



0912GN-50LE/LEL/LEP

50 Watts • 50 Volts • 32us, 2% & MIDS

960-1215 MHz

E Class Earless Driver GaN Transistor – Key Features

- 960-1215MHz • 50W Pulsed Output Power • 32 μ S-2% and MIDS Pulsing
- Common Source • Class AB • 50V Bias Voltage
- >60% Efficiency Across the Frequency Band under MIDS signal
- Extremely Compact Size
- 15.9 dB Typical Power Gain
- 0.3 dB Typical Excellent Gain Flatness
- IFF, Mode-S, DME, TACAN, TCAS, Avionics Secondary Radars
- All gold metallization and eutectic die attach for highest reliability
- 50 Ω in/out lumped element very small footprint plug & play pallets available

ABSOLUTE MAXIMUM RATINGS

Maximum Power Dissipation

Device Dissipation @ 25°C 100 W

Maximum Voltage and Current

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

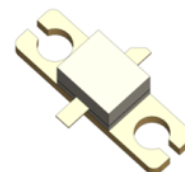
Gate-Source Voltage (V_{GS}) -8 to +0 V

Maximum Temperatures

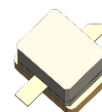
Storage Temperature (T_{STG}) -55 to +125° C

Operating Junction Temperature +200 °C

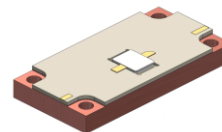
CASE OUTLINES Common Source



0912GN-50LE
55-QQ (0.160"x0.550")



0912GN-50LEL
55-QQP Case (0.160"x0.230")



0912GN-50LEP
0.6"x1.2"x0.150" Pallet

ELECTRICAL CHARACTERISTICS @ 25°C

Symbol	Characteristics	Test Conditions	Min	Typ	Max	Units
P _{OUT}	Output Power	P _{IN} =1.5W, Freq=960,1090,1215MHz	50	58		W
G _P	Power Gain	P _{IN} =1.5W, Freq=960,1090,1215MHz	15.2	15.9		dB
η_D	Drain Efficiency	P _{IN} =1.5W, Freq=960,1090,1215MHz	58	63		%
Dr	Droop	P _{IN} =1.5W, Freq=960,1090,1215MHz		0.4	0.7	dB
VSWR-T	Load Mismatch Tolerance	Po=50W, Freq=1090MHz, 32 μ -2%			5:1	

- Bias Condition: V_{dd}=+50V, I_{dq}=20mA constant current (V_{gs}= -2.0 ~ -4.5V typical)

FUNCTIONAL CHARACTERISTICS @ 25°C

I _{D(Off)}	Drain leakage current	V _{GS} = -8V, V _D = 150V			4	mA
I _{G(Off)}	Gate leakage current	V _{GS} = -8V, V _D = 0V			0.5	mA

Export Classification: EAR-99



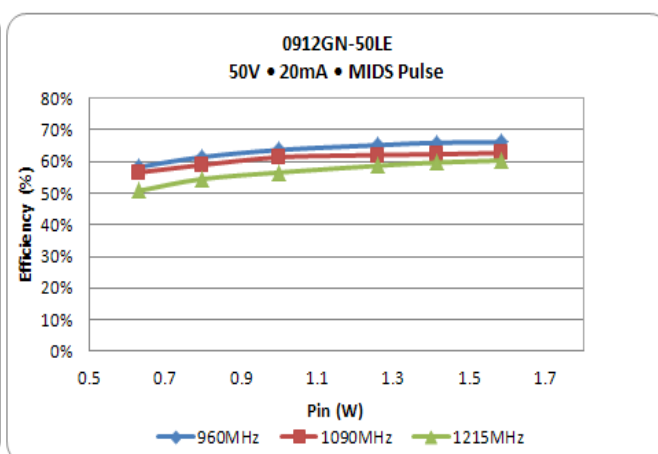
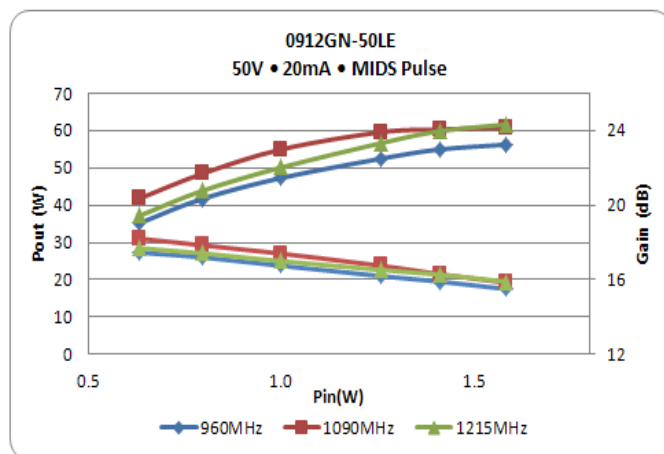
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TYPICAL PERFORMANCE DATA UNDER MIDS (6.4μS on 13μS off, N=256 pulses, DF=21%)

