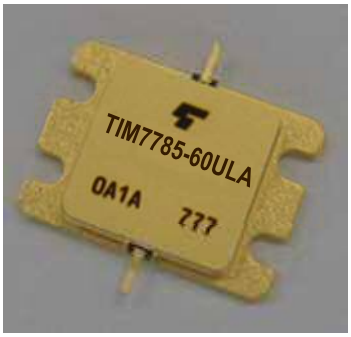
# MICROWAVE POWER GaAs FET
# TIM7785-60SL

## FEATURES

- **BROAD BAND INTERNALLY MATCHED FET**
- **HIGH POWER**
  P1dB= 48.0dBm at 7.7GHz to 8.5GHz
- **HIGH GAIN**
  G1dB= 7.5dB at 7.7GHz to 8.5GHz
- **LOW INTERMODULATION DISTORTION**
  IM3(MIN.)= -45dBc at Pout= 36.5dBm (Single Carrier Level)
- **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<br>IDSset= 9.5A<br>f= 7.7 to 8.5GHz | dBm | 47.0 | 48.0 | — |
| Power Gain at 1dB Gain Compression Point | G1dB | | dB | 5.0 | 6.0 | — |
| Drain Current | IDS1 | | A | — | 13.2 | 15.0 |
| Gain Flatness | ΔG | | dB | — | — | ±0.8 |
| Power Added Efficiency | ηadd | | % | — | 36 | — |
| 3rd Order Intermodulation Distortion | IM3 | Two-Tone Test<br>Po= 36.5dBm, Δf= 5MHz<br>(Single Carrier Level) | dBc | -42 | -45 | — |
| Drain Current | IDS2 | | A | — | — | 11.8 |
| Channel Temperature Rise | ΔTch | (VDS × IDS + Pin − P1dB) × Rth(c-c) | °C | — | — | 100 |

**Recommended Gate Resistance(Rg): 28 Ω**

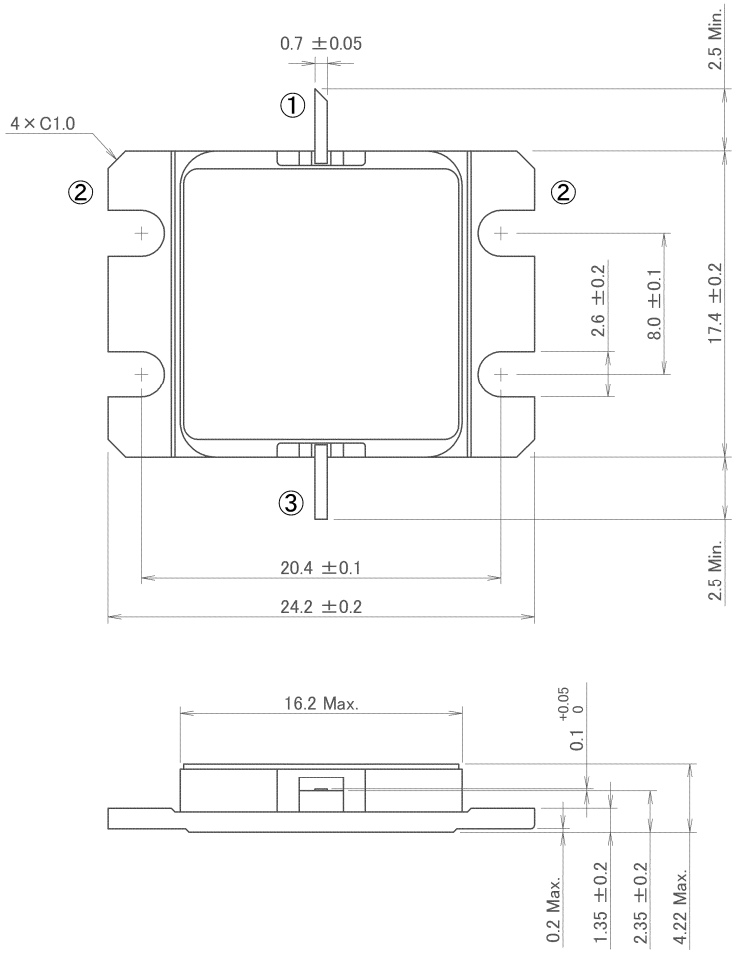
## ELECTRICAL CHARACTERISTICS ( Ta= 25°C )

| CHARACTERISTICS | SYMBOL | CONDITIONS | UNIT | MIN. | TYP. | MAX. |
|---|---|---|---|---|---|---|
| Transconductance | gm | VDS= 3V<br>IDS= 12.0A | S | — | 20.0 | — |
| Pinch-off Voltage | VGSoff | VDS= 3V<br>IDS= 200mA | V | -1.0 | -1.8 | -3.0 |
| Saturated Drain Current | IDSS | VDS= 3V<br>VGS= 0V | A | — | 38 | — |
| Gate-Source Breakdown Voltage | VGSO | IGS= -1.0mA | V | -5 | — | — |
| Thermal Resistance | Rth(c-c) | Channel to Case | °C/W | — | 0.6 | 0.8 |

