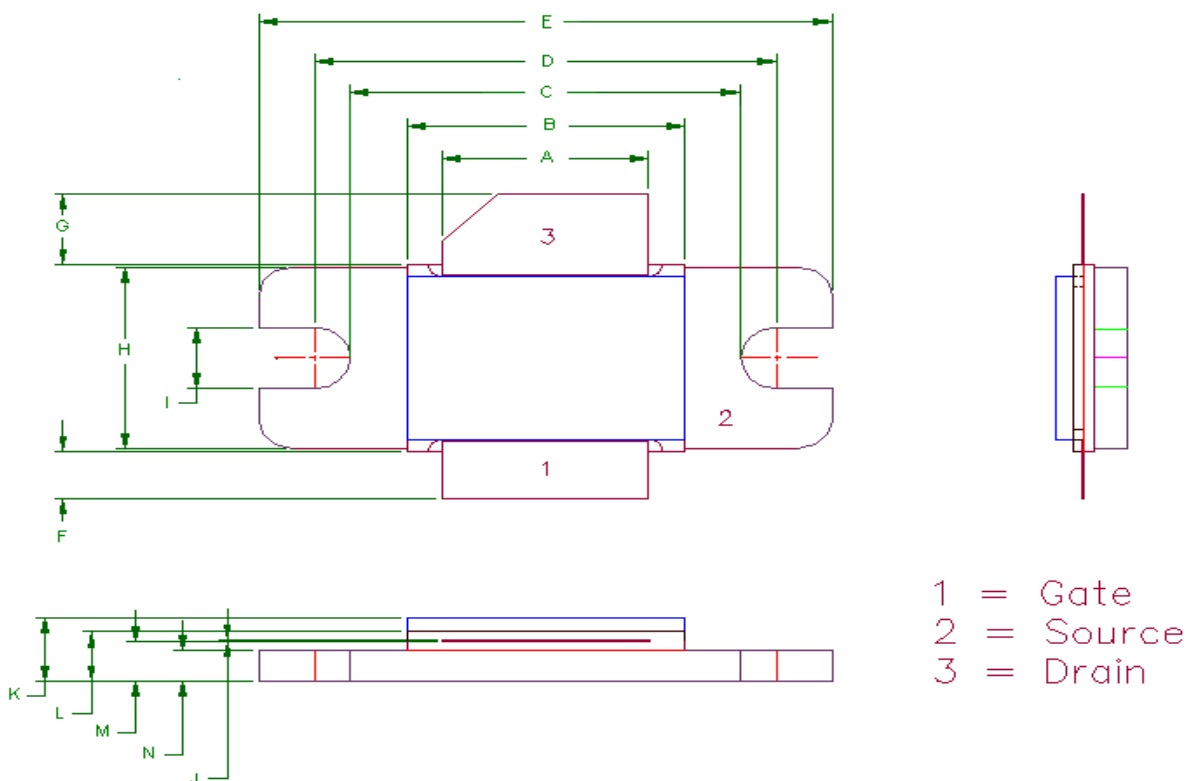


Note: Z_{source} is looking into the input circuit;
 Z_{Load} is looking into the output circuit.

Impedance Data		
Freq (GHz)	Z_{source}	Z_{Load}
1.2	1.156 - j1.802	1.496 - j1.176
1.3	1.176 - j1.222	1.551 - j0.950
1.4	1.228 - j0.674	1.510 - j0.777

Test Circuit Available Upon Request.

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	101	2.56	102	2.59
G	151	3.84	152	3.86
H	385	9.78	387	9.83
I	130	3.30	132	3.35
J	003	.076	004	0.10
K	135	3.43	137	3.48
L	105	2.67	107	2.72
M	085	2.16	86	2.18
N	065	1.65	66	1.68



1214GN-600VHE

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Broad Band 1200 - 1400 MHz

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Revision History

Revision Level / Date	Para. Affected	Description
02/ February 2014	-	Initial Preliminary Release

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