

Low Distortion Internally Matched Power GaAs FETs (C-Band)

Features

- Low intermodulation distortion
 - $IM_3 = -45$ dBc at $P_o = 28$ dBm,
 - Single carrier level
- High power
 - $P_{1dB} = 39$ dBm at 5.9 GHz to 6.4 GHz
- High gain
 - $G_{1dB} = 9.0$ dB at 5.9 GHz to 6.4 GHz
- Broad band internally matched
- Hermetically sealed package

RF Performance Specifications ($T_a = 25^\circ \text{C}$)

| Characteristics | Symbol | Condition | Unit | Min. | Typ. | Max |
|---------------------------------------|-----------------|--|------------------|------|------|-----------|
| Output Power at 1dB Compression Point | P_{1dB} | $V_{DS} = 10V$ $f = 5.9 \sim 6.4 \text{ GHz}$ | dBm | 38.0 | 39.0 | — |
| Power Gain at 1dB Compression Point | G_{1dB} | | dB | 8.0 | 9.0 | — |
| Drain Current | I_{DS1} | | A | — | 2.1 | 2.6 |
| Gain Flatness | ΔG | | dB | — | — | ± 0.6 |
| Power Added Efficiency | η_{add} | | % | — | 33 | — |
| 3rd Order Intermodulation Distortion | IM_3 | Note 1 | dBc | -42 | -45 | — |
| Drain Current | I_{DS2} | | A | — | 2.1 | 2.6 |
| Channel-Temperature Rise | ΔT_{ch} | $V_{DS} \times I_{DS} \times R_{th}(C-C)$ | $^\circ\text{C}$ | — | — | 80 |

Electrical Characteristics ($T_a = 25^\circ \text{C}$)

| Characteristic | Symbol | Condition | Unit | Min. | Typ. | Max |
|-------------------------------|---------------|----------------------------------|--------------------|------|------|------|
| Trans-conductance | gm | $V_{DS} = 3V$ $I_{DS} = 2.6A$ | mS | — | 1600 | — |
| Pinch-off Voltage | V_{GSoff} | $V_{DS} = 3V$ $I_{DS} = 35mA$ | V | -2 | -3.5 | -5.0 |
| Saturated Drain Current | I_{DSS} | $V_{DS} = 3V$ $V_{GS} = 0V$ | A | — | 5.0 | 6.5 |
| Gate-Source Breakdown Voltage | V_{GSO} | $I_{GS} = -105\mu A$ | V | -5 | — | — |
| Thermal Resistance | $R_{th}(C-C)$ | Channel to case | $^\circ\text{C/W}$ | — | 3.6 | 4.8 |

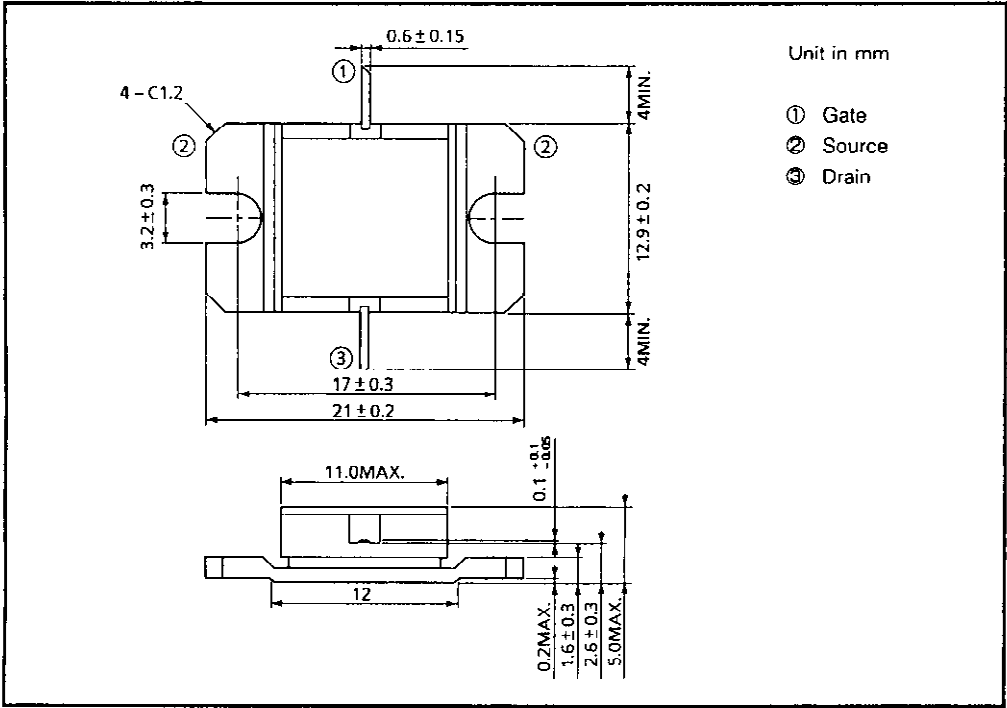
Note 1: 2 tone Test Pout = 28.5dBm Single Carrier Level.

