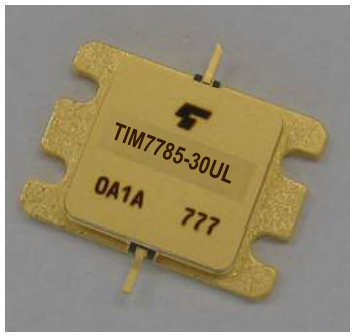
MICROWAVE POWER GaAs FET
TIM7785-30UL

FEATURES

- **BROAD BAND INTERNALLY MATCHED FET**
- **HIGH POWER**
  P1dB= 45.0dBm at 7.7GHz to 8.5GHz
- **HIGH GAIN**
  G1dB= 8.5dB at 7.7GHz to 8.5GHz
- **LOW INTERMODULATION DISTORTION**
  IM3 = -44dBc(Min.) at Pout= 34.0dBm (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= 6.4A f = 7.7 to 8.5GHz	dBm	44.0	45.0	—
Power Gain at 1dB Gain Compression Point	G1dB		dB	7.5	8.5	—
Drain Current	IDS1		A	—	7.0	8.0
Gain Flatness	ΔG		dB	—	—	±0.6
Power Added Efficiency	ηadd		%	—	39	—
3rd Order Intermodulation Distortion	IM3	Two Tone Test Po= 34.0dBm, Δf= 5MHz (Single Carrier Level)	dBc	-44	-47	—
Drain Current	IDS2		A	—	7.0	8.0
Channel Temperature Rise	ΔTch	(VDS X IDS + Pin – P1dB) X Rth(c-c)	°C	—	—	100

Recommended Gate Resistance(Rg): 28 Ω

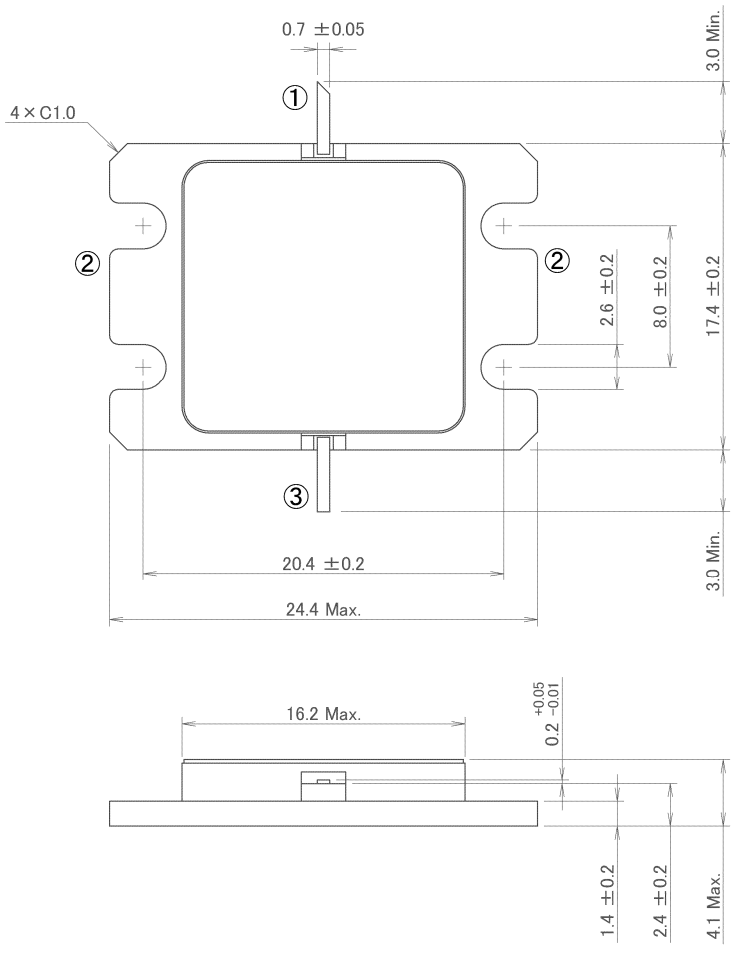
ELECTRICAL CHARACTERISTICS (Ta= 25°C)

