MICROWAVE POWER GaAs FET
TIM7785-16UL

FEATURES

·**BROAD BAND INTERNALLY MATCHED FET**

·**HIGH POWER**

P1dB= 42.5dBm at 7.7GHz to 8.5GHz

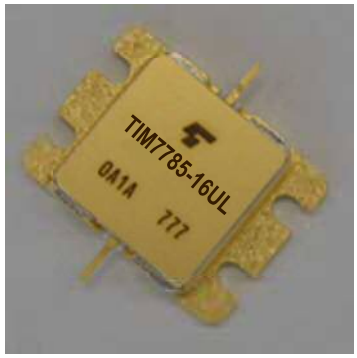
·**HIGH GAIN**

G1dB= 8.5dB at 7.7GHz to 8.5GHz

·**LOW INTERMODULATION DISTORTION**

IM3(MIN.) = -44dBc at Pout= 31.5dBm (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= 3.6A f = 7.7 to 8.5GHz	dBm	41.5	42.5	—
Power Gain at 1dB Gain Compression Point	G1dB		dB	7.5	8.5	—
Drain Current	IDS1		A	—	4.4	5.0
Gain Flatness	ΔG		dB	—	—	±0.6
Power Added Efficiency	ηadd		%	—	35	—
3rd Order Intermodulation Distortion	IM3	Two-Tone Test Po= 31.5dBm, Δf= 5MHz (Single Carrier Level)	dBc	-44	-47	—
Drain Current	IDS2		A	—	4.4	5.0
Channel Temperature Rise	ΔTch	(VDS × IDS + Pin − P1dB) × Rth(c-c)	°C	—	—	80

Recommended Gate Resistance(Rg): 68 Ω

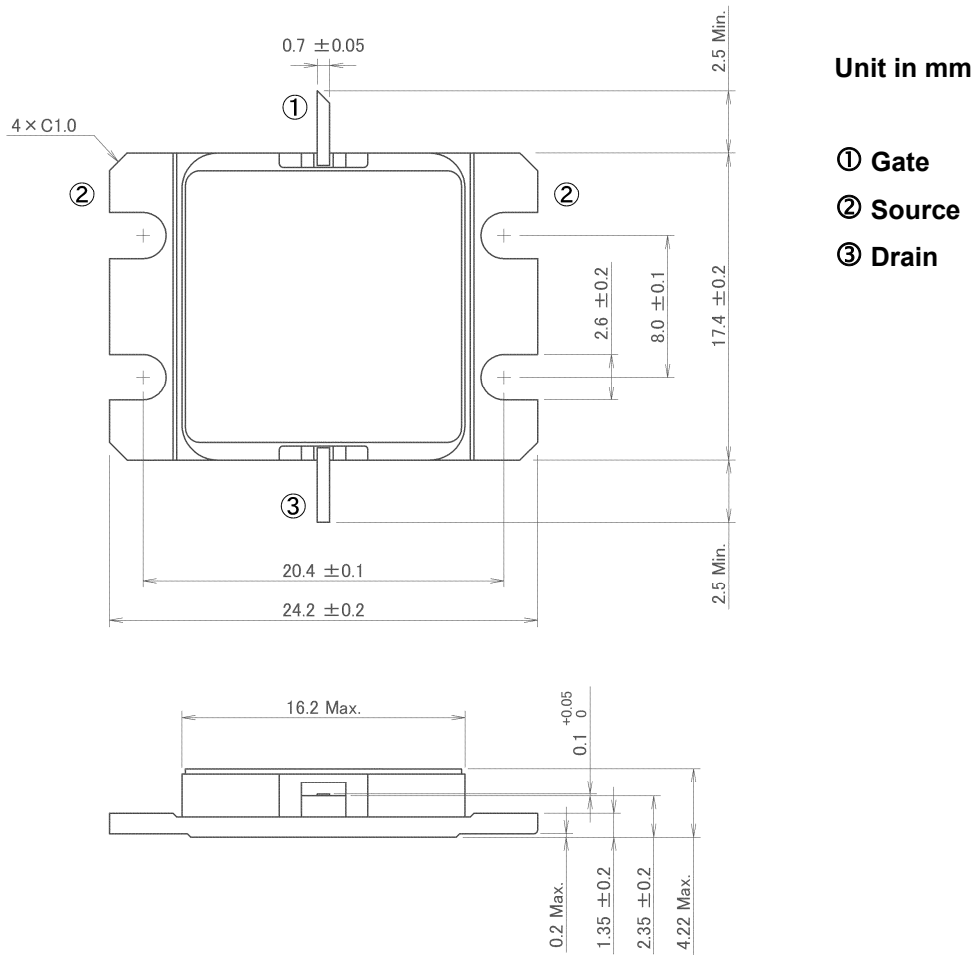
ELECTRICAL CHARACTERISTICS (Ta= 25°C)

