

E Class Driver GaN Transistor – Key Features

- 960-1215MHz • 15W Pulsed Output Power • 128us, 10% Pulsing
- Common Source • Class AB • 50V_{DD} 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

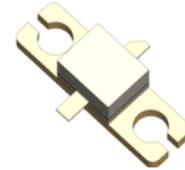
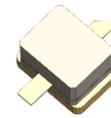
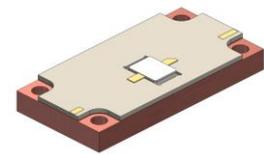
 Drain-Source Voltage (V_{DSS}) 150 V

 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

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 _{OUT} | Output Power | P _{IN} =0.32W, Freq=960,1090,1215 MHz | 15 | 19 | | W |
| G _P | Power Gain | P _{IN} =0.32W, Freq=960,1090,1215 MHz | 17.5 | 18.1 | | dB |
| η _D | Drain Efficiency | P _{IN} =0.32W, Freq=960,1090,1215 MHz | 60 | 65 | | % |
| Dr | Droop | P _{IN} =0.32W, Freq=960,1090,1215 MHz | | 0.1 | 0.5 | dB |
| VSWR-T | Load Mismatch Tolerance | P _{IN} =0.32W, Freq=1090MHz | | | 5:1 | |

- 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 |

Export Classification: EAR-99

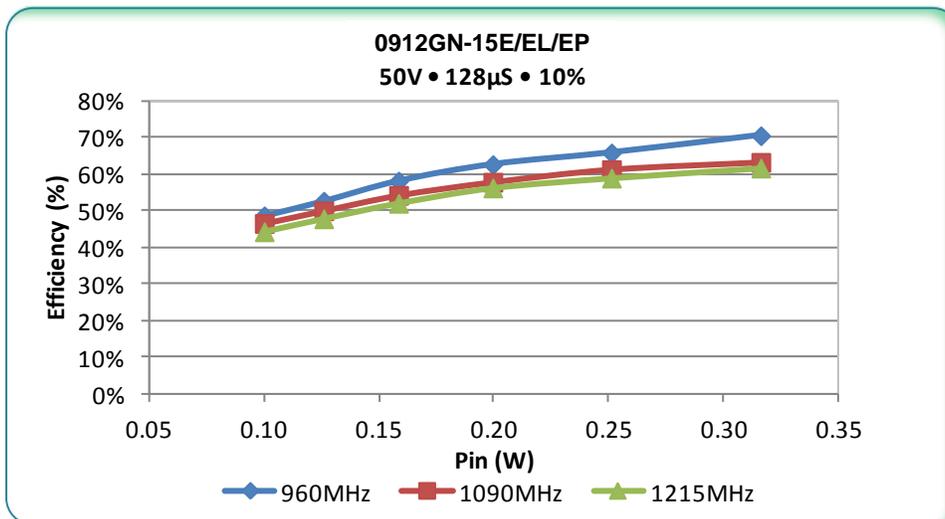
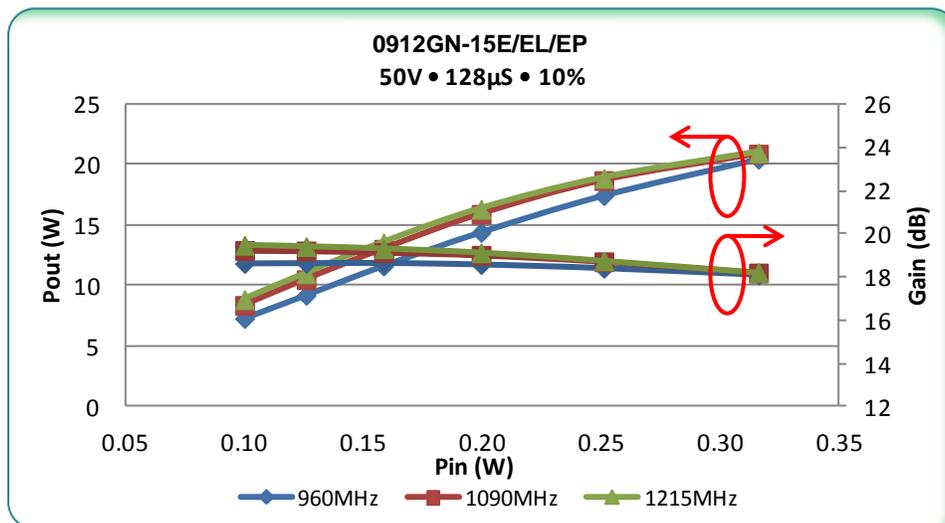


0912GN-15E/EL/EP

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

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

| Frequency | P _{IN} (mW) | P _{OUT} (W) | I _D (mA) | IRL (dB) | η _D (%) | G _P (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 |



