



# 1214GN-50E/EL/EP

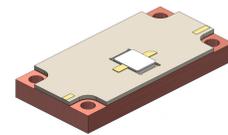
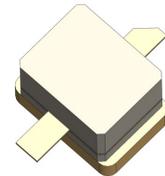
50 Watts • 50 Volts • 300us, 10%

1200-1400 MHz

## E Series Earless/Eared GaN Transistor – Key Features

- 1200-1400MHz, 50W Output Power at 300μS, 10% pulsing
- 50V Bias Voltage, Common Source, Class AB
- >60% Typical Efficiency Across the Frequency Band
- Extremely Compact Size
- Over 16dB typical Power Gain
- Excellent Gain Flatness
- Radar, L-Band Avionics, Communications, and Industrial applications
- All gold metallization and eutectic die attach for highest reliability
- 50Ω in/out lumped element very small footprint plug & play pallets available

## CASE OUTLINE 55-QQP/QQ/Pallet Common Source



## ABSOLUTE MAXIMUM RATINGS

Maximum Power Dissipation

Device Dissipation @ 25°C                      100 W

Maximum Voltage and Current

Drain-Source Voltage (VDSS)                      150 V

Gate-Source Voltage (VGS)                      -8 to +0 V

Maximum Temperatures

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

Operating Junction Temperature                      +200 °C

## ELECTRICAL CHARACTERISTICS @ 25°C

Symbol	Characteristics	Test Conditions	Min	Typ	Max	Units
P <sub>OUT</sub>	Output Power	P <sub>IN</sub> =1.6W, Freq=1200,1300,1400MHz	50	58		W
G <sub>P</sub>	Power Gain	P <sub>IN</sub> =1.6W, Freq=1200,1300,1400MHz	15.2	15.9		dB
η <sub>D</sub>	Drain Efficiency	P <sub>IN</sub> =1.6W, Freq=1200,1300,1400MHz	55	60		%
Dr	Droop	P <sub>IN</sub> =1.6W, Freq=1200,1300,1400MHz		0.2	0.6	dB
VSWR-T	Load Mismatch Tolerance	P <sub>O</sub> =50W, Freq=1300MHz, 300μs-10%			5:1	

- Bias Condition: V<sub>DD</sub>=+50V, I<sub>DQ</sub>=20mA constant current (V<sub>GS</sub>= -2.0 ~ -4.5V typical)

