

E Class Earless Driver GaN Transistor – Key Features

- 960-1215MHz • 50W Pulsed Output Power • 32μS-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
- 50Ω 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 (VDSS) 150 V

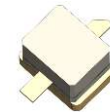
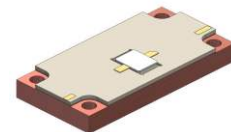
Gate-Source Voltage (VGS) -8 to +0 V

Maximum Temperatures

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

Operating Junction Temperature +200 °C

**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	P _o =50W, Freq=1090MHz, 32μ-2%			5:1	

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

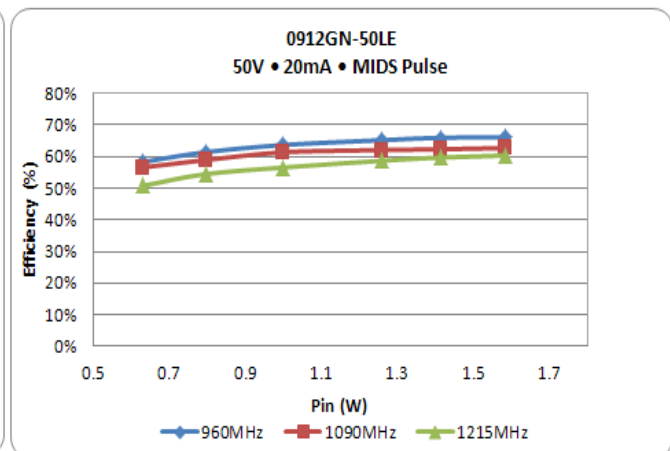
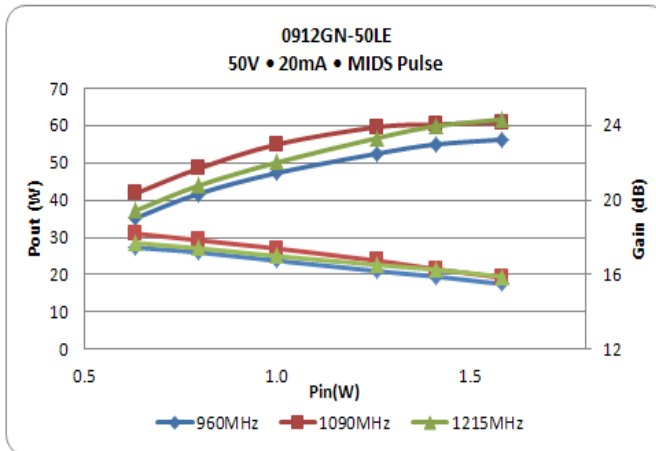
FUNCTIONAL CHARACTERISTICS @ 25°C

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

**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

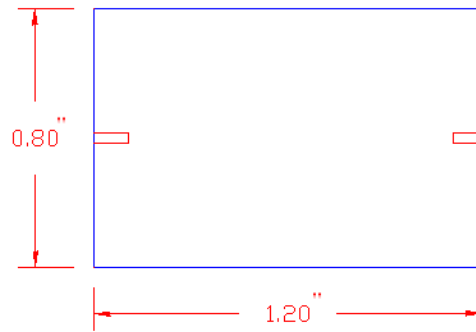


0912GN-50LE/LEL/LEP

50 Watts • 50 Volts • 32us, 2% & MIDS

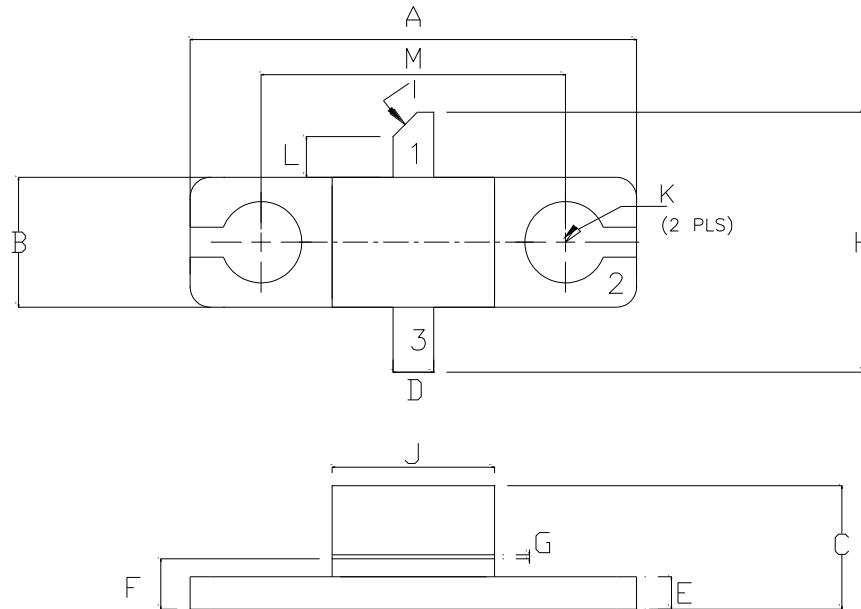
960-1215 MHz

0912GN-50LE/LEL Test Fixture Overall Dimension



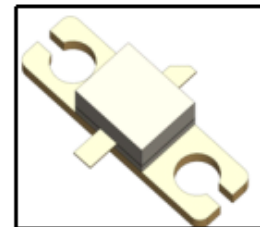
(Dimensions shown are in inches)