CHARACTERISTICS	SYMBOL	CONDITIONS	UNIT	MIN.	TYP.	MAX.
Transconductance	gm	VDS= 3V IDS= 10.0A	S	—	8.0	—
Pinch-off Voltage	VGSoff	VDS= 3V IDS= 80mA	V	-0.5	-2.0	-3.0
Saturated Drain Current	IDSS	VDS= 3V VGS= 0V	A	—	16.0	24.0
Gate-Source Breakdown Voltage	VGSO	IGS= -240μA	V	-5.0	-7.0	—
Thermal Resistance	Rth(c-c)	Channel to Case	°C/W	—	1.0	1.5

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	18.0
Total Power Dissipation (Tc= 25°C)	PT	W	100
Channel Temperature	Tch	°C	175
Storage	Tstg	°C	-65 to +175

PACKAGE OUTLINE (7-AA05A)



Unit in mm

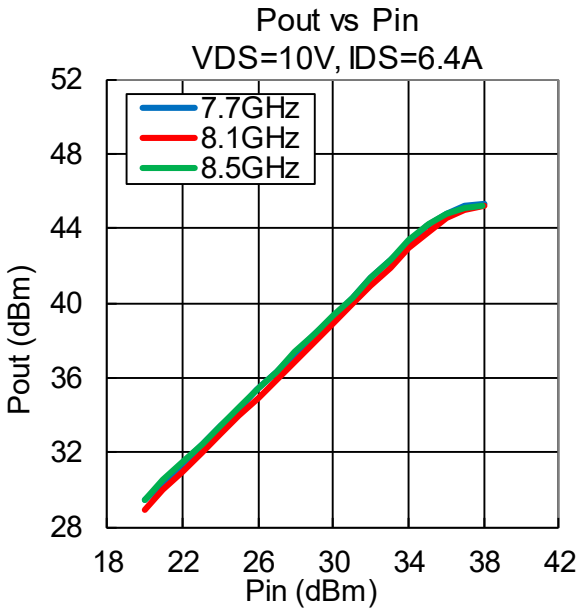
① Gate
② Source
③ Drain

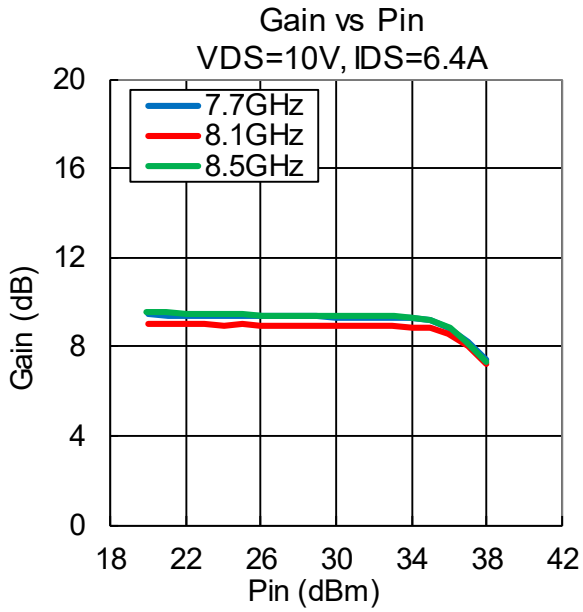
HANDLING PRECAUTIONS FOR PACKAGE MODEL

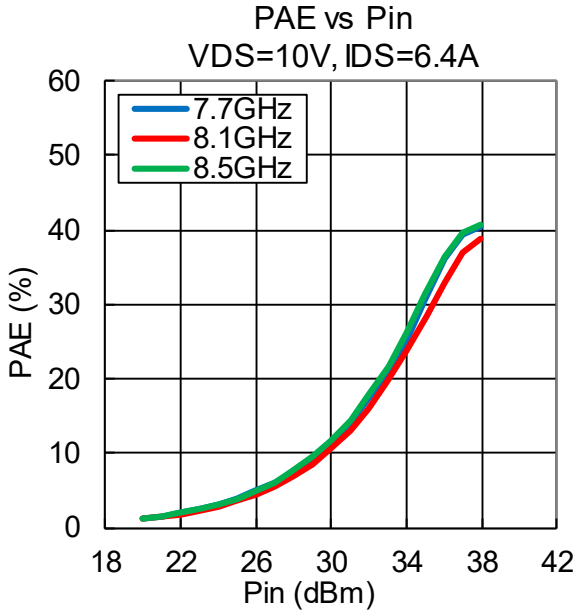
Soldering iron should be grounded and the operating time should not exceed 10 seconds at 260°C or 3 seconds at 350°C.

