

TOSHIBA

MICROWAVE SEMICONDUCTOR

TECHNICAL DATA

MICROWAVE POWER GaAs FET

TIM5964-25UL

FEATURES

■ **HIGH POWER**

P1dB=44.5dBm at 5.9GHz to 6.4GHz

■ **HIGH GAIN**

G1dB=10.0dB at 5.9GHz to 6.4GHz

■ **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 Compression Point | P1dB | VDS= 10V f = 5.9 to 6.4GHz | dBm | 43.5 | 44.5 | — |
| Power Gain at 1dB Gain Compression Point | G1dB | | dB | 9.0 | 10.0 | — |
| Drain Current | IDS1 | | A | — | 6.8 | 7.6 |
| Gain Flatness | ΔG | | dB | — | — | ±0.6 |
| Power Added Efficiency | ηadd | | % | — | 37 | — |
| 3rd Order Intermodulation Distortion | IM3 | | Two-Tone Test Po=33.5dBm | dBc | -44 | -47 |
| Drain Current | IDS2 | (Single Carrier Level) | A | — | 6.8 | 7.6 |
| Channel Temperature Rise | ΔTch | (VDS X IDS + Pin - P1dB) X Rth(c-c) | °C | — | — | 80 |

Recommended gate resistance(Rg) : Rg= 28 Ω(MAX.)

ELECTRICAL CHARACTERISTICS (Ta= 25°C)

| CHARACTERISTICS | SYMBOL | CONDITIONS | UNIT | MIN. | TYP. | MAX. |
|-------------------------------|----------|----------------------|------|------|------|------|
| Transconductance | gm | VDS= 3V IDS= 8.0A | mS | — | 5000 | — |
| Pinch-off Voltage | VGSoff | VDS= 3V IDS= 80mA | V | -1.0 | -2.5 | -4.0 |
| Saturated Drain Current | IDSS | VDS= 3V VGS= 0V | A | — | 14.4 | — |
| Gate-Source Breakdown Voltage | VGSO | IGS= -280μA | V | -5 | — | — |
| Thermal Resistance | Rth(c-c) | Channel to Case | °C/W | — | 1.2 | 1.5 |

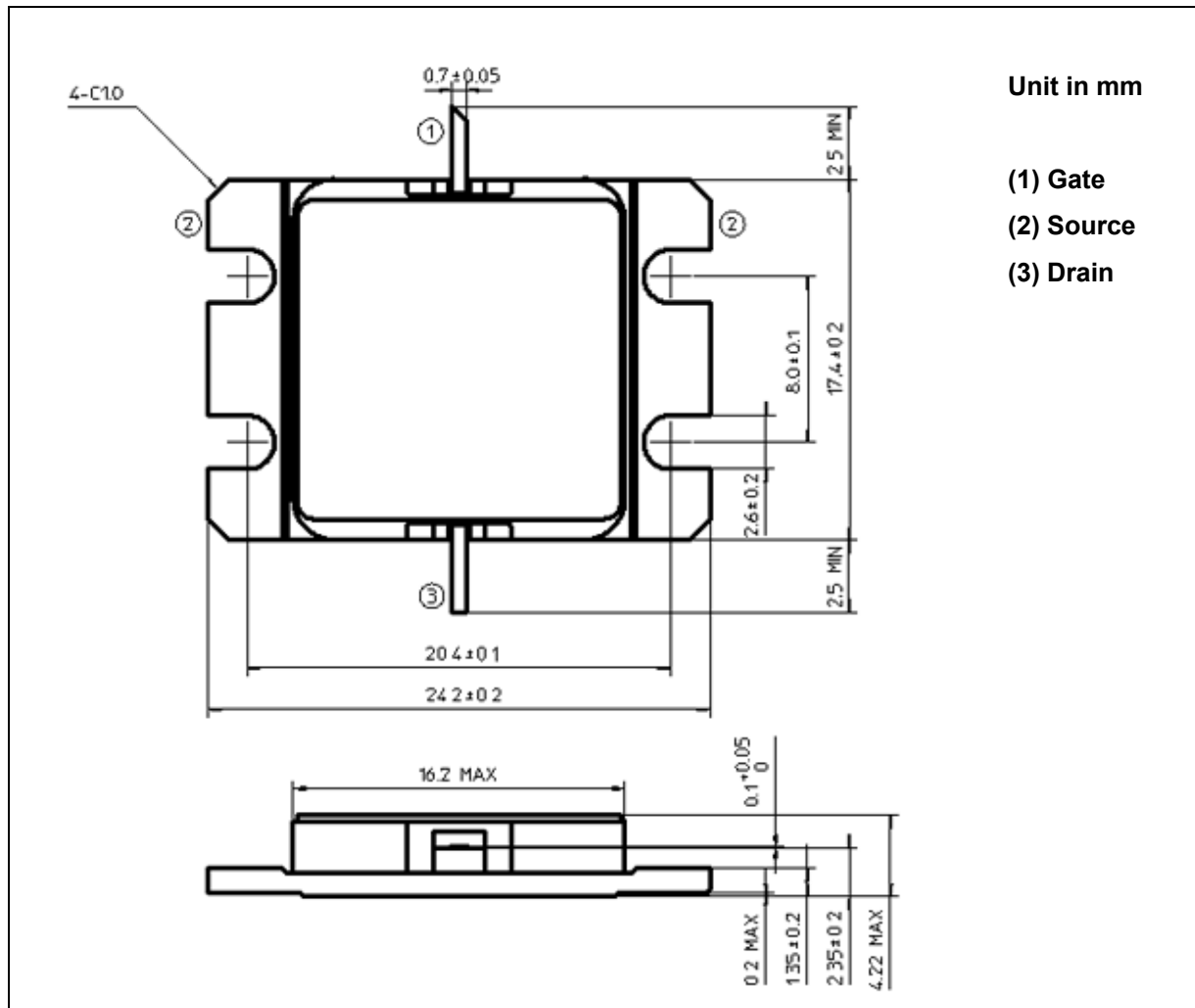
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The information contained herein is subject to change without prior notice. It is therefor advisable to contact TOSHIBA before proceeding with design of equipment incorporating this product.



