GTMi, Inc.

Solution, Service, Performance, and Commitment

- Your Trusted Partner

Product Data Sheet

Model: GT0912-16

GT0912-16E

GaN/SiC High Efficiency Transistor

GaN Transistor Product Features

GT0912-16 (and GT0912-16E) is an internally pre-matched GaN on SiC HEMT, common source, class AB that capable of providing over 16 Watts pulsed RF output power with greater than 18 dB power gain, under 128uS, 10% pulse and mode S-ELM condition, across the 960 to 1215 MHz band. This thermally enhanced transistor is designed for Avionics applications. It utilizes gold metallization and eutectic die attach to provide highest reliability and superior ruggedness.

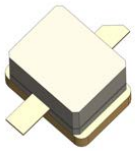
- *High Power >16W*
- *Ultra High Efficiency >65%*

Market Application

- *Avionics IFF, TCAS, TACAN, Secondary Radar*
- *Industrial*
- *Communication*
- *General Purpose Driver Stage*

Case Outline

The following illustrations show the case outline



GT0912-16	*GT0912-16E*
.550”x.160”x.150” (include lid)	*.250”x.160”x.150” (Earless)*
Case Outline - T1	*Case outline – T1E*

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Absolute Maximum Ratings

Description	Test Condition	Max	Units
Maximum Power Dissipation	Transistor Dissipation at 25°C	25	W
MVI Maximum Voltage and Current	Drain Source Voltage (V_{DSS})	150	V
	Gate Source Voltage (V_{GS})	-8 to 0	V
MT Maximum Temperature	Storage Temperature	-55 to 125	°C
	Operating Junction Temperature	200	°C

RF Specifications, T=25^0 C

Symbol	Description	Test Condition	Min	Typical	Max	Units
Po	Output Power	Pin=.25W Freq=960, 1090, 1215MHz	16	19		Watts
Gp	Power Gain	Pin=.25W Freq=960, 1090, 1215MHz	18.1	18.8		dB
n_d	Drain Efficiency	Pin=.25W Freq=960, 1090, 1215MHz	55	68		%
VSWR-T	Mismatch Tolerance	Pin=.25W Freq=1090MHz, 128µS, 10%			5:1	
D_r	Pulse Droop	Pin=.25W Freq=960-1215MHz		0.1	0.3	dB
θ_{jc}	Thermal Resistance	Pulse=128µS, DF=10%		8		℃/W

- **Bias Condition: Vdd = 50V, Idq = 20mA (Vgs = -2V to -4V typical)**

DC Characteristics, , T=25^0 C

Symbol	Description	Test Condition	Min	Typical	Max	Units
$I_{D(off)}$	Drain Leakage Current	V_{GS}= -8V, V_{DD}= 150V			2	mA
$I_{G(off)}$	Gate Leakage Current	V_{GS}= -8V, V_{DD}= 0V			.5	mA

Product Classification

EAR-99

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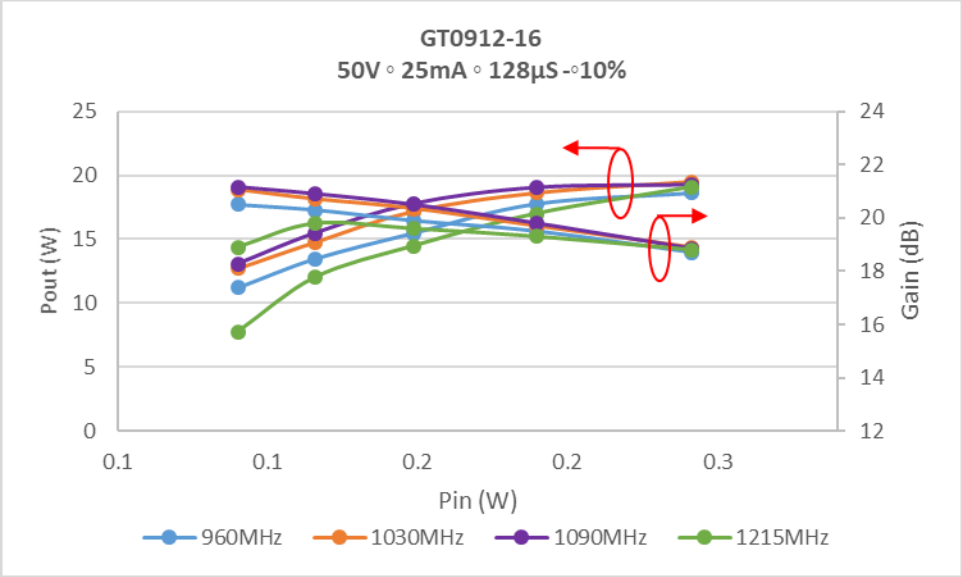
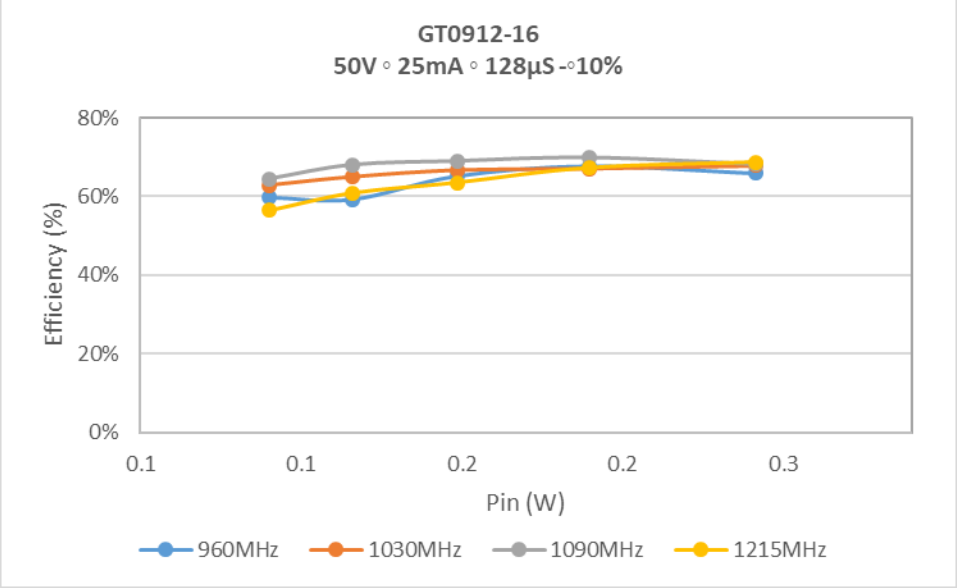
Product Typical Performance

