



## 3135GN – 170M

170 Watts - 60 Volts, 300  $\mu$ s, 10%  
3100 - 3500 MHz

### GENERAL DESCRIPTION

The 3135GN-170M is an internally matched, COMMON SOURCE, class AB GaN on SiC transistor capable of providing 11dB gain, 170 Watts of pulsed RF output power at 300 $\mu$ s pulse width, 10% duty factor across the 3100 to 3500 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 340 W

#### Maximum Voltage and Current

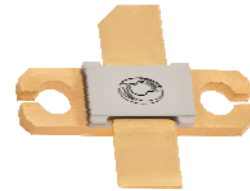
Drain-Source Voltage ( $V_{DSS}$ ) 150 V

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=3.1, 3.3, 3.5 GHz	170	185		W
Gp	Power Gain	Pin=12W, Freq=3.1, 3.3, 3.5 GHz	11.5	11.8		dB
$\eta_d$	Drain Efficiency	Pin=12W, Freq=3.1, 3.3, 3.5 GHz	35	40		%
R/L	Input Return Loss	Pin=12W, Freq=3.1, 3.3, 3.5 GHz	-9			dB
VSWR-T	Load Mismatch Tolerance	Pout=170W, Freq=3.1 GHz			5:1	
$\Theta_{jc}$	Thermal Resistance	Pulse Width=300uS, 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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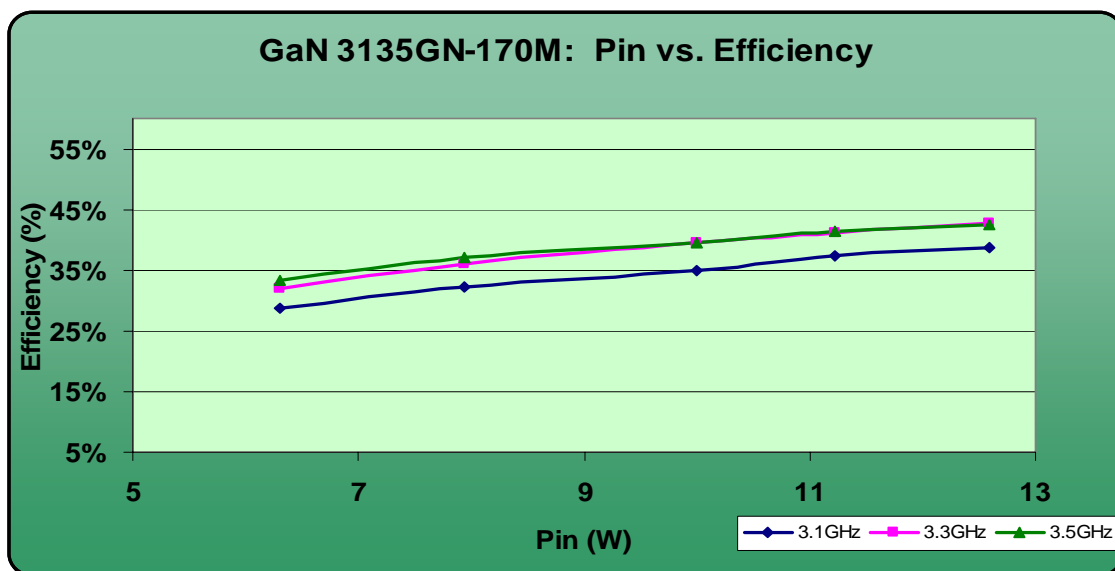
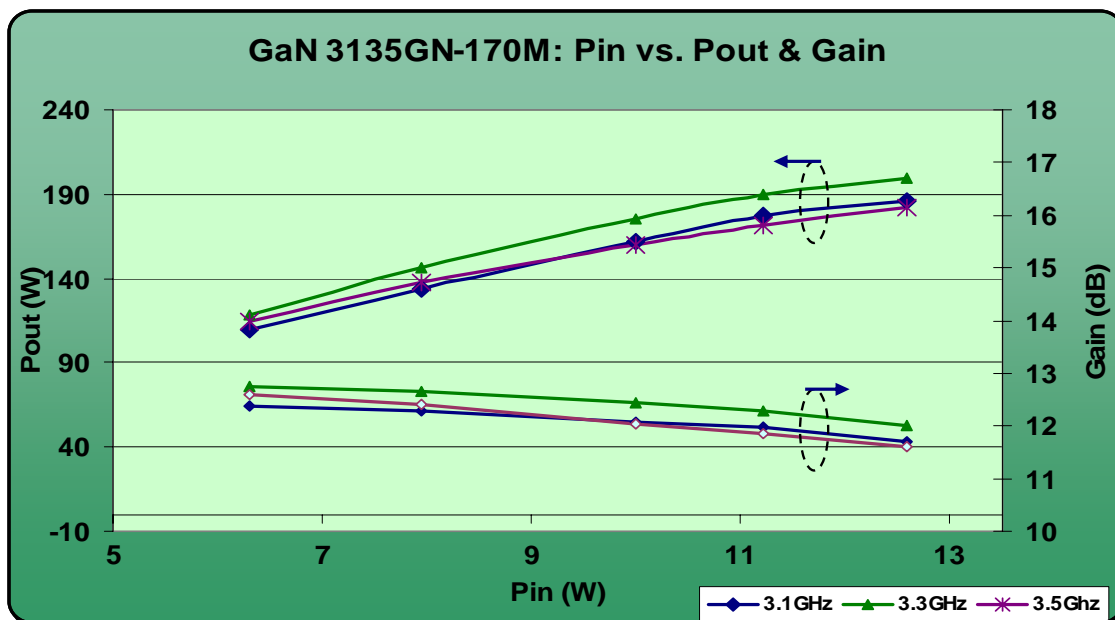