CHARACTERISTICS	SYMBOL	CONDITIONS	UNIT	MIN.	TYP.	MAX.
Transconductance	gm	VDS= 3V IDS= 6.0A	S	—	3.6	—
Pinch-off Voltage	VGSoff	VDS= 3V IDS= 60mA	V	-1.0	-2.5	-4.0
Saturated Drain Current	IDSS	VDS= 3V VGS= 0V	A	—	10.5	—
Gate-Source Breakdown Voltage	VGSO	IGS= -200μA	V	-5	—	—
Thermal Resistance	Rth(c-c)	Channel to Case	°C/W	—	1.5	1.8

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	14.0
Total Power Dissipation (Tc= 25°C)	PT	W	83.3
Channel Temperature	Tch	°C	175
Storage Temperature	Tstg	°C	-65 to +175

PACKAGE OUTLINE (2-16G1B)



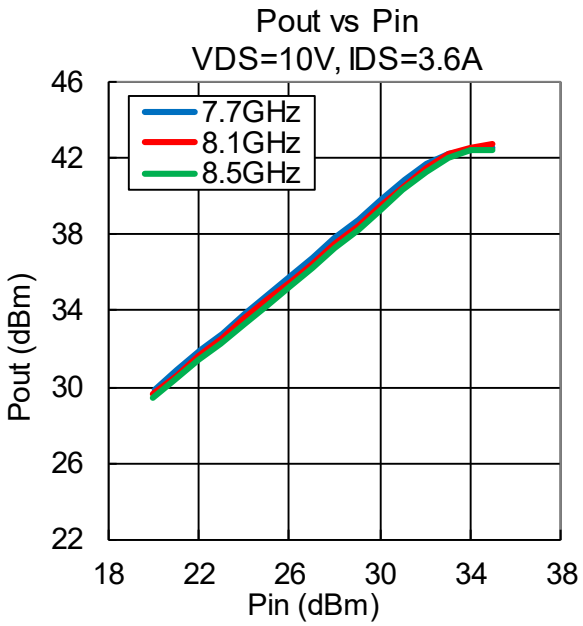
HANDLING PRECAUTIONS FOR PACKAGE MODEL

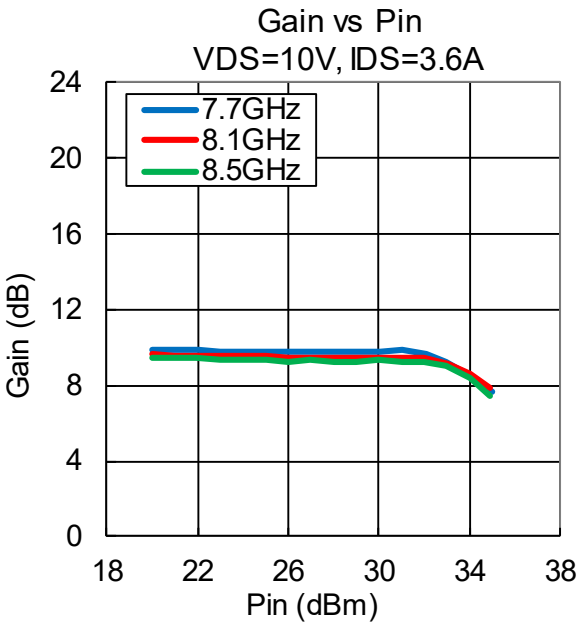
Soldering iron should be grounded and the operating time should not exceed 10 seconds at 260°C or 3 seconds at 350°C.

