



0912GN-120E/EL/EP

120 Watts • 50 Volts • 128 μ S, 10%
960–1215MHz

E Class Earless GaN Transistor – Key Features

- 0960-1215MHz • 120W Output Power • Pulsed and CW
- Common Source • Class AB • 50V_{DD} Bias Voltage
- >60% Efficiency Across the Frequency Band
- Extremely Compact Size
- 18 dB Minimum Power Gain
- Excellent Gain Flatness
- Designed for L-Band Avionics
- 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 265 W

Maximum Voltage and Current

Drain-Source Voltage (V_{DSS}) 125 V

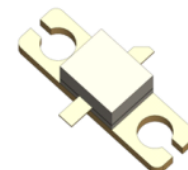
Gate-Source Voltage (V_{GS}) -8 to +0 V

Maximum Temperatures

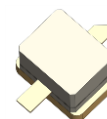
Storage Temperature (T_{STG}) -55 to +125° C

Operating Junction Temperature +200 °C

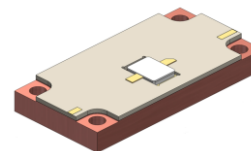
CASE/PALLET OUTLINES



55-QQ
(0.160" x 0.550")



55-QQP
(0.160" x 0.230")



55-78030
(0.600" x 1.200")

ELECTRICAL CHARACTERISTICS @ 25°C

Symbol	Characteristics	Test Conditions	Min	Typ	Max	Units
P _{out}	Output Power	P _{in} =2W, Freq=960,1090,1215 MHz	120			W
G _p	Power Gain	P _{in} =2W, Freq=960,1090,1215 MHz	17.8	18.4		dB
η_d	Drain Efficiency	P _{in} =2W, Freq=960,1090,1215 MHz	55	65		%
Dr	Droop	P _{in} =2W, Freq=960,1090,1215 MHz		0.1	0.5	dB
V _{SWR-T}	Load Mismatch Tolerance	P _{in} =2W, Freq=1090MHz, 128 μ -10%			5:1	

- Pulse formats : 32 μ s-1ms pulse width , 2%-10% duty cycle
- Bias Condition: V_{DD}=+50V, I_{DQ}=30mA 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			12	mA
I _{G(Off)}	Gate leakage current	V _{GS} = -8V, V _D = 0V			4	mA

Export Classification: EAR-99



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1030/1090MHz Critical Parameter Table @ Pin = 2W (33dBm)

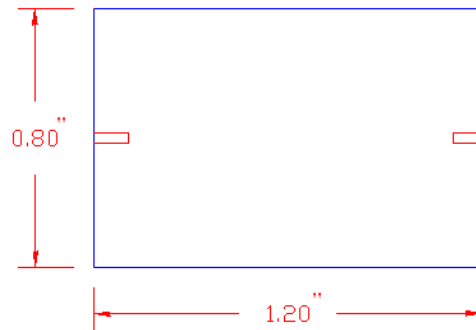
Freq (GHz)	Test Condition	Po(W)	Gp(dB)	Efficiency (%)	Droop (dB)
1.03	32 μ S - 2%	143	18.56	72	0.1
1.03	128 μ S - 10%	138	18.4	62	0.2
1.03	1mS - 10%	140	18.45	62	0
1.09	32 μ S - 2%	141	18.5	71.6	0.1
1.09	128 μ S - 10%	137	18.37	64	0.2
1.09	1mS - 10%	138	18.4	64	0



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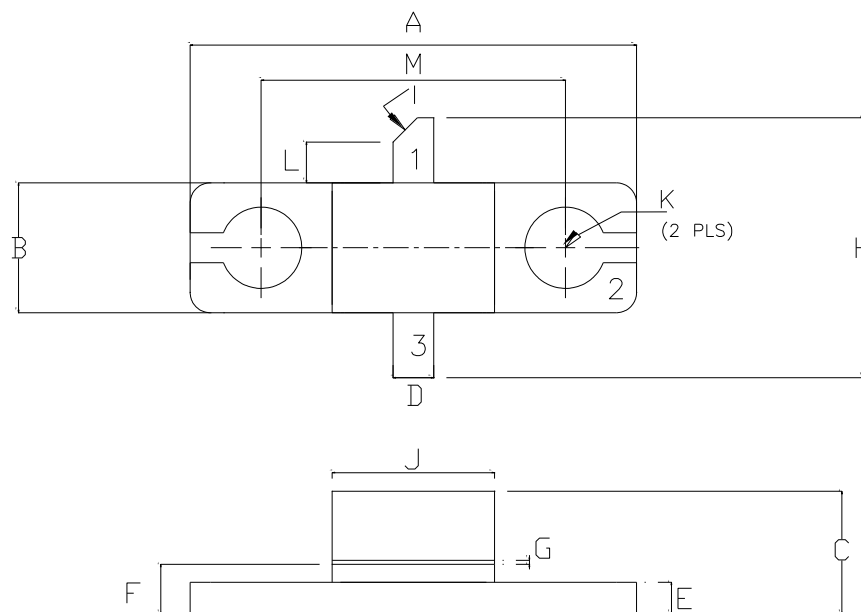
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0912GN-120E/EL Test Circuit Overall Dimensions



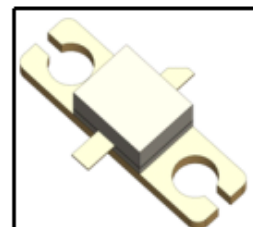
(Dimensions shown are in inches.)

