



## 2731GN – 200M

200 Watts - 60 Volts, 200  $\mu$ s, 10%  
2700 - 3100 MHz

### GENERAL DESCRIPTION

The 2731GN-200M is an internally matched, COMMON SOURCE, class AB GaN on SiC transistor capable of providing 12dB gain, 200 Watts of pulsed RF output power at 200 $\mu$ s pulse width, 10% duty factor across the 2700 to 3100 MHz band. The transistor has internal pre-match for optimal performance. This hermetically sealed transistor is designed for S-Band Radar applications. It utilizes gold metallization and eutectic attach to provide highest reliability and superior ruggedness.

### CASE OUTLINE

55-QP

Common Source

### ABSOLUTE MAXIMUM RATINGS

#### Maximum Power Dissipation

Device Dissipation @ 25°C 400 W

#### Maximum Voltage and Current

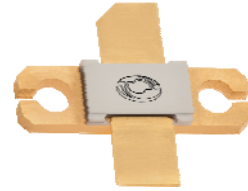
Drain-Source Voltage ( $V_{DSS}$ ) 150 V

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

#### Maximum Temperatures

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

Operating Junction Temperature +200 °C



### ELECTRICAL CHARACTERISTICS @ 25°C

Symbol	Characteristics	Test Conditions	Min	Typ	Max	Units
Pout	Output Power	Pin=12W, Freq=2.7, 2.9, 3.1 GHz	200	225		W
Gp	Power Gain	Pin=12W, Freq=2.7, 2.9, 3.1 GHz	12.2	12.7		dB
$\eta_d$	Drain Efficiency	Pin=12W, Freq=2.7, 2.9, 3.1 GHz	42	50		%
R/L	Input Return Loss	Pin=12W, Freq=2.7, 2.9, 3.1 GHz	-7			dB
VSWR-T	Load Mismatch Tolerance	Pout=200W, Freq=2.7 GHz			5:1	
$\Theta_{jc}$	Thermal Resistance	Pulse Width=200 $\mu$ s, Duty=10%			0.6	°C/W

- Bias Condition: Vdd=+60V, Idq=500mA peak current ( $V_{gs}$ = -2.0 ~ -4.5V typical)

### FUNCTIONAL CHARACTERISTICS @ 25°C

$I_{D(om)}$	Drain leakage current	$V_{gs} = -8V, V_D = 60V$			5	mA
$I_{G(om)}$	Gate leakage current	$V_{gs} = -8V, V_D = 0V$			4	mA
BV <sub>DSS</sub>	Drain-source breakdown voltage	$V_{gs} = -8V, I_D = 5mA$	250			V