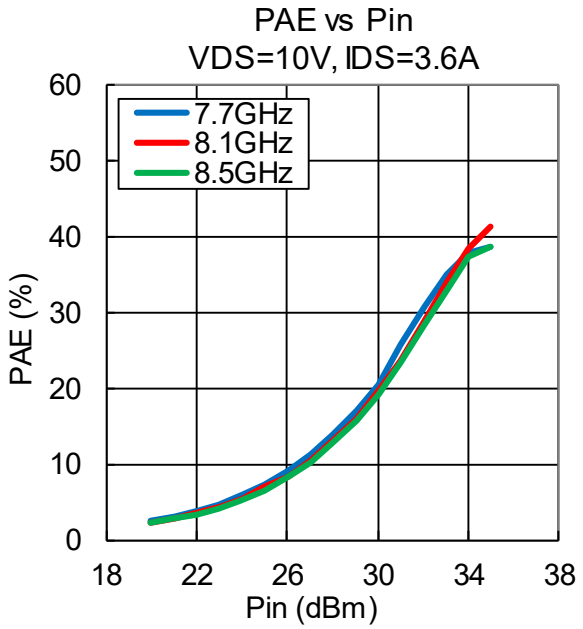
TYPICAL RF PERFORMANCE

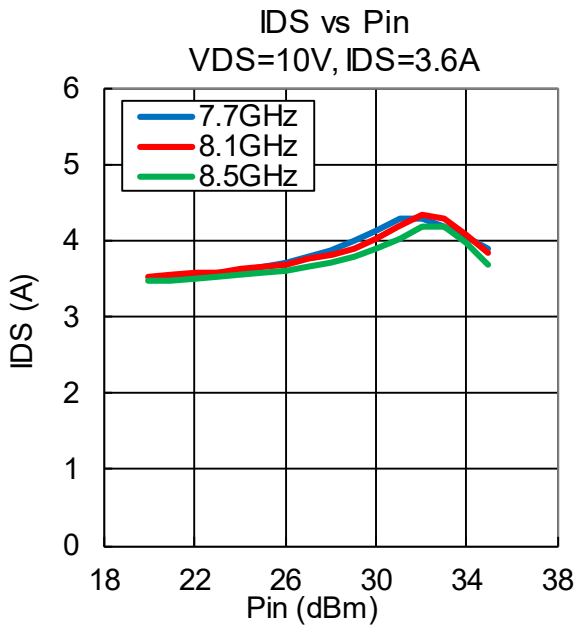
·Pout , Gain , PAE , IDS vs. Pin

VDS= 10 V, IDSset= 3.6 A, f= 7.7, 8.1, 8.5 GHz, Ta= +25 ℃



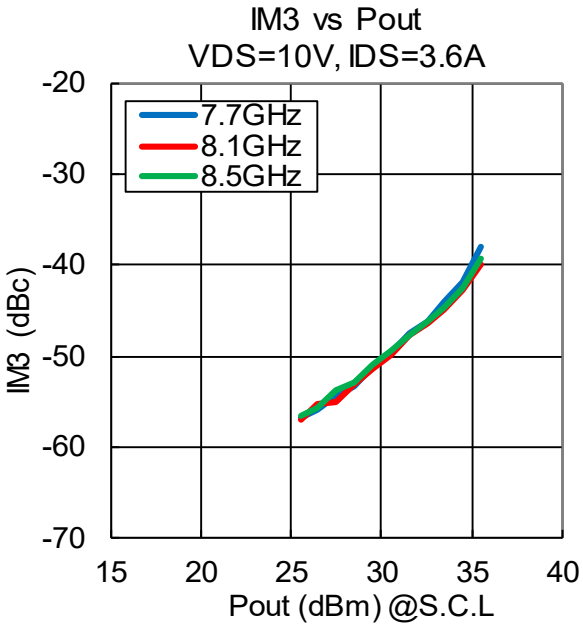


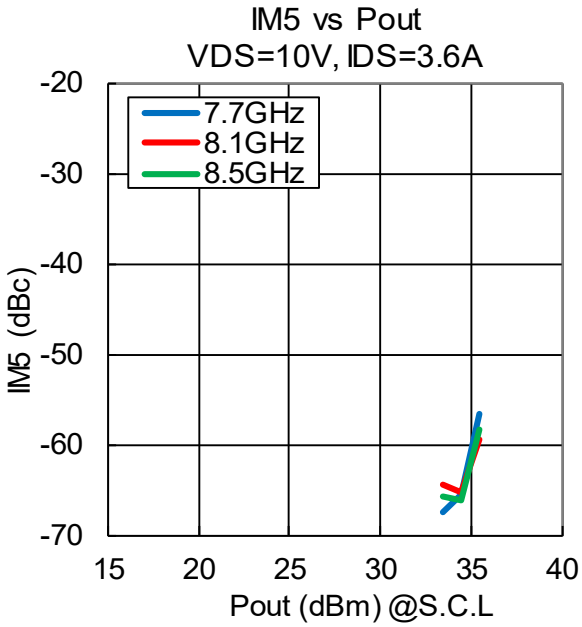