ABSOLUTE MAXIMUM RATINGS (Ta= 25°C)

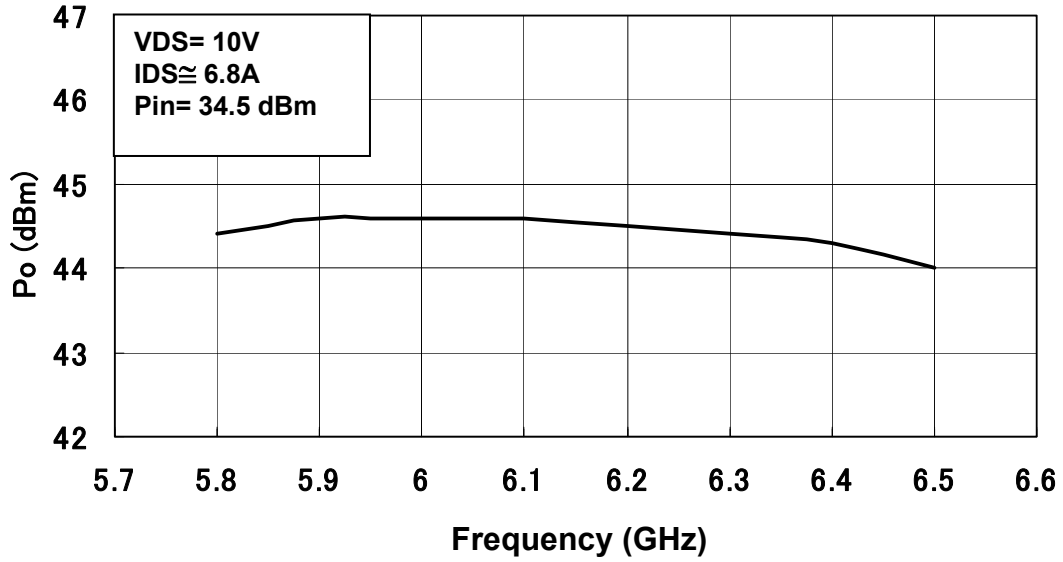
| CHARACTERISTICS | SYMBOL | UNIT | RATING |
|-------------------------------------|--------|------|-------------|
| Drain-Source Voltage | VDS | V | 15 |
| Gate-Source Voltage | VGS | V | -5 |
| Drain Current | IDS | A | 20.0 |
| Total Power Dissipation (Tc= 25 °C) | PT | W | 100 |
| Channel Temperature | Tch | °C | 175 |
| Storage | Tstg | °C | -65 to +175 |