## 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 | 187.5 |
| Channel Temperature | Tch | °C | 175 |
| Storage | Tstg | °C | -65 to +175 |

## PACKAGE OUTLINE ( 2-16G1B )




Unit in mm

① Gate
② Source
③ Drain

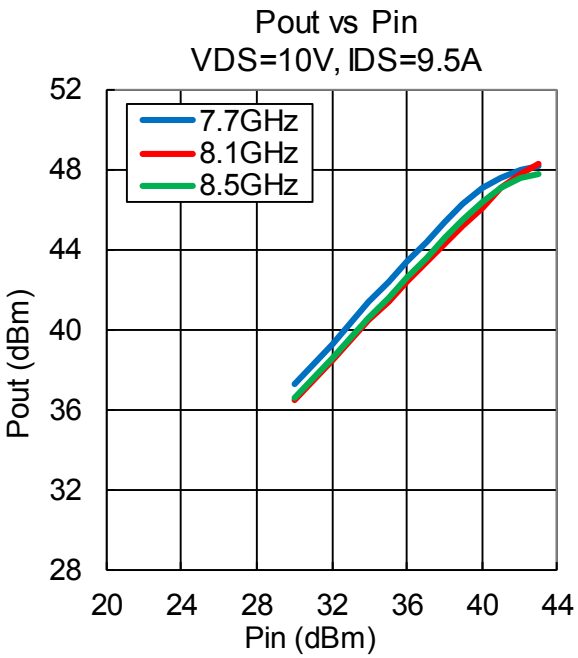
## HANDLING PRECAUTIONS FOR PACKAGE MODEL

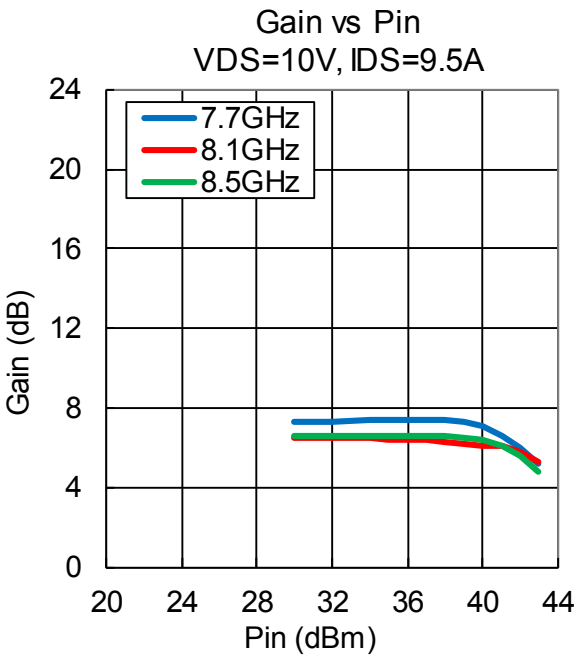
Soldering iron should be grounded and the operating time should not exceed 10 seconds at 260°C or 3 seconds at 350°C.