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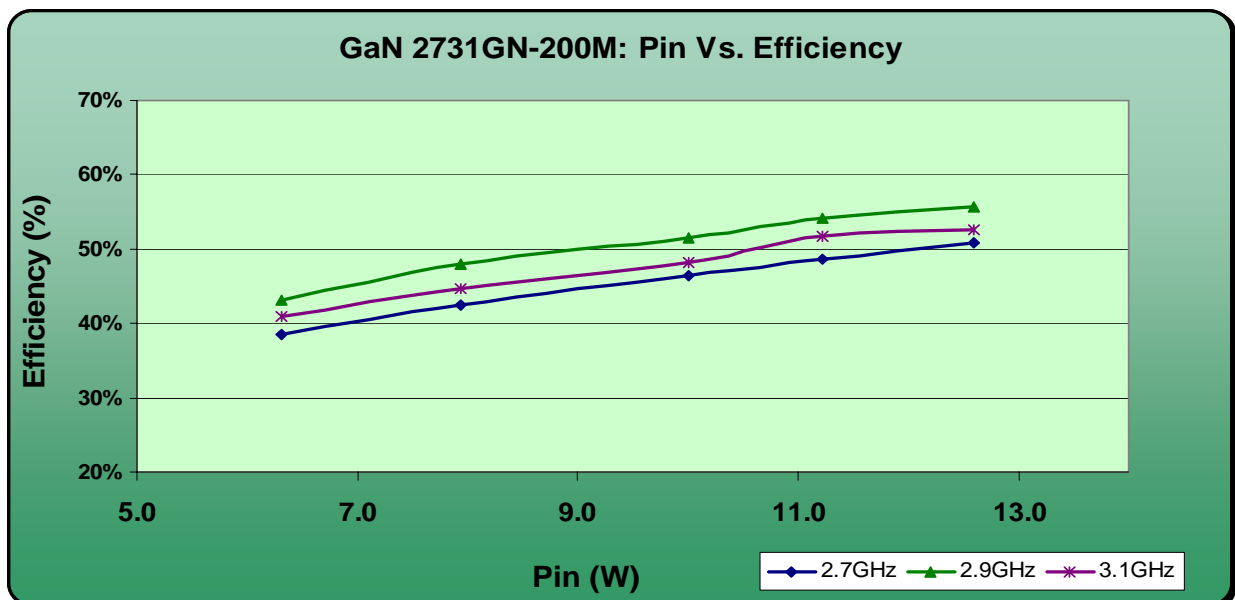
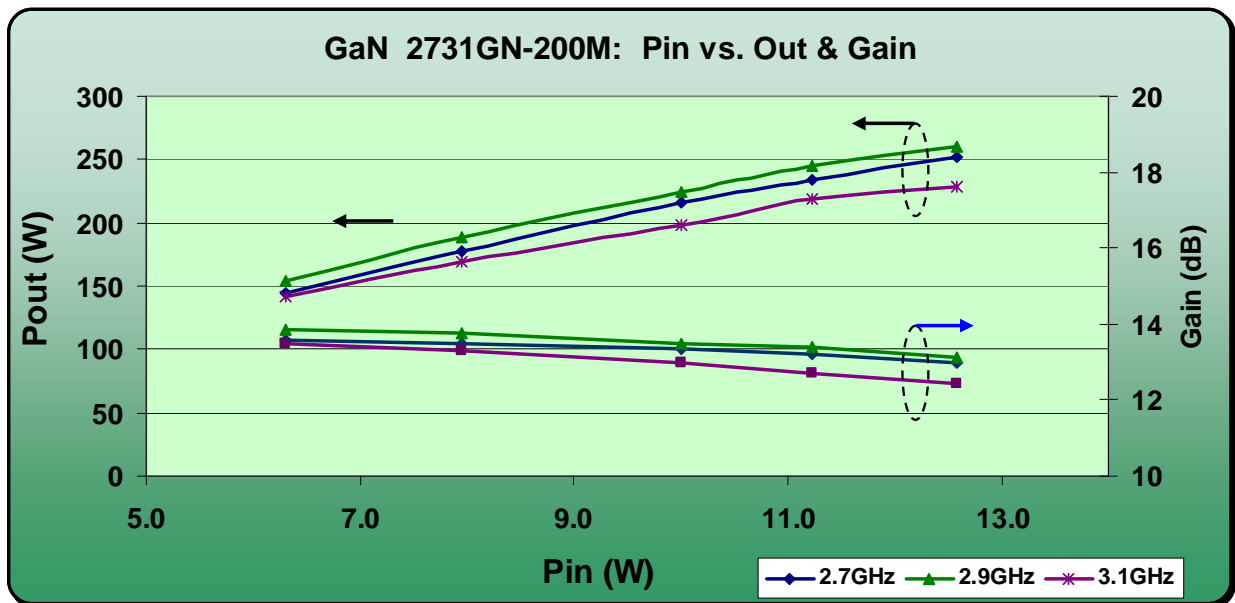


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### Typical Performance Data:

Frequency	Pin (W)	Pout (W)	Id (A)	RL (dB)	Nd (%)	G (dB)
2700 MHz	12	251	0.85	-13	49	13.2
2900 MHz	12	243	0.80	-8	51	13.0
3100 MHz	12	214	0.75	-10	47	12.5



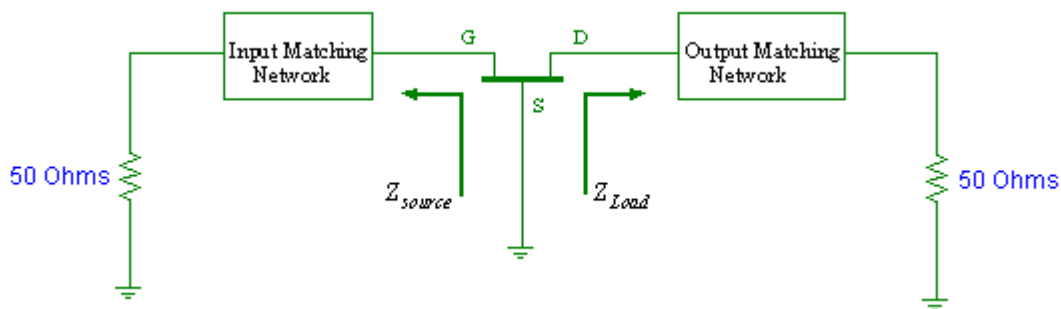


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### Transistor Impedance Information