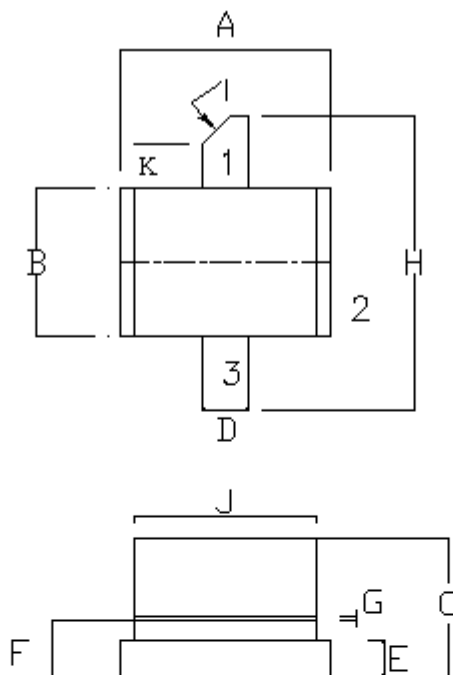
Contact your local Microsemi representative for additional information.

0912GN-120E 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

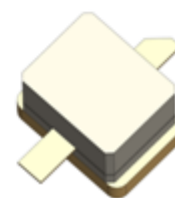
PIN 1: DRAIN
PIN 2: SOURCE
PIN 3: GATE



0912GN-120EL CASE OUTLINE 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

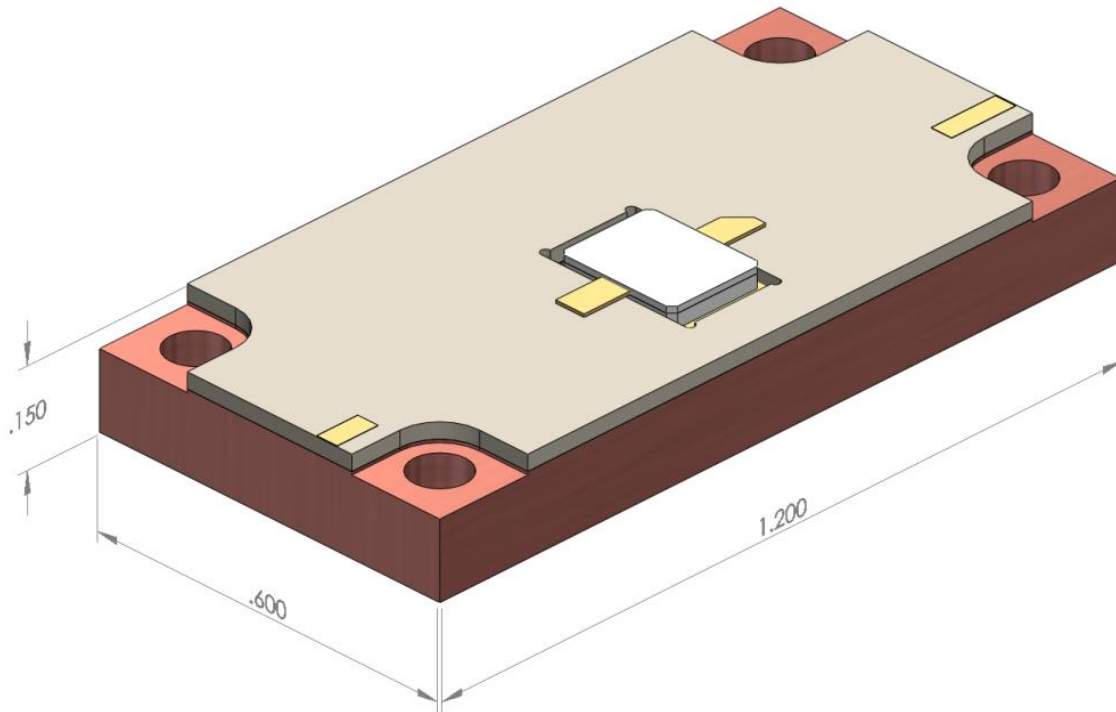




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0912GN-120EP CASE OUTLINE 55-78030 OVERALL PALLET DIMENSION



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



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Revision History

Revision Level / Date	Para. Affected	Description
0.1 / 07 Dec. 2014	-	Initial Preliminary Release