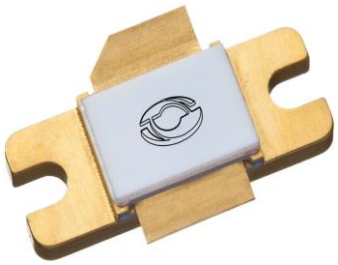
0912GN-300V

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

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 128µs 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.

CASE OUTLINE
55-KR
Common Source



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

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
ηd	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	
Θjc	Thermal Resistance	Pout=300W, PW=128us, 10%			0.62	°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 = 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

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Preliminary Issue July 2016

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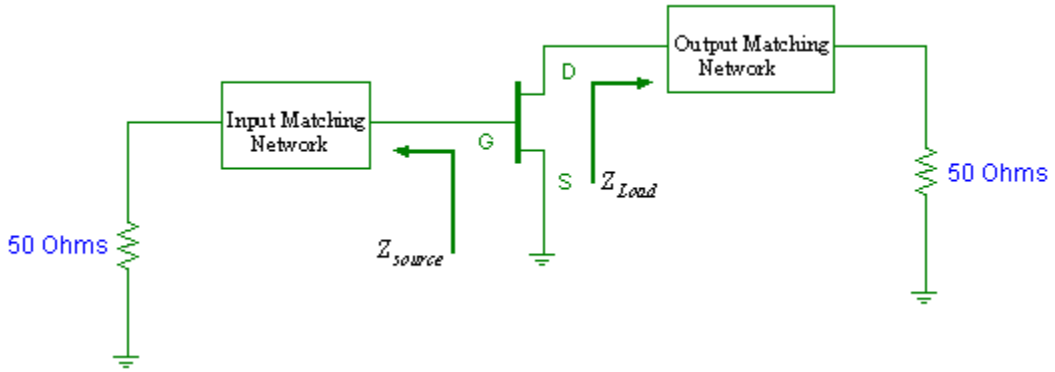
Typical test data Vdd=50V, Idq=50mA, 128us@10%

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

Impedance Data		
Freq (GHz)	Zsource	ZLoad
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

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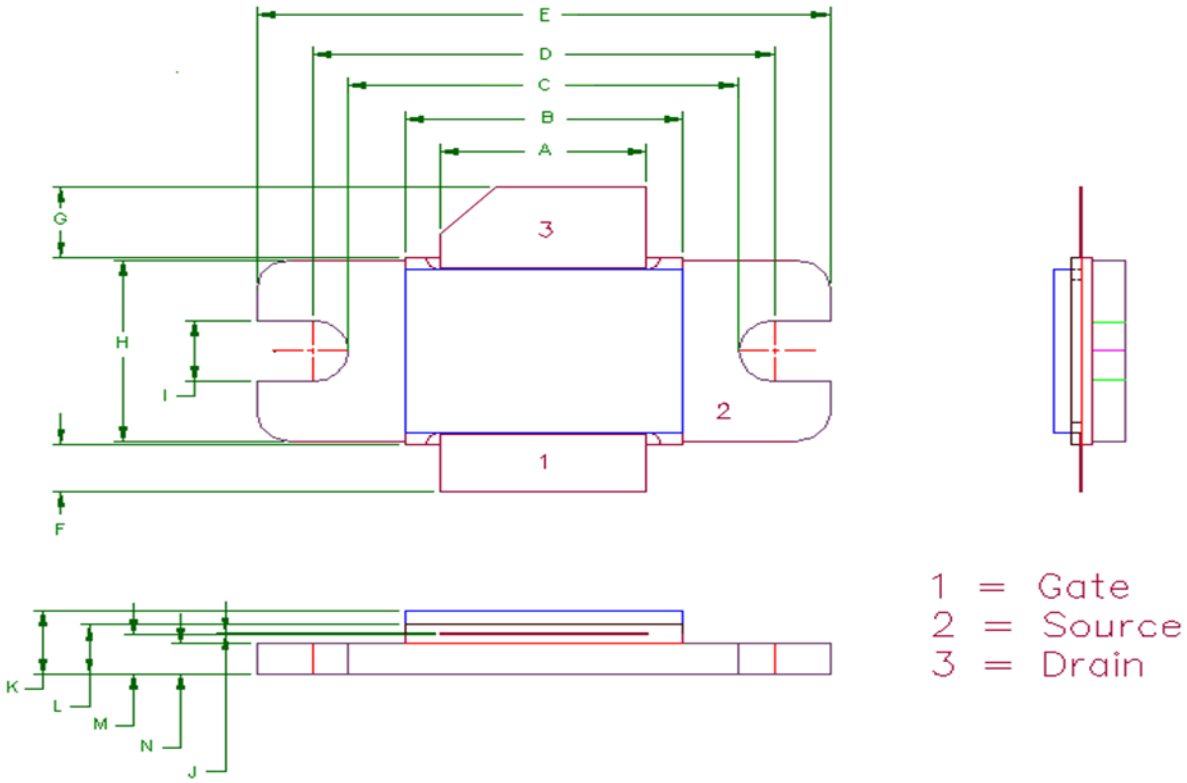
55-KR PACKAGE DIMENSION



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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800 Watts - 50 Volts, 128 μs, 10%
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Revision History

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