GTMi, Inc.

*Solution, Service, Performance, and Commitment*

*- Your Trusted Partner*

# *Product Data Sheet*

# *Model: GT1020-70*

# *GaN/SiC High Efficiency Transistor*

# GaN Transistor Product Features

*GT1020-70 is an internally pre-matched GaN on SiC HEMT, common source, class AB that capable of providing over 70 Watts pulsed RF output power with CW or pulse conditions with greater than 14.5 dB power gain, across the 1000 to 2000 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.*

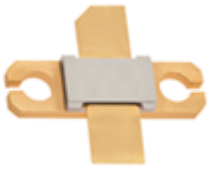
- *High Power >70W (CW)*
- *Ultra High Efficiency typical 55%*

# Market Application

- *Avionics*
- *Radar*
- *Industrial*
- *Communication*
- *General Purpose Driver Stage*

# Case Outline

*The following illustrations show the case outline of model GT1020-70*



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

*Case 1: Case Outline T3*

# Absolute Maximum Ratings

| Description | Test Condition | Max | Units |
|---|---|---|---|
| Maximum Power Dissipation | Transistor Dissipation at 25°C | 150 | 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=2.5W Op-Freq=1000, 1500, 2000 MHz | 70 | 80 | | Watts |
| Gp | Power Gain | Pin=2.5W Op-Freq=1000, 1500, 2000 MHz | 14.5 | 15.1 | | dB |
| $n_d$ | Drain Efficiency | Pin=2.5W Op-Freq=1000, 1500, 2000 MHz | 50 | 55 | | % |
| VSWR-T | Mismatch Tolerance | Pin=2.5W Freq=1000MHz, 100µS, 10% | | | 5:1 | |
| $\theta_{jc}$ | Thermal Resistance | CW Condition | | | 1.6 | $℃/W$ |

**• Bias Condition: Vdd = 50V, Idq = 30mA (Vgs = -2V to 4V Typical)**

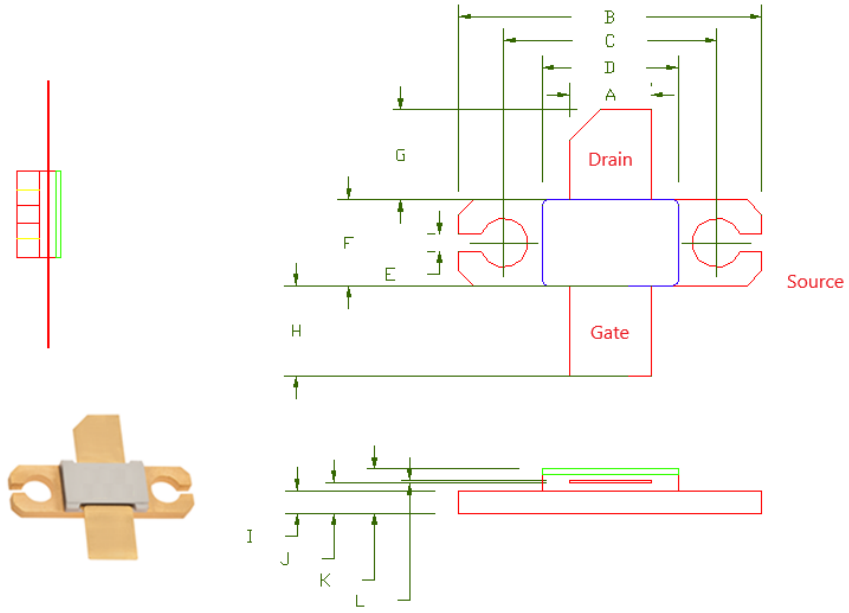
# DC Characteristics, T=25$^0$ C

| Symbol | Description | Test Condition | Min | Typical | Max | Units |
|---|---|---|---|---|---|---|
| $I_{D(off)}$ | Drain Leakage Current | $V_{GS}$= -8V, $V_{DD}$= 150V | | | 4 | mA |
| $I_{G(off)}$ | Gate Leakage Current | $V_{GS}$= -8V, $V_{DD}$= 50V | | | 2 | mA |

# Product Classification

**EAR-99**

# Package Dimensions




| Label | Inches | Tolerance | Millimeter | Tolerance |
|---|---|---|---|---|
| A | .216 | .002 | 5.48 | .05 |
| B | .800 | .005 | 20.32 | .13 |
| C | .562 | .002 | 14.28 | .05 |
| D | .260 | .002 | 6.60 | .05 |
| E | .046 | .001 | 1.17 | .03 |
| F | .228 | .002 | 5.79 | .05 |
| G | .240 | .001 | 6.09 | .03 |
| H | .240 | .001 | 6.09 | .03 |
| I | .062 | .001 | 1.57 | .03 |
| J | .082 | .001 | 2.08 | .03 |
| K | .116 | .001 | 2.95 | .03 |
| L | .004 | - | .102 | - |

# Test Circuit Information

(Contact GTMi for Details)



***Revision History***

| Revision Level / Date | Para. Affected | Description |
|---|---|---|
| Rev 1 / 11-18-2020 | - | Initial Preliminary Release |