



# 0912GN-15E/EL/EP

15 Watts • 50 Volts • 128us, 10%  
960-1215MHz

## E Class Driver GaN Transistor – Key Features

- 960-1215MHz • 15W Pulsed Output Power • 128us, 10% Pulsing
- Common Source • Class AB • 50V<sub>DD</sub> Bias Voltage
- >60% Efficiency
- 18.1 dB Typical Power Gain
- 0.2 dB Typical Excellent Gain Flatness
- Extremely Compact Size General Purpose Driver • 3 package options
- IFF, Mode-S, DME, TACAN, TCAS avionics applications
- 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                      37 W

### Maximum Voltage and Current

Drain-Source Voltage (V<sub>DSS</sub>)                      150 V

Gate-Source Voltage (V<sub>GS</sub>)                      -8 to +0 V

### Maximum Temperatures

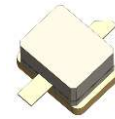
Storage Temperature (T<sub>STG</sub>)                      -55 to +125 °C

Operating Junction Temperature                      +200 °C

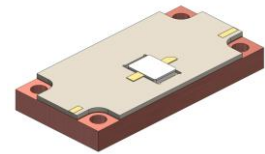
## CASE OUTLINES



**55-QQ**  
(0.160" x 0.550" - E)



**55-QQP**  
(0.160" x 0.230" - EL)



**55-78029**  
(0.600" x 1.200" - EP)

## ELECTRICAL CHARACTERISTICS @ 25°C

Symbol	Characteristics	Test Conditions	Min	Typ	Max	Units
P <sub>OUT</sub>	Output Power	P <sub>IN</sub> =0.32W, Freq=960,1090,1215 MHz	15	19		W
G <sub>P</sub>	Power Gain	P <sub>IN</sub> =0.32W, Freq=960,1090,1215 MHz	17.5	18.1		dB
η <sub>D</sub>	Drain Efficiency	P <sub>IN</sub> =0.32W, Freq=960,1090,1215 MHz	60	65		%
Dr	Droop	P <sub>IN</sub> =0.32W, Freq=960,1090,1215 MHz		0.1	0.5	dB
VSWR-T	Load Mismatch Tolerance	P <sub>IN</sub> =0.32W, Freq=1090MHz			5:1	

- Bias Condition: V<sub>DD</sub>=+50V, I<sub>dq</sub>=10mA 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> = 50V			1.0	mA
I <sub>G(Off)</sub>	Gate leakage current	V <sub>GS</sub> = -8V, V <sub>D</sub> = 0V			0.2	mA

**Export Classification: EAR-99**

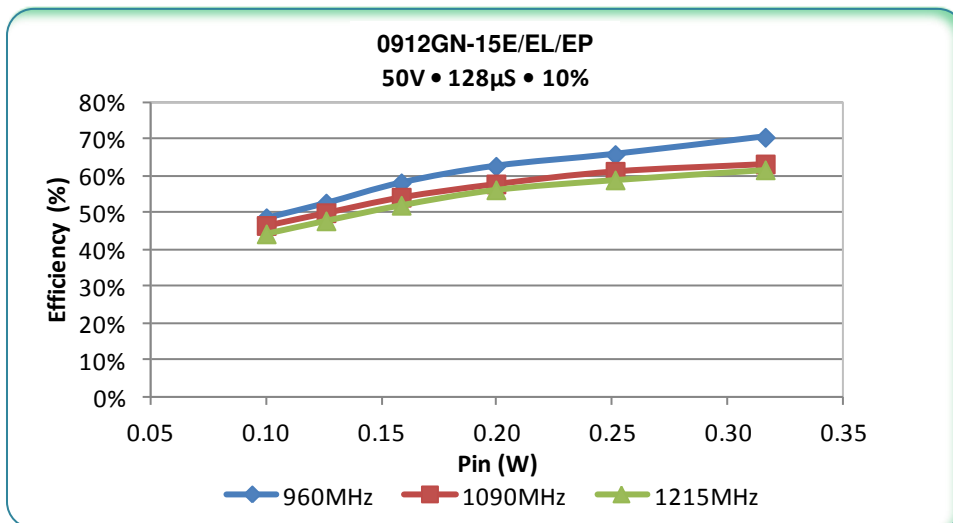
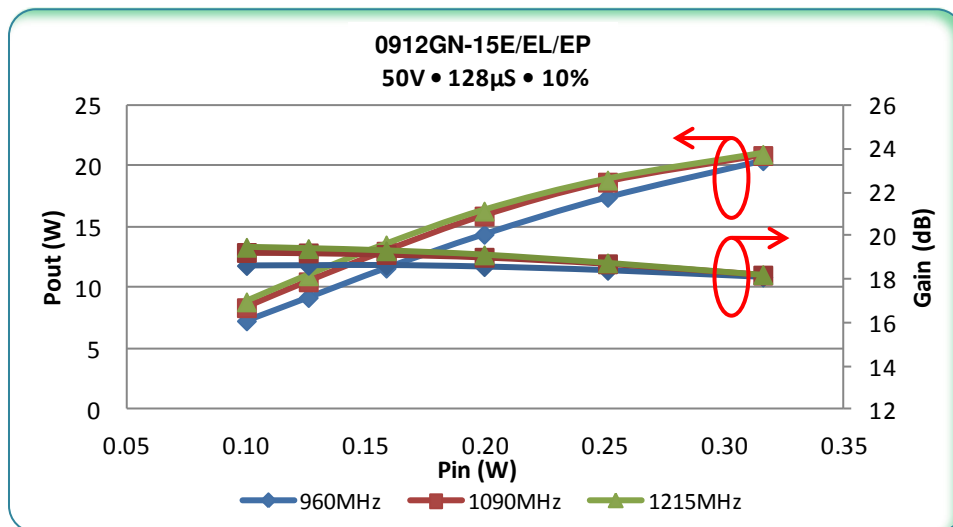


