GTMi, Inc.

Solution, Service, Performance, and Commitment

- ***Your Trusted Partner***

Product Data Sheet

Model: GT1214-700L

GaN/SiC High Efficiency Power Transistor

GaN Transistor Product Features

GT1214-700L is an internally pre-matched GaN on SiC HEMT, common source, class AB that capable of providing over 18.5dB gain, 700 Watts of output power at 200µS pulse width, 20% duty factor across the 1200 to 1400 MHz band. This thermally enhanced transistor is designed for L-band Radar applications. It utilizes gold metallization and eutectic die attach to provide highest reliability and superior ruggedness.

- *High Power >700W*
- *Ultra High Efficiency typical 65%*

Market Application

- *L-band Radar*

Case Outline

The following illustrations show the case outline of model GT1214-700L

1.300”x.385”x.150 (include lid)

Case 1: Case Outline T5

Absolute Maximum Ratings

Description	Test Condition	Max	Units
Maximum Power Dissipation	Transistor Dissipation at 25°C	1300	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=10W Freq=1200, 1300, 1400 MHz	700	750		Watts
Gp	Power Gain	Pin=10W Freq=1200, 1300, 1400 MHz	18.5	18.8		dB
n_d	Drain Efficiency	Pin=10W Freq=1200, 1300, 1400 MHz	56	65		%
IRL	Input Return Loss	Pin=10W Freq=1200, 1300, 1400 MHz		-9	-7	dB
θ_{jc}	Thermal Resistance	200μS, 20% Condition		.23		℃/W
Droop	Pulse Droop	Po=600W Freq=1200, 1300, 1400 MHz		.3	.6	dB

- **Bias Condition: Vdd=+50V, Idq=120mA average current (Vgs= -2.0 ~ -4.0V 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			26	mA
$I_{G(off)}$	Gate Leakage Current	V_{GS}= -8V, V_{DD}= 0V			9	mA

Product Classification

EAR-99

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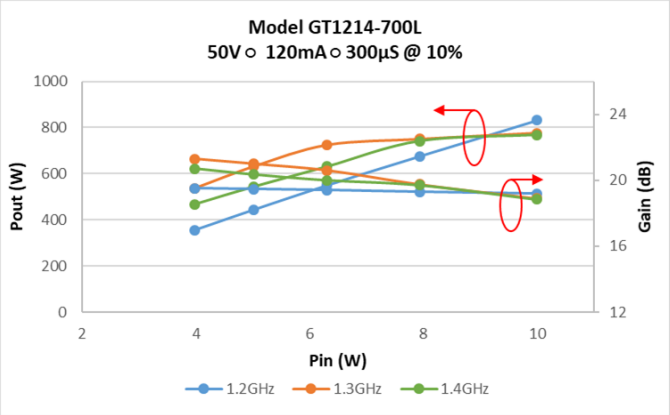
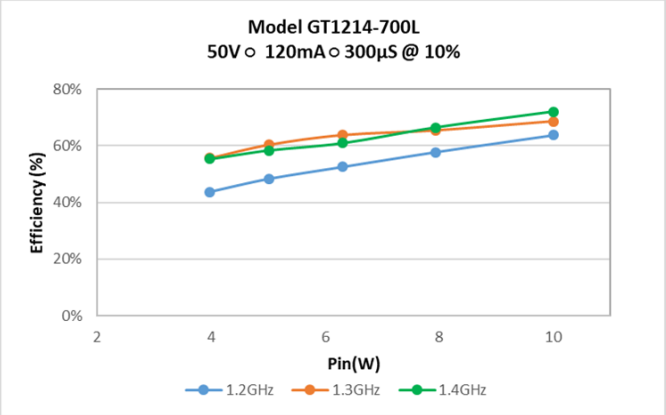
Product Typical Performance

300µS – 10% Pulsing

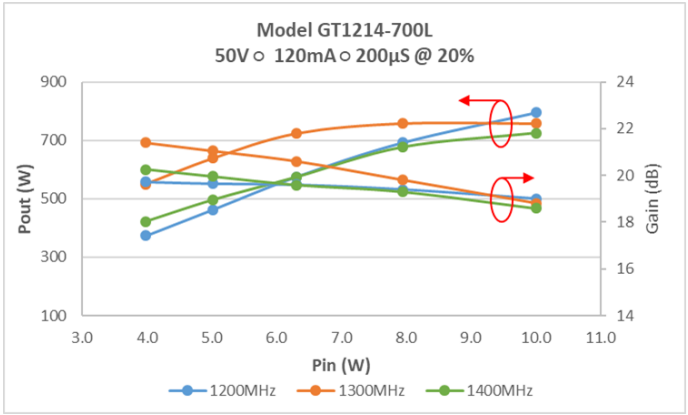
Frequency (MHz)	Pin (W)	Pout (W)	Id (A)	RTL(dB)	Nd (%)	Gp (dB)	Droop (dB)
1200	10	795	2.69	-8.5	62	19.0	0.40
1300	10	776	2.37	-10.0	69	18.9	0.30
1400	10	768	2.24	-11.5	72	18.8	0.25

