



1214GN-15LE/LEL/LEP

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 • 50V_{DD} 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

ABSOLUTE MAXIMUM RATINGS

Maximum Power Dissipation

Device Dissipation @ 25°C 34 W

Maximum Voltage and Current

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

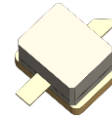
Gate-Source Voltage (V_{GS}) -8 to +0 V

Maximum Temperatures

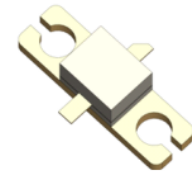
Storage Temperature (T_{STG}) -55 to +125° C

Operating Junction Temperature +200 °C

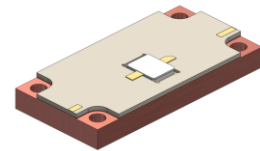
CASE/PALLET OUTLINES



55-QQP
(0.160" x 0.230")



55-QQ
(0.160" x 0.550")



55-78032
(0.600" x 1.200")

ELECTRICAL CHARACTERISTICS @ 25°C

Symbol	Characteristics	Test Conditions	Min	Typ	Max	Units
P _{out}	Output Power	P _{in} =0.32W, Freq=1200,1300,1400 MHz	15	19		W
G _p	Power Gain	P _{in} =0.32W, Freq=1200,1300,1400 MHz	16.7	17.8		dB
η _d	Drain Efficiency	P _{in} =0.32W, Freq=1200,1300,1400 MHz	50	68		%
Dr	Droop	P _{in} =0.32W, Freq=1200,1300,1400 MHz		0.2	0.6	dB
V _{SWR-T}	Load Mismatch Tolerance	P _{in} =0.32W, Freq=1300MHz, 100μ-10%			10:1	

- Bias Condition: V_{DD}=+50V, I_{dq}=10mA constant current (V_{GS}= -2.0 ~ -4.5V typical)

FUNCTIONAL CHARACTERISTICS @ 25°C

I _{D(Off)}	Drain leakage current	V _{GS} = -8V, V _D = 50V			1.0	mA
I _{G(Off)}	Gate leakage current	V _{GS} = -8V, V _D = 0V			0.2	mA
BV _{DSS}	Drain-source breakdown voltage	V _{GS} = -8V, I _D = 2mA	150			V

