



**THE DATASHEET OF**  
**1214GN-180LV**



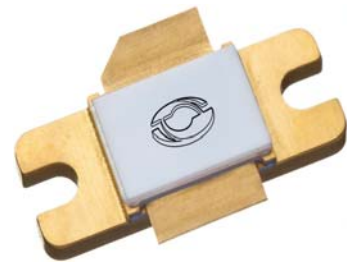
# 1214GN-180LV

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.

## CASE OUTLINE 55-KR Common Source



## 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

## 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
$\eta_d$	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	
$\Theta_{jc}$	Thermal Resistance	Pulse Width=3mS, Duty=30%			0.73	°C/W

- Bias Condition: Vdd=+50V, Idq=60mA average current ( $V_{GS} = -2.0 \sim -4.5V$ ) 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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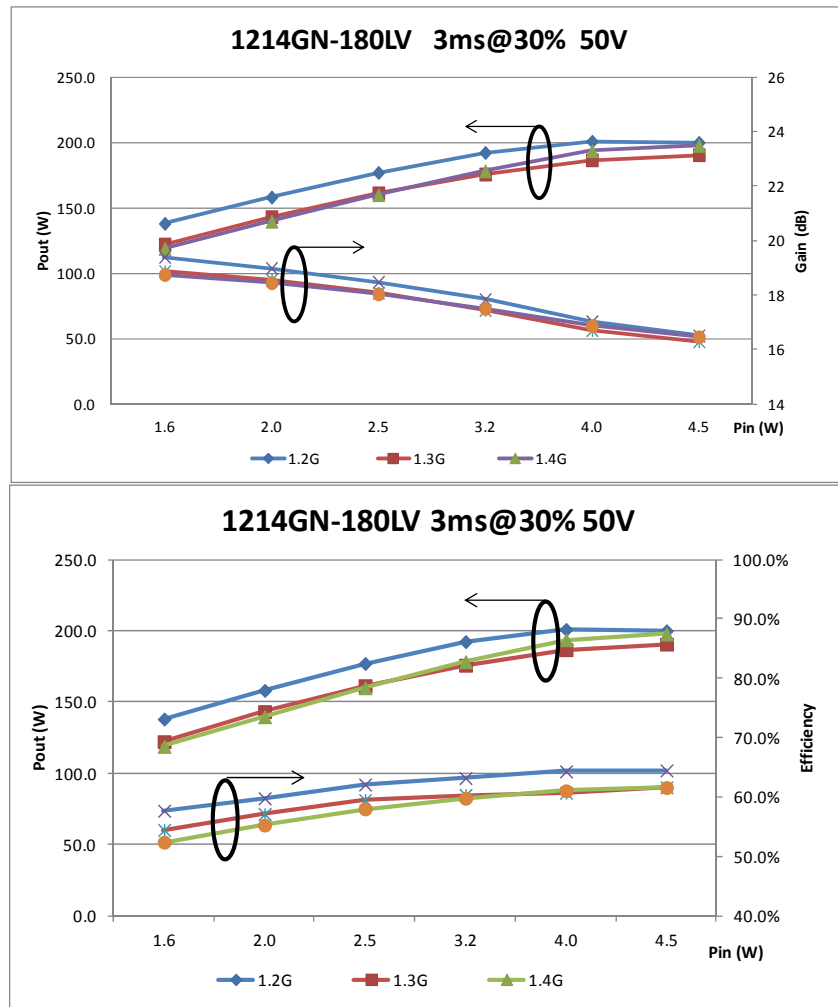
**Export Classification: EAR 99**

