

GENERAL DESCRIPTION

The 2735GN-100 is an internally matched, COMMON SOURCE, class AB GaN on SiC transistor capable of providing 11dB gain, 100 Watts of pulsed RF output power at 300 μ s pulse width, 10% duty factor across the 2700 to 3500 MHz band. The transistor has internal pre-match for optimal performance. This hermetically sealed transistor is specifically designed for general purpose driver or S-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 200 W

Maximum Voltage and Current

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

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

Maximum Temperatures

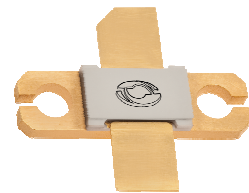
Storage Temperature (T_{STG}) -55 to +125 °C

Operating Junction Temperature +200 °C

CASE OUTLINE

55-QP

Common Source



ELECTRICAL CHARACTERISTICS @ 25°C

Symbol	Characteristics	Test Conditions	Min	Typ	Max	Units
P _{out}	Output Power	Pin=8W, Freq=2.7, 3.1, 3.5 GHz	100	110		W
G _p	Power Gain	Pin=8W, Freq=2.7, 3.1, 3.5 GHz	11	11.4		dB
η_d	Drain Efficiency	Pin=8W, Freq=2.7, 3.1, 3.5 GHz	40	48		%
R/L	Input Return Loss	Pin=8W, Freq=2.7, 3.1, 3.5 GHz	-7			dB
VSWR-T	Load Mismatch Tolerance	P _{out} =100W, Freq=2.7 GHz			5:1	
θ_{jc}	Thermal Resistance	Pulse Width=300 μ s, Duty=10%			1.1	°C/W

- Bias Condition: V_{dd}=+60V, I_{dq}=250mA peak current (V_{gs} = -2.0 ~ -4.5V typical)

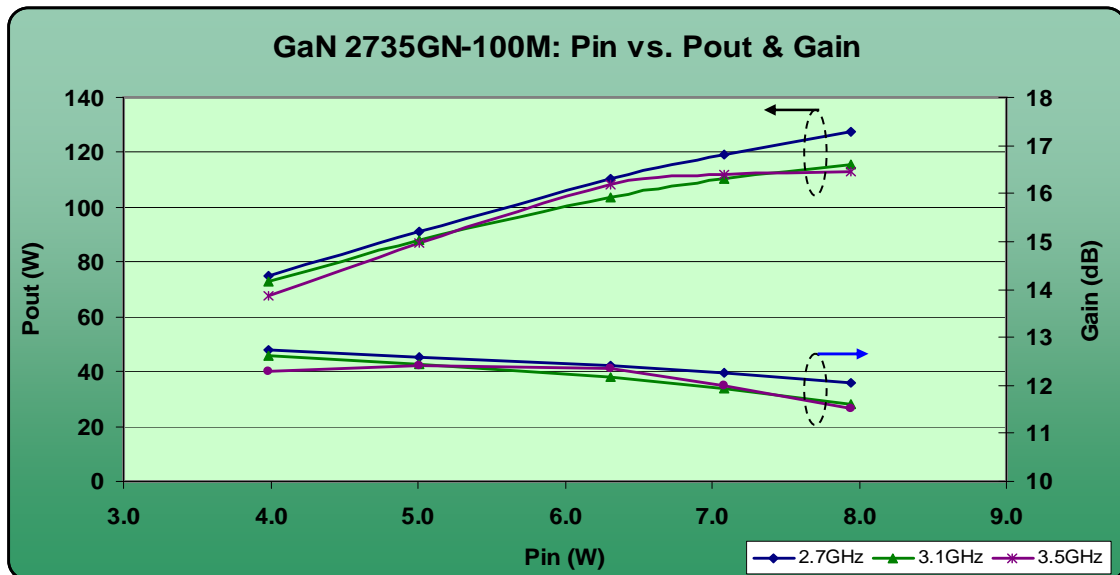
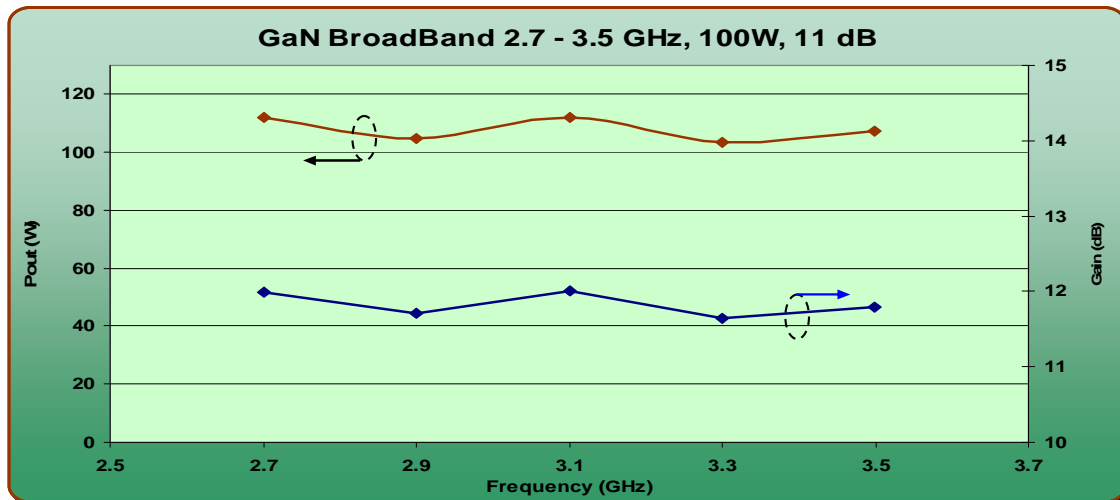
FUNCTIONAL CHARACTERISTICS @ 25°C