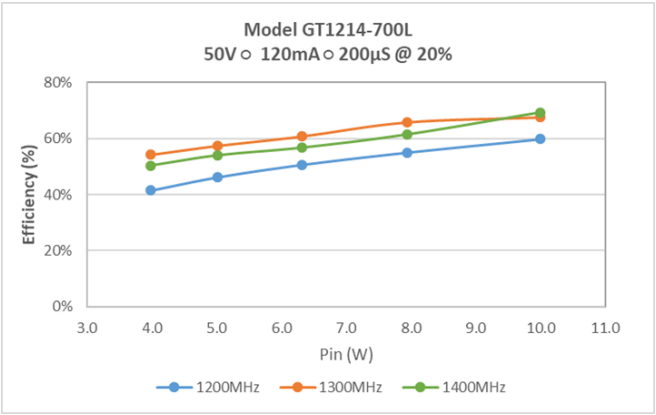




200µS – 20% Pulsing

Frequency (MHz)	Pin (W)	Pout (W)	Id (A)	RTL(dB)	Nd (%)	Gp (dB)	Droop (dB)
1200	10	795	5.40	-9.0	60	19.0	0.30
1300	10	759	4.62	-10.0	68	18.8	0.25
1400	10	725	4.30	-11.5	69	18.6	0.20





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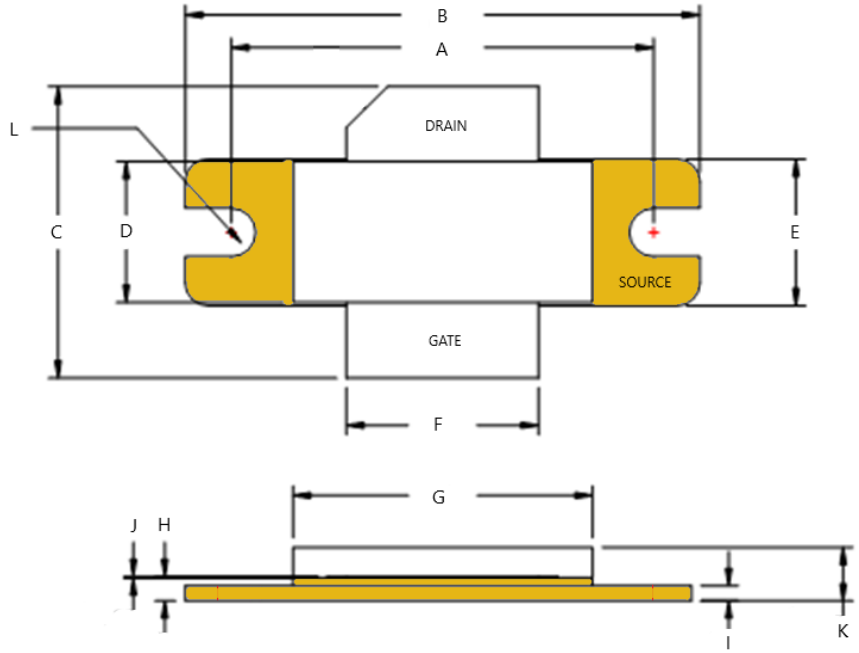
Package Dimensions



Label	Inches	Tolerance	Millimeter	Tolerance
A	1.10	.003	27.94	.076
B	1.34	.010	34.04	.254
C	.768	.004	19.50	.102
D	.370	.005	9.40	.130
E	.385	.010	9.78	.254
F	.500	.005	12.70	.130
G	.780	.004	19.81	.102
H	.062	.002	1.57	.050
I	.040	.002	1.02	.050
J	.004	.001	.102	.025
K	.150	.005	3.81	.130
L	R=.065	.002	1.65	.050

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Test Circuit Information

(Contact GTMi for Details)

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Revision History

Revision Level / Date	Para. Affected	Description
Rev 1 / 10-04-2020	-	Initial Preliminary Release