GTMi, Inc.

Solution, Service, Performance, and Commitment

- Your Trusted Partner

Product Data Sheet

Model: GT1214-600

GaN/SiC High Efficiency Power Transistor

GaN Transistor Product Features

GT1214-600 is an internally pre-matched GaN on SiC HEMT, common source, class AB that capable of providing over 17.8dB gain, 600 Watts at 300μS pulse width, 10% 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 >600W*
- *Ultra High Efficiency >60%*

Market Application

- *L-band Radar*

Case Outline

The following illustration shows the case outline of model GT1214-600

1.032”x.390”x.135 (include lid)

Case Outline T4

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	P0=600W Freq=1200, 1300, 1400 MHz	600	690		Watts
Gp	Power Gain	P0=600W Freq=1200, 1300, 1400 MHz	17.8	18.4		dB
n_d	Drain Efficiency	P0=600W Freq=1200, 1300, 1400 MHz	60	65		%
IRL	Input Return Loss	P0=600W Freq=1200, 1300, 1400 MHz		-9	-7	dB
VSWR-T	Mismatch Tolerance	Po=600W Freq=1300MHz			3:1	
θ_{jc}	Thermal Resistance	300µS, 10% Condition		.22		℃/W
Droop	Pulse Droop	Po=600W Freq=1200, 1300, 1400 MHz		.4	.8	dB

- **Bias Condition: Vdd=+50V, Idq=100mA 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			18	mA
$I_{G(off)}$	Gate Leakage Current	V_{GS}= -8V, V_{DD}= 0V			6	mA

