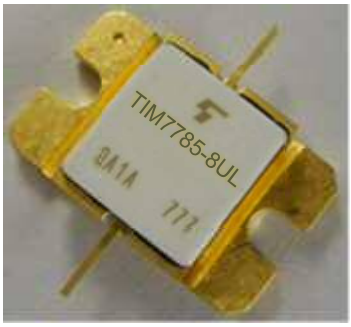
MICROWAVE POWER GaAs FET
TIM7785-8UL

FEATURES



- **BROAD BAND INTERNALLY MATCHED FET**
- **HIGH POWER**
  P1dB= 39.5dBm at 7.7GHz to 8.5GHz
- **HIGH GAIN**
  G1dB= 8.5dB at 7.7GHz to 8.5GHz
- **LOW INTERMODULATION DISTORTION**
  IM3(MIN.) = -44dBc at Pout= 28.5dBm (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 IDSset= 1.8A f= 7.7 to 8.5GHz	dBm	38.5	39.5	—
Power Gain at 1dB Gain Compression Point	G1dB		dB	7.5	8.5	—
Drain Current	IDS1		A	—	2.2	2.6
Gain Flatness	ΔG		dB	—	—	±0.6
Power Added Efficiency	ηadd		%	—	35	—
3rd Order Intermodulation Distortion	IM3	Two-Tone Test Po= 28.5dBm, Δf= 5MHz (Single Carrier Level)	dBc	-44	-47	—
Drain Current	IDS2		A	—	2.2	2.6
Channel Temperature Rise	ΔTch	(VDS × IDS + Pin − P1dB) × Rth(c-c)	°C	—	—	80

Recommended Gate Resistance(Rg): 150 Ω

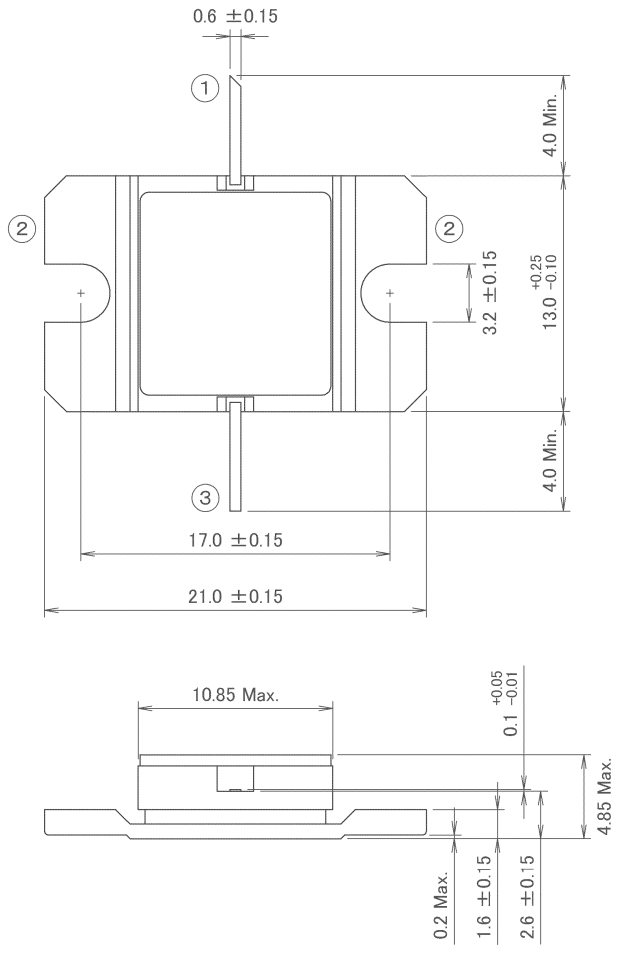
ELECTRICAL CHARACTERISTICS (Ta= 25°C)

CHARACTERISTICS	SYMBOL	CONDITIONS	UNIT	MIN.	TYP.	MAX.
Transconductance	gm	VDS= 3V IDS= 3.0A	S	—	1.8	—
Pinch-off Voltage	VGSoff	VDS= 3V IDS= 30mA	V	-1.0	-2.5	-4.0
Saturated Drain Current	IDSS	VDS= 3V VGS= 0V	A	—	5.2	—
Gate-Source Breakdown Voltage	VGSO	IGS= -100μA	V	-5	—	—
Thermal Resistance	Rth(c-c)	Channel to Case	°C/W	—	2.5	3.5