Export Classification: EAR-99

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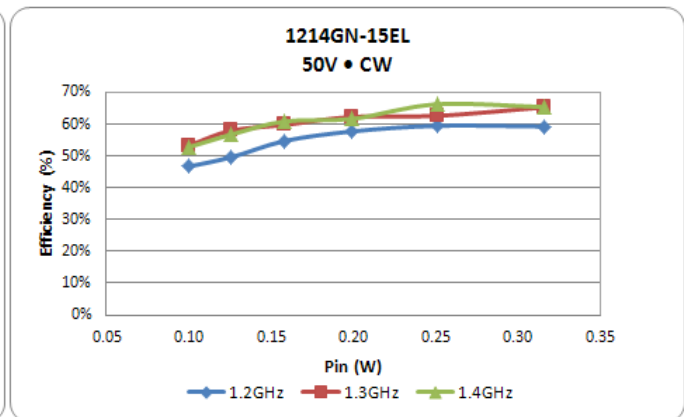
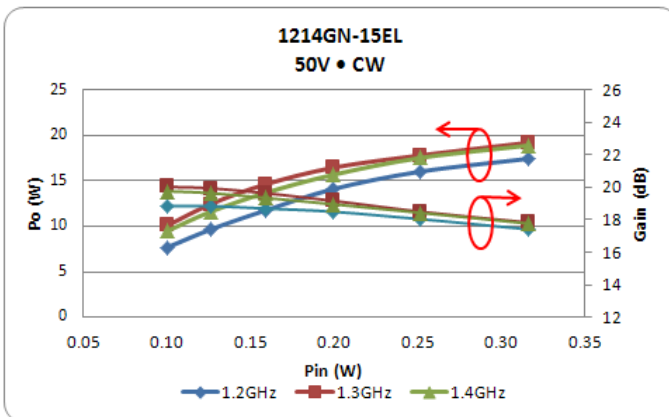
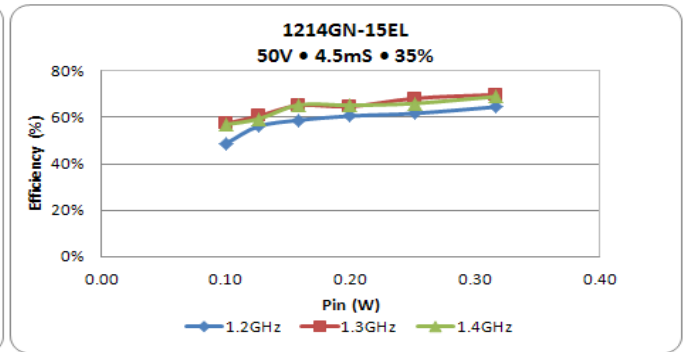
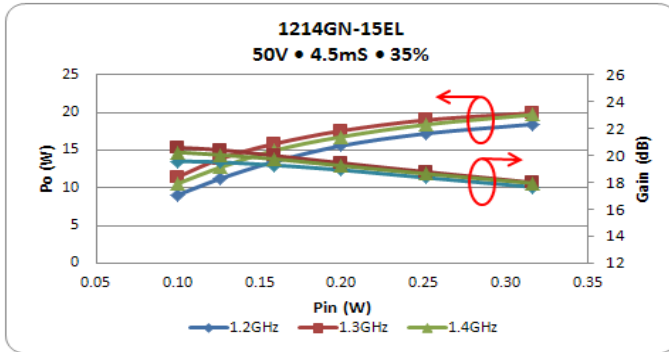
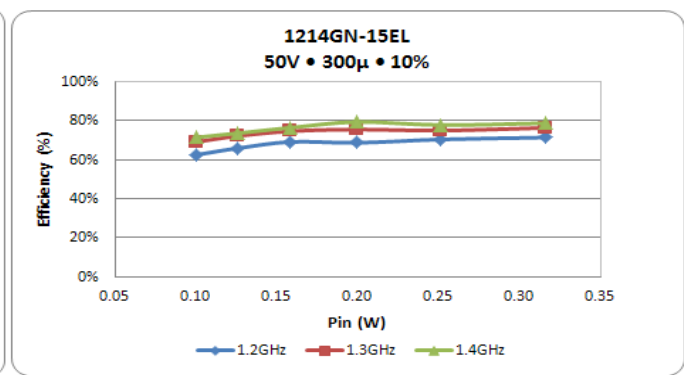
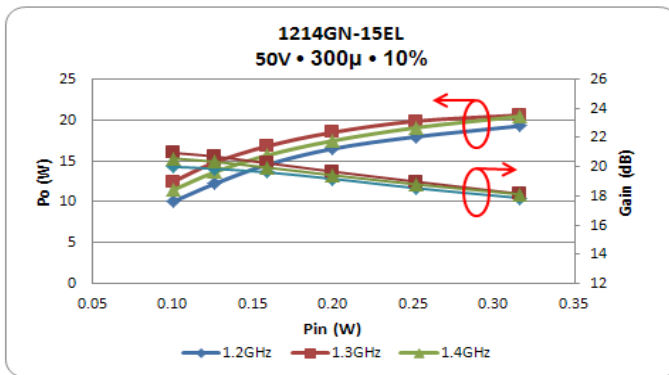
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1200–1400MHz

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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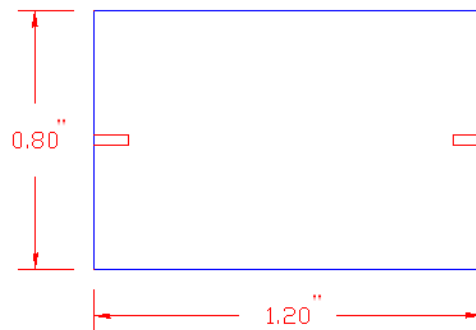
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1200–1400MHz

Critical Performance @ Pin = 25dBm

Freq (GHz)	Test Condition	Po (W)	Gain (dB)	Eff (%)	Droop (dB)
1.2	300 μ 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 μ 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 μ 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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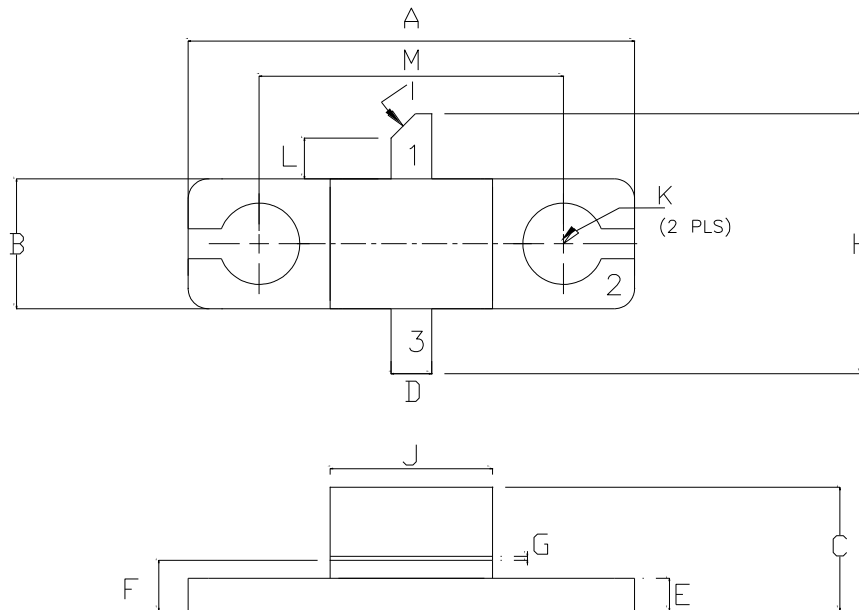


