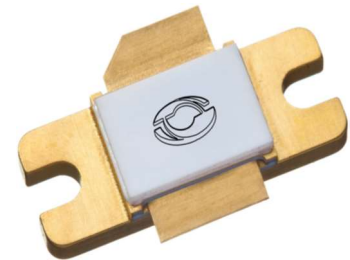


GENERAL DESCRIPTION

The 0912GN-650V is an internally matched, COMMON SOURCE, class AB GaN on SiC HEMT transistor capable of providing over 17dB gain, 650 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 transistor can be used for broadband L-band Avionics applications including DME, IFF, Transponders, and TCAS. 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 1400 W

Maximum Voltage and Current

Drain-Source Voltage (V_{DS}) 65 V

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

Maximum Temperatures

Storage Temperature (T_{STG}) -55 to +150 °C

Operating Junction Temperature +225 °C

ELECTRICAL CHARACTERISTICS @ 25°C

Symbol	Characteristics	Test Conditions	Min	Typ	Max	Units
P_{OUT}	Output Power	Freq=960, 1090, 1215 MHz	650			W
G_P	Power Gain	Pout=650W, Freq=960, 1090, 1215 MHz		17.5		dB
η_D	Drain Efficiency	Pout=650W, Freq=960, 1090, 1215 MHz		60		%
D_r	Droop	Pout=650W, Freq=960, 1090, 1215 MHz			0.7	dB
VSWR-T	Load Mismatch Tolerance	Pout=650W, Freq= 1215MHz			3:1	
Θ_{JC}	Thermal Resistance	Pulse Width=128uS, Duty=10%			0.16	°C/ W

- Bias Condition: $V_{dd}=+50V$, $I_{dq}=100mA$ average current ($V_{gs}= -2.0 \sim -4.5V$) with constant gate bias

FUNCTIONAL CHARACTERISTICS @ 25°C

$I_{D(off)}$	Drain leakage current	$V_{GS} = -8V$, $V_D = 50V$			30	mA
$I_{G(off)}$	Gate leakage current	$V_{GS} = -8V$, $V_D = 0V$			22	mA