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	7.0
Total Power Dissipation (Tc= 25°C)	PT	W	42.9
Channel Temperature	Tch	°C	175
Storage Temperature	Tstg	°C	-65 to +175

PACKAGE OUTLINE (2-11D1B)



Unit in mm

① Gate
② Source
③ Drain

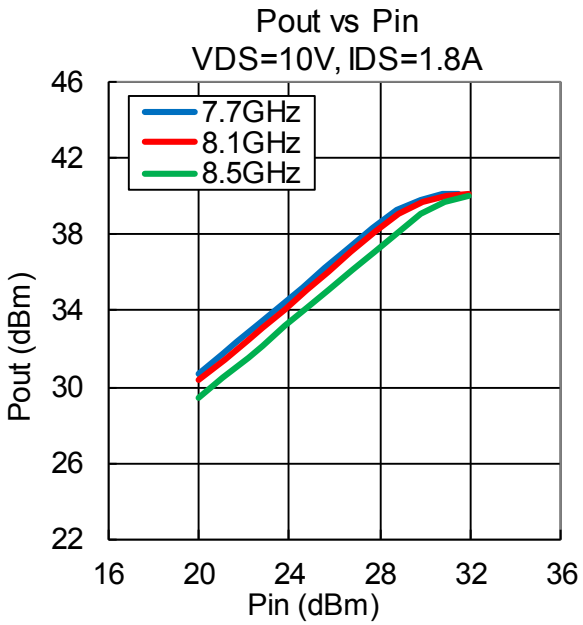
HANDLING PRECAUTIONS FOR PACKAGE MODEL

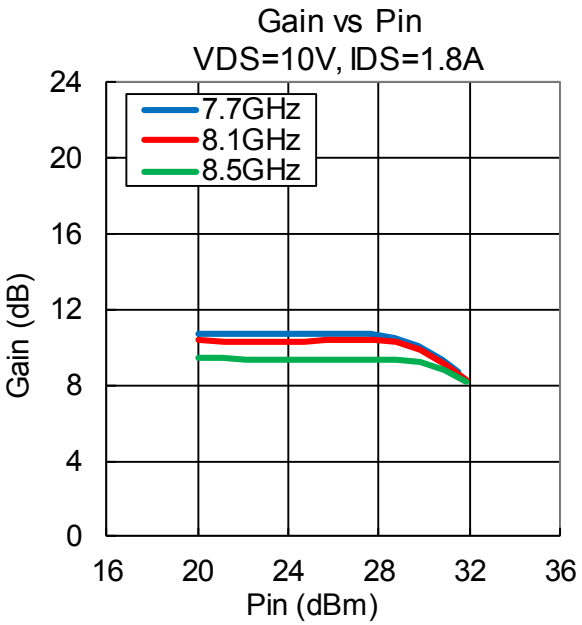
Soldering iron should be grounded and the operating time should not exceed 10 seconds at 260°C or 3 seconds at 350°C.