I _{D(Off)}	Drain leakage current	V _{gs} = -8V, V _D = 60V			2.5	mA
I _{G(Off)}	Gate leakage current	V _{gs} = -8V, V _D = 0V			2	mA
BV _{DSS}	Drain-source breakdown voltage	V _{gs} = -8V, I _D = 3mA	250			V

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TYPICAL PERFORMANCE DATA

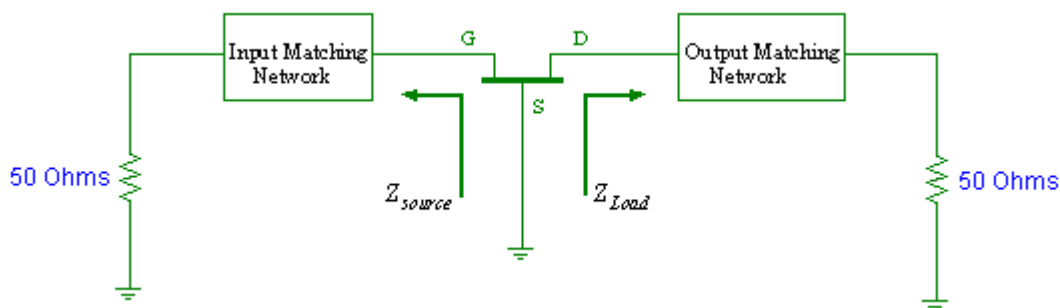
Frequency	Pin (W)	Pout (W)	Id (A)	RL (dB)	Nd (%)	G (dB)
2700 MHz	8	124	0.43	-7	48	12.0
2900 MHz	8	115	0.43	-7	45	11.6
3100 MHz	8	115	0.40	-8	48	11.6
3300 MHz	8	121	0.40	-12	51	11.8
3500 MHz	8	123	0.40	-13	47	11.5



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.

