1011GN-125E/EL/EP

125 Watts • 50 Volts • 128us, 10%

1030-1090MHz

E Class Earless Driver GaN Transistor – Key Features

- 1030-1090MHz • 125W Pulsed Output Power • 128µs-1mS, 10% Pulsing
- Common Source • Class AB • 50V_{DD} Bias Voltage
- >70% Efficiency Across the Frequency Band
- Extremely Compact Size
- 18.7 dB Typical Power Gain
- 0.1 dB Typical Excellent Gain Flatness
- IFF, Mode-S, TCAS Avionics Secondary Radars
- All gold metallization and eutectic die attach for highest reliability
- 50Ω in/out lumped element very small footprint plug & play pallets available

ABSOLUTE MAXIMUM RATINGS

Maximum Power Dissipation

Device Dissipation @ 25°C 214 W

Maximum Voltage and Current

Drain-Source Voltage (V_{DSS}) 125 V

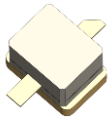
Gate-Source Voltage (V_{GS}) -8 to +0 V

Maximum Temperatures

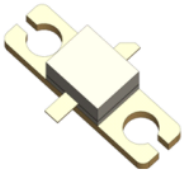
Storage Temperature (TSTG) -55 to +125° C

Operating Junction Temperature +200 °C

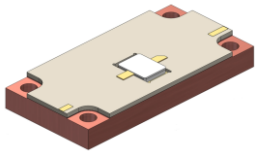
CASE/PALLET OUTLINES



55-QQP
(0.160”x0.230”)



55-QQ
(0.160” x 0.550”)



90-1011GN-125EP
(0.600” x 1.200”)

ELECTRICAL CHARACTERISTICS @ 25°C

Symbol	Characteristics	Test Conditions	Min	Typ	Max	Units
Pout	Output Power	Pin=2W, Freq=1030,1090MHz	125	150		W
Gp	Power Gain	Pin=2W, Freq=1030,1090MHz	17.96	18.75		dB
ηd	Drain Efficiency	Pin=2W, Freq=1030,1090MHz	62	72		%
Dr	Droop	Pin=2W, Freq=1030,1090MHz		0.1	.5	dB
VSWR-T	Load Mismatch Tolerance	Po=125W, Freq=1030MHz,128µ-10%			5:1	

- Bias Condition: Vdd=+50V, Idq=30mA constant current (Vgs= -2.0 ~ -4.5V typical)

FUNCTIONAL CHARACTERISTICS @ 25°C

$I_{D(Off)}$	Drain leakage current	V_{GS} = -8V, V_D = 125V			12	mA
$I_{G(Off)}$	Gate leakage current	V_{GS} = -8V, V_D = 0V			4	mA

