

GENERAL DESCRIPTION

The 0912GN-300V is an internally matched, COMMON SOURCE, class AB GaN on SiC HEMT transistor capable of providing typical over 19dB gain, 300 Watts of pulsed RF output power at 128 μ s pulse width, 10% duty factor across the 960 to 1215 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 650W

Maximum Voltage and Current

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

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

Maximum Temperatures

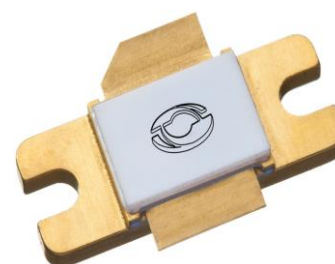
Storage Temperature (T_{STG}) -55 to +125°C

Operating Junction Temperature +225 °C

CASE OUTLINE

55-KR

Common Source



ELECTRICAL CHARACTERISTICS @ 25°C

Symbol	Characteristics	Test Conditions	Min	Typ	Max	Unit
Pout	Output Power	Pout=300W, Freq=960,1030,1090,1150,1215MHz	300	320		W
Gp	Power Gain	Pout=300W, Freq=960,1030,1090,1150,1215 MHz	18	19		dB
η_d	Drain Efficiency	Pout=300W, Freq=960, 1030,1090, 1150,1215 MHz	52	60		%
Dr	Droop	Pout=300W, Freq=960, 1030,1090, 1150,1215 MHz		0.5	0.8	dB
VSWR-T	Load Mismatch	Pout=300W, Freq= 1215MHz			3:1	
Θ_{jc}	Thermal Resistance	Pout=300W, PW=128us, 10%			0.62	°C/W

- Bias Condition: $V_{dd}=+50V$, $I_{dq}=60mA$ average current ($V_{gs}= -2.0 \sim -4.5V$) with constant gate bias

FUNCTIONAL CHARACTERISTICS @ 25°C

$I_{D(off)}$	Drain leakage current	$V_{gs} = -8V$, $V_D = 150V$			14	mA
$I_{G(off)}$	Gate leakage current	$V_{gs} = -8V$, $V_D = 0V$			6	mA
BV_{DSS}	Minimum Drain-source breakdown voltage	$V_{gs} = -8V$, $I_D = 14mA$	150			V

Export Classification: EAR-99

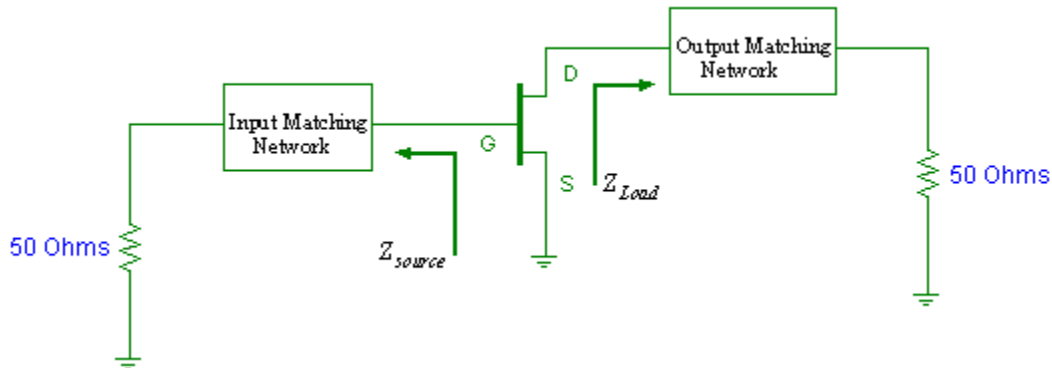
Preliminary Issue July 2016

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 for the latest information

Typical test data Vdd=50V, Idq=50mA, 128us@10%

Frequency	Pin (W)	Pout (W)	Id (A)	RL (dB)	Eff (%)	Gp (dB)	Droop (dB)
960MHz	4	350	1.21	-8.5	60	19.4	.40
1030MHz	4	335	1.09	-8.2	63	19.2	.30
1090MHz	4	350	1.04	-8.5	70	19.4	.30
1150MHz	4	324	1.08	-15	58	19.1	.30
1215MHz	4	313	1.03	-15	64	19	.30