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## TYPICAL BROAD BAND PERFORMANCE DATA – 128us, 10% PULSING

Frequency	P <sub>IN</sub> (mW)	P <sub>OUT</sub> (W)	I <sub>D</sub> (mA)	IRL (dB)	η <sub>D</sub> (%)	G <sub>P</sub> (dB)	Droop (dB)
960 MHz	320	20.5	68	-9.3	71	18.1	0.2
1090 MHz	320	20.9	76	-9.2	63	18.2	0.2
1215 MHz	320	18.2	78	-13.5	62	18.2	0.3





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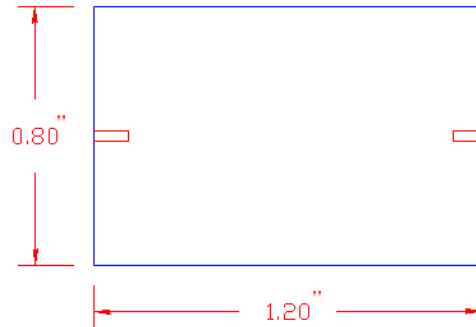
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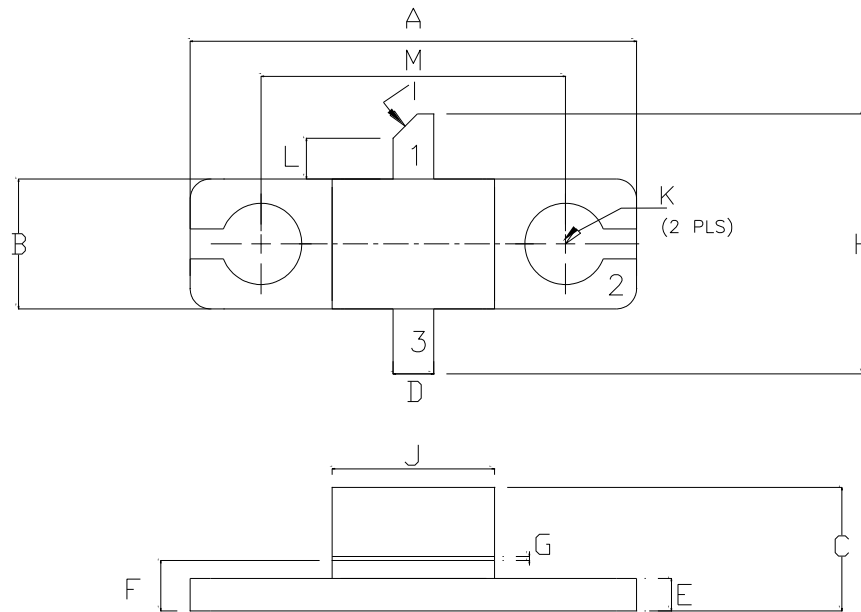
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**Transistor Test Fixture Overall Dimension**



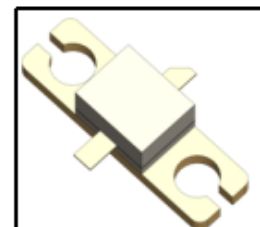
Dimensions in inches.