Export Classification: EAR-99

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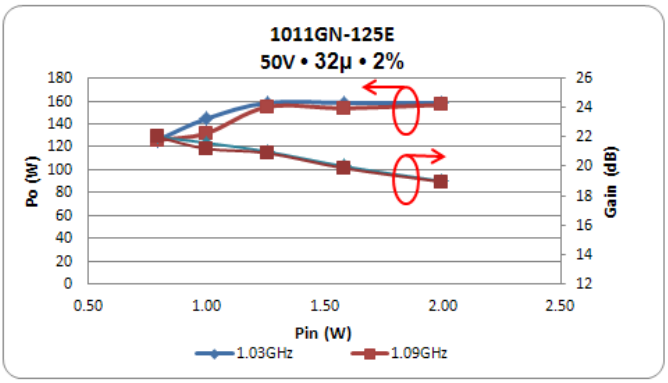
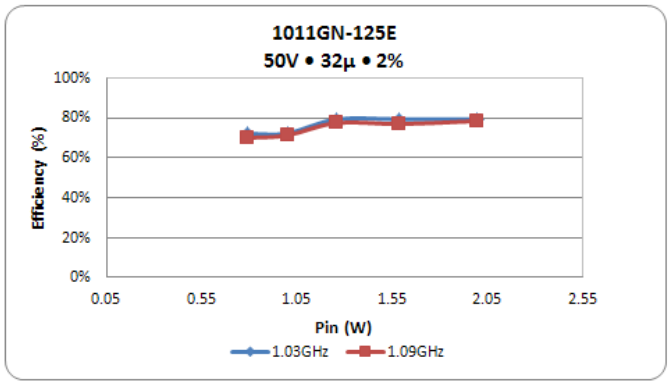
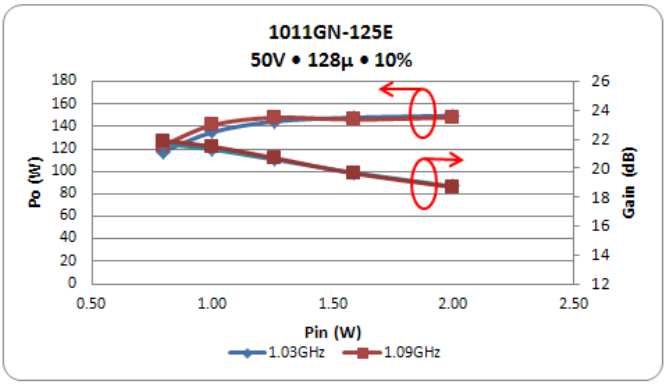
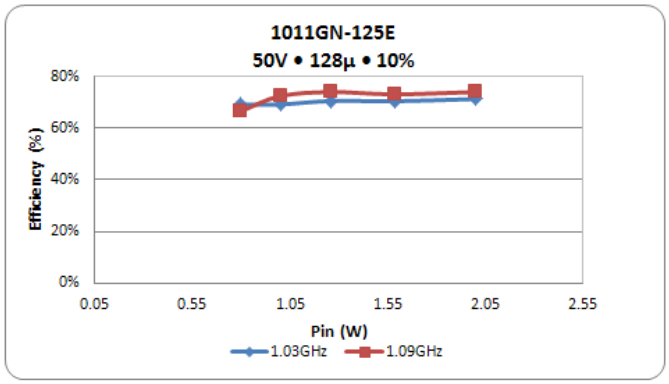
TYPICAL BROAD BAND PERFORMACE DATA

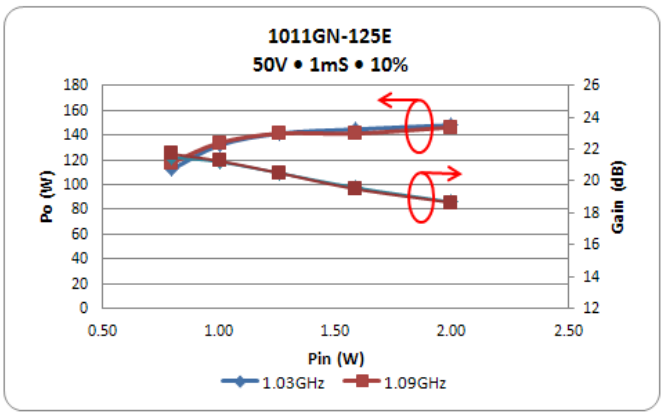
Frequency	Pin (W)	Pout (W)	Id (mA)	RL (dB)	Nd (%)	G (dB)	Droop (dB)
1030 MHz	2	150	450	-8.5	71	18.75	0.1
1090 MHz	2	148	430	-16.0	74	18.70	0.1

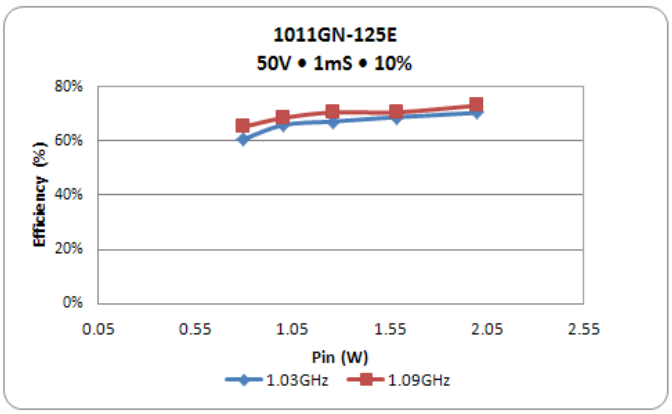












*For the most current data, consult MICROSEMI's website: **www.MICROSEMI.com***
Specifications are subject to change, consult the Santa Clara factory at (408) 986-8031 for the latest information.