TRANSISTOR IMPEDANCE INFORMATION



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

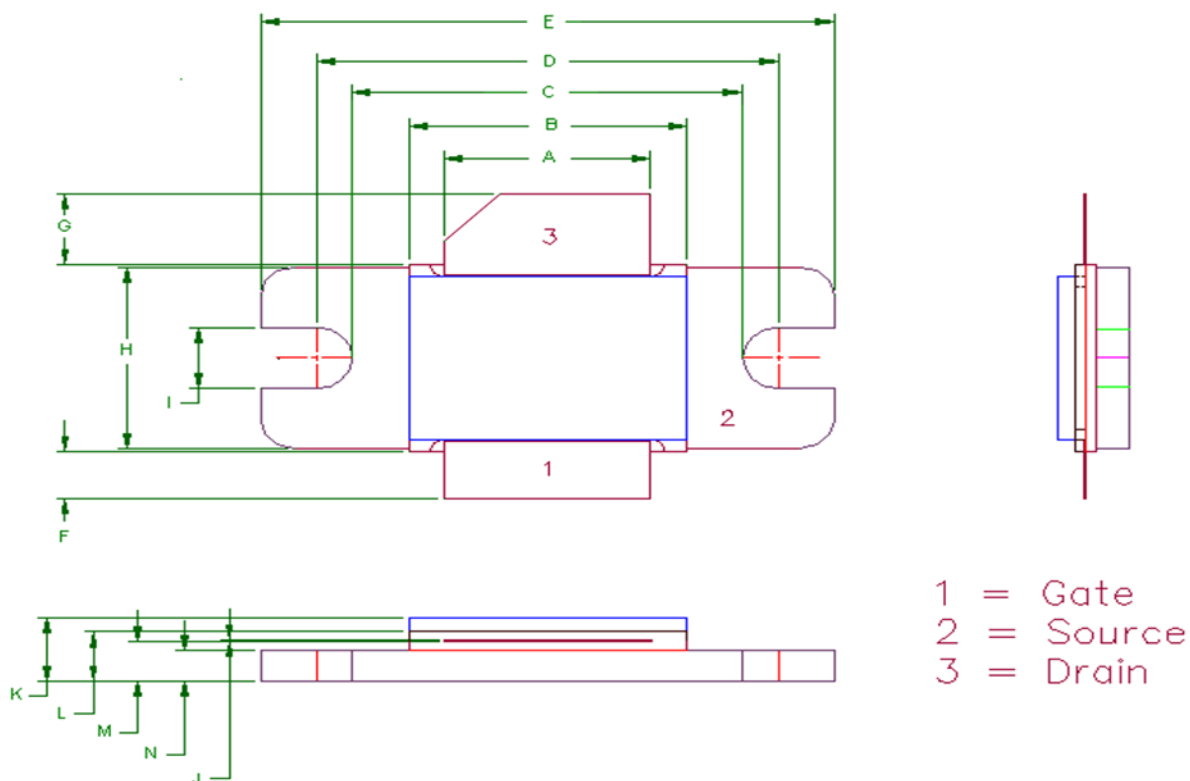
Impedance Data		
Freq (GHz)	Z_{source}	Z_{Load}
0.96	$2.15 - j0.85$	$2.40 + j0.75$
1.09	$2.10 + j0.55$	$2.35 + j1.40$
1.215	$2.15 + j0.17$	$1.95 + j2.20$

Please contact our representative for the RF test circuit

0912GN-300V

300 Watts - 50 Volts, 128 μ s, 10%
Broad Band Data Link 960 - 1215 MHz

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



0912GN-300V

800 Watts - 50 Volts, 128 μ s, 10%
Broad Band Data Link 960 - 1215 MHz

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Revision History

Revision Level / Date	Para. Affected	Description
02/ July. 2016	-	Release Preliminary release

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