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Absolute Maximum Ratings (Ta = 25° C)

| Characteristic | Symbol | Unit | Rating |
|---|-----------|------|---------|
| Drain-Source Voltage | V_{DS} | V | 15 |
| Gate-Source Voltage | V_{GS} | V | -5 |
| Drain Current | I_{DS} | A | 6.5 |
| Total Power Dissipation ($T_c = 25^{\circ}C$) | P_T | W | 30 |
| Channel Temperature | T_{ch} | °C | 175 |
| Storage Temperature | T_{stg} | °C | -65~175 |

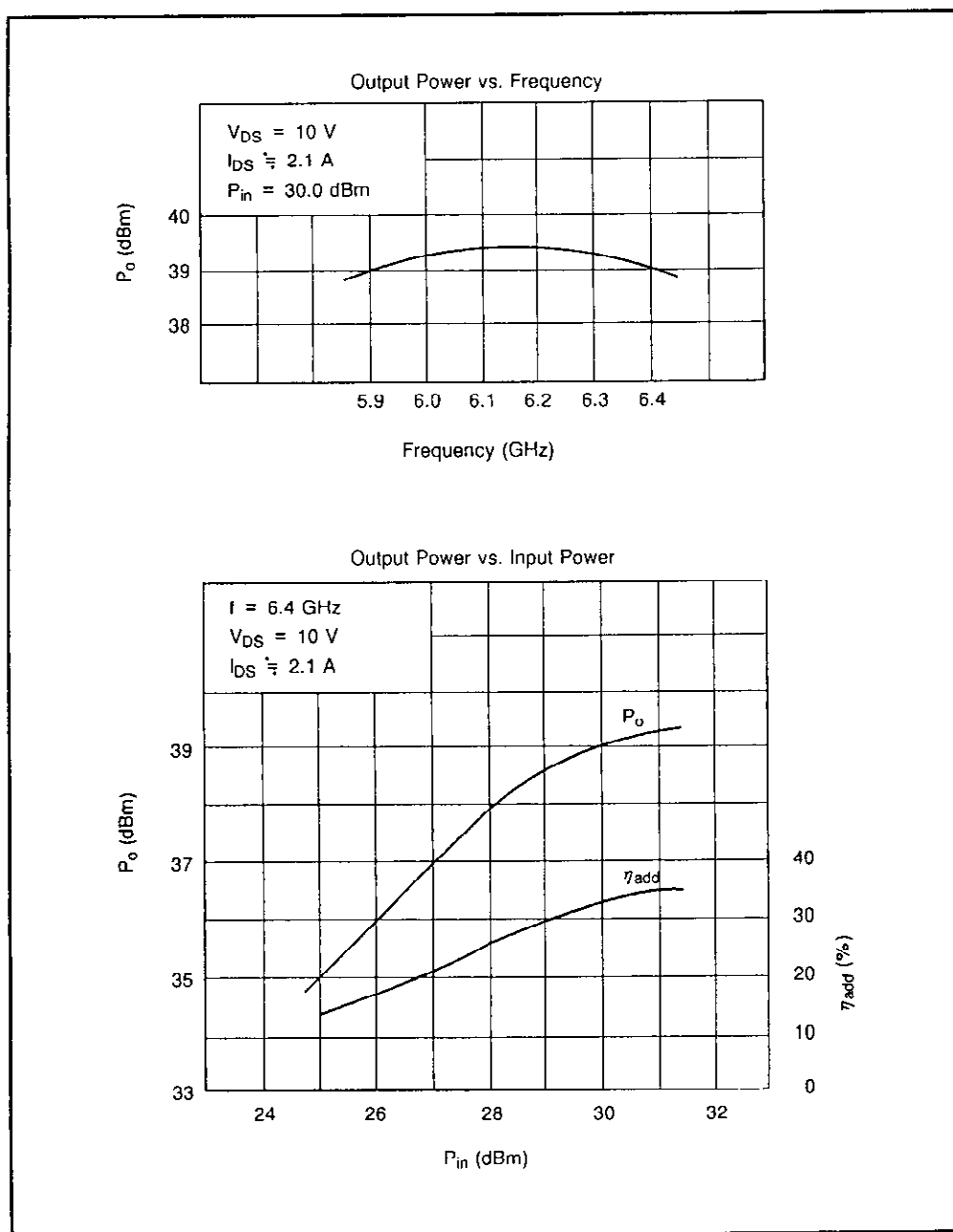
Package Outline (2-11D1B)



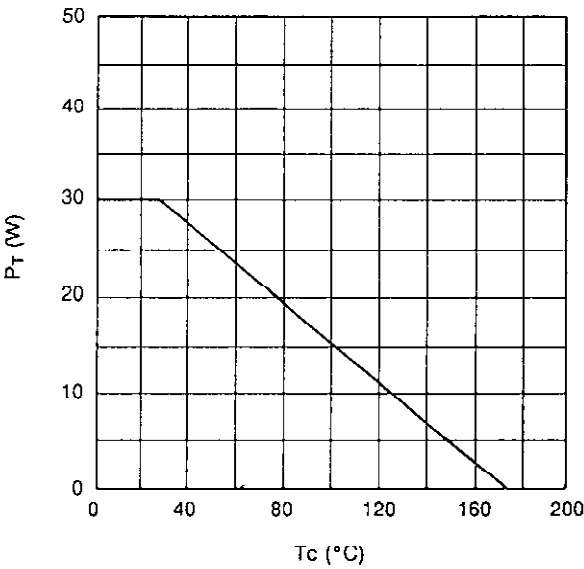
Handling Precautions for Packaged Type

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

RF Performances



Power Dissipation vs. Case Temperature



IM₃ vs. Output Power Characteristics