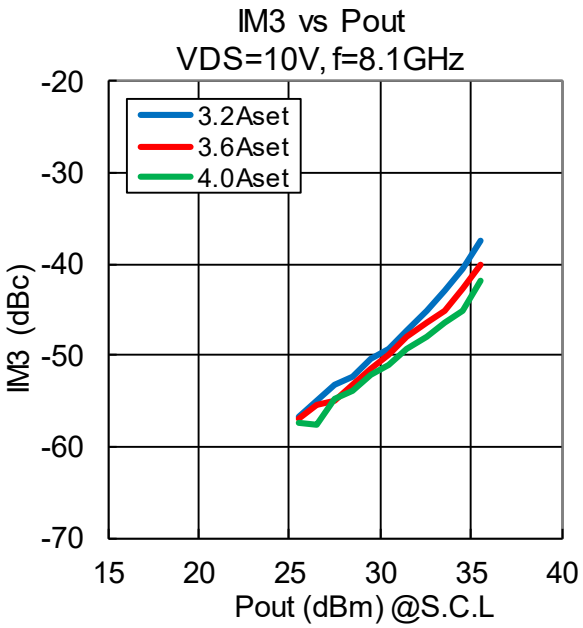
·IM3, IM5 vs. Pout

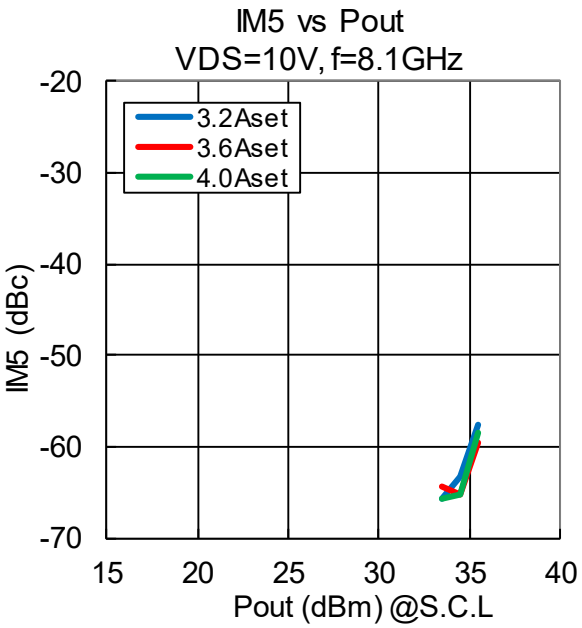
VDS= 10 V, IDSset= 3.6 A, f= 7.7, 8.1, 8.5 GHz, Δf= 5 MHz , Ta= +25 ℃





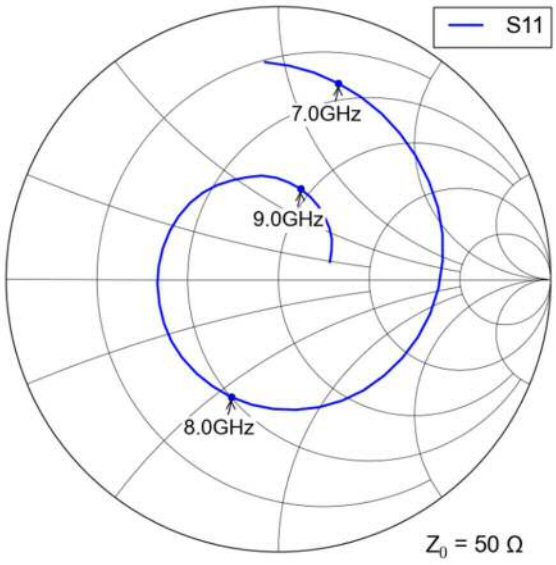
VDS= 10 V, IDSset= 3.2, 3.6, 4.0 A, f= 8.1 GHz, Δf= 5 MHz , Ta= +25 ℃