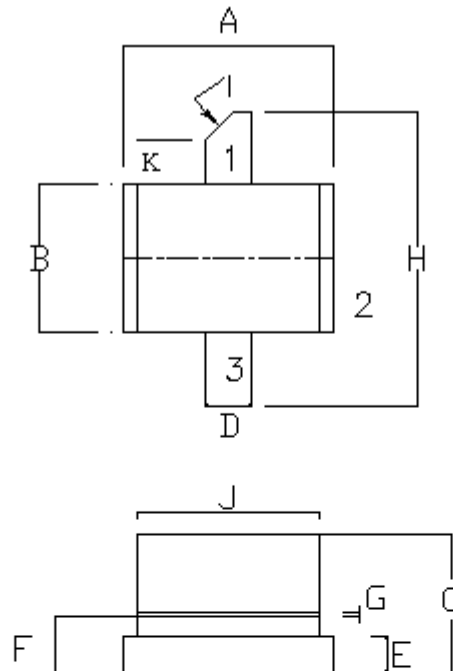
Test Fixture available upon request

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

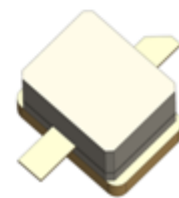
PIN 1: DRAIN
PIN 2: SOURCE
PIN 3: GATE



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



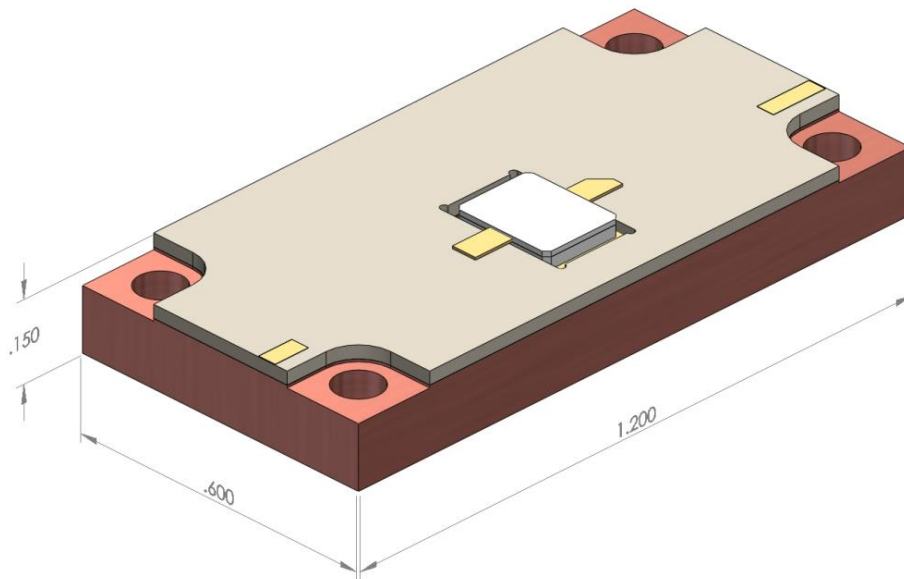


0912GN-50LE/LEL/LEP

50 Watts • 50 Volts • 32us, 2% & MIDS

960-1215 MHz

90-0912GN-50LEP OVERALL PALLET DIMENSION



Dimension 1.2" X.6"X.15"



0912GN-50LE/LEL/LEP

50 Watts • 50 Volts • 32us, 2% & MIDS

960-1215 MHz

Microsemi makes no warranty, representation, or guarantee regarding the information contained herein or the suitability of its products and services for any particular purpose, nor does Microsemi assume any liability whatsoever arising out of the application or use of any product or circuit. The products sold hereunder and any other products sold by Microsemi have been subject to limited testing and should not be used in conjunction with mission-critical equipment or applications. Any performance specifications are believed to be reliable but are not verified, and Buyer must conduct and complete all performance and other testing of the products, alone and together with, or installed in, any end-products. Buyer shall not rely on any data and performance specifications or parameters provided by Microsemi. It is the Buyer's responsibility to independently determine suitability of any products and to test and verify the same. The information provided by Microsemi hereunder is provided "as is, where is" and with all faults, and the entire risk associated with such information is entirely with the Buyer. Microsemi does not grant, explicitly or implicitly, to any party any patent rights, licenses, or any other IP rights, whether with regard to such information itself or anything described by such information. Information provided in this document is proprietary to Microsemi, and Microsemi reserves the right to make any changes to the information in this document or to any products and services at any time without notice.

About Microsemi

Microsemi Corporation (Nasdaq: MSCC) offers a comprehensive portfolio of semiconductor and system solutions for communications, defense & security, aerospace and industrial markets. Products include high-performance and radiation-hardened analog mixed-signal integrated circuits, FPGAs, SoCs and ASICs; power management products; timing and synchronization devices and precise time solutions, setting the world's standard for time; voice processing devices; RF solutions; discrete components; enterprise storage and communication solutions, security technologies and scalable anti-tamper products; Ethernet solutions; Power-over-Ethernet ICs and midspans; as well as custom design capabilities and services. Microsemi is headquartered in Aliso Viejo, Calif., and has approximately 4,800 employees globally. Learn more at www.microsemi.com.

©2017 Microsemi Corporation. All rights reserved. Microsemi and the Microsemi logo are registered trademarks of Microsemi Corporation. All other trademarks and service marks are the property of their respective owners.

Microsemi Corporate Headquarters

One Enterprise, Aliso Viejo, CA 92656 USA
Within the USA: +1 (800) 713-4113
Outside the USA: +1 (949) 380-6100
Sales: +1 (949) 380-6136 Fax: +1 (949) 215-4996
E-mail: sales.support@microsemi.com

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.