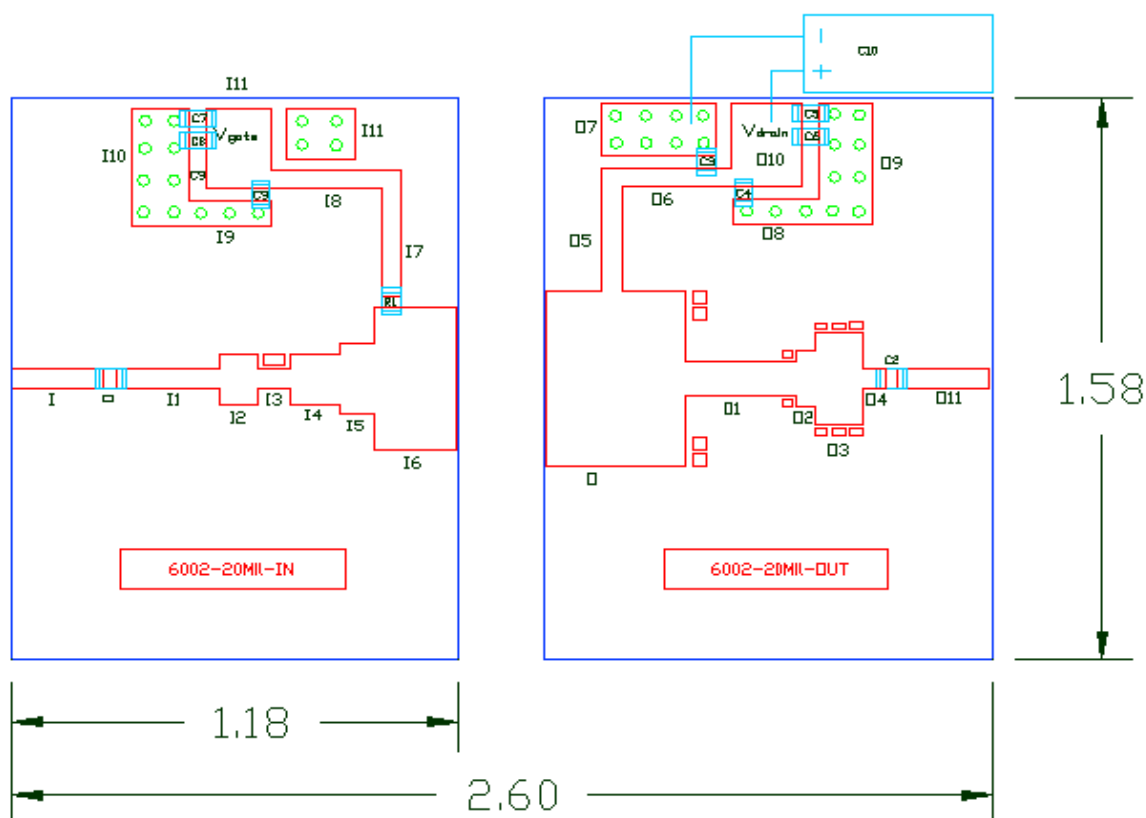
TRANSISTOR IMPEDANCE INFORMATION

Impedance Data		
Freq (GHz)	Zs	ZI
2.7	6.75 – j7.95	8.49 – j4.21
2.9	6.46 – j7.34	8.40 – j5.68
3.1	6.20 – j6.78	7.20 – j6.89
3.3	6.00 – j6.24	5.49 – j7.20
3.5	5.83 – j5.72	3.98 – j3.98