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## Typical Performance Data

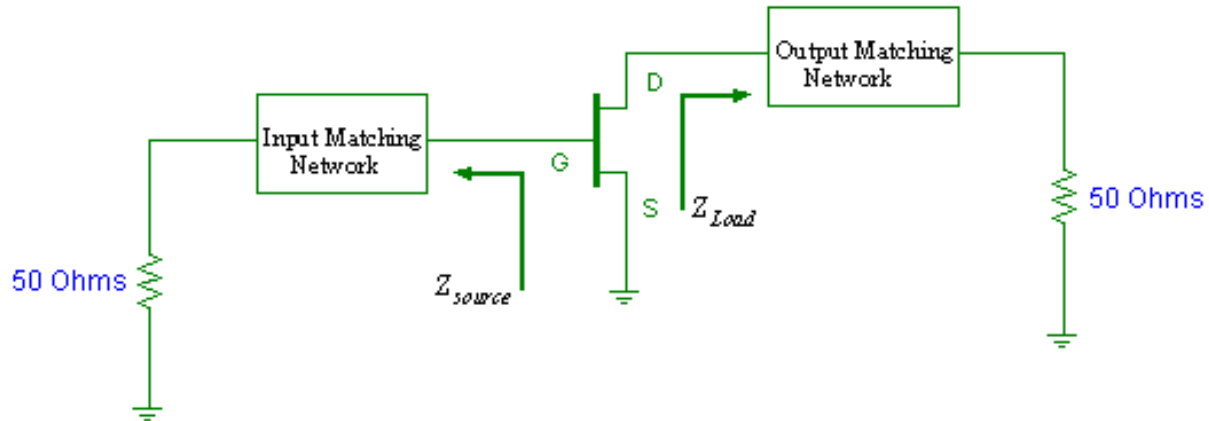
Freq(GH)	Pin (W)	Pout (W)	Id (A)	RL (dB)	Eff(%)	G (dB)	Drop (dB)
1.2	4	204	2.03	-13.8	61%	17.1	0.5
1.3	4	202	2.07	-11.4	60%	17.06	0.45
1.4	4	203	2.03	-13.6	61%	17.09	0.45



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## Transistor Impedance Information

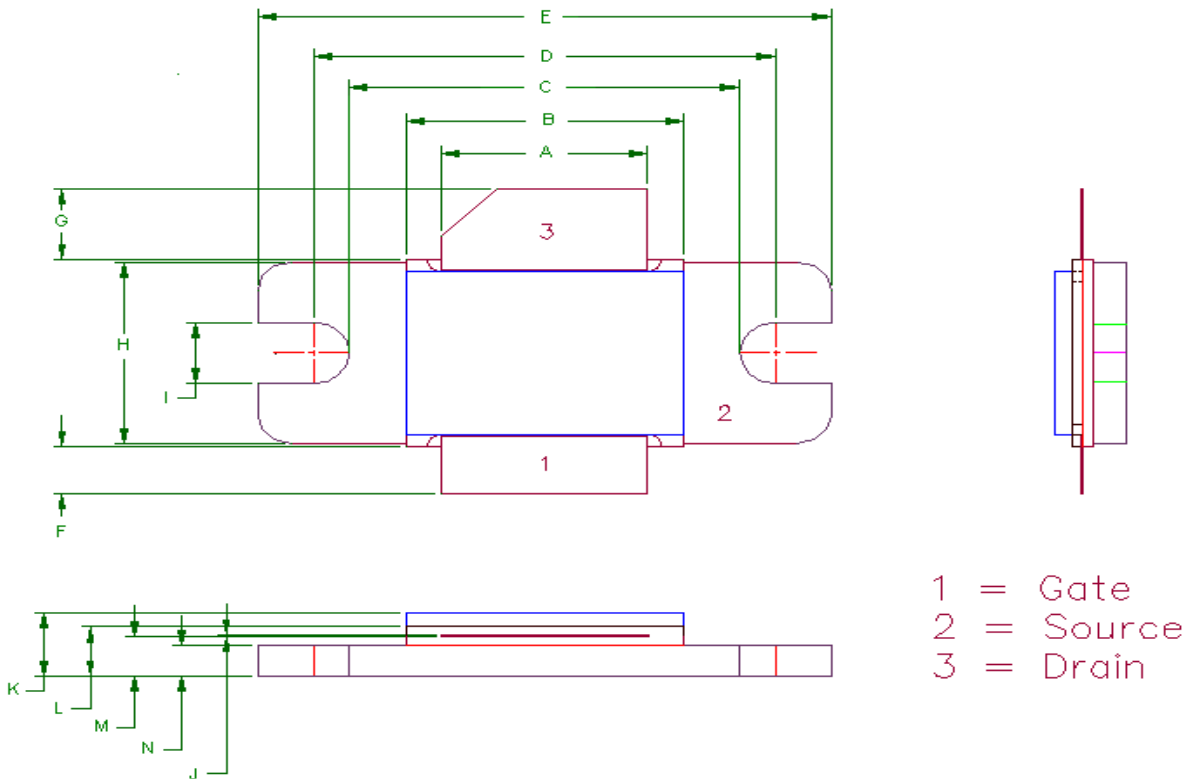


Note:  $Z_{in}$  is looking into the input circuit;  
 $Z_{Load}$  is looking into the output circuit.

Impedance Data		
Freq (GHz)	Zs	ZI
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.**

## 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

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

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