

***GTMi, Inc.***

*Solution, Service, Performance, and Commitment*

*- Your Trusted Partner*

***Product Data Sheet***

***Model: GT1011-750***

***GaN/SiC High Efficiency Transistor***

## ***GaN Transistor Product Features***

*GT1011-750 is an internally pre-matched GaN on SiC HEMT, common source, class AB that capable of providing over 750 Watts IFF pulsed and RF output power at ELM pulse format with greater than 19.7 dB power gain, across the 1030 to 1090 MHz band. This thermally enhanced transistor is designed for Radar, Avionic, Communication, and Industrial applications. It utilizes gold metallization and eutectic die attach to provide highest reliability and superior ruggedness.*

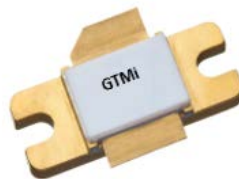
- *High Power >750W*
- *Ultra High Efficiency >75%*
- *Excellent Gain Flatness 0.1dB*

## ***Market Application***

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

## ***Case Outline***

*The following illustrations show the case outline of model GT1011-750*



*GT1011-750*

*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     | 650        | W     |
| MVI<br>Maximum Voltage and Current | Drain Source Voltage ( $V_{DSS}$ ) | 150        | V     |
|                                    | Gate Source Voltage ( $V_{GS}$ )   | -8 to 0    | V     |
| MT<br>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=8W Freq=1030, 1090 MHz    | 750  | 860     |     | Watts |
| Gp            | Power Gain         | Pin=8W Freq=1030, 1090 MHz    | 19.7 | 20.3    |     | dB    |
| $n_d$         | Drain Efficiency   | Pin=8W Freq=1030, 1090 MHz    | 65   | 75      |     | %     |
| IRL           | Input Return Loss  | Pin=8W Freq=1030, 1090 MHz    |      | -10     | -7  | dB    |
| VSWR-T        | Mismatch Tolerance | Pin=8W Freq=1030MHz, 32μS, 2% |      |         | 3:1 |       |
| $\theta_{jc}$ | Thermal Resistance | 32μS, 2% Condition            |      | .07     |     | °C/W  |

- Bias Condition: Vdd=+50V, Idq=100mA average current (Vgs= -2.0 ~ -4.0V typical)

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

| Symbol       | Description           | Test Condition               | Min | Typical | Max | Units |
|--------------|-----------------------|------------------------------|-----|---------|-----|-------|
| $I_{D(off)}$ | Drain Leakage Current | $V_{GS} = -8V, V_{DD} = 50V$ |     |         | 18  | mA    |
| $I_{G(off)}$ | Gate Leakage Current  | $V_{GS} = -8V, V_{DD} = 0V$  |     |         | 6   | mA    |
|              |                       |                              |     |         |     |       |

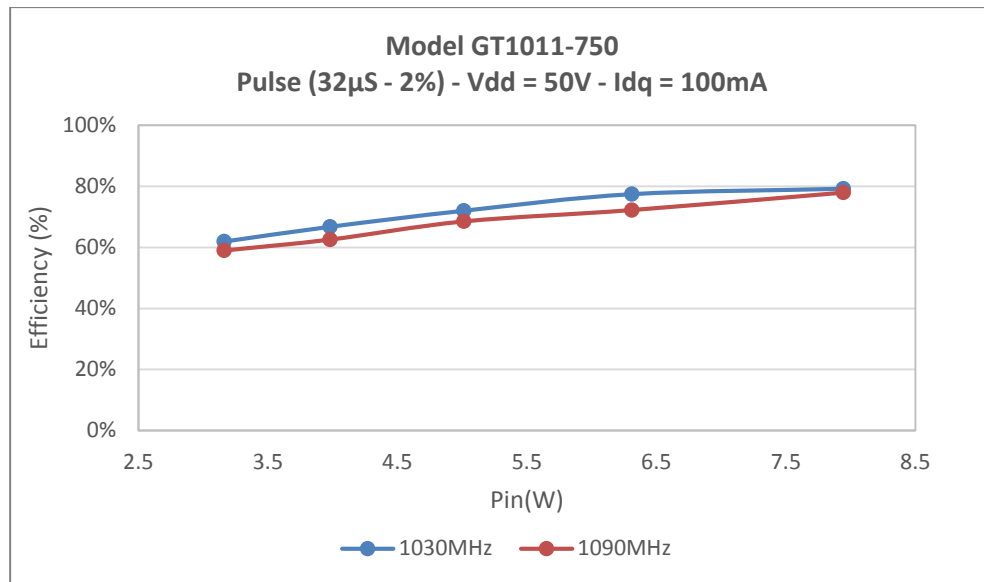
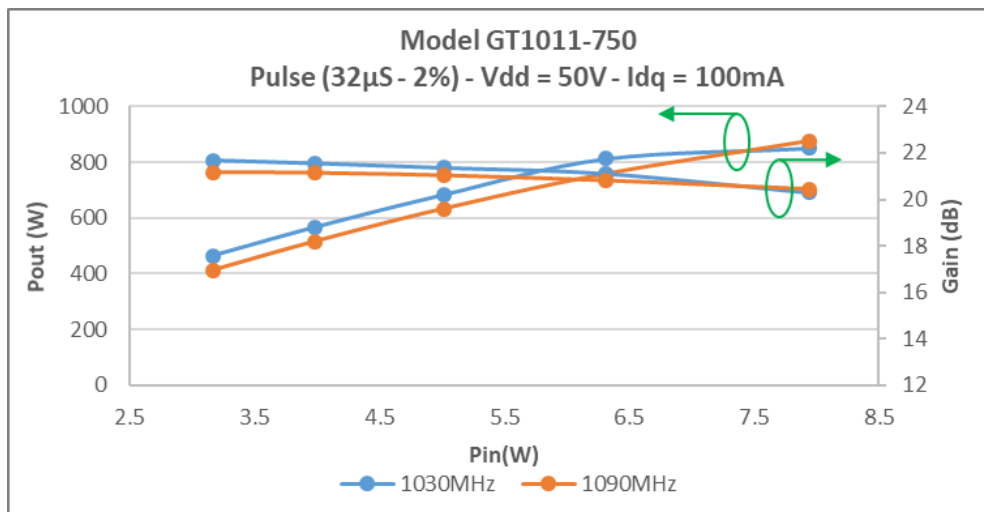
## Product Classification