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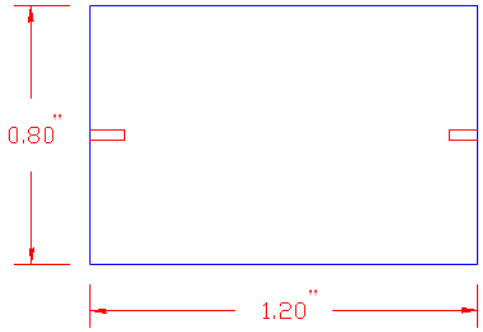
Critical Performance @ Pin = 25dBm

Freq (GHz)	Test Condition	Po (W)	Gain (dB)	Eff (%)	Droop (dB)
1.03	32µS – 2%	158	19.00	79	.05
1.03	128µS – 10%	149	18.75	71	.10
1.03	1mS – 10%	147	18.70	70	.30
1.09	32µS – 2%	157	18.95	78	.05
1.09	128µS – 10%	148	18.70	74	.10
1.09	1mS – 10%	146	18.65	73	.30

Transistor Test Fixture Overall Dimension



Dimensions in inches.

Test fixture available upon request.

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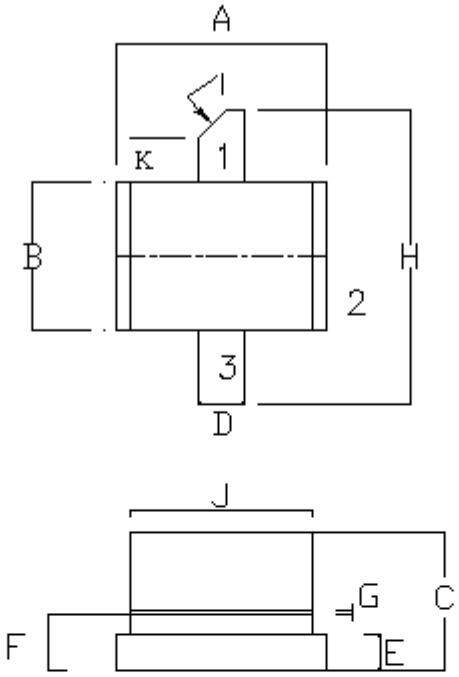
55-QQP PACKAGE DIMENSION



Dim	Millimeter	Tol	Inches	Tol
A	5.84	.25	.230	.010
B	4.06	.25	.160	.010
C	3.17	.05	.125	.002
D	1.27	.13	.050	.005
E	1.02	.13	.040	.005
F	1.57	.13	.062	.005
G	.130	.02	.005	.001
H	8.12	.25	.320	.010
I	45°	5°	45°	5°
J	5.08	.25	.200	.010
K	1.40	.13	.055	.005

PIN 1: DRAIN
PIN 2: SOURCE
PIN 3: GATE

1011GN-125E/EL/EP

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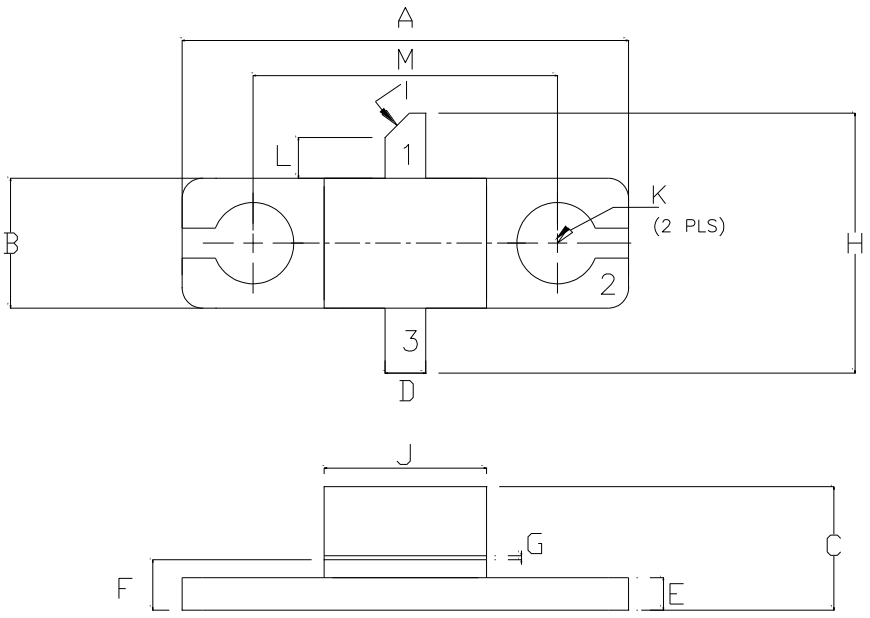
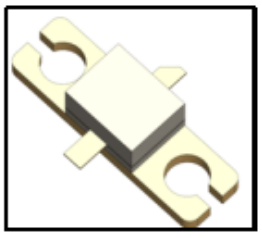
1030-1090MHz