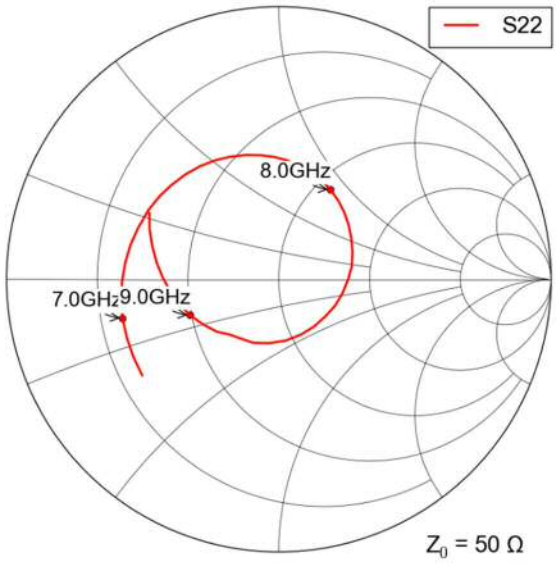


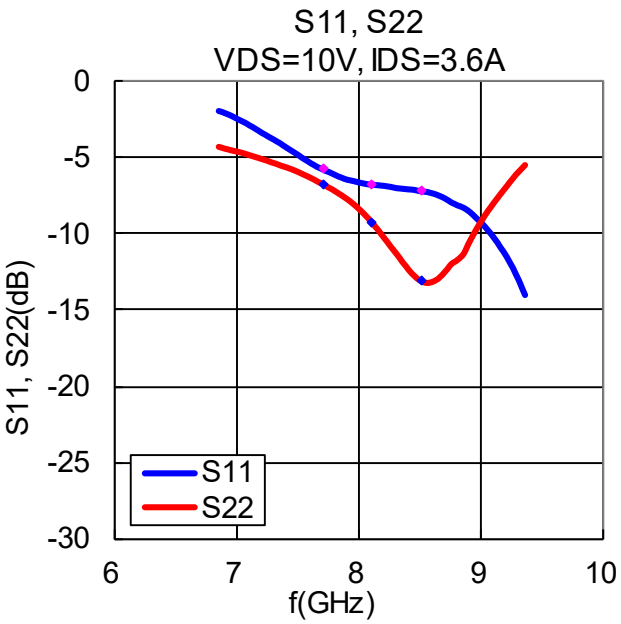


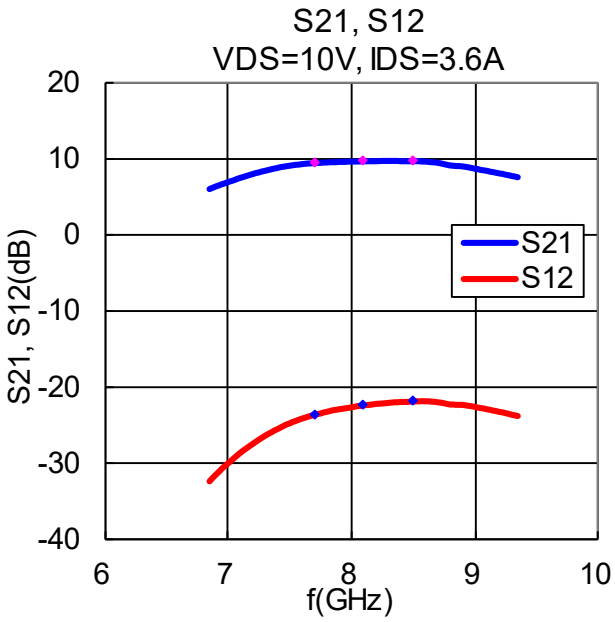
·S-Parameters

VDS= 10 V, IDSset= 3.6 A, f= 6.85 to 9.35 GHz, Ta= +25 ℃









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