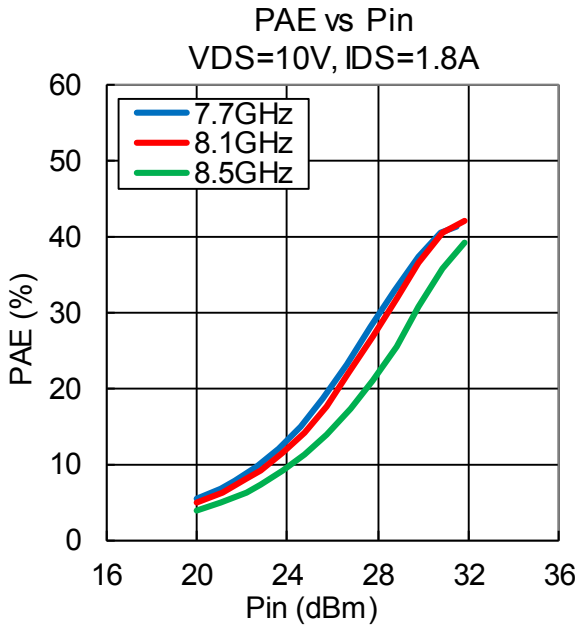
TYPICAL RF PERFORMANCE

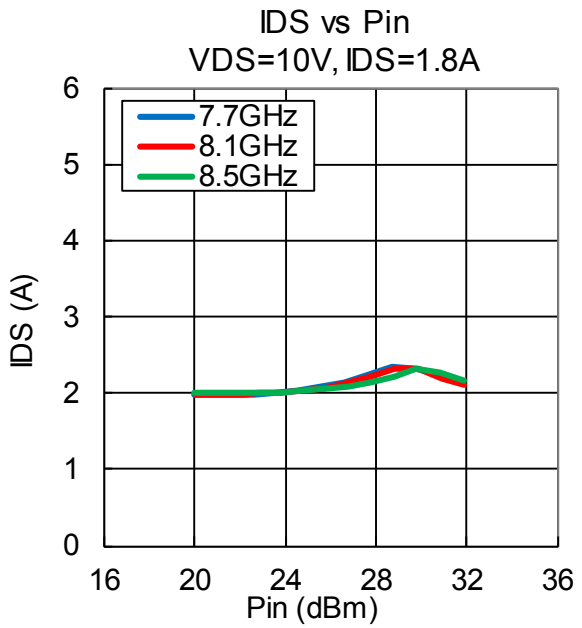
·Pout , Gain , PAE , IDS vs. Pin

VDS= 10 V, IDSset= 1.8 A, f= 7.7, 8.1, 8.5 GHz, Ta= +25 ℃



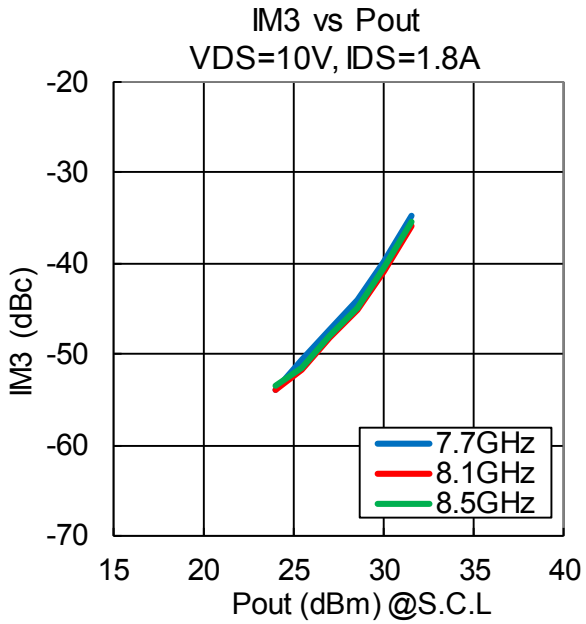






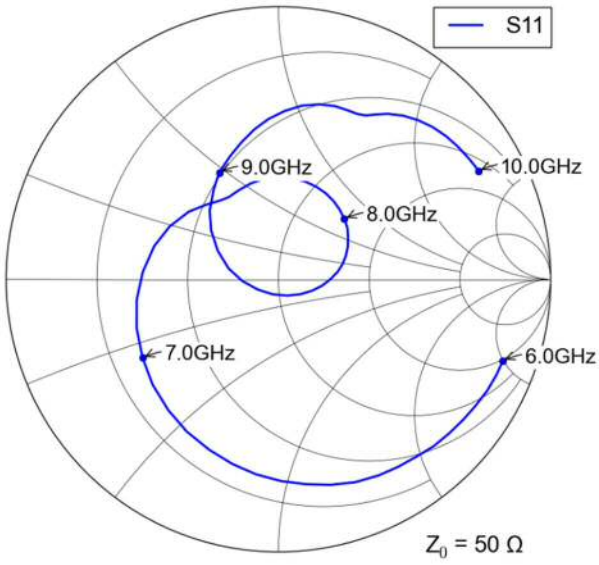
·IM3 vs. Pout