PACKAGE OUTLINE (2-16G1B)**HANDLING PRECAUTIONS FOR PACKAGE MODEL**

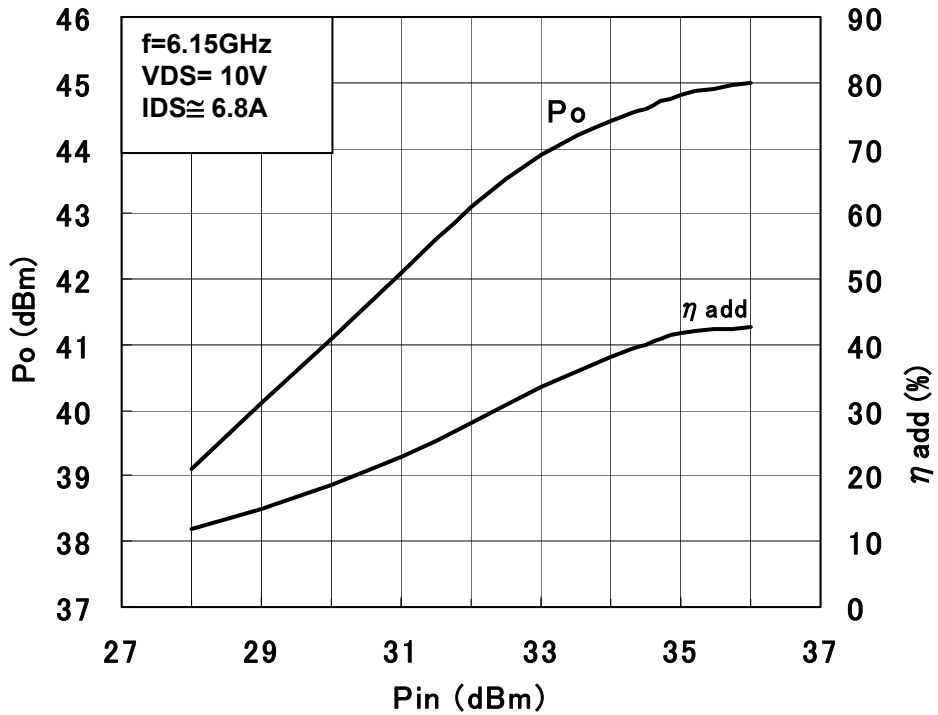
Soldering iron should be grounded and the operating time should not exceed 10 seconds at 260°C.

RF PERFORMANCE

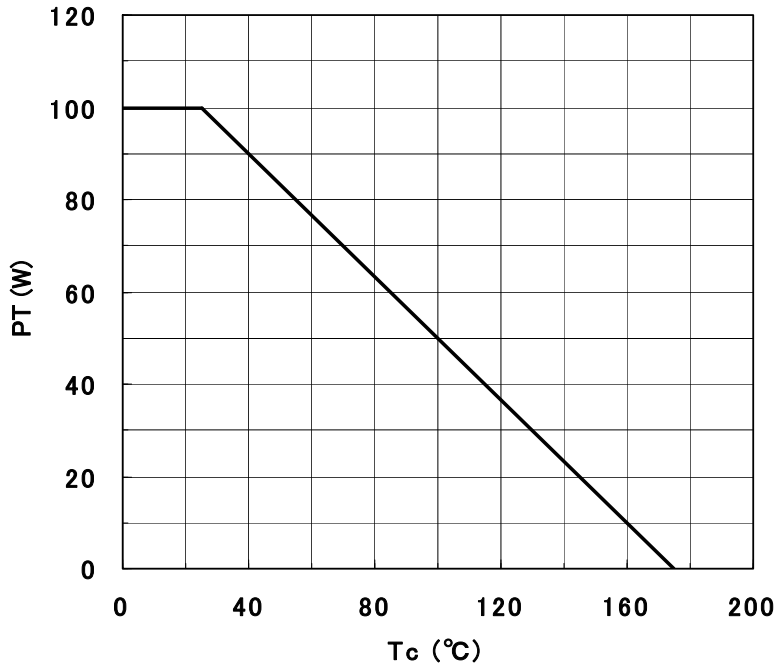
Output Power vs. Frequency



Output Power vs. Input Power



Power Dissipation vs. Case Temperature



IM3 vs. Output Power Characteristics