Frequency	P _{IN} (W)	P _{OUT} (W)	I _D (A)	η _D @ pulse 1 (%)	Gain (dB)	Droop @ Pulse 256 (dB)
960 MHz	1.6	57	.380	66	15.6	0.30
1090 MHz	1.6	61	.427	63	15.8	0.30
1215 MHz	1.6	62	.449	60	15.9	0.45



TYPICAL PERFORMANCE DATA UNDER 32μS, DF=2%

Frequency	P _{IN} (W)	P _{OUT} (W)	I _D (A)	IRL (dB)	Gain (dB)	Droop (dB)
960 MHz	1.6	58	.039	-12	15.65	0.05
1090 MHz	1.6	62	.044	-7	15.90	0.05
1215 MHz	1.6	63	.046	-5	15.97	0.05

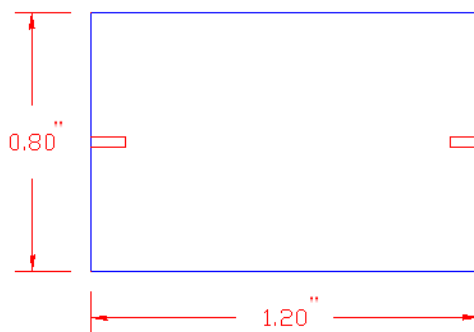


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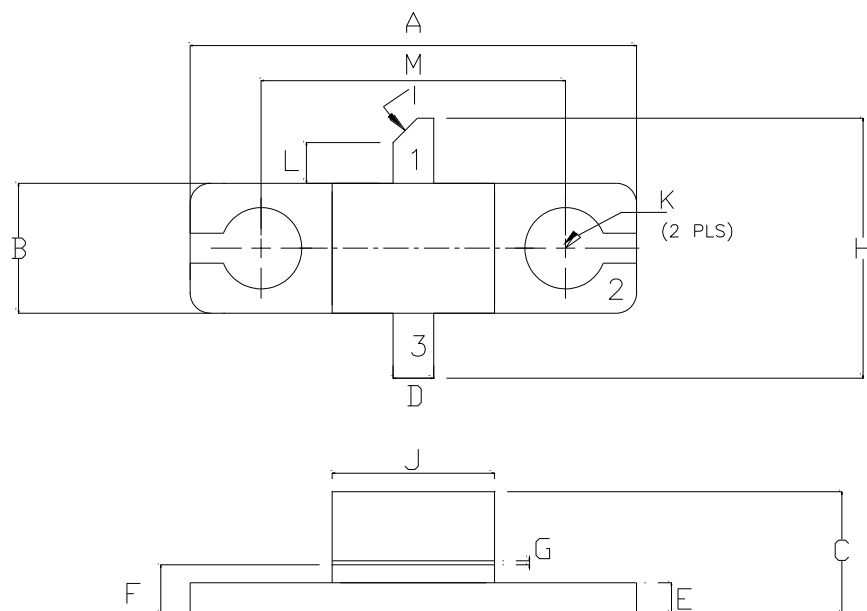
960-1215 MHz

