

GTMi, Inc.

Solution, Service, Performance, and Commitment

- Your Trusted Partner

Product Data Sheet

Model: GT0912-120

GT0912-120E

GaN/SiC High Efficiency Transistor

GaN Transistor Product Features

GT0912-120 is an internally pre-matched GaN on SiC HEMT, common source, class AB that capable of providing over 120 Watts pulsed RF output power with greater than 16.8 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.

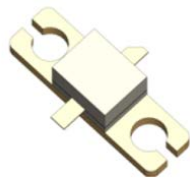
- *High Power >120W*
- *Ultra High Efficiency >65%*

Market Application

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

Case Outline

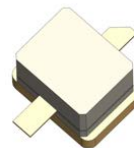
The following illustrations show the case outline of model GT0912-120 & -120E



GT0912-120

.550"x.160"x.150" (include lid)

Case Outline T1



GT0912-120E

.250"x.160"x.150" (Earless Package)

Case Outline T1E

Absolute Maximum Ratings

Description	Test Condition	Max	Units
Maximum Power Dissipation	Transistor Dissipation at 25°C	190	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, $T=25^{\circ}C$

Symbol	Description	Test Condition	Min	Typical	Max	Units
Po	Output Power	Pin=2.5W Freq=960, 1090, 1215MHz	120	140		Watts
Gp	Power Gain	Pin=2.5W Freq=960, 1090, 1215MHz	16.8	17.5		dB
n_d	Drain Efficiency	Pin=2.5W Freq=960, 1090, 1215MHz	60	68		%
VSWR-T	Mismatch Tolerance	Pin=2.5W Freq=1090MHz, 128μS, 10%			5:1	
D_r	Pulse Droop	Pin=2.5W Freq=960-1215MHz		0.2	0.4	dB
θ_{jc}	Thermal Resistance	Pulse=128μS, DF=10%		.68		°C/W

- Bias Condition: Vdd = 50V, Idq = 25mA (Vgs = -2V to -4V typical)

DC Characteristics, , $T=25^{\circ}C$

Symbol	Description	Test Condition	Min	Typical	Max	Units
$I_{D(off)}$	Drain Leakage Current	$V_{GS} = -8V, V_{DD} = 150V$			4	mA
$I_{G(off)}$	Gate Leakage Current	$V_{GS} = -8V, V_{DD} = 0V$			1	mA

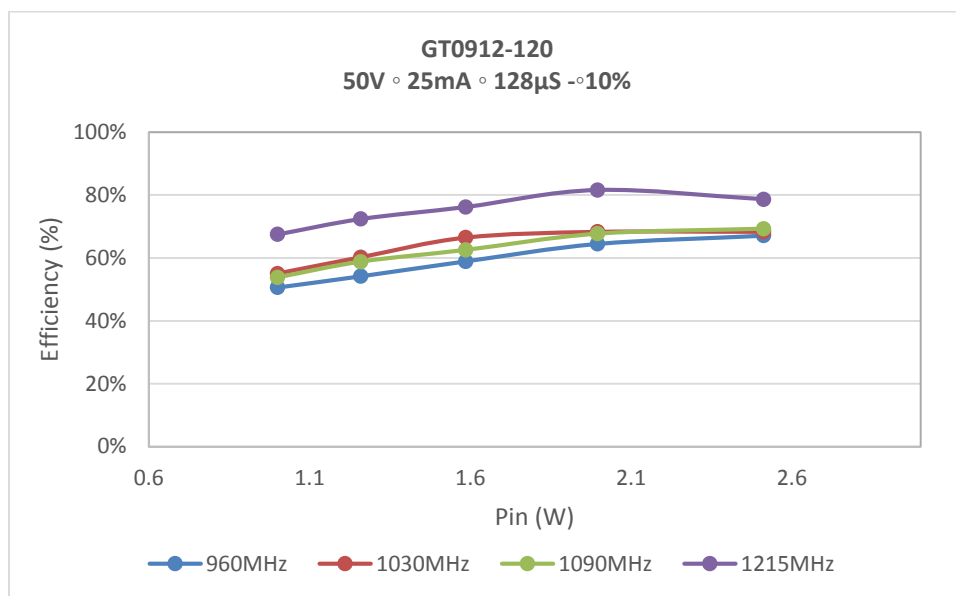
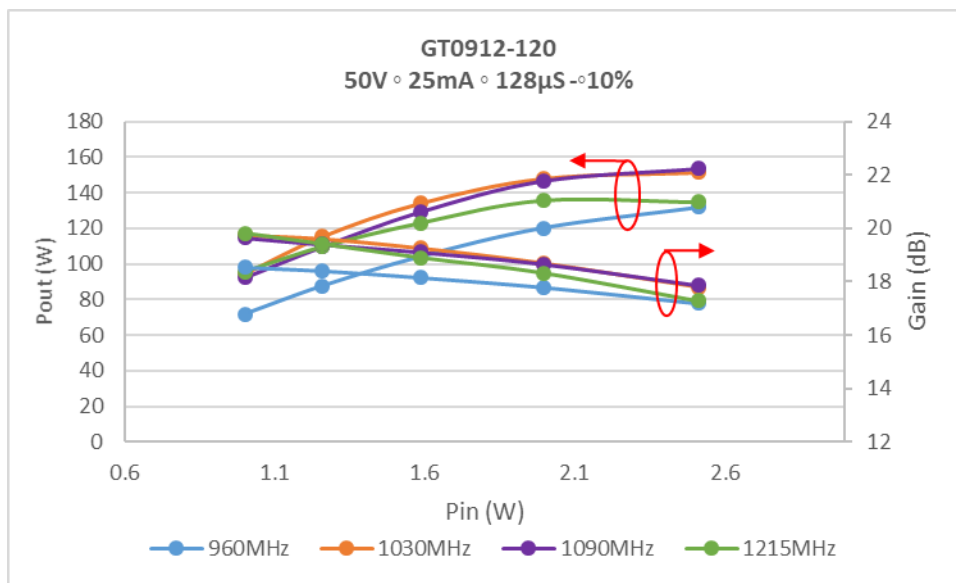
Product Classification

