

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

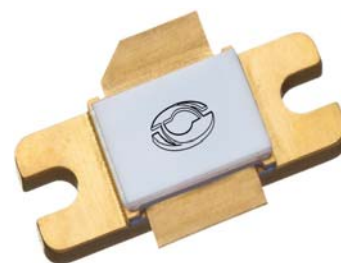
Storage Temperature (T_{STG}) -55 to +125 °C

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
η_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	
Θ_{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.

Issue June 2013

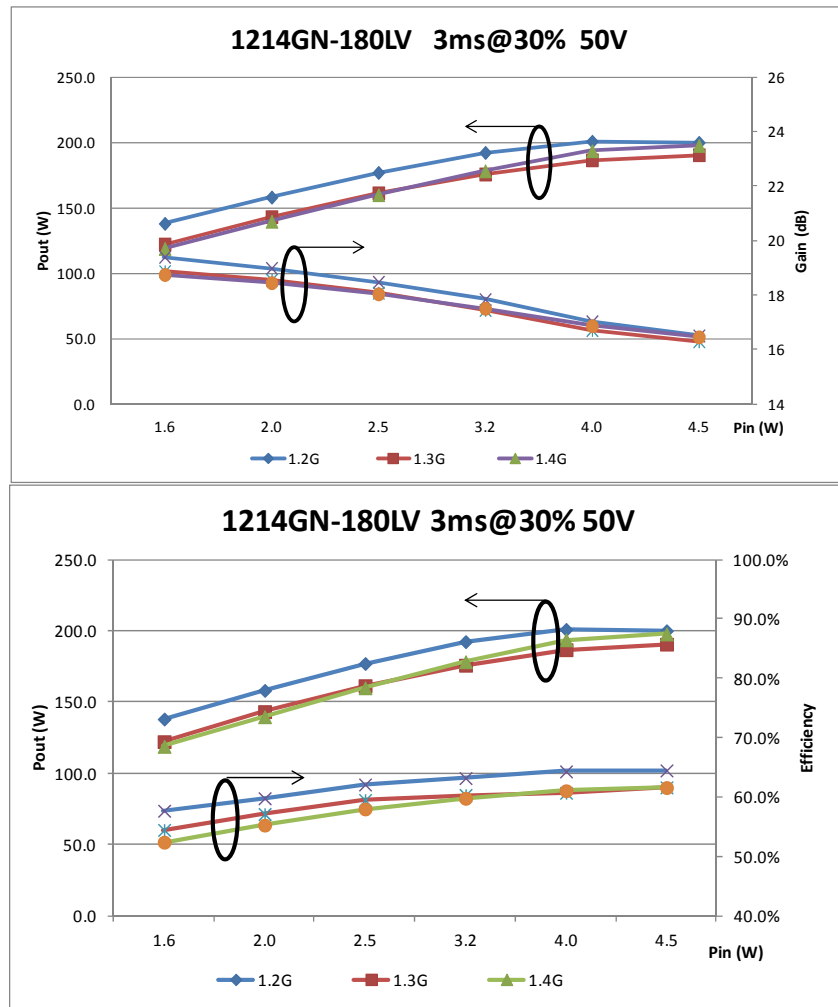
Export Classification: EAR 99

1214GN-180LV

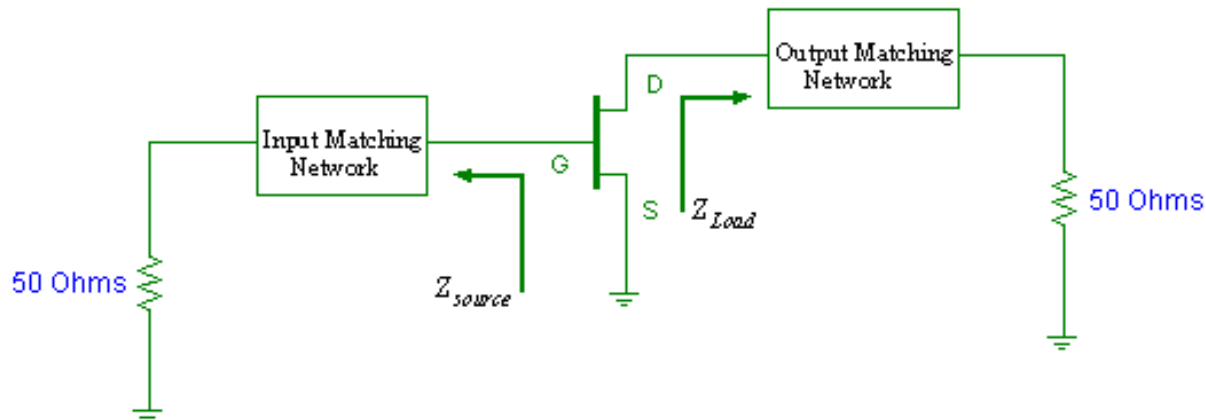
180 Watts - 50 Volts, 3ms, 30%
Broad Band 1200 - 1400 MHz