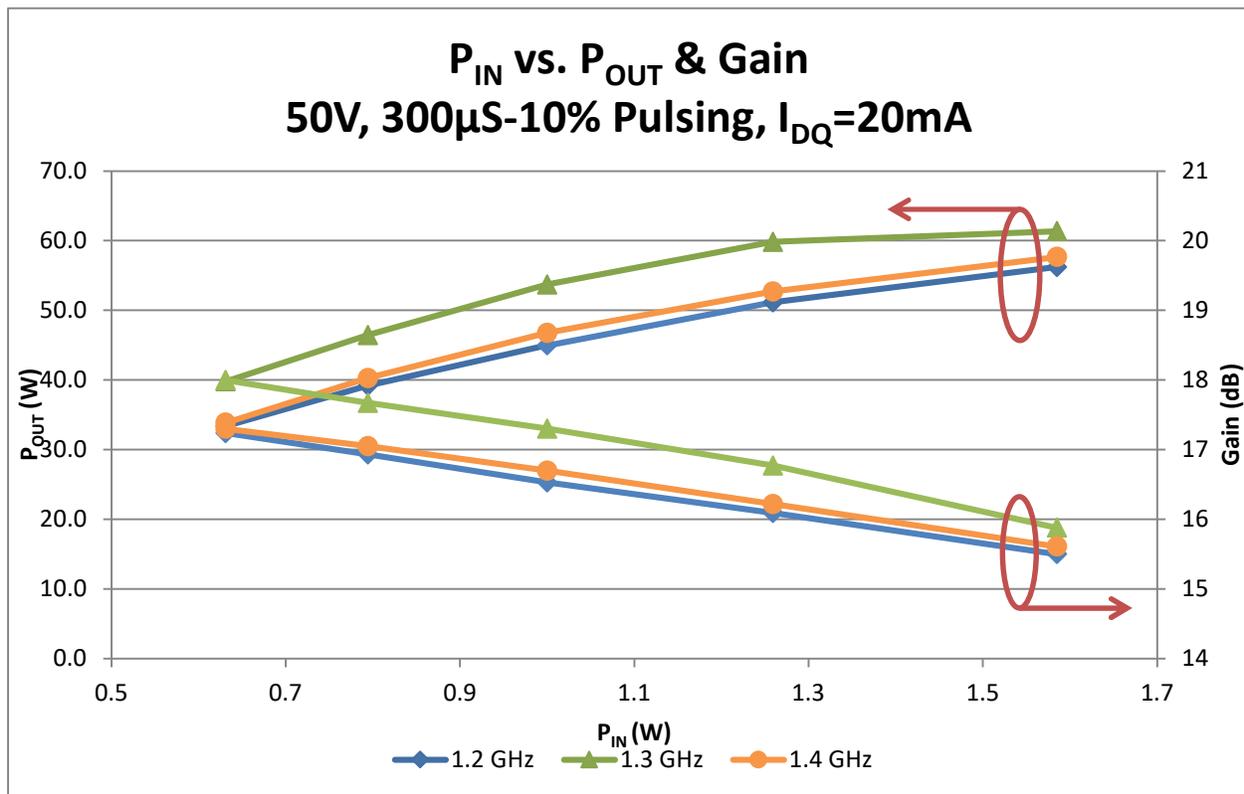
## FUNCTIONAL CHARACTERISTICS @ 25°C

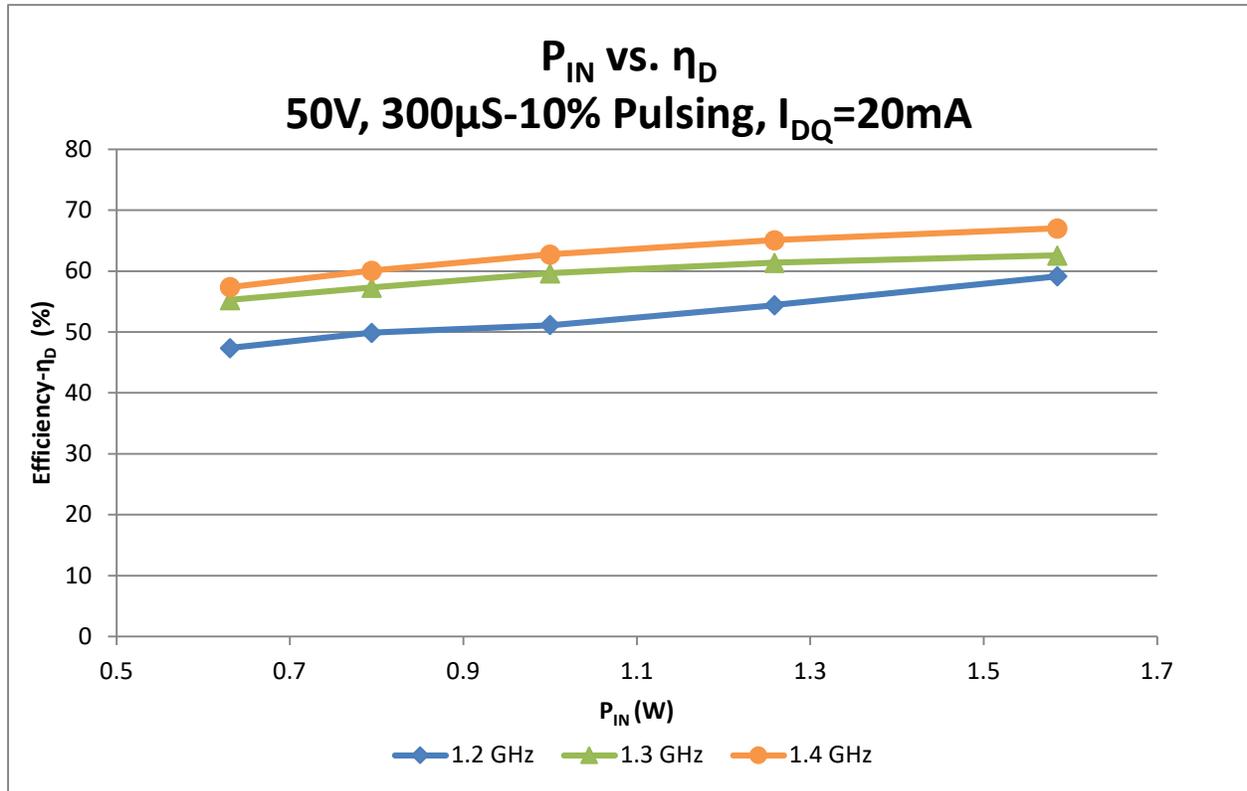
I <sub>D(Off)</sub>	Drain leakage current	V <sub>GS</sub> = -8V, V <sub>D</sub> = 150V			4	mA
I <sub>G(Off)</sub>	Gate leakage current	V <sub>GS</sub> = -8V, V <sub>D</sub> = 0V			0.5	mA