EAR-99

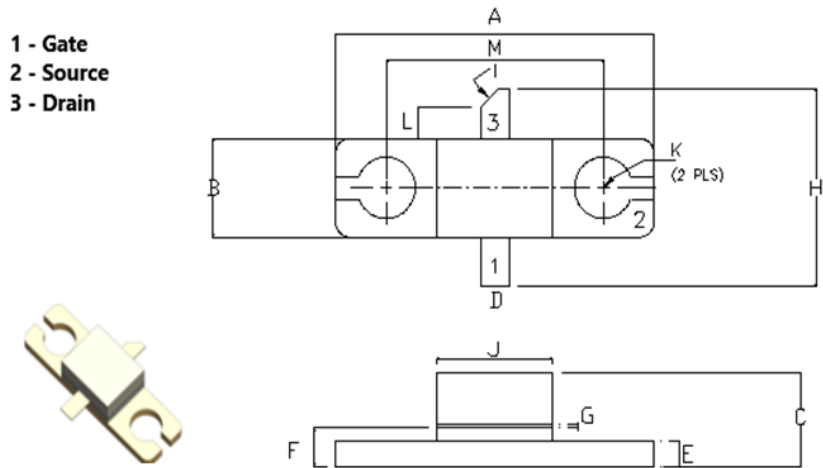
Product Typical Performance

128μS – 10% Pulsing

Frequency (MHz)	Pin (W)	Pout (W)	Id (A)	Nd (%)	Gp (dB)	Droop (dB)
960	2.5	132	.420	68	17.2	.15
1030	2.5	152	.470	68	17.8	.20
1090	2.5	154	.470	69	17.9	.20
1215	2.5	135	.370	75	17.3	.15

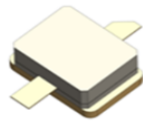
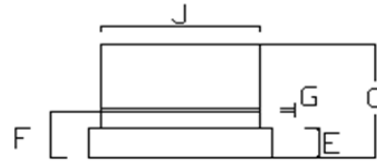
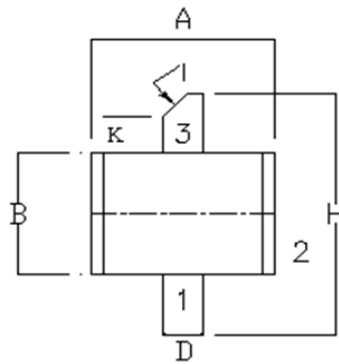


Package Dimensions (GT0912-120)



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

Earless Package (GT0912-120E)



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

Test Circuit Information

(Contact GTMi for Details)

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Revision History

Revision Level / Date	Para. Affected	Description
Rev 2 / 05-16-2020	-	Initial Preliminary Release