128µS – 10% Pulsing

Frequency (MHz)	Pin (W)	Pout (W)	Id (A)	Nd (%)	Gp (dB)	Droop (dB)
960	.25	18.6	.079	65	18.7	.10
1030	.25	19.5	.080	68	18.9	.10
1090	.25	19.3	.079	68	18.9	.10
1215	.25	19.1	.078	69	18.8	.10





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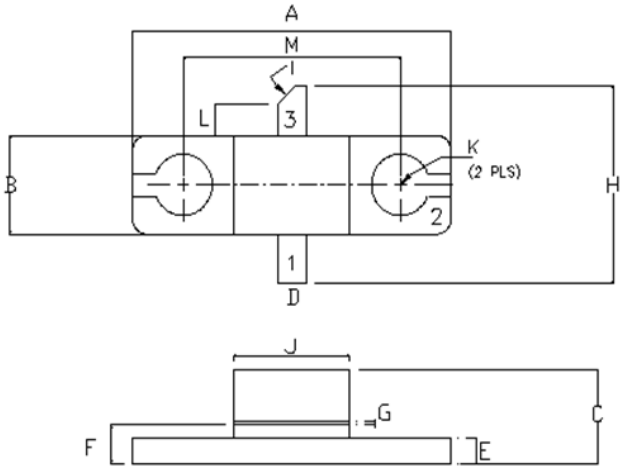
Package Dimensions

1 - Gate
2 - Source
3 - Drain



Label	Inches	Tolerance	Millimeter	Tolerance
A	0.550	.010	14.0	.250
B	0.160	.010	4.60	.250
C	0.150	.002	3.18	.050
D	0.050	.004	1.27	.130
E	0.040	.004	1.03	.130
F	0.062	.004	1.58	.130
G	0.005	.001	.130	.020
H	0.320	.010	8.12	.250
I	45 Degree	-	-	-
J	0.200	.010	5.08	.250
K	0.100 Dia	-	2.54 Dia	-
L	0.050	.004	1.27	.120
M	0.376	.004	9.52	.120

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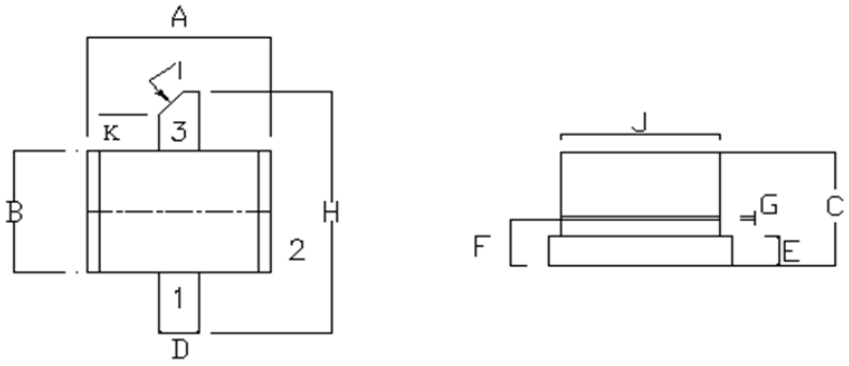
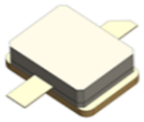
Earless Package





1 - Gate
2 - Source
3 - Drain

Label	Inches	Tolerance	Millimeter	Tolerance
A	0.230	.010	5.85	.250
B	0.160	.010	4.60	.250
C	0.150	.002	3.18	.050
D	0.050	.004	1.27	.130
E	0.040	.004	1.03	.130
F	0.062	.004	1.58	.130
G	0.005	.001	.130	.020
H	0.320	.010	8.12	.250
I	45 Degree	-	-	-
J	0.200	.010	5.08	.250
K	0.055	.004	1.40	.120

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Test Circuit Information

(Contact GTMi for Details)

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Revision History

Revision Level / Date	Para. Affected	Description
Rev 2 / 07-26-2020	-	Initial Preliminary Release