MICROWAVE POWER GaAs FET
TIM7785-45SL

FEATURES

·**BROAD BAND INTERNALLY MATCHED FET**

·**HIGH POWER**

P1dB= 46.5dBm at 7.7GHz to 8.5GHz

·**HIGH GAIN**

G1dB= 6.0dB at 7.7GHz to 8.5GHz

·**LOW INTERMODULATION DISTORTION**

IM3= -45dBc at Pout= 35.5dBm (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= 9.0A f= 7.7 to 8.5GHz	dBm	46.0	46.5	—
Power Gain at 1dB Gain Compression Point	G1dB		dB	5.0	6.0	—
Drain Current	IDS1		A	—	9.6	10.8
Gain Flatness	ΔG		dB	—	—	±0.8
Power Added Efficiency	ηadd		%	—	35	—
3rd Order Intermodulation Distortion	IM3	Two-Tone Test Po= 35.5dBm, Δf= 5MHz (Single Carrier Level)	dBc	-42	-45	—
Drain Current	IDS2		A	—	9.6	10.8
Channel Temperature Rise	ΔTch	(VDS X IDS + Pin – P1dB) X Rth(c-c)	°C	—	—	100

Recommended Gate Resistance (Rg): 28 Ω