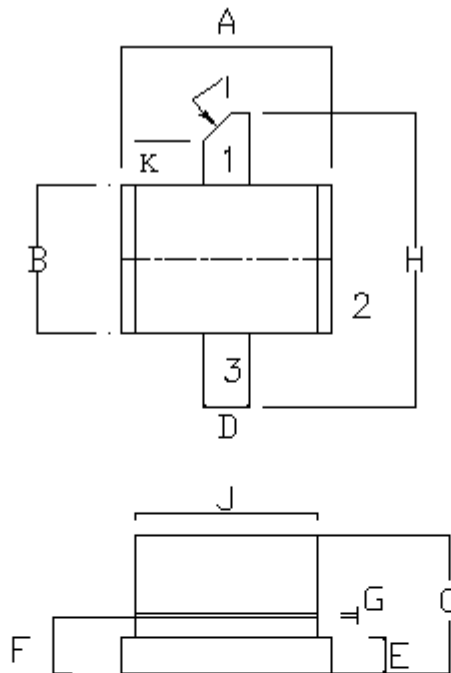
**Test Fixture available upon request**

**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**



**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**





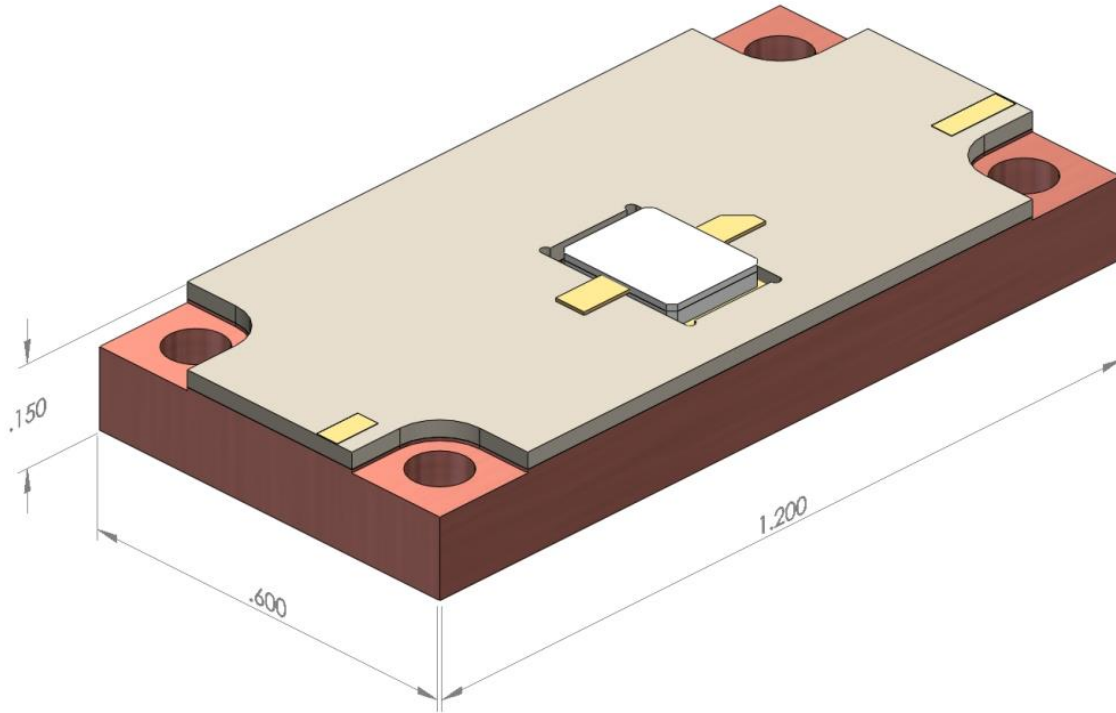
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**55-78029 CASE OUTLINE OVERALL PALLET DIMENSION**



Dimensions: Length=1.200" x Width=0.600" x Height=0.150"



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## Revision History

Revision Level / Date	Para. Affected	Description
Rev 1 / 12 Dec 2014	Initial	First release