GTMi, Inc.

Solution, Service, Performance, and Commitment

- Your Trusted Partner

Product Data Sheet

Model: GT1011-1200

GaN/SiC High Efficiency Power Transistor

GaN Transistor Product Features

GT1011-1200 is an internally pre-matched GaN on SiC HEMT, common source, class AB that capable of providing over 1200 Watts of pulsed RF output power at 32µS, 2% duty factor, with greater than 18.8 dB power gain, across the 1030 to 1090 MHz band. This device is also capable to handle Model S-ELM pulse format (48 pulses - 32µS ON - 18µS OFF, 6.4% Duty Factor). This thermally enhanced transistor is designed for applications. It utilizes gold metallization and eutectic die attach to provide highest reliability and superior ruggedness.

- *High Power >1200W*
- *Ultra High Efficiency, typical 75%*
- *Very Compact Size*

Market Application

- *Avionics IFF, TCAS, TACAN, DME*
- *Secondary Avionic Radar*
- *Communication*

Case Outline

The following illustrations show the case outline of model GT1011-1200

1.300”x.385”x.150 (include lid)

Case Outline T5

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Absolute Maximum Ratings

Description	Test Condition	Max	Units
Maximum Power Dissipation	Transistor Dissipation at 25°C	2200	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
Pin	Input Power	Po=1200W Freq=1030, 1090 MHz		14	15.8	Watts
Gp	Power Gain	Po=1200W Freq=1030, 1090 MHz	18.8	19.3		dB
n_d	Drain Efficiency	Po=1200W Freq=1030, 1090 MHz	60	75		%
IRL	Input Return Loss	Po=1200W Freq=1030, 1090 MHz		-9	-7	dB
VSWR-T	Mismatch Tolerance	Po=1200W Freq=1030MHz, 32µS, 2%			3:1	
θ_{jc}	Thermal Resistance	32µS, 2% Condition		.14		℃/W

- **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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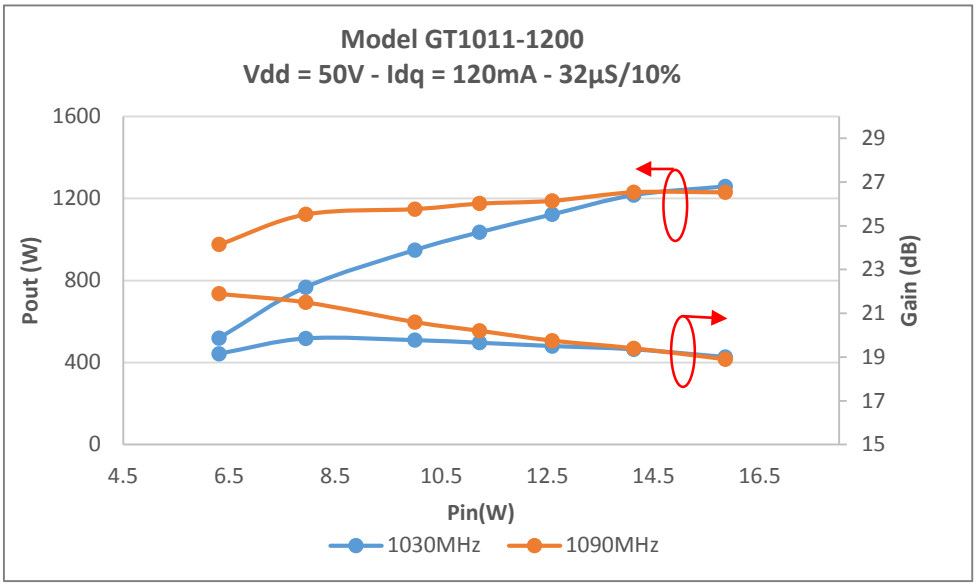
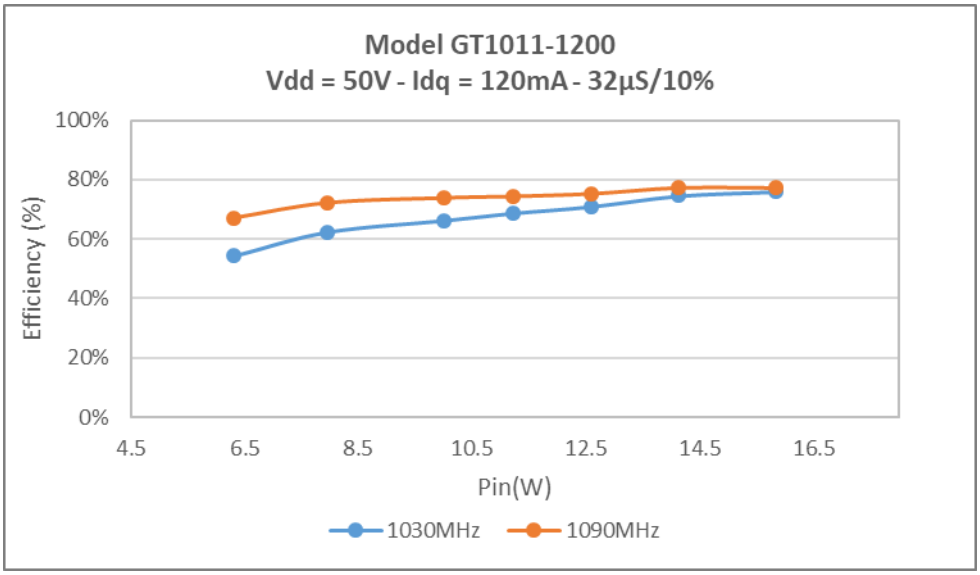
Product Typical Performance