**Export Classification: EAR-99**

### Typical Data

50V, 300μS-10% Pulsing, IDQ=20mA									
Freq (GHz)	P <sub>IN</sub> (dBm)	P <sub>IN</sub> (W)	P <sub>OUT</sub> (dBm)	P <sub>OUT</sub> (W)	Gain (dB)	IRL (dB)	I <sub>D</sub> (A)	Droop (dB)	Eff. - η <sub>D</sub> (%)
1.2	32	1.6	47.5	56.2	15.5	-8	0.21	0.3	59%
1.3	32	1.6	47.9	61.4	15.9	-18	0.216	0.25	63%
1.4	32	47.6	57.7	15.6	-7.6	0.192	0.2	67%	







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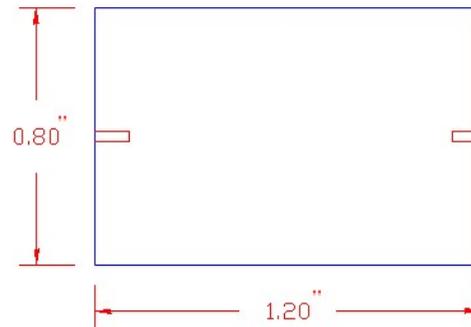
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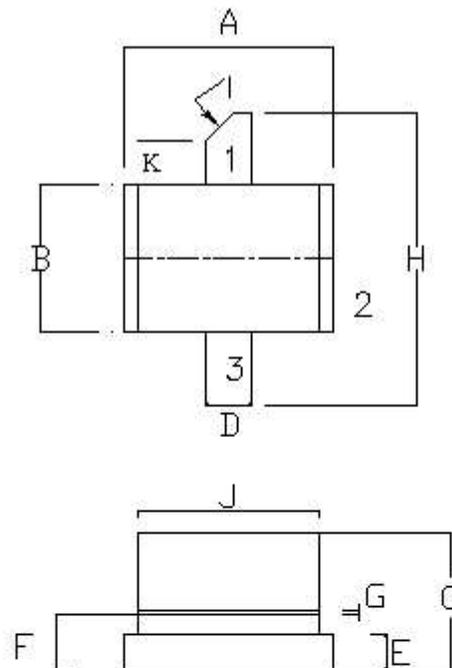
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## 1214GN-50E/EL Test Fixture Overall Dimension



(Dimensions shown are in inches)