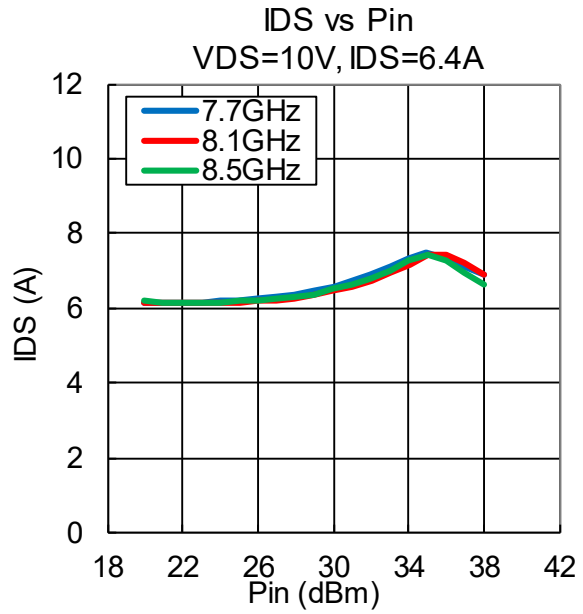
·Pout , Gain , PAE , IDS vs. Pin

VDS= 10 V, IDSset= 6.4 A, f= 7.7, 8.1, 8.5 GHz, Ta= +25 ℃



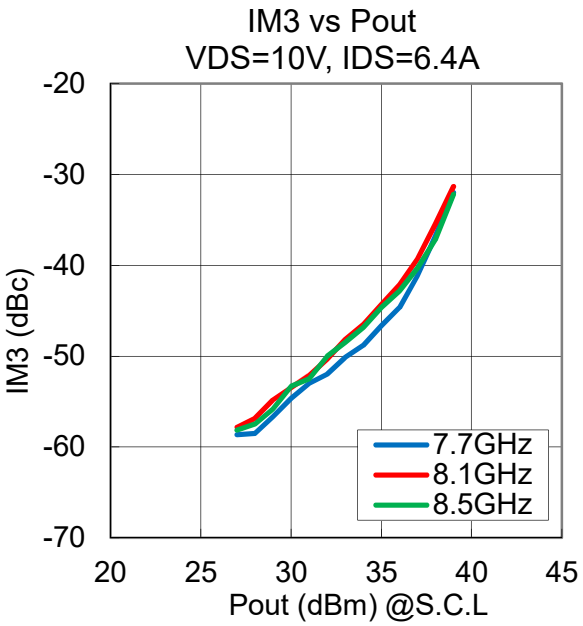


