TOSHIBA

MICROWAVE SEMICONDUCTOR TECHNICAL DATA

MICROWAVE POWER GaAs FET TIM0910-10

FEATURES

- HIGH POWER
 P1dB=40.5dBm at 9.5GHz to 10.5GHz
- HIGH GAIN
 G1dB=6.0 dB at 9.5 GHz to 10.5GHz
- **BROAD BAND INTERNALLY MATCHED FET**
- HERMETICALLY SEALED PACKAGE

RF PERFORMANCE SPECIFICATIONS (Ta= 25°C)

| CHARACTERISTICS | SYMBOL | CONDITIONS | UNIT | MIN. | TYP. | MAX. |
|--------------------------|--------|--|------|------|------|------|
| Output Power at 1dB Gain | P1dB | | dBm | 40.0 | 40.5 | |
| Compression Point | | | | | | |
| Power Gain at 1dB Gain | G1dB | VDS= 9V | dB | 5.0 | 6.0 | |
| Compression Point | | f= 9.5 to 10.5GHz | | | | |
| Drain Current | IDS1 | | Α | | 4.0 | 5.0 |
| Power Added Efficiency | ηadd | | % | | 23 | |
| Channel Temperature Rise | ∆Tch | (VDS X IDS + Pin – P1dB) X Rth(c-c) | °C | | | 90 |

Recommended gate resistance(Rg) : Rg= 100 Ω (MAX.)

ELECTRICAL CHARACTERISTICS (Ta= 25°C)

| CHARACTERISTICS | SYMBOL | CONDITIONS | UNIT | MIN. | TYP. | MAX. |
|-------------------------|----------|-----------------|------|------|------|------|
| Transconductance | gm | VDS= 3V | mS | | 3000 | |
| | | IDS= 4.8A | | | | |
| Pinch-off Voltage | VGSoff | VDS= 3V | V | -1.5 | -3.5 | -5.0 |
| | | IDS= 145mA | | | | |
| Saturated Drain Current | IDSS | VDS= 3V | Α | | 10.0 | |
| | | VGS= 0V | | | | |
| Gate-Source Breakdown | VGSO | IGS= -145μA | V | -5 | | |
| Voltage | | | | | | |
| Thermal Resistance | Rth(c-c) | Channel to Case | °C/W | _ | 2.0 | 2.5 |

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TOSHIBA CORPORATION

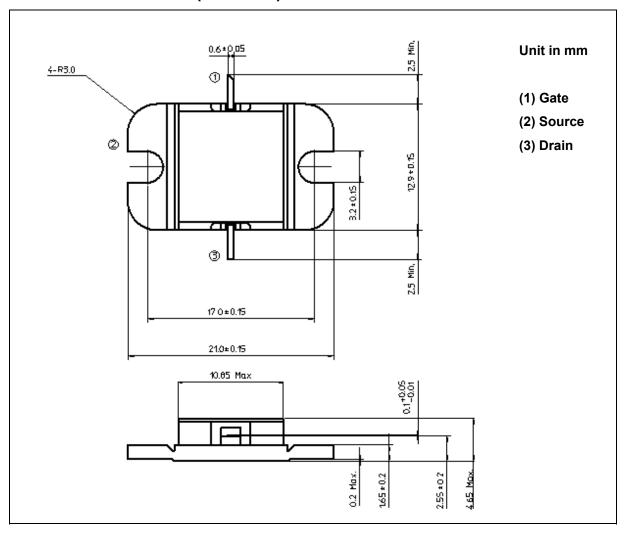
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The information contained herein is subject to change without prior notice. It is therefor advisable to contact TOSHIBA before proceeding with design of equipment incorporating this product.

ABSOLUTE MAXIMUM RATINGS (Ta= 25°C)

| CHARACTERISTICS | SYMBOL | UNIT | RATING |
|-------------------------------------|--------|------|-------------|
| Drain-Source Voltage | VDS | V | 15 |
| Gate-Source Voltage | VGS | V | -5 |
| Drain Current | IDS | А | 11.5 |
| Total Power Dissipation (Tc= 25 °C) | PT | W | 60 |
| Channel Temperature | Tch | °C | 175 |
| Storage Temperature | Tstg | °C | -65 to +175 |

PACKAGE OUTLINE (2-11C1B)

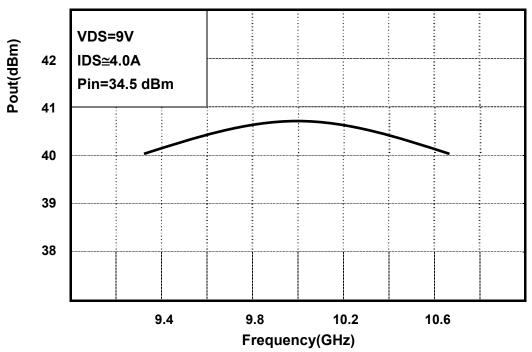


HANDLING PRECAUTIONS FOR PACKAGE MODEL

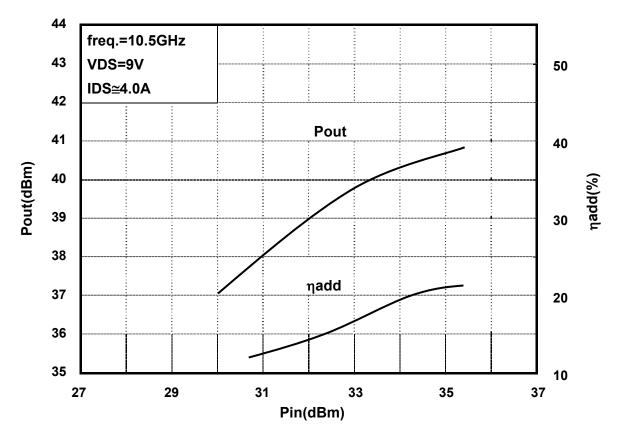
Soldering iron should be grounded and the operating time should not exceed 10 seconds at 260°C.

RF PERFORMANCE

Output Power (Pout) vs. Frequency



Output Power(Pout) vs. Input Power(Pin)



Power Dissipation(PT) vs. Case Temperature(Tc)