**EAR-99**

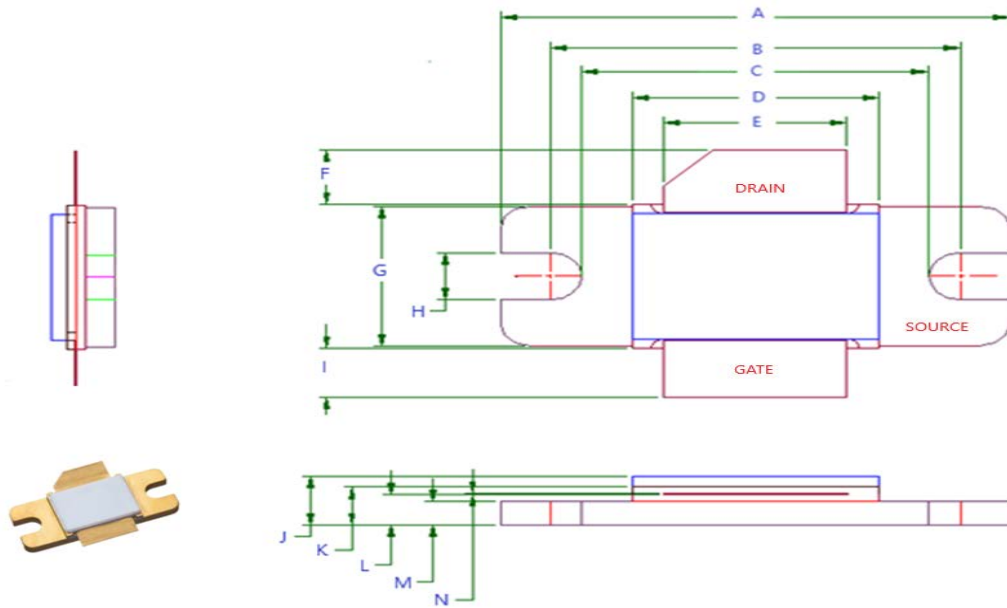
**Product Typical Performance**

**32μS – 2% Pulsing**

| Frequency (MHz) | Pin (W) | Pout (W) | Id (A) | RTL(dB) | Nd (%) | Gp (dB) | Droop (dB) |
|-----------------|---------|----------|--------|---------|--------|---------|------------|
| 1030            | 7.9     | 877      | .490   | -11     | 79     | 20.3    | 0.1        |
| 1090            | 7.9     | 851      | .510   | -14     | 78     | 20.4    | 0.1        |



**Package Dimensions – (GT1011-750)**



| 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)

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### **Revision History**

| <b>Revision Level / Date</b> | <b>Para. Affected</b> | <b>Description</b>          |
|------------------------------|-----------------------|-----------------------------|
| Rev 4 / 09-07-2020           | -                     | Remove Earless from drawing |