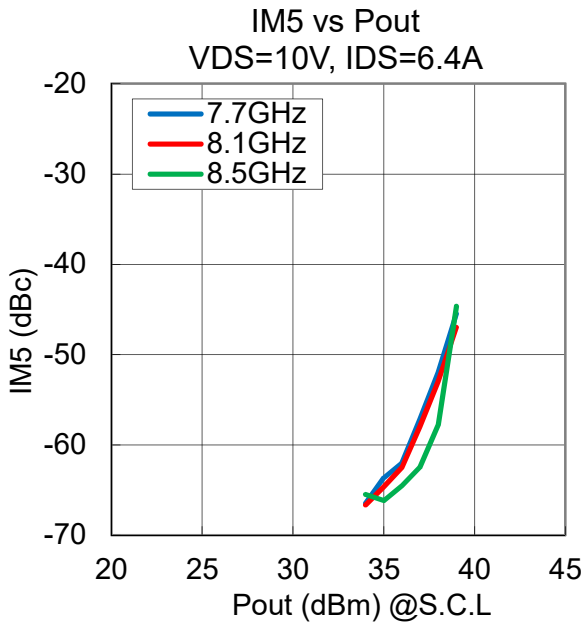




·IM3, IM5 vs. Pout

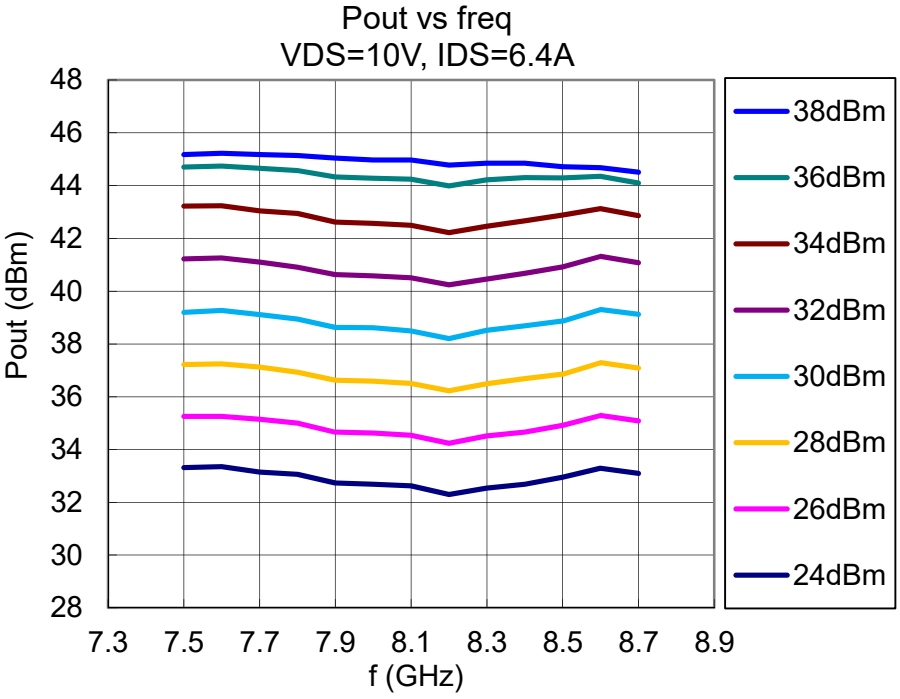
VDS= 10 V, IDSset= 6.4 A, f= 7.7, 8.1, 8.5 GHz, Δf= 5 MHz , Ta= +25 ℃