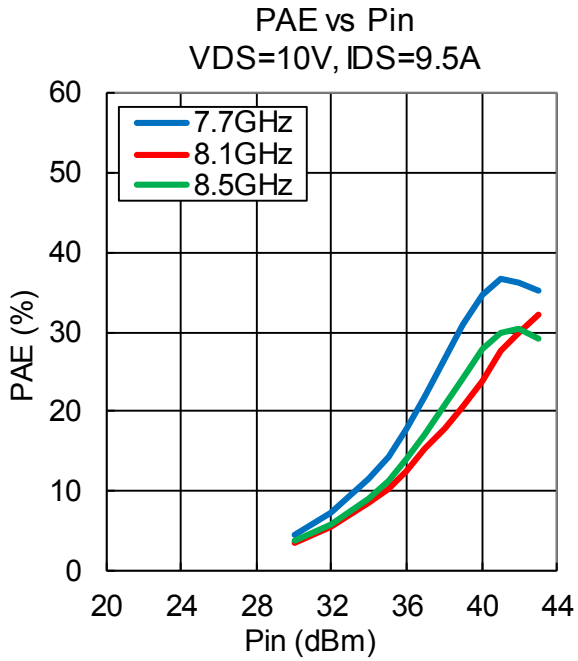
## TYPICAL RF PERFORMANCE

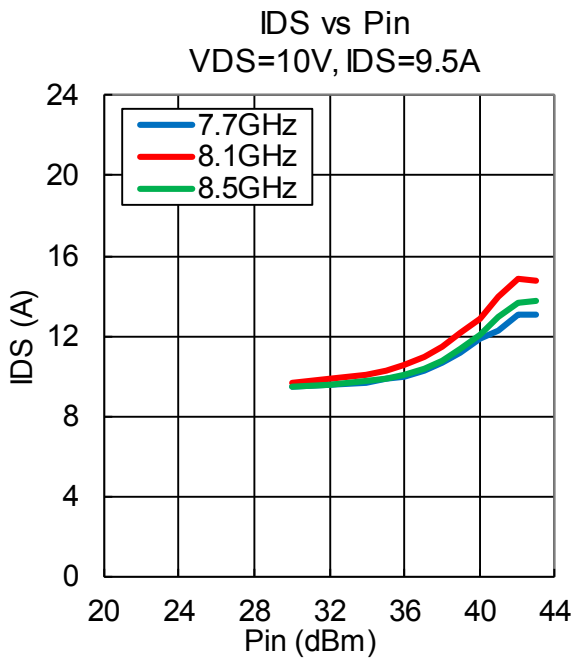
**·Pout , Gain , PAE , IDS vs. Pin**

VDS= 10 V, IDSset= 9.5 A, f= 7.7, 8.1, 8.5 GHz, Ta= +25 ℃



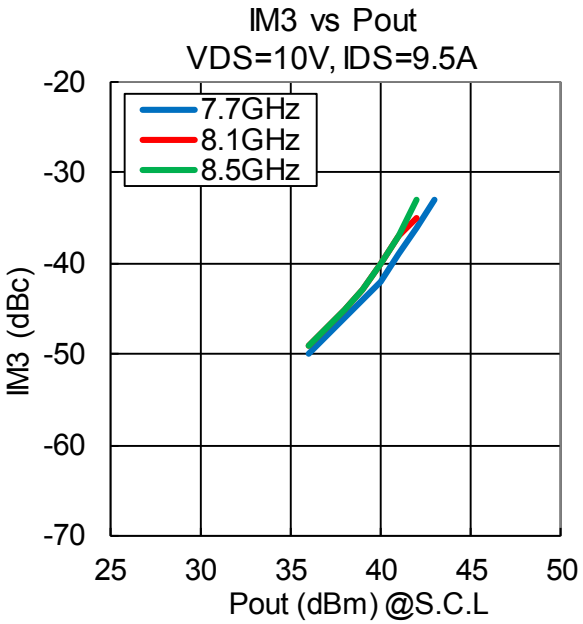



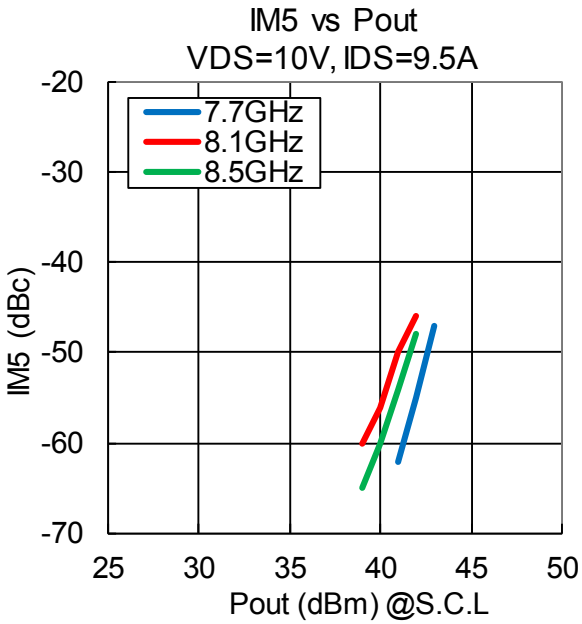



**·IM3, IM5 vs. Pout**

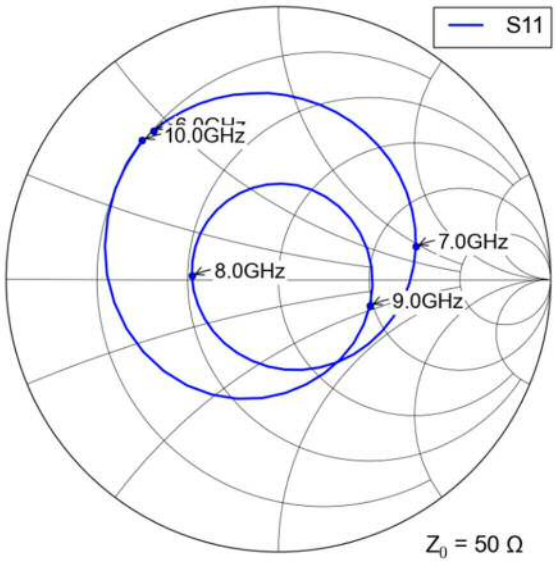
VDS= 10 V, IDSset= 9.5 A, f= 7.7, 8.1, 8.5 GHz, Δf= 5 MHz , Ta= +25 °C