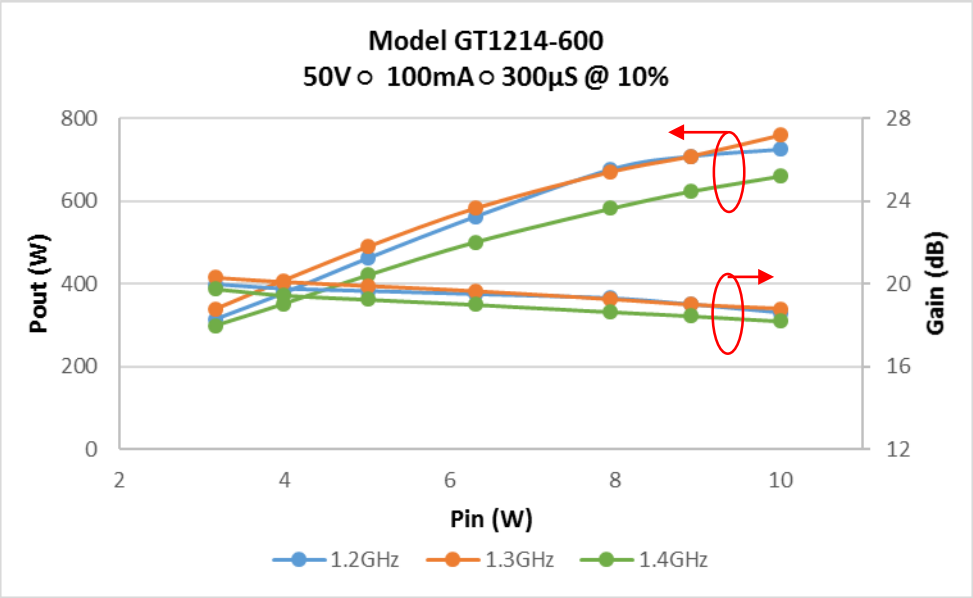
Product Classification

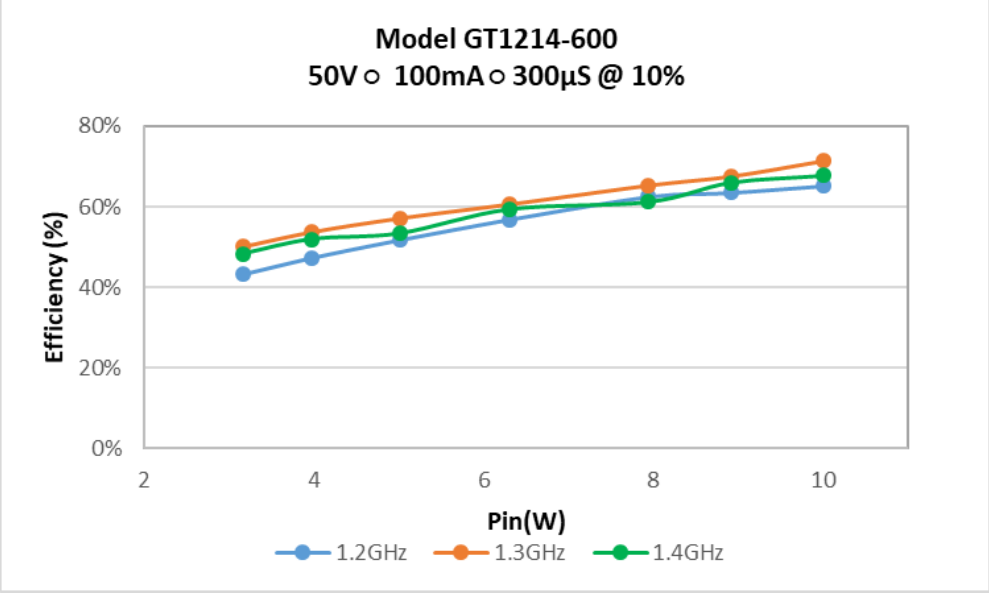
EAR-99

Product Typical Performance

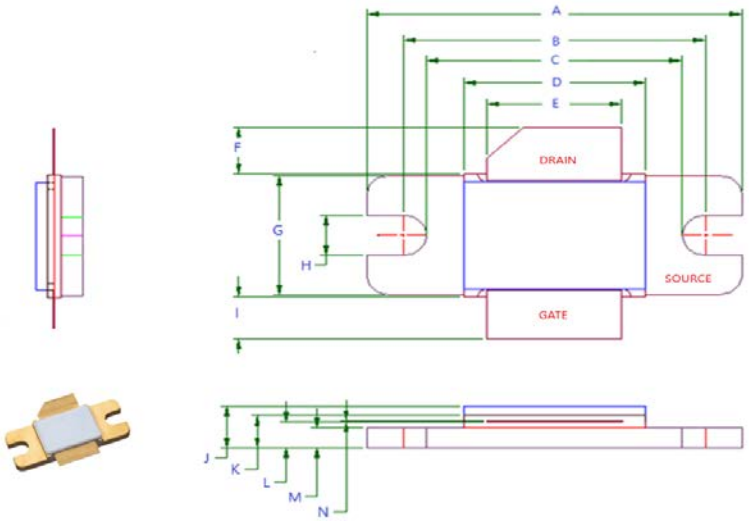
300µS – 10% Pulsing

Frequency (MHz)	Pin (W)	Pout (W)	Id (A)	RTL(dB)	Nd (%)	Gp (dB)	Droop (dB)
1200	10	724	2.32	-12	64	18.6	0.4
1300	10	758	2.22	-13	70	18.8	0.35
1400	10	660	1.97	-9	69	18.2	0.3





Package Dimensions



Label	Inches	Tolerance	Millimeter	Tolerance
A	1.03	.010	26.18	.25
B	.830	.004	21.10	.10
C	.700	.004	17.82	.10
D	.498	.002	12.60	.05
E	.370	.002	9.42	.05
F	.152	.002	3.86	.05
G	.385	.004	8.82	.10
H	.130	.004	3.34	.10
I	.152	.004	3.86	.10
J	.136	.002	3.48	.02
K	.105	.002	2.70	.02
L	.086	.002	2.20	.02
M	.065	.002	1.68	.02
N	.004	.001	0.12	.05

Test Circuit Information

(Contact GTMi for Details)

Revision History

Revision Level / Date	Para. Affected	Description
Rev 2 / 08 08 2020	-	Initial Preliminary Release