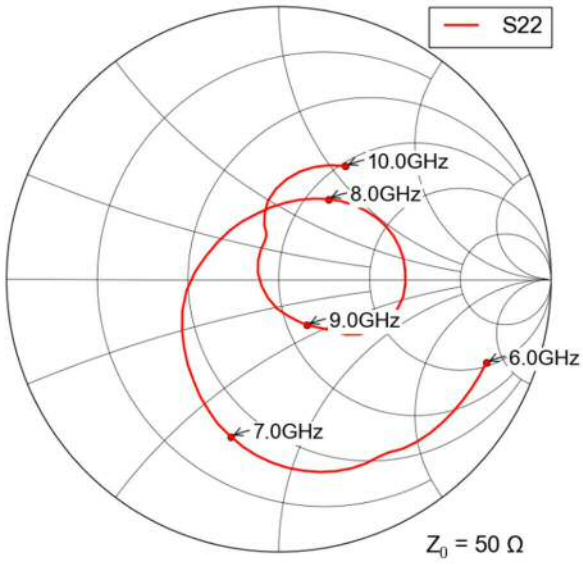
VDS= 10 V, IDSset= 1.8 A, f= 7.7, 8.1, 8.5 GHz, Δf= 5 MHz , Ta= +25 ℃

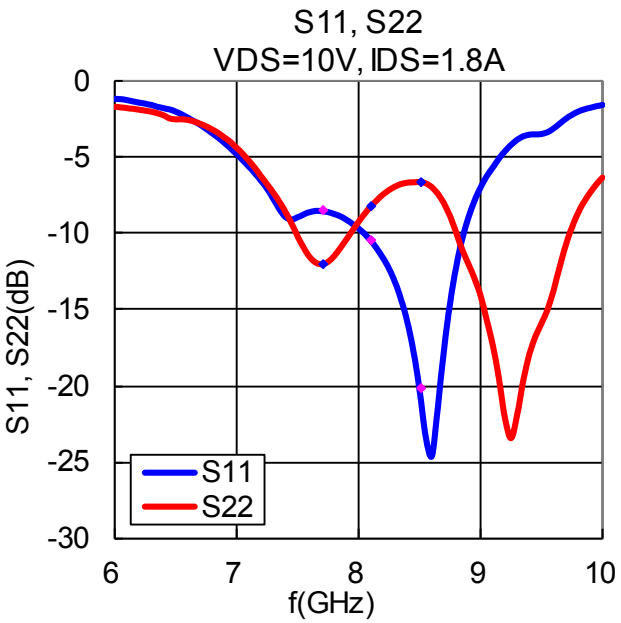


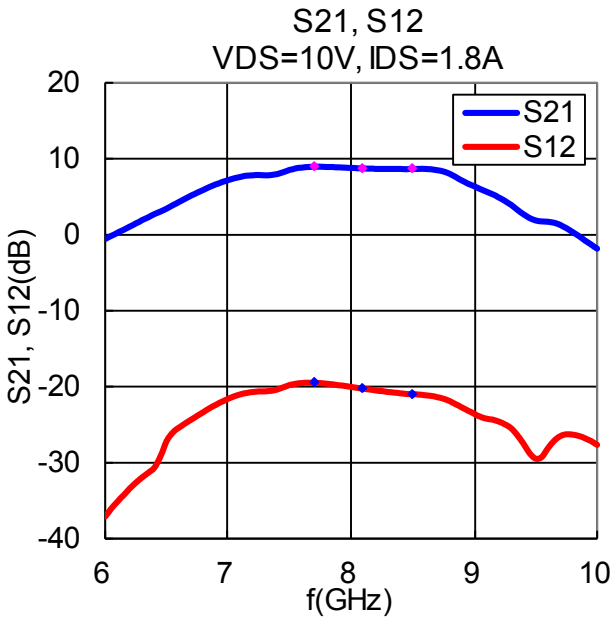
·S-Parameters

VDS= 10 V, IDSset= 1.8 A, f= 6.0 to 10.0 GHz, Ta= +25 ℃









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