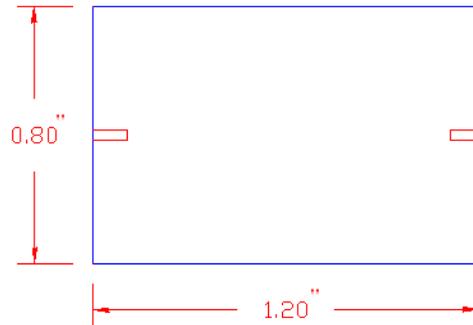


0912GN-15E/EL/EP

15 Watts • 50 Volts • 128us, 10%

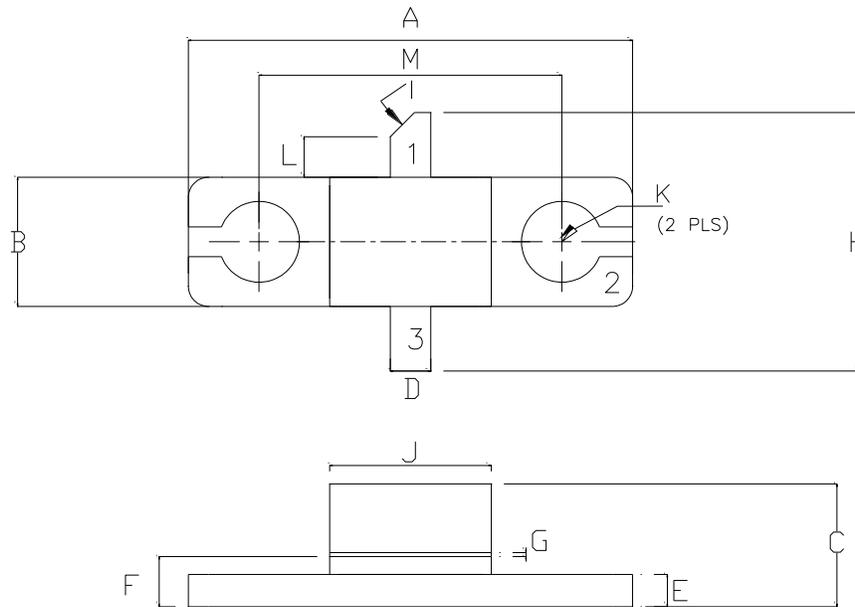
960-1215MHz

Transistor Test Fixture Overall Dimension



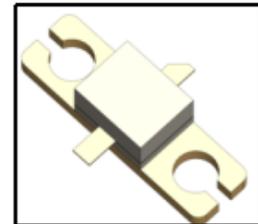
Dimensions in inches.

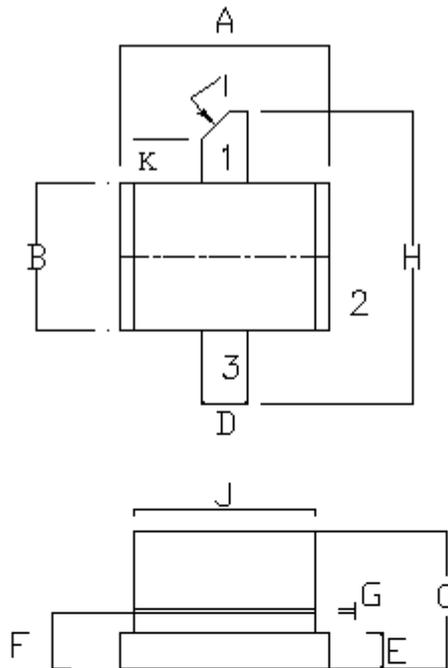
Test Fixture available upon request

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 |

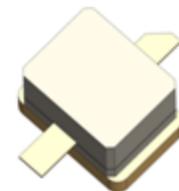
PIN 1: DRAIN
PIN 2: SOURCE
PIN 3: GATE



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

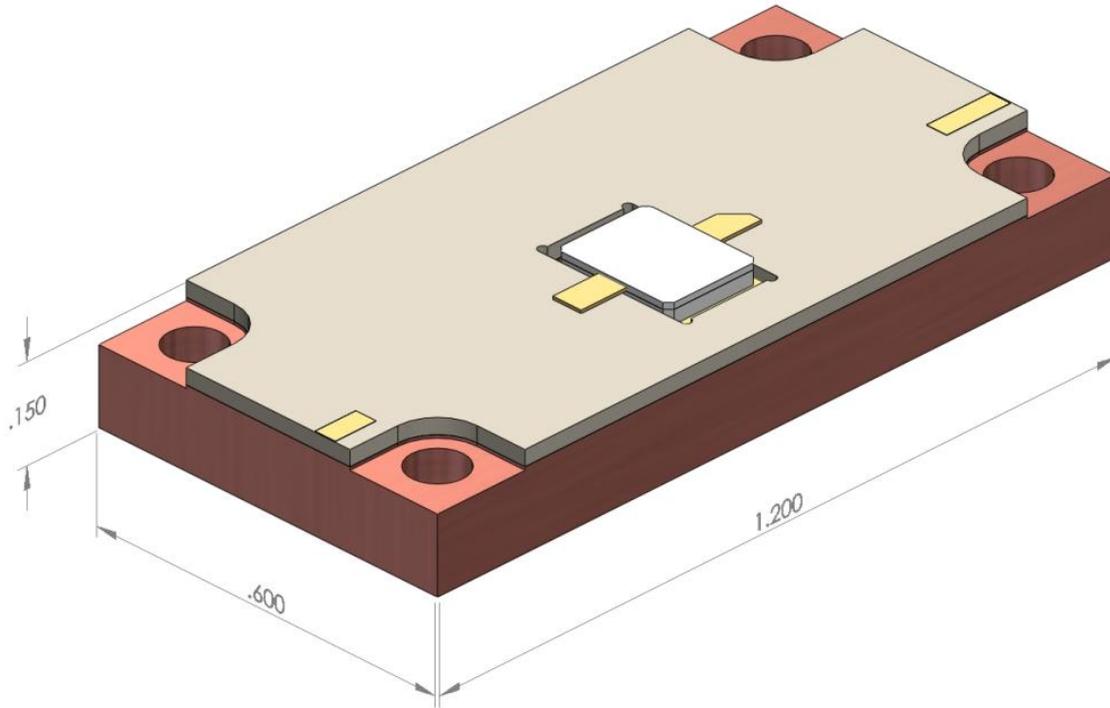




0912GN-15E/EL/EP

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

55-78029 CASE OUTLINE OVERALL PALLET DIMENSION



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



0912GN-15E/EL/EP

15 Watts • 50 Volts • 128us, 10%

960-1215MHz

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Revision History

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