Impedance Data		
Freq (GHz)	Zs	ZI
2.7	3.28 – j7.50	3.24 – j3.74
2.8	3.10 – j7.14	3.24 – j3.44
2.9	2.94 – j6.78	3.26 – j3.14
3.0	2.79 – j6.44	3.27 – j2.84
3.1	2.65 – j6.10	3.00 – j2.56



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

Test Circuit Layout Available Upon Request

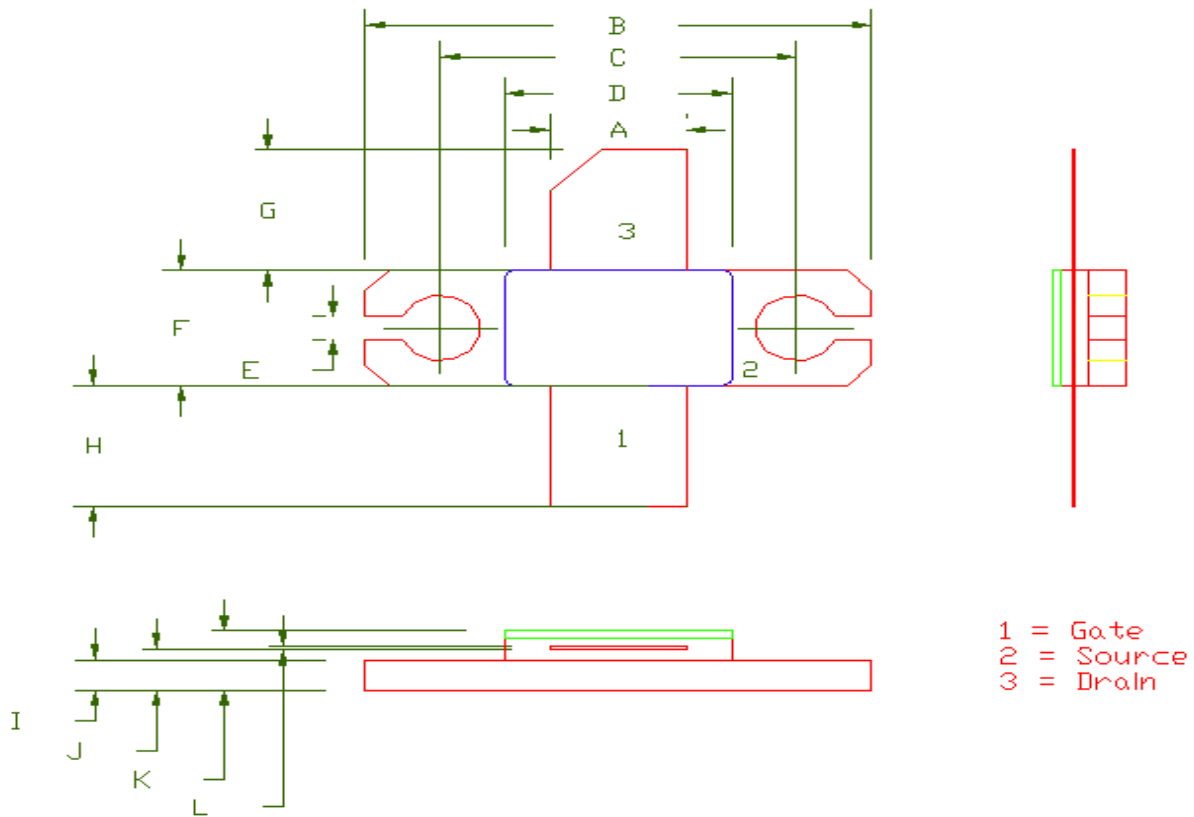
Please send your request to [GaN@Microsemi.com](mailto:GaN@Microsemi.com)



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### 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