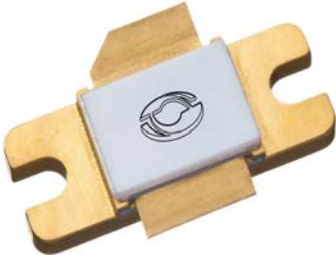


Preliminary

<p>GENERAL DESCRIPTION</p> <p>The 0912GN-600 is an internally matched, COMMON SOURCE, class AB, GaN on SiC HEMT transistor capable of providing over 18dB gain, 600 Watts of pulsed RF output power at 128μs pulse width, 10% duty factor across the 960 to 1215 MHz band.</p> <p>Market Application – 0912GN-600 is a general purpose power transistor that can be used for any of the following applications –</p> <ul style="list-style-type: none"> - Broadband Data Link - Avionics DME, TACAN, TCAS and MODE-S 	<p>CASE OUTLINE 55-KR Common Source</p> 
<p>ABSOLUTE MAXIMUM RATINGS</p> <p>Maximum Power Dissipation Device Dissipation @ 25°C 1200 W</p> <p>Maximum Voltage and Current Drain-Source Voltage (V_{DSS}) 150 V Gate-Source Voltage (V_{GS}) -8 to +0 V</p> <p>Maximum Temperatures Storage Temperature (T_{STG}) -55 to +125° C Operating Junction Temperature +250 °C</p>	

ELECTRICAL CHARACTERISTICS @ 25°C

Symbol	Characteristics	Test Conditions	Min	Typ	Max	Units
Pout	Output Power	Pout=600W, Freq=960, 1090, 1215 MHz	600	640		W
Gp	Power Gain	Pout=600W, Freq=960, 1090, 1215 MHz	18	19		dB
η_d	Drain Efficiency	Pout=600W, Freq=960, 1090, 1215 MHz	47	55		%
Dr	Droop	Pout=600W, Freq=960, 1090, 1215 MHz			0.5	dB
VSWR-T	Load Mismatch Tolerance	Pout=600W, Freq= 1215MHz			3:1	
Θ_{jc}	Thermal Resistance	Pulse Width=128 μ s, Duty=10%			0.2	°C/W

- Bias Condition: Vdd=+65V, Idq=1000mA peak current (Vgs= -2.0 ~ -4.5V typical)
-

FUNCTIONAL CHARACTERISTICS @ 25°C

$I_{D(off)}$	Drain leakage current	$V_{gs} = -8V, V_D = 65V$			10	mA
$I_{G(off)}$	Gate leakage current	$V_{gs} = -8V, V_D = 0V$			8	mA
BV_{DSS}	Drain-source breakdown voltage	$V_{gs} = -8V, I_D = 10mA$	250			V