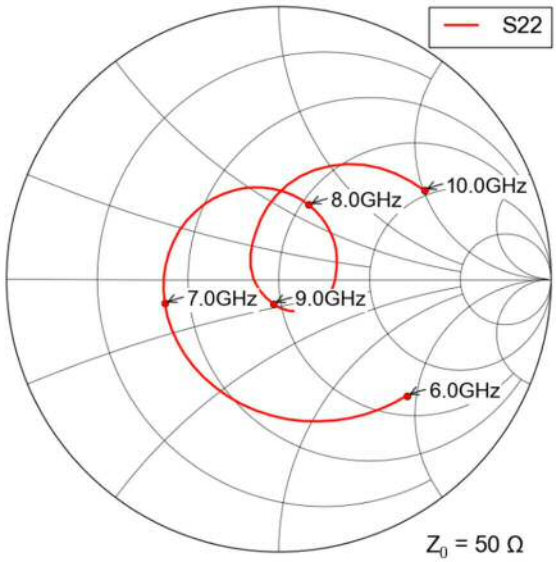


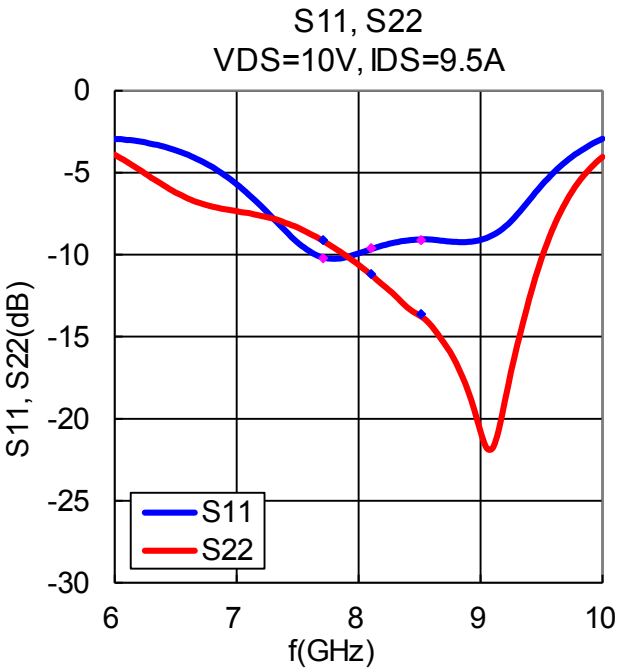



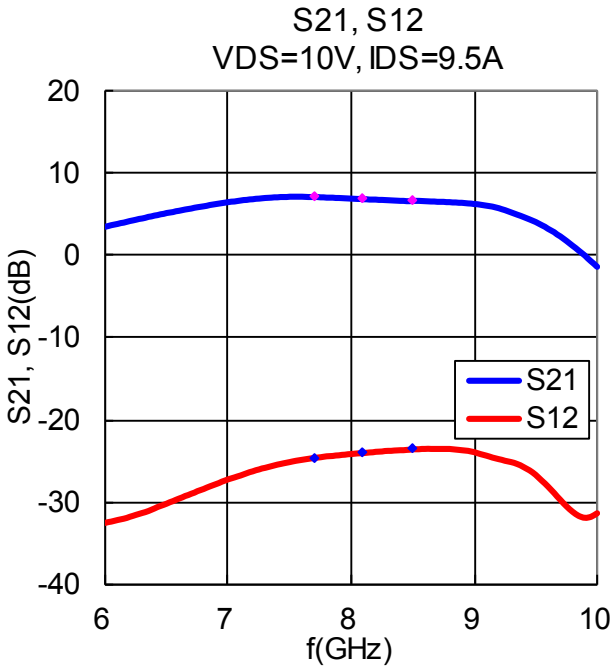
**·S-Parameters**

VDS= 10 V, IDSset= 9.5 A, f= =6.0 to 9.5 GHz, Ta= +25 ℃



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