Export Classification: EAR-99



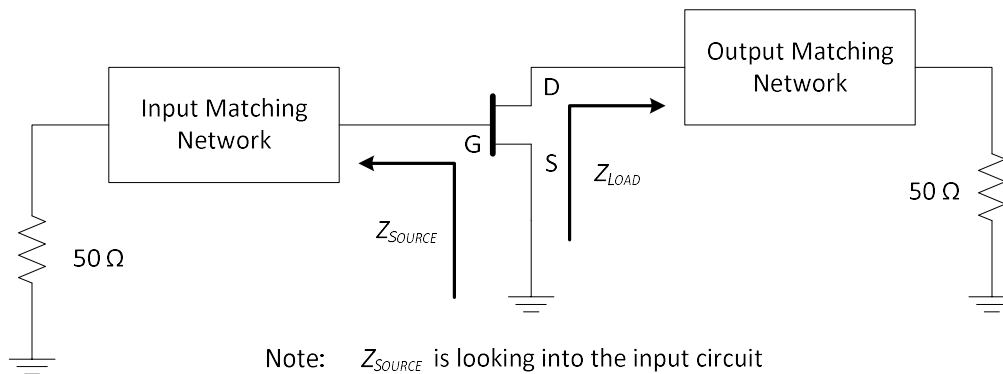
0912GN-650V

650 Watts • 50 Volts • 128 μ S, 10%
960 - 1215 MHz Avionics

TYPICAL BROAD BAND PERFORMANCE DATA

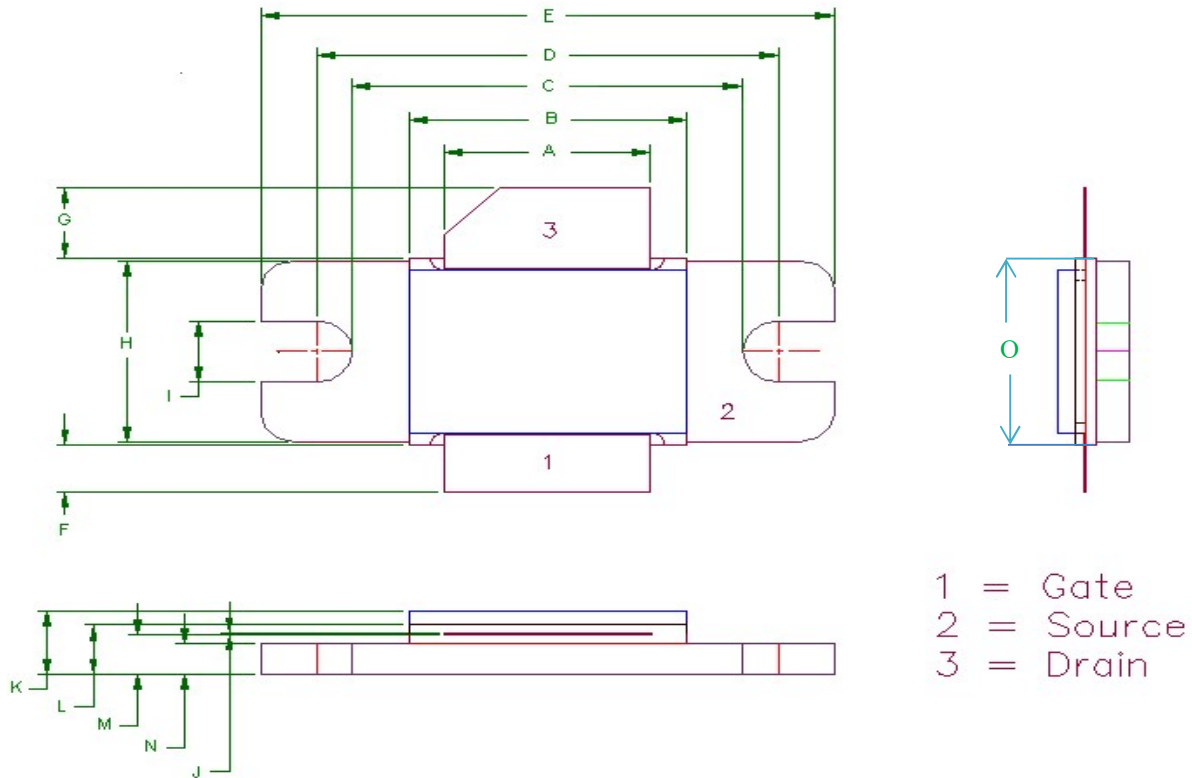
Frequency	P _{IN} (W)	P _{OUT} (W)	I _D (A)	IRL (dB)	η D (%)	G _P (dB)	Droop (dB)
960 MHz	11.2	712	2.98	-10.5	59.1	17.5	0.5
1090 MHz	11.2	693	2.83	-8.0	60.5	17.4	0.4
1215 MHz	11.2	751	2.74	-15.6	67.9	17.8	0.3

TRANSISTOR IMPEDANCE INFORMATION



Note: Z_{SOURCE} is looking into the input circuit
 Z_{LOAD} is looking into the output circuit

Impedance Data		
Freq	Z_{SOURCE}	Z_{LOAD}
960 MHz	0.895 – j0.630	1.070 + j0.887
1090 MHz	0.988 + j0.180	1.329 + j1.342
1215 MHz	1.138 + j0.765	1.080 + j1.520

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
O	396	10.05	404	10.27



0912GN-650V

650 Watts • 50 Volts • 128 μ S, 10%
960 - 1215 MHz Avionics

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Revision History

Revision Level / Date	Para. Affected	Description
02 / August 2017	-	Preliminary Release