



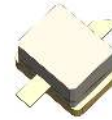
# 1214GN-15E

15 Watts • 50 Volts • 4.5mS, 35%  
1200–1400MHz

## E Class Earless Driver GaN Transistor – Key Features

- 1200-1400MHz • 15W Output Power • CW and Pulsed
- Common Source • Class AB • 50VDD Bias Voltage
- >60% Efficiency Across the Frequency Band
- Extremely Compact Size
- 17.8 dB Typical Power Gain
- 0.3 dB Typical Excellent Gain Flatness
- L-Band Radars, Communication, Industrial, General Purpose
- All gold metallization and eutectic die attach for highest reliability
- 50Ω in/out lumped element very small footprint plug & play pallets available

## CASE/PALLET OUTLINES



55-QQP  
(0.160" x 0.230")

## ABSOLUTE MAXIMUM RATINGS

### Maximum Power Dissipation

Device Dissipation @ 25°C                      34 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
Pout	Output Power	Pin=0.32W, Freq=1200,1300,1400 MHz	15	19		W
Gp	Power Gain	Pin=0.32W, Freq=1200,1300,1400 MHz	16.7	17.8		dB
ηd	Drain Efficiency	Pin=0.32W, Freq=1200,1300,1400 MHz	50	68		%
Dr	Droop	Pin=0.32W, Freq=1200,1300,1400 MHz		0.2	0.6	dB
VSWR-T	Load Mismatch Tolerance	Pin=0.32W, Freq=1300MHz, 100μ-10%			10:1	

- Bias Condition: Vdd=+50V, Idq=10mA constant current (Vgs= -2.0 ~ -4.5V typical)

## FUNCTIONAL CHARACTERISTICS @ 25°C

Id(off)	Drain leakage current	VGS = -8V, VD = 50V			1.0	mA
Ig(off)	Gate leakage current	VGS = -8V, VD = 0V			0.2	mA
BVDSS	Drain-source breakdown voltage	VGS = -8V, ID = 2mA	150			V

*Export Classification: EAR-99*

For the most current data, consult MICROSEMI's website: [www.MICROSEMI.com](http://www.MICROSEMI.com)  
Specifications are subject to change, consult the RFIS factory at (408) 986-8031 for the latest information.

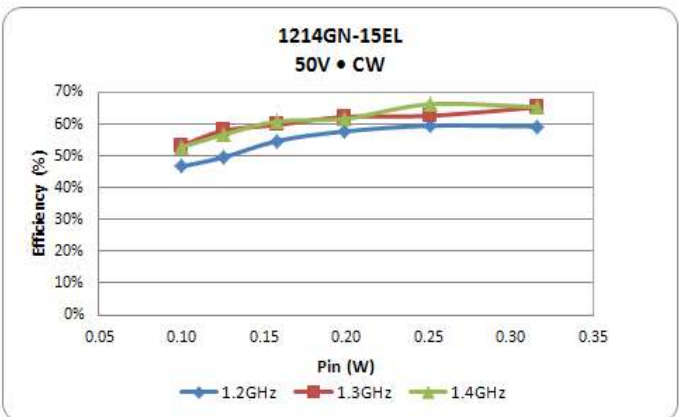
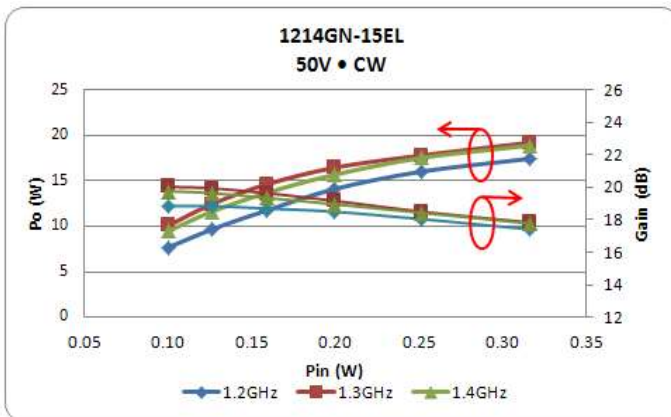
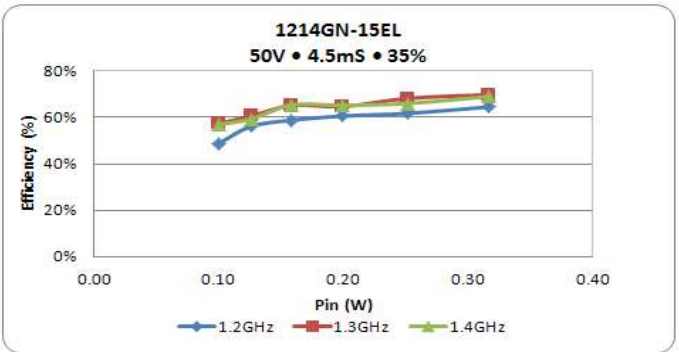
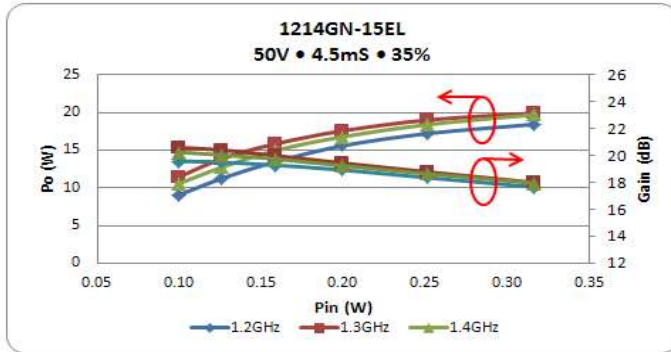
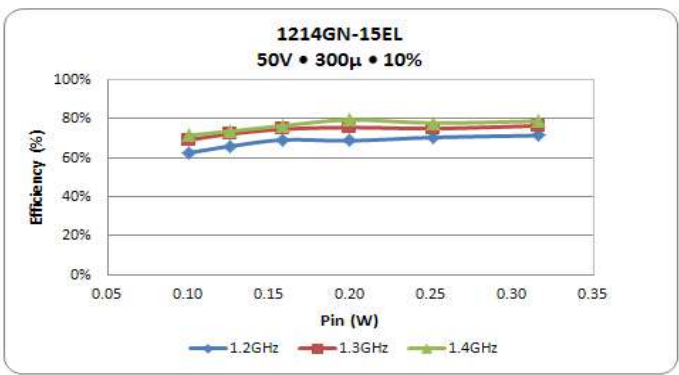
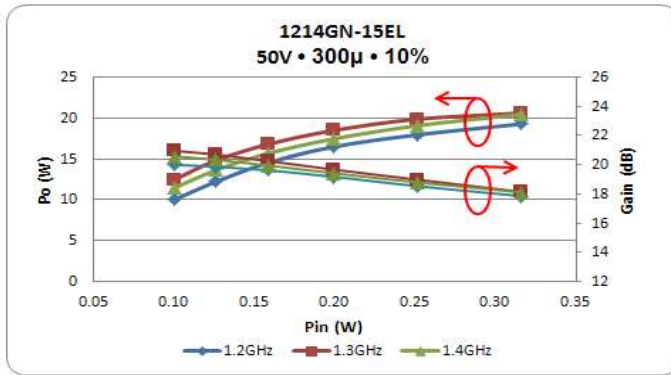


