WINSOURCE ELECTRONICS

THE DATASHEET OF

1214GN-180LV

PRELIMINARY

1214GN-180LV

180 Watts - 50 Volts, 3ms, 30%
Broad Band 1200 - 1400 MHz

GENERAL DESCRIPTION

The 1214GN-180LV is an internally matched, COMMON SOURCE, class AB GaN on SiC HEMT transistor capable of providing over 16.6dB gain, 180 Watts of pulsed RF output power at 3ms 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 300 W

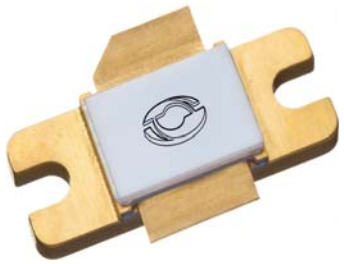
Maximum Voltage and Current

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
Pout	Output Power	Pout=180W, Freq=1200, 1300, 1400 MHz	180			W
Gp	Power Gain	Pout=180W, Freq=1200, 1300, 1400 MHz	16.6	17		dB
ηd	Drain Efficiency	Pout=180W, Freq=1200, 1300, 1400 MHz	54	60		%
Dr	Droop	Pout=180W, Freq=1200, 1300, 1400 MHz			1.0	dB
VSWR-T	Load Mismatch Tolerance	Pout=180W, Freq=1400 MHz			3:1	
Θjc	Thermal Resistance	Pulse Width=3mS, Duty=30%			0.73	°C/W

- **Bias Condition: Vdd=+50V, Idq=60mA average current (Vgs= -2.0 ~ -4.5V) with constant gate Bias**

FUNCTIONAL CHARACTERISTICS @ 25°C

$I_{D(Off)}$	Drain leakage current	V_{gS} = -8V, V_D = 50V			12	mA
$I_{G(Off)}$	Gate leakage current	V_{gS} = -8V, V_D = 0V			8	mA
BV_{DSS}	Drain-source breakdown voltage	V_{gs} =-8V, I_D = 28mA	150			V

- DC parameters pass/failure criteria will be revised after mass production DC parameters distributions have been determined.

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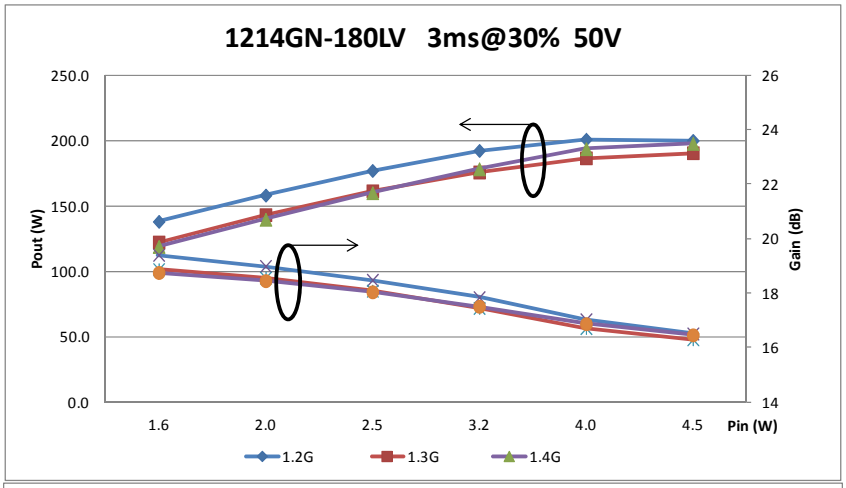
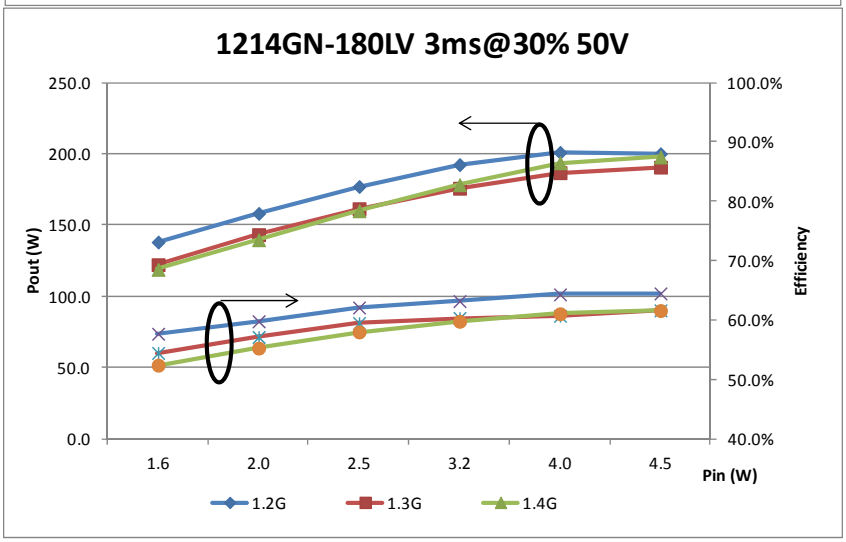
Typical Performance Data

Freq(GH)	Pin (W)	Pout (W)	Id (A)	RL (dB)	Eff(%)	G (dB)	Droop (dB)
1.2	4	204	2.03	-13.8	61%	17.1	0.5
1.3	4	202	2.07	-11.4	60%	17.06	0.45
1.4	4	203	2.03	-13.6	61%	17.09	0.45





