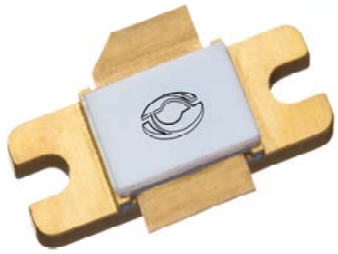
1214GN-550V

550 Watts - 50 Volts, 300 µs, 10%
Broad Band 1200 - 1400 MHz

GENERAL DESCRIPTION

The 1214GN-550V is an internally matched, COMMON SOURCE, class AB GaN on SiC HEMT transistor capable of providing over 17dB gain, 550 Watts of pulsed RF output power at 300µs 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 is designed for L-Band Radar applications. It utilizes gold metallization and eutectic attach to provide highest reliability and superior ruggedness.

CASE OUTLINE
55-KR
Common Source



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 +250 °C

ELECTRICAL CHARACTERISTICS @ 25°C

Symbol	Characteristics	Test Conditions	Min	Typ	Max	Units
Pout	Output Power	Pout=550W, Freq=1200, 1300, 1400 MHz	550			W
Gp	Power Gain	Pout=550W, Freq=1200, 1300, 1400 MHz	16	17		dB
ηd	Drain Efficiency	Pout=550W, Freq=1200, 1300, 1400 MHz	50	55		%
Dr	Droop	Pout=550W, Freq=1200, 1300, 1400 MHz			1.0	dB
VSWR-T	Load Mismatch Tolerance	Pout=550W, Freq=1400 MHz			3:1	
Θjc	Thermal Resistance	Pulse Width=300uS, Duty=10%			0.21	°C/W

- **Bias Condition: Vdd=+50V, Idq=100mA average current (Vgs= -2.0 ~ -4.5V) with Gate Bias Pulse Width 400us at T=3ms**

FUNCTIONAL CHARACTERISTICS @ 25°C

$I_{D(Off)}$	Drain leakage current	V_{gS} = -8V, V_D = 150V			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

