TOSHIBA

MICROWAVE SEMICONDUCTOR TECHNICAL DATA

MICROWAVE POWER GaAs FET TIM1112-8

FEATURES:

- HIGH POWER
 P1dB = 39.5 dBm at 11.7 GHz to 12.7 GHz
- BROAD BAND INTERNALLY MATCHED
- HIGH GAIN

 G1dB = 5.0 dB at 11.7 GHz to 12.7 GHz
- HERMETICALLY SEALED PACKAGE

RF PERFORMANCE SPECIFICATIONS ($T_a = 25^{\circ}C$)

| CHARACTERISTICS | SYMBOL | CONDITION | UNIT | MIN. | TYP. | MAX. |
|--|------------------|---|--------------|------|------|------|
| Output Power at 1 dB Com- pression Point | P _{1dB} | V _{DS} = 9 V | dBm | 38.5 | 39.5 | - |
| Power Gain at 1 dB Com- pression Point | G _{1dB} | f = 11.7 -12.7 GHz | đВ | 4.0 | 5.0 | - |
| Drain Current | I _{DS} | -12.7 GHZ | A | _ | 3.4 | 4.4 |
| Power Added Efficiency | nadd | | O, | _ | 20 | _ |
| Channel-Temper- ature Rise | ΔTch | V _{DS} ×I _{DS} ×R _{th} (c-c) | \mathbb{C} | _ | _ | 80 |

ELECTRICAL CHARACTERISTICS (Ta = 25°C)

| CHARACTERISTICS | SYMBOL | CONDITION | UNIT | MIN. | TYP. | MAX. |
|-------------------------------------|-----------------------|--|------|------------|------|----------------|
| Trans- conductance | gm | $V_{DS} = 3 V$ $I_{DS} = 4.0 A$ | mS | _ | 2400 | - |
| Pinch-off Voltage | VGSoff | $V_{DS} = 3 V$ $I_{DS} = 120 \text{ mA}$ | V | -2 | -3.5 | - 5 |
| Saturated Drain Current | I _{DSS} | $V_{DS} = 3 V$ $V_{GS} = 0 V$ | A | <u>-</u> | 8.0 | 10.4 |
| Gate-Source Breakdown Voltage | V _{GSO} | I _{GS} = -120μA | V | - 5 | - | - |
| Thermal Resistance | R _{th} (c-c) | Channel to Case | °C/W | _ | 1.6 | 2.5 |

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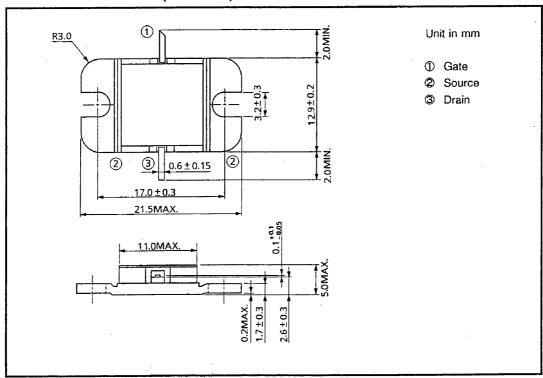
The information contained herein may be changed without prior notice. It is therefore advisable to contact TOSHIBA before proceeding with the design of equipment incorporating this product.



ABSOLUTE MAXIMUM RATINGS (Ta = 25°C)

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|--|-----------------|------|---------|--|
| CHARACTERISTIC | SYMBOL | UNIT | RATING | |
| Drain-Source Voltage | V _{DS} | V | 15 | |
| Gate-Source Voltage | V _{GS} | v | -5 | |
| Drain Current | I _{DS} | A | 10.4 | |
| Total Power Dissipation (T _C =25°C) | PŢ | W | 60 | |
| Channel Temperature | Tch | °C | 175 | |
| Storage Temperature | Tstg | °C | -65~175 | |

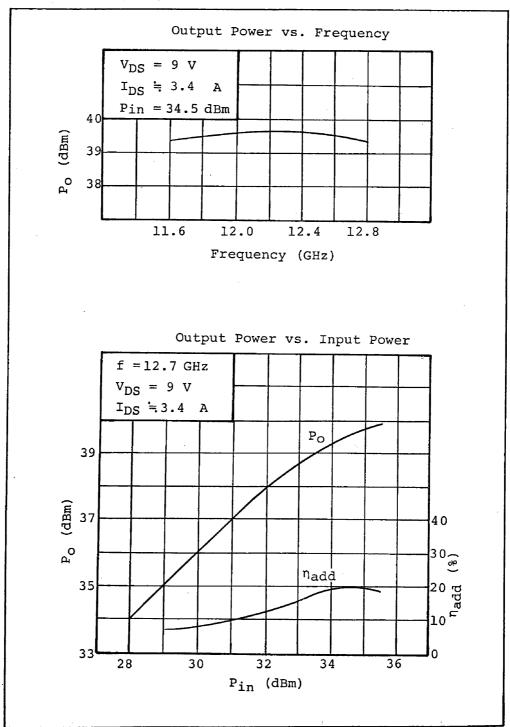
PACKAGE OUTLINE (2-11C1B)



HANDLING PRECAUTIONS FOR PACKAGED TYPE

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

RF PERFORMANCES



POWER DISSIPATION VS. CASE TEMPERATURE