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## TYPICAL BROAD BAND PERFORMANCE DATA

Frequency	Pin (mW)	Pout (W)	Id (mA)	RL (dB)	Nd (%)	G (dB)	Drop (dB)
1200 MHz	320	18.5	.210	-7.5	65	17.7	0.2
1300 MHz	320	20.0	.210	-8.0	70	18.0	0.2
1400 MHz	320	19.7	.210	-7.5	69	17.9	0.2



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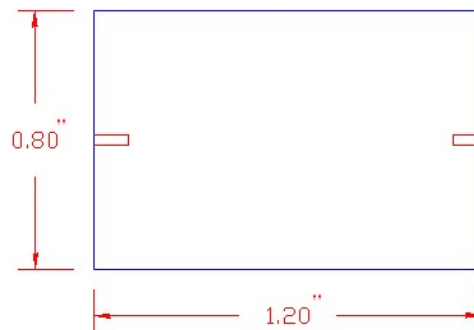
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## Critical Performance @ Pin = 25dBm

Freq (GHz)	Test Condition	Po (W)	Gain (dB)	Eff (%)	Droop (dB)
1.2	300 $\mu$ S – 10%	19.3	17.9	70	0.1
1.3	4.5mS – 35%	18.5	17.7	65	0.2
1.4	CW	17.5	17.4	58	0.0
1.2	300 $\mu$ S – 10%	20.6	18.2	75	0.1
1.3	4.5mS – 35%	20.0	18.0	70	0.2
1.4	CW	19.2	17.8	65	0.0
1.2	300 $\mu$ S – 10%	20.5	18.1	76	0.1
1.3	4.5mS – 35%	19.7	18.0	69	0.2
1.4	CW	18.9	17.8	65	0.0

## Test Fixture Overall Dimension



(Dimensions shown are in inches)

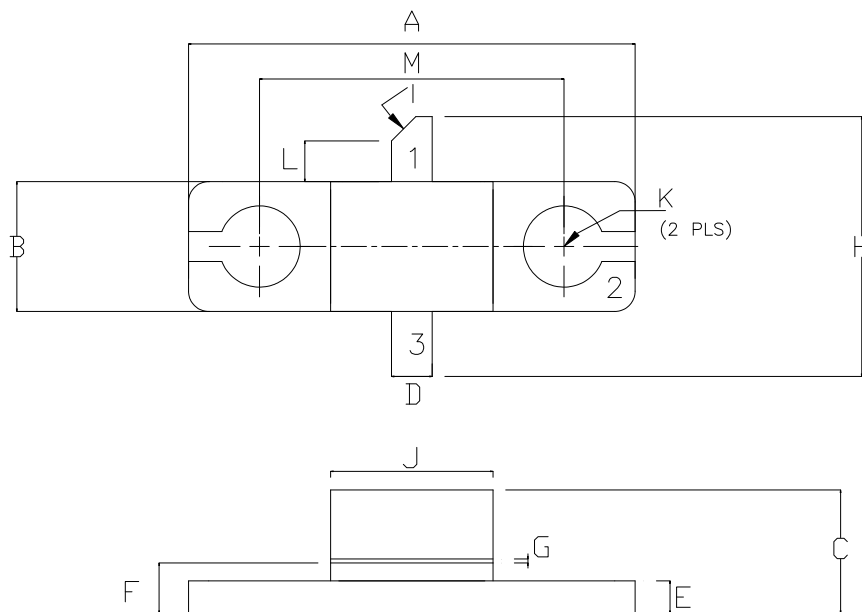
**Test Fixture available upon request**



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## 1214GN-15E CASE OUTLINE 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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## Revision History

Revision Level / Date	Para. Affected	Description
0.2 / 04 Dec. 2014	-	Initial Preliminary Release

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