0912GN-50LE/LEL Test Fixture Overall Dimension



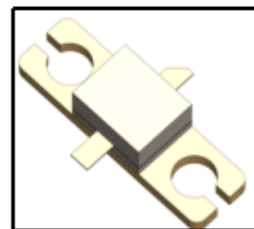
(Dimensions shown are in inches)

Test Fixture available upon request

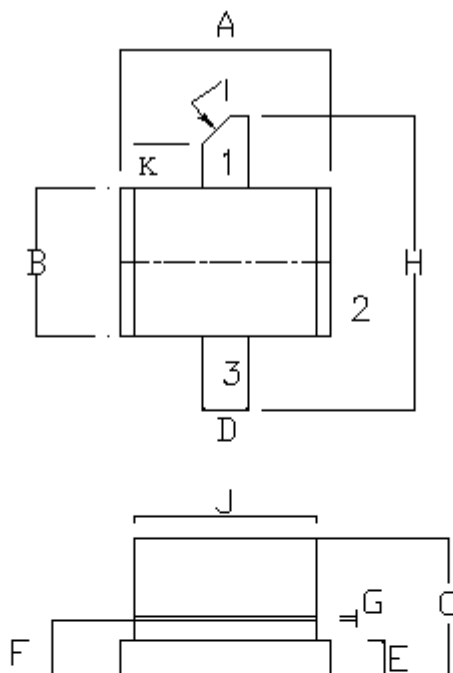
0912GN-50LE 55-QQ Package Dimensions


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

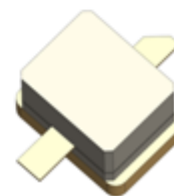


0912GN-50LEL 55-QQP Package Dimensions



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



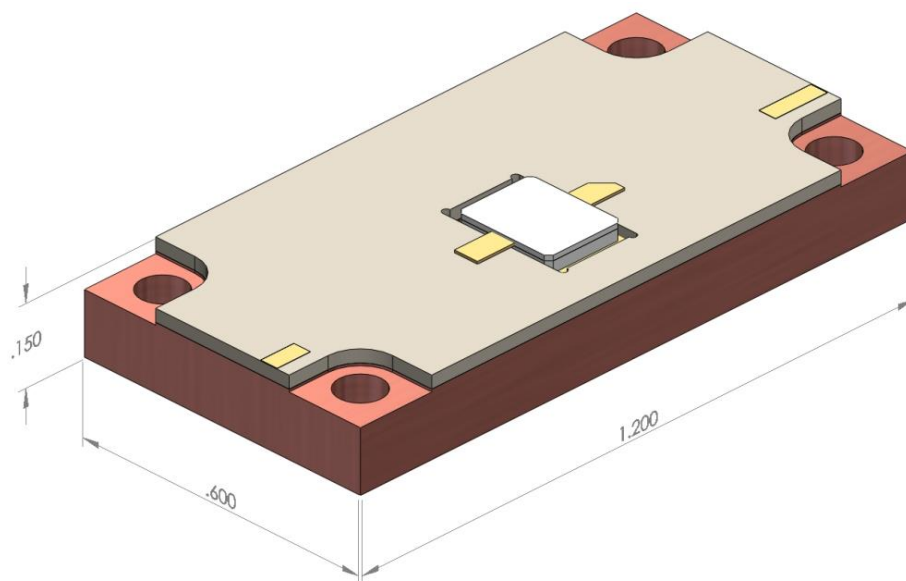


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90-0912GN-50LEP OVERALL PALLET DIMENSION



Dimension 1.2" X.6"X.15"



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Revision History

Revision Level / Date	Para. Affected	Description
0.1 / 19 August 2016	-	Initial Preliminary Release
2 / 7 March 2016	Header, pgs 1, 4, 5, 6	Clarified packaging ambiguities

Specifications are subject to change. Consult www.microsemi.com for local sales and technical support contacts.