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

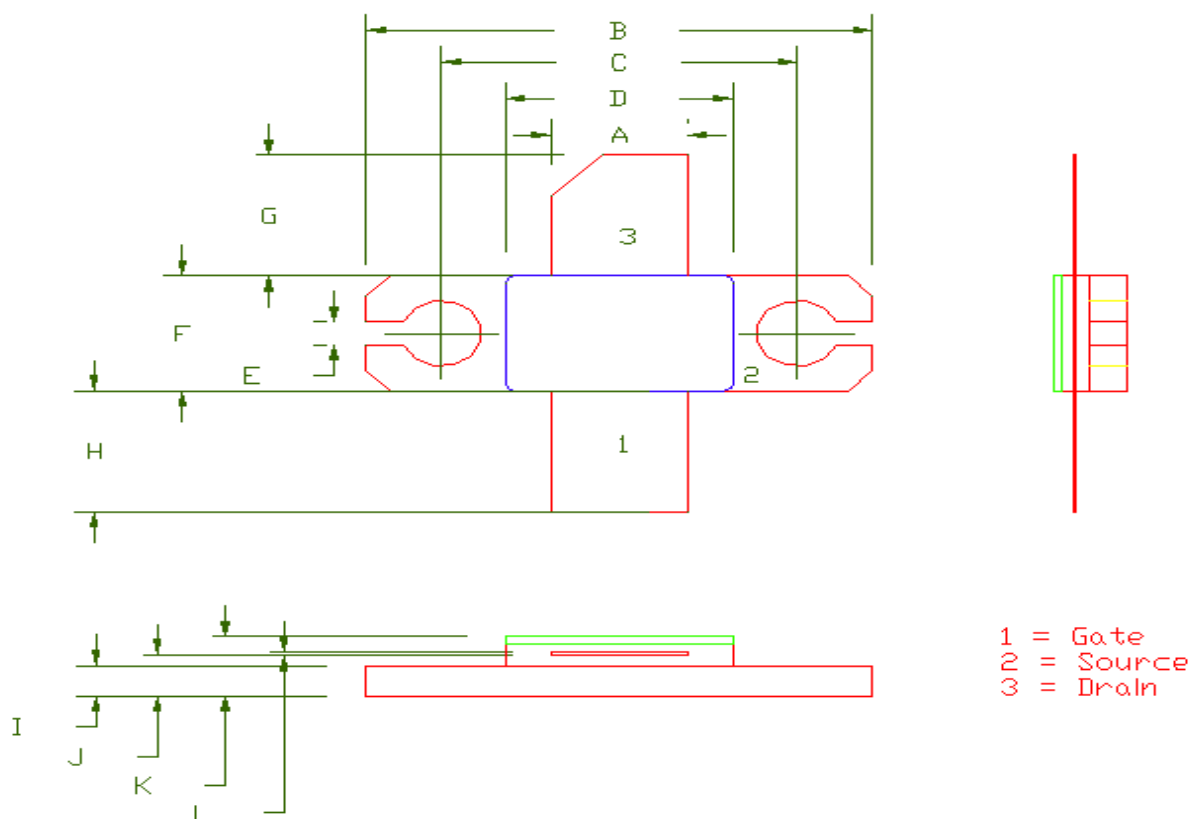
TEST CIRCUIT LAYOUT



Board Material: Roger Duroid 6002 @ 20 mils thickness, 1 oz Cu, Er = 2.9

Component List			Input Physical Circuit Layout			Output Physical Circuit Layout		
Item	Description	Value	Item	W (mil)	L (mil)	Item	W (mil)	L (mil)
C1	Chip Cap A size	9.1pF	I	52	240	O	490	370
C2	Chip Cap A size	9.1pF	I1	52	270	O1	100	290
C3	Chip Cap B size	120pF	I2	140	100	O2	160	50
C4	Chip Cap B size	1000pF	I3	52	84	O3	260	130
C5	Chip Cap B size	10,000pF	I4	140	132	O4	52	60
C6	Chip Cap B size	1000pF	I5	200	90	O5	52	245
C7	Chip Cap B size	10,000pF	I6	400	220	O6	52	320
C8	Chip Cap B size	1,000pF	I7	52	320	O7	146	300
C9	Chip Cap B size	120pF	I8	52	300	O8	70	215
C10	Electrolytic Cap (63V)	2200uF	I9	70	215	O9	340	140
R1	Chip Resistor size 0805	11.5 ohms	I10	330	150	O10	230	180
			I11	140	180	O11	52	246

55-QP PACKAGE DIMENSION



Dimension	Min (mil)	Min (mm)	Max (mil)	Max (mm)
A	213	5.41	217	5.51
B	798	20.26	802	20.37
C	560	14.22	564	14.32
D	258	6.55	362	9.19
E	43	1.09	47	1.19
F	226	5.74	230	5.84
G	235	5.96	239	6.07
H	235	5.96	239	6.07
I	60	1.52	62	1.57
J	81	2.06	82	2.08
K	116	2.94	118	2.99
L	4	.102	6	.152



2735GN – 100M

100 Watts - 60 Volts, 300 μ s, 10%
2700 - 3500 MHz

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Revision History

Revision Level / Date	Para. Affected	Description
0.1 / 6 August 2012	-	Initial Preliminary Release

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