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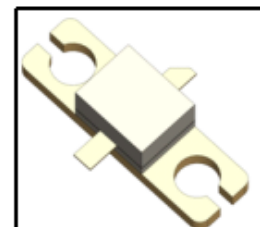
1200–1400MHz

1214GN-15LE 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



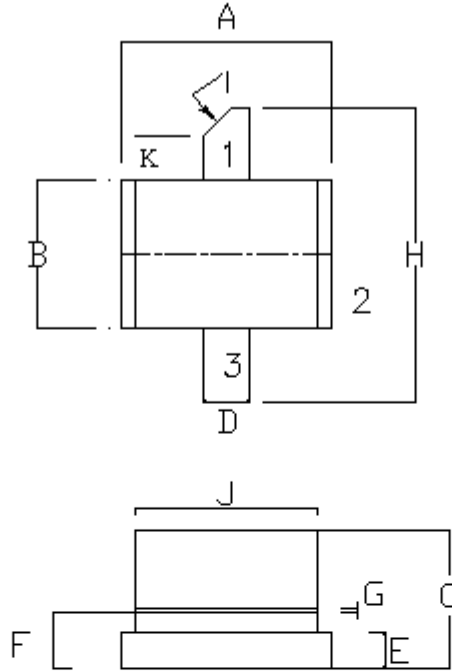


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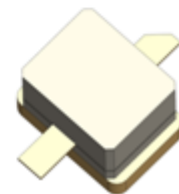
1200–1400MHz

1214GN-15LEL CASE OUTLINE 55-QQP DIMENSIONS



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



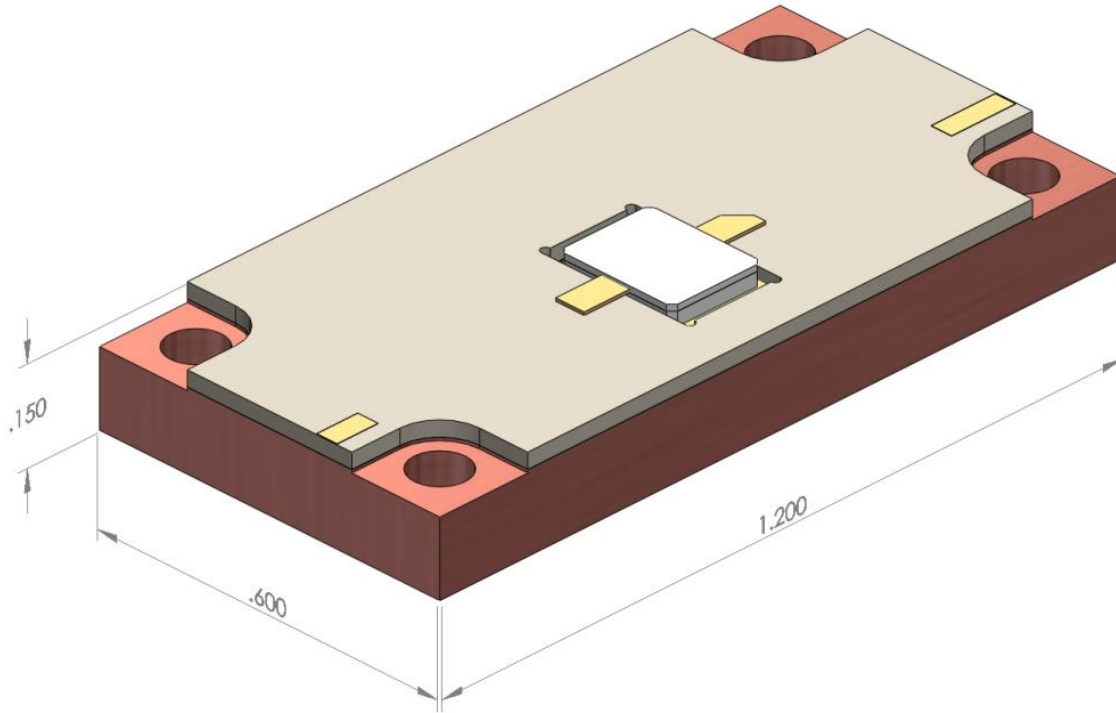


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1214GN-15LEP CASE OUTLINE 55-78032 OVERALL PALLET DIMENSION



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Revision History

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

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