Issue October 2012

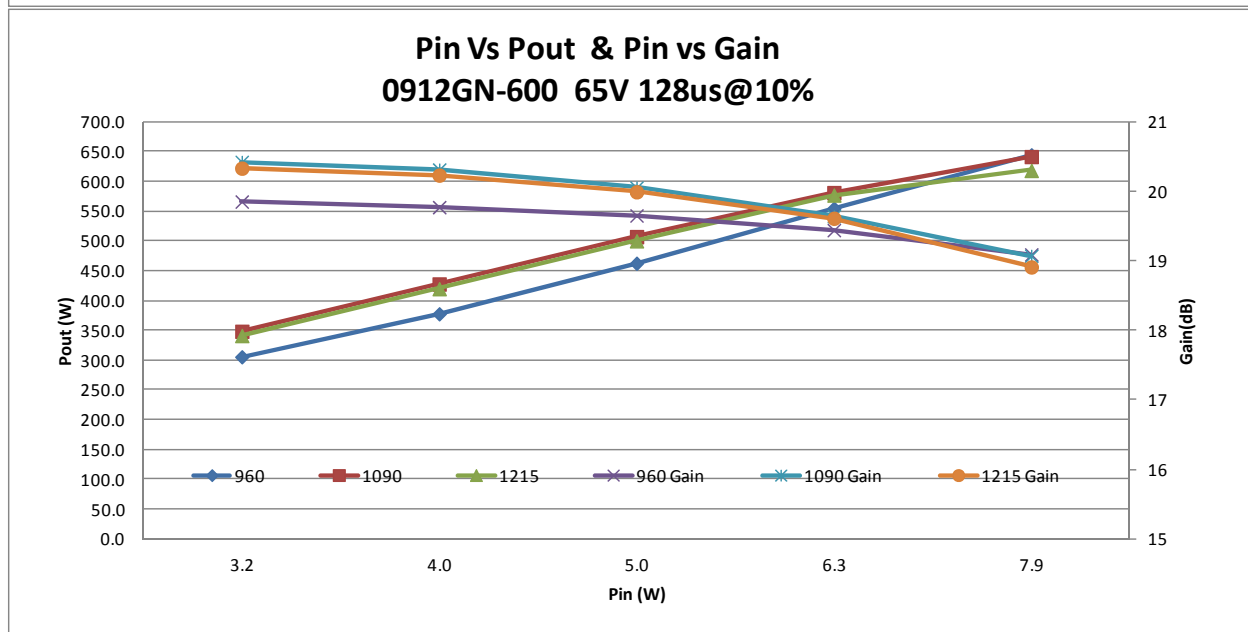
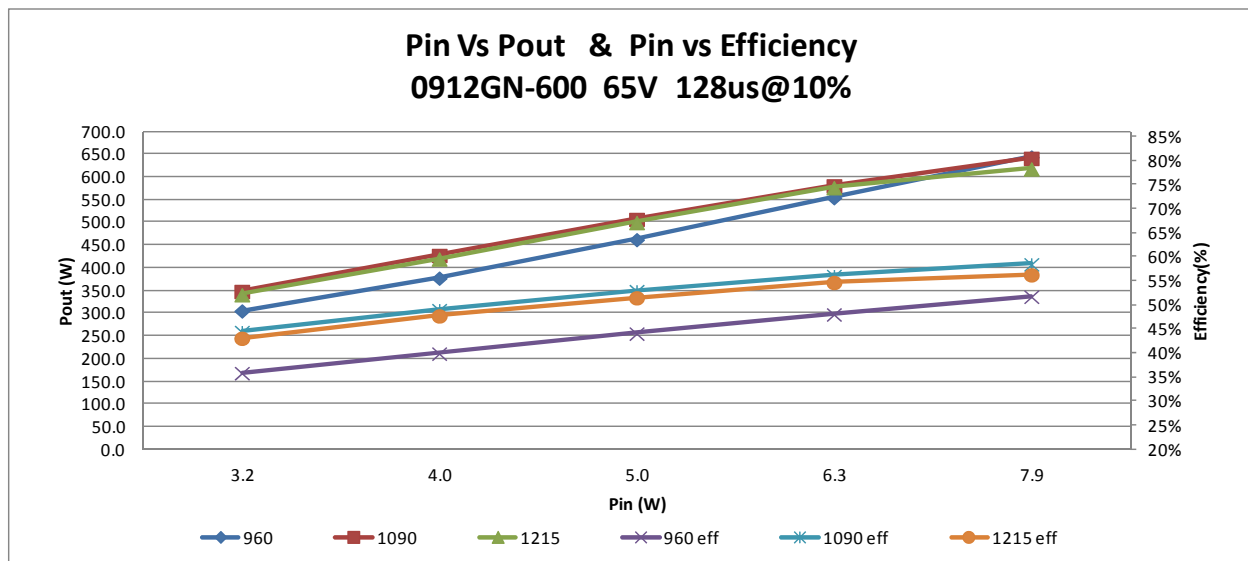
Export Classification: EAR-99