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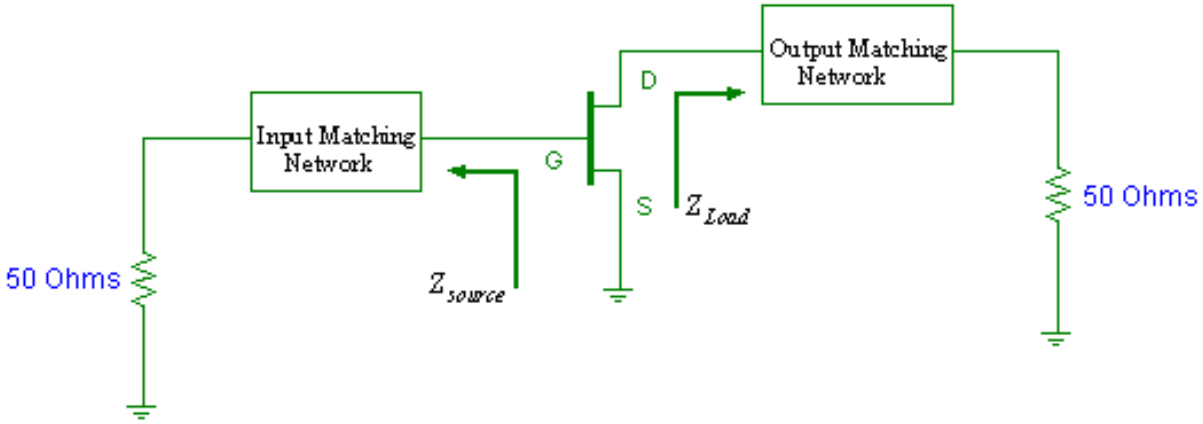
Transistor Impedance Information



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

Impedance Data		
Freq (GHz)	**Zs**	**Zl**
1.2	2.615 – j2.33	2.904 + j1.436
1.3	2.642 - j1.173	3.36 + j1.22
1.4	2.8 + j0.025	3.09 + j0.781

Please call the representative for detailed circuit configuration.

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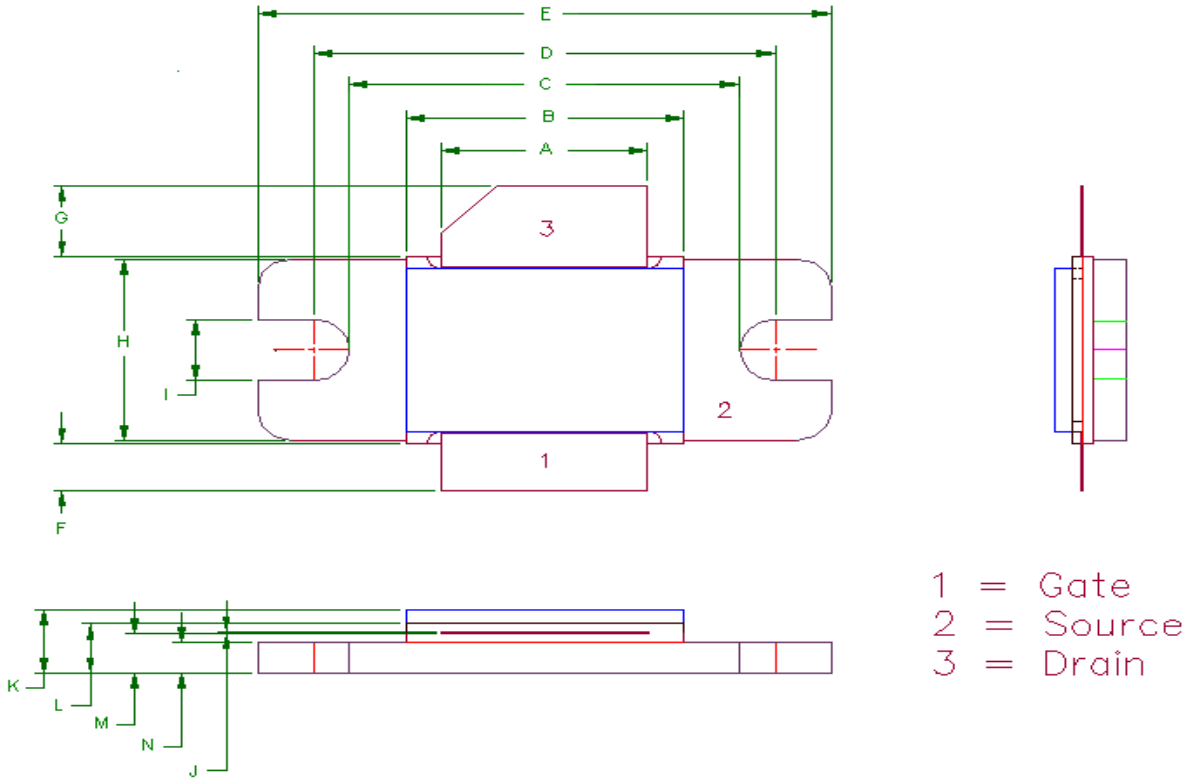
55-KR PACKAGE DIMENSION



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
0.1 / 12 June 2013	-	Initial Preliminary Release

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