Issue June 2013

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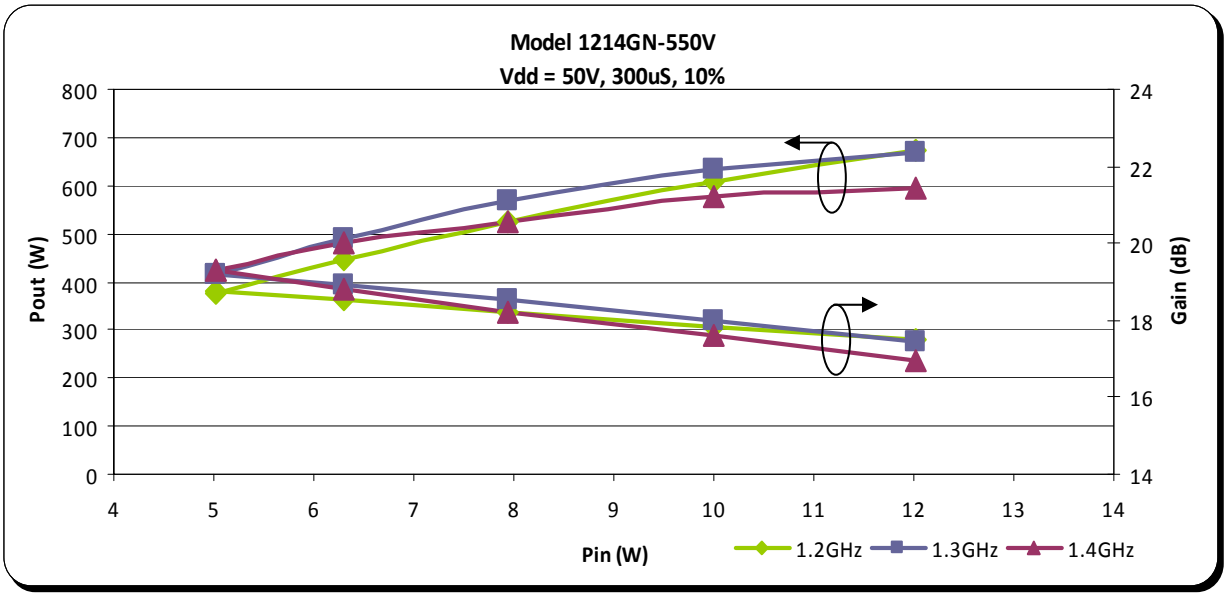
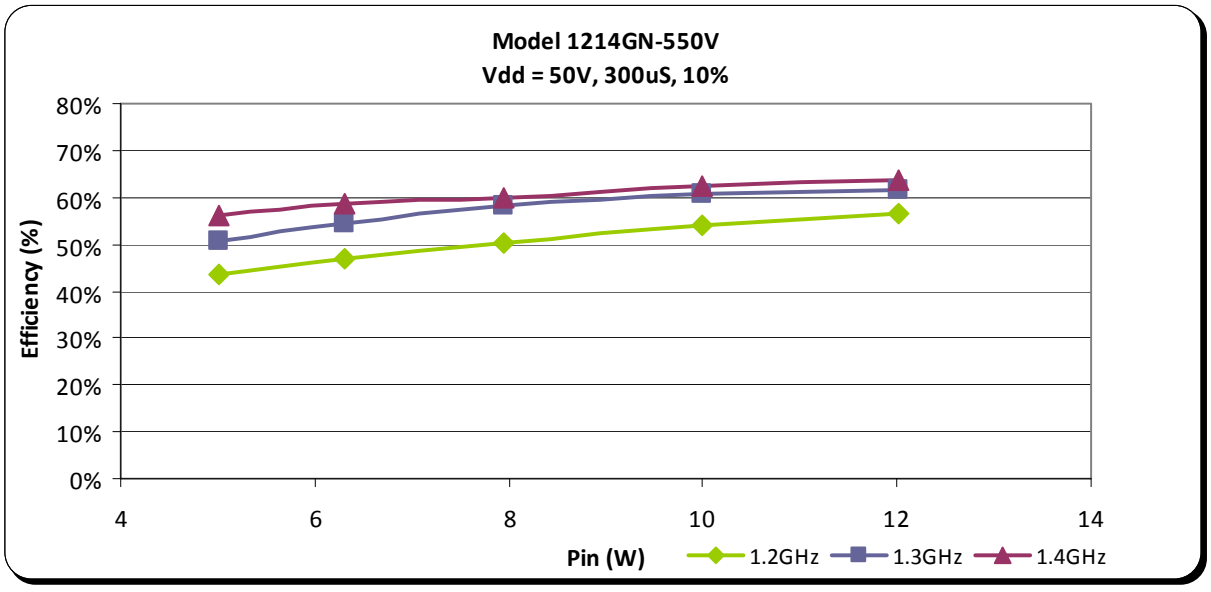
Typical Performance Data

Freq(GH)	Pin (W)	Pout (W)	Id (A)	RL (dB)	Eff(%)	G (dB)	Droop (dB)
1.2	12	673	2.46	-14.5	57%	17.48	0.4
1.3	12	668	2.25	-9.0	61%	17.45	0.3
1.4	12	595	1.96	-12.5	63%	16.95	0.2





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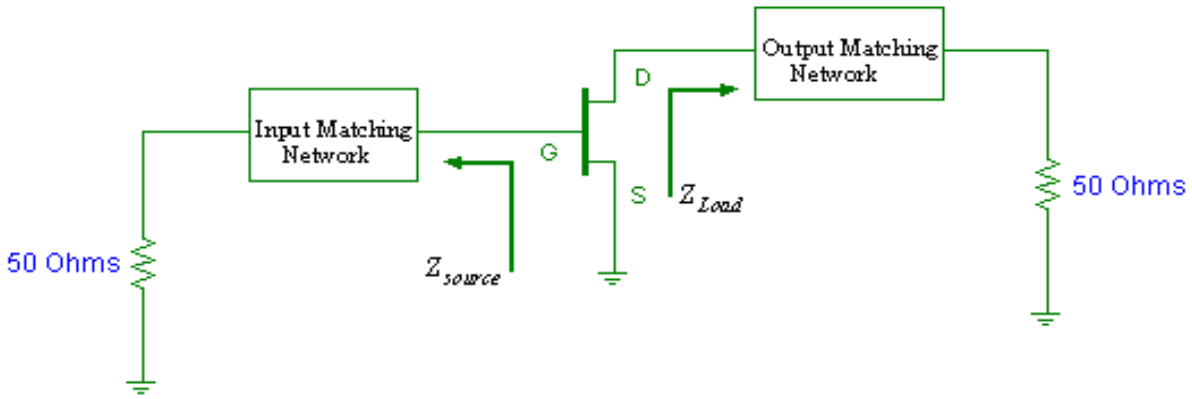
Transistor Impedance Information