0912GN-600

600 Watts - 65 Volts, 128 μ s, 10%
Broadband Data Link 960 - 1215 MHz

TYPICAL BROAD BAND PERFORMANCE DATA

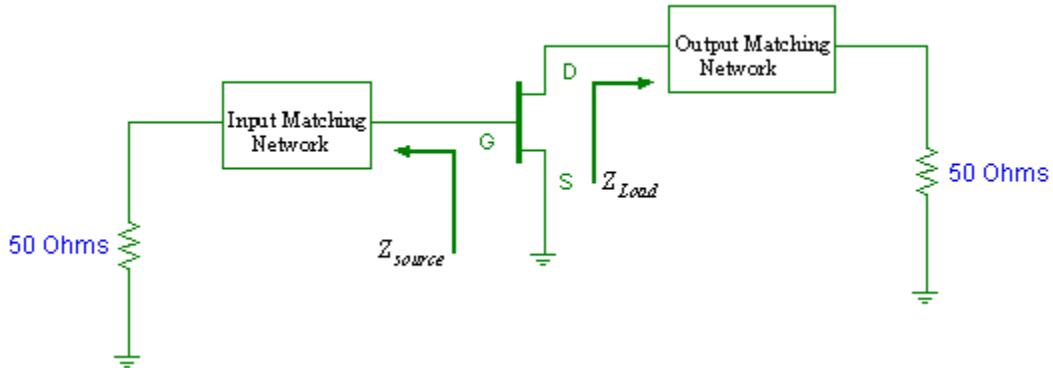
Frequency	Pin (W)	Pout (W)	Id (A)	RL (dB)	Nd (%)	G (dB)	Drop (dB)
960 MHz	8	647	1.9	-9	52	19.1	0.4
1090 MHz	8	665	1.7	-8	60	19.2	0.2
1215 MHz	8	641	1.7	-10	58	19.1	0.2



0912GN-600

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TRANSISTOR IMPEDANCE INFORMATION



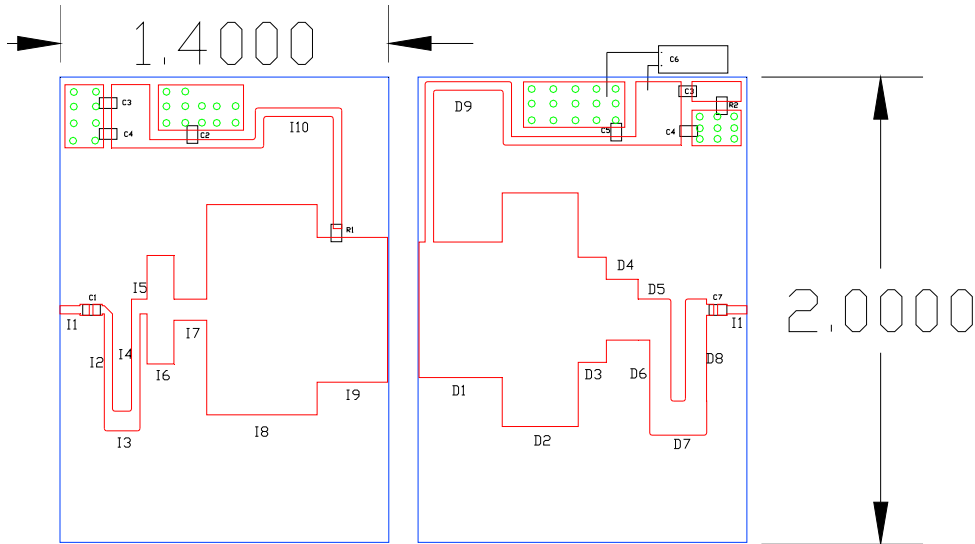
Note: Z_{in} is looking into the input circuit;
 Z_{Load} is looking into the output circuit.