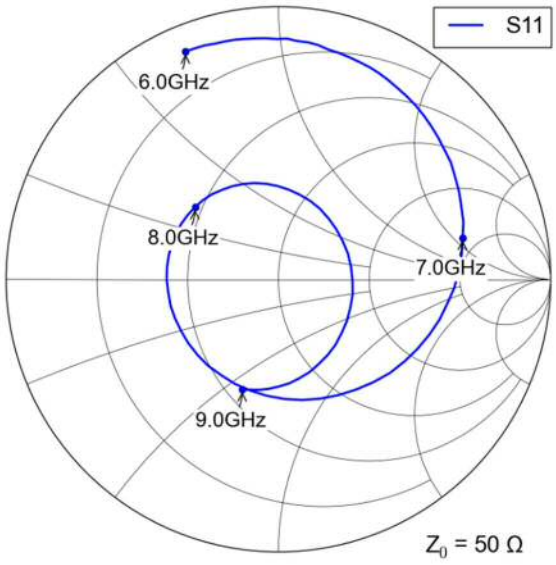
·Pout vs. Frequency

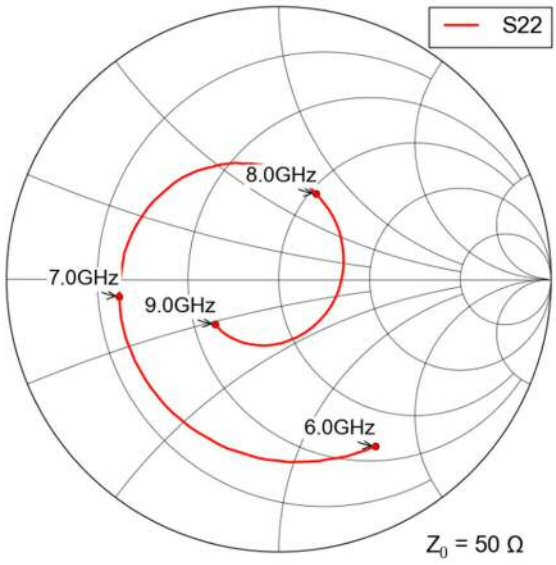
VDS= 10 V, IDSset= 6.4 A, Ta= +25 ℃

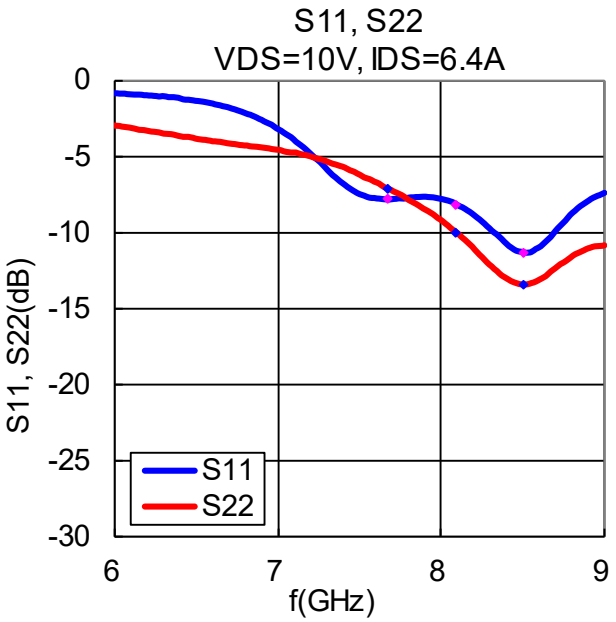


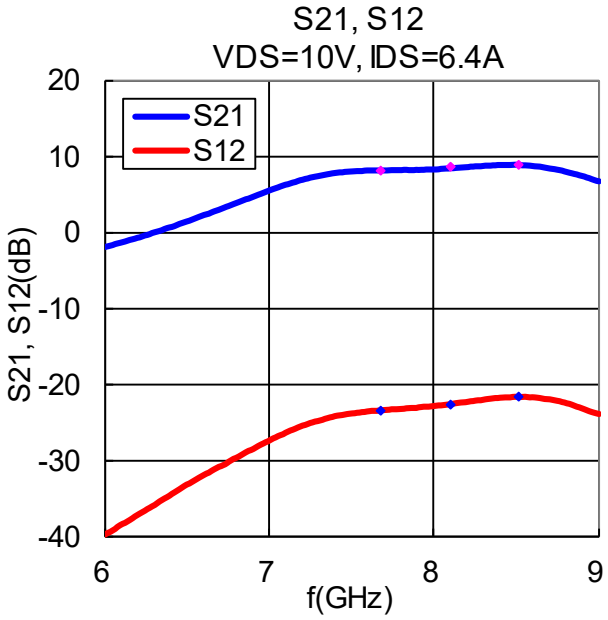
·S-Parameters

VDS= 10 V, IDSset= 6.4 A, f= 6.0 to 9.0 GHz, Ta= +25 ℃









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