55-QQ PACKAGE DIMENSION



Dim	Millimeter	Tol	Inches	Tol
A	13.970	0.250	0.550	0.010
B	4.570	0.250	0.160	0.010
C	3.860	0.330	0.152	0.013
D	1.270	0.130	0.050	0.005
E	1.020	0.130	0.040	0.005
F	1.700	0.130	0.067	0.005
G	0.130	0.025	0.005	0.001
H	8.130	0.250	0.320	0.010
I	45°	5°	45°	5°
J	5.080	0.250	0.200	0.010
K	2.54 DIA	0.130	.100 DIA	0.005
L	1.270	0.130	0.050	0.005
M	9.530	0.130	0.375	0.005

PIN 1: DRAIN
PIN 2: SOURCE
PIN 3: GATE



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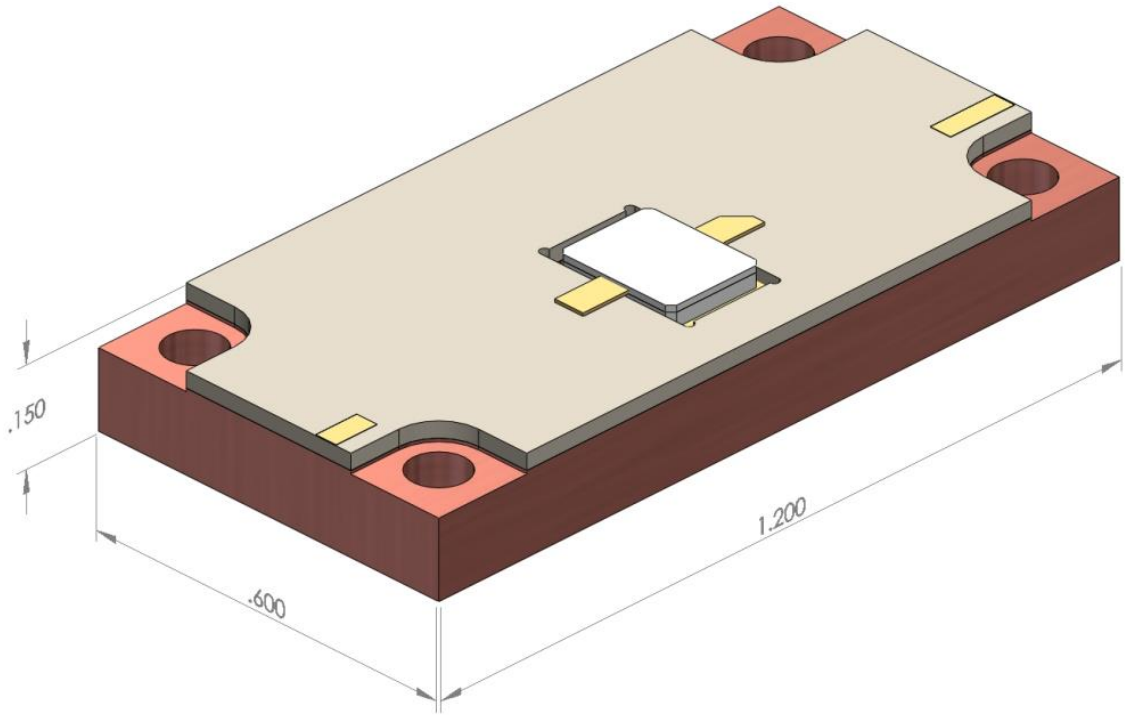
1030-1090MHz

90-1011GN-125EP OVERALL PALLET DIMENSION



Dimensions: Length=1.200” x Width=0.600” x Height=0.150”

1011GN-125E/EL/EP

125 Watts • 50 Volts • 128us, 10%

1030-1090MHz

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Revision History

Revision Level / Date	Para. Affected	Description
0.2 / 11 April 2016	-	Initial Preliminary Release