32µS – 2% Pulsing

Frequency (MHz)	Pin (W)	Pout (W)	Id (A)	RTL(dB)	Nd (%)	Gp (dB)	Droop (dB)
1030	15.8	1259	.780	-9.0	76	19.00	0.15
1030	14.1	1216	.770		75	19.35	
1090	15.8	1231	.735	-9.5	78	18.90	0.15
1090	14.1	1230	.730		77	19.40	





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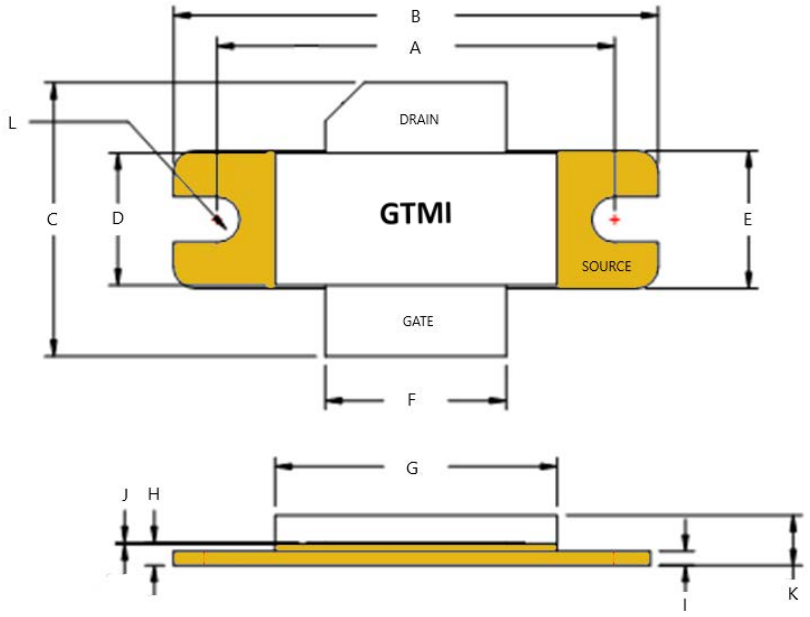
Package Dimensions



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 / 09-05-2020	-	Initial Preliminary Release