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### Typical Performance Data:

Frequency	Pin (W)	Pout (W)	Id (A)	RL (dB)	Nd (%)	G (dB)
3100 MHz	12	180	0.84	-12	36	11.8
3300 MHz	12	194	0.81	-11	40	12.1
3500 MHz	12	177	0.75	-20	40	11.7



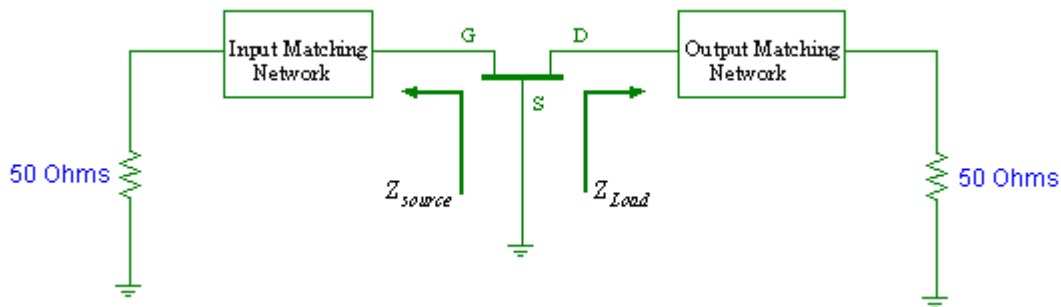


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### Transistor Impedance Information

Impedance Data		
Freq (GHz)	Zs	ZI
3.1	5.02 – j9.48	5.04 – j4.88
3.2	4.48 – j9.28	4.56 – j5.21
3.3	3.92 – j8.98	4.08 – j5.36
3.4	3.42 – j8.64	3.52 – j5.36
3.5	3.00 – j8.28	3.02 – j5.24



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

Test Circuit Layout Available Upon Request

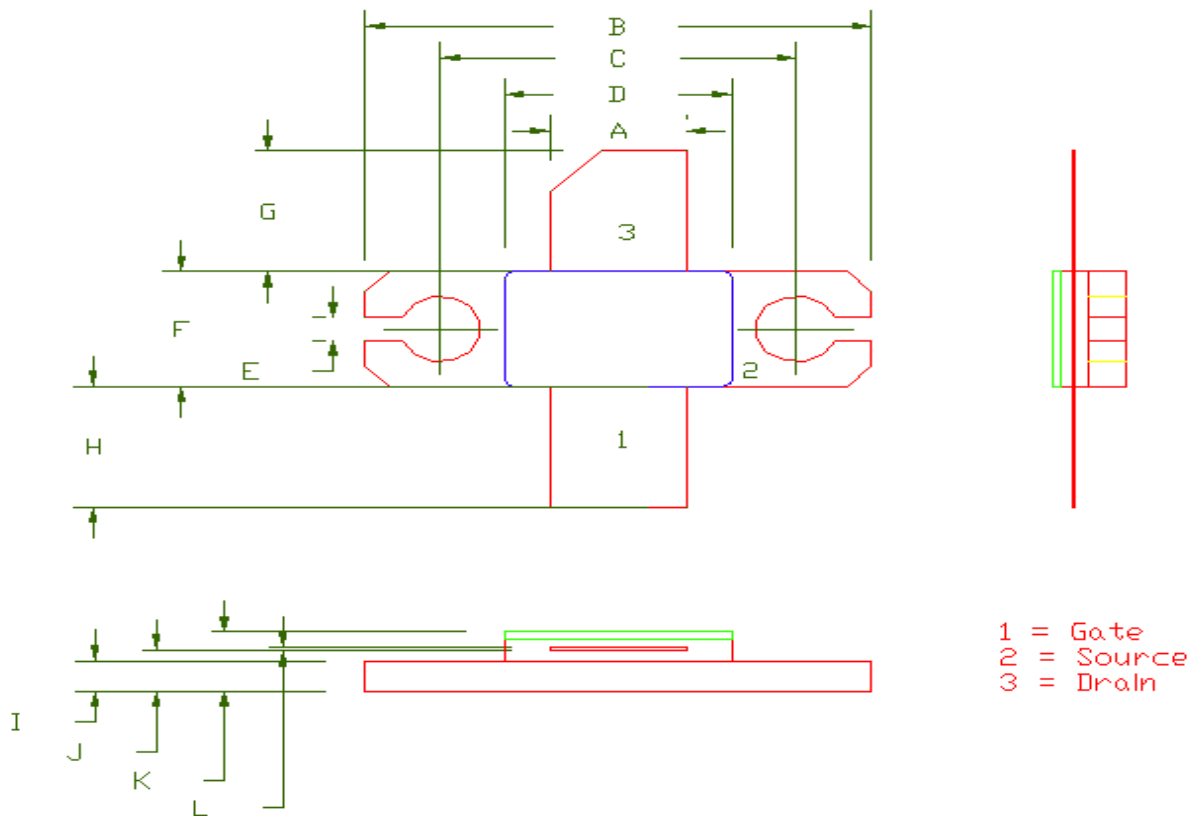
Please send your request to [GaN@Microsemi.com](mailto:GaN@Microsemi.com)



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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
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