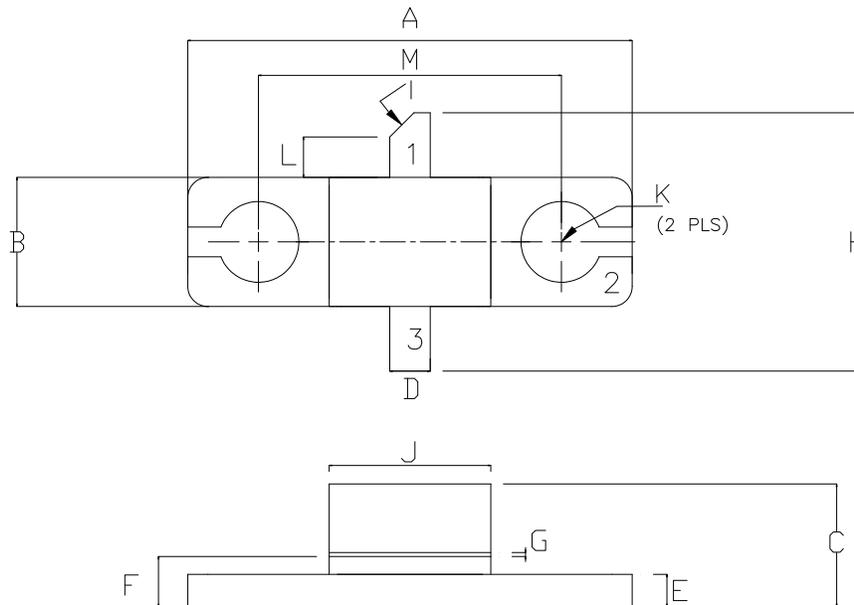
**Evaluation Test Fixture available upon request**

**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**



**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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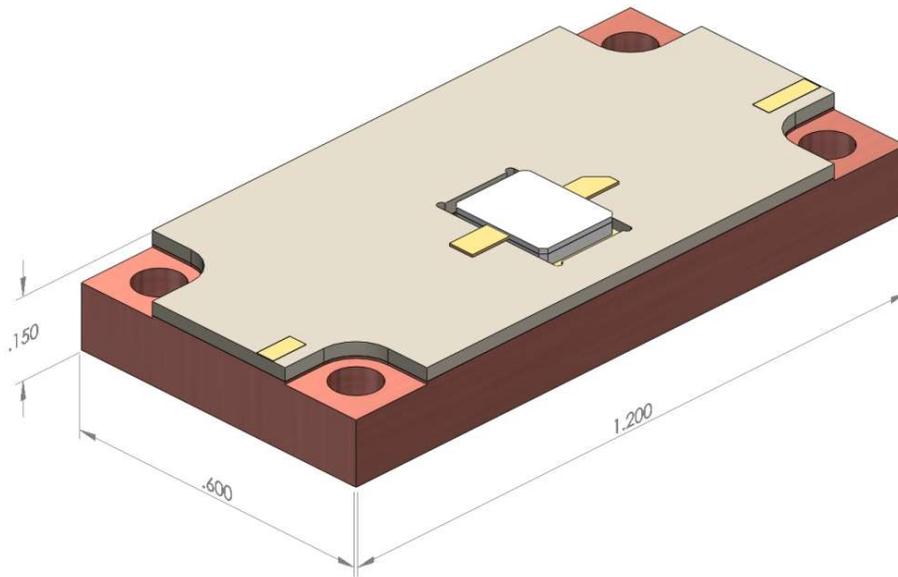
## *1214GN-50E/EL/EP*

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### 90-1214GN-50EP OVERALL PALLET DIMENSION



Dimension 1.2" X.6"X.15"



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1200-1400 MHz

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#### Revision History

Revision Level / Date	Para. Affected	Description
0.1 / 22 August 2016	-	Initial Preliminary Release

Specifications are subject to change. Consult [www.microsemi.com](http://www.microsemi.com) for local sales and technical support contacts.