Typical Performance Data

Freq(GH)	Pin (W)	Pout (W)	Id (A)	RL (dB)	Eff(%)	G (dB)	Droop (dB)
1.2	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



Transistor Impedance Information

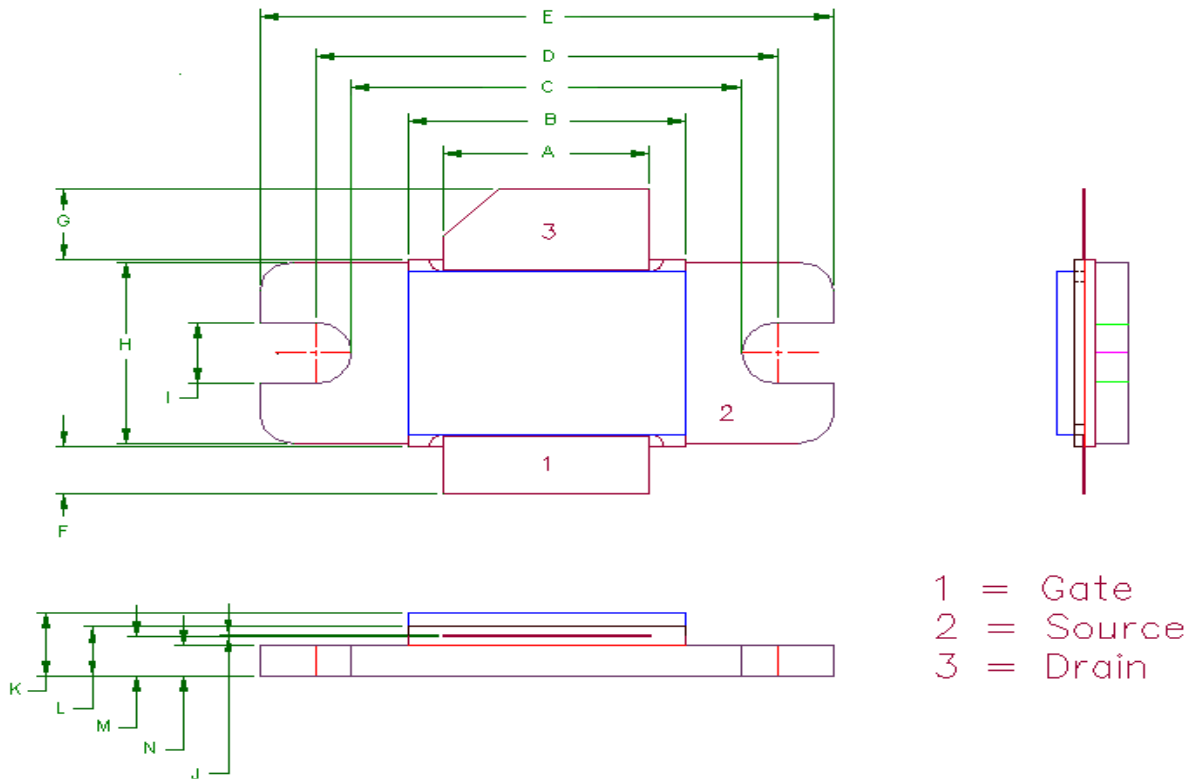


Note: Z_{in} is looking into the input circuit;
 Z_{Load} is looking into the output circuit.

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



1214GN-180LV

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

The information contained in the document is PROPRIETARY AND CONFIDENTIAL information of Microsemi and cannot be copied, published, uploaded, posted, transmitted, distributed or disclosed or used without the express duly signed written consent of Microsemi. If the recipient of this document has entered into a disclosure agreement with Microsemi, then the terms of such Agreement will also apply. This document and the information contained herein may not be modified, by any person other than authorized personnel of Microsemi. No license under any patent, copyright, trade secret or other intellectual property right is granted to or conferred upon you by disclosure or delivery of the information, either expressly, by implication, inducement, estoppel or otherwise. Any license under such intellectual property rights must be approved by Microsemi in writing signed by an officer of Microsemi.

Microsemi reserves the right to change the configuration, functionality and performance of its products at anytime without any notice. This product has been subject to limited testing and should not be used in conjunction with life-support or other mission-critical equipment or applications. Microsemi assumes no liability whatsoever, and Microsemi disclaims any express or implied warranty, relating to sale and/or use of Microsemi products including liability or warranties relating to fitness for a particular purpose, merchantability, or infringement of any patent, copyright or other intellectual property right. The product is subject to other terms and conditions which can be located on the Web at <http://www.microsemi.com/legal/tnc.asp>.

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
Specifications are subject to change, consult the RFIS factory at [\(408\) 986-8031](tel:4089868031) for the latest information