Impedance Data		
Freq (GHz)	Zs	ZI
0.96	0.84 - j1.48	1.63 - j1.22
1.09	0.79 - j0.81	1.68 - j0.93
1.215	0.80 - j0.21	1.70 - j0.69

0912GN-600

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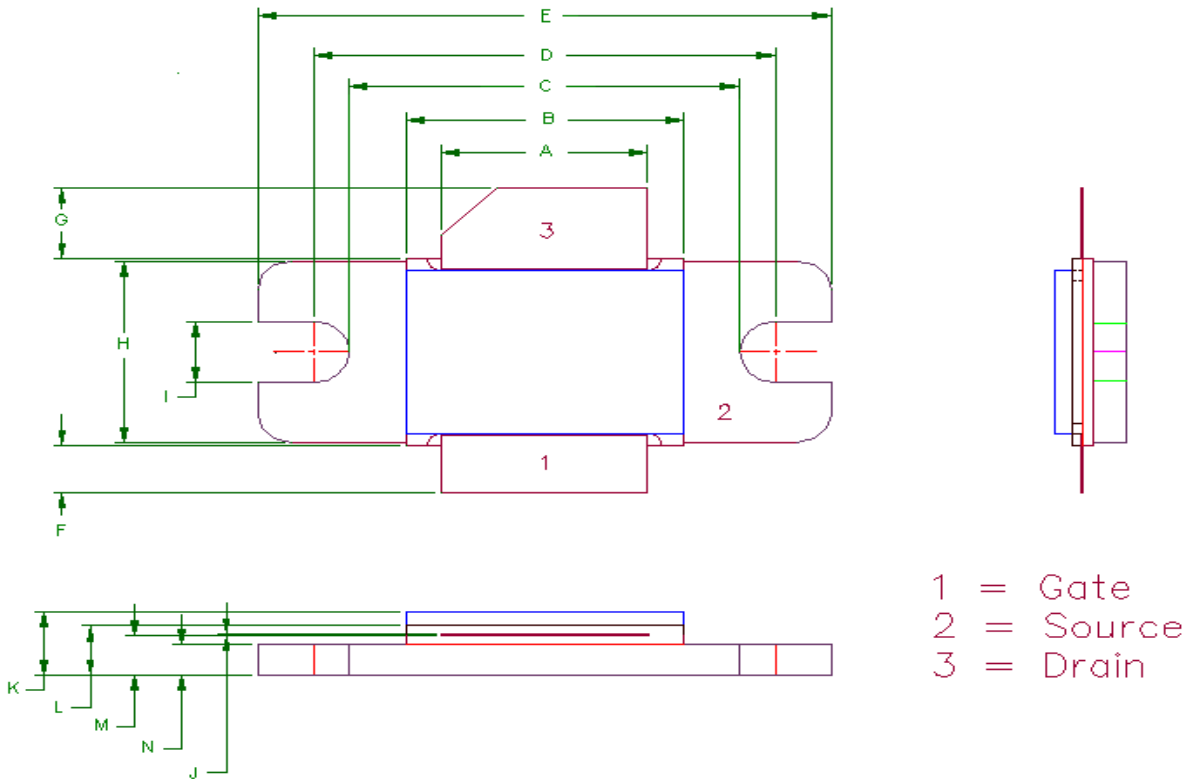
TEST CIRCUIT DIAGRAM



Board Material: Roger Duriod 6006 @ 25 Mil Thickness, Er=6.15

Component List			Input layout			Output layout		
Item	Description	Value	Item	W(mil)	L(mil)	Item	W(mil)	L(mil)
C1	ATC 800A	100pF	I1	36	85	D1	580	354
C2	ATC 100B	100PF	I2	36	41	D2	1000	324
C3	ATC 100B	1000pF	I3	84	152	D3	450	120
C4	ATC 100B	1000pF	I4	36	416	D4	260	135
C5	ATC 100B	91PF	I5	64	66	D5	176	130
C6	Elyctrylic Capacitor (63V)	4700UF	I6	464	114	D6	92	250
C7	ATC 800A	68PF	I7	90	140	D7	146	238
R1	0805	10 ohm	I8	900	470	D8	100	438
R2	0805	1.5ohm	I9	620	300	D9	36	1460
note	C3, C4 X2		I10	36	1360			

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-600

600 Watts - 65 Volts, 128 μ s, 10%
Broad Band Data Link 960 - 1215 MHz

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Revision History

Revision Level / Date	Para. Affected	Description
0.1 / 8 October 2012	-	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