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

Impedance Data		
Freq (GHz)	**Zs**	**Zl**
1.2	0.956 - j1.866	1.702 – j1.943
1.3	0.931 - j1.218	1.720 – j1.663
1.4	0.933 - j0.589	1.659 – j1.437

Please contact our representative for the RF test circuit

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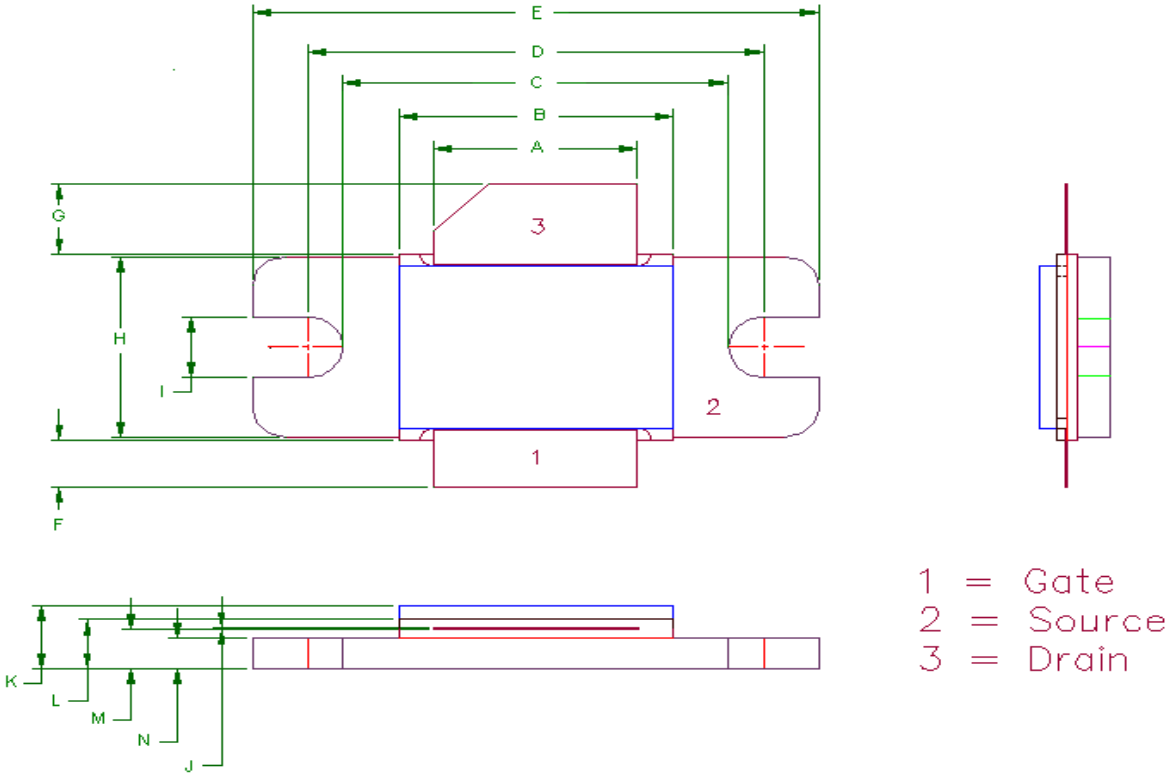
55-KR PACKAGE DIMENSION



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

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Revision History

Revision Level / Date	Para. Affected	Description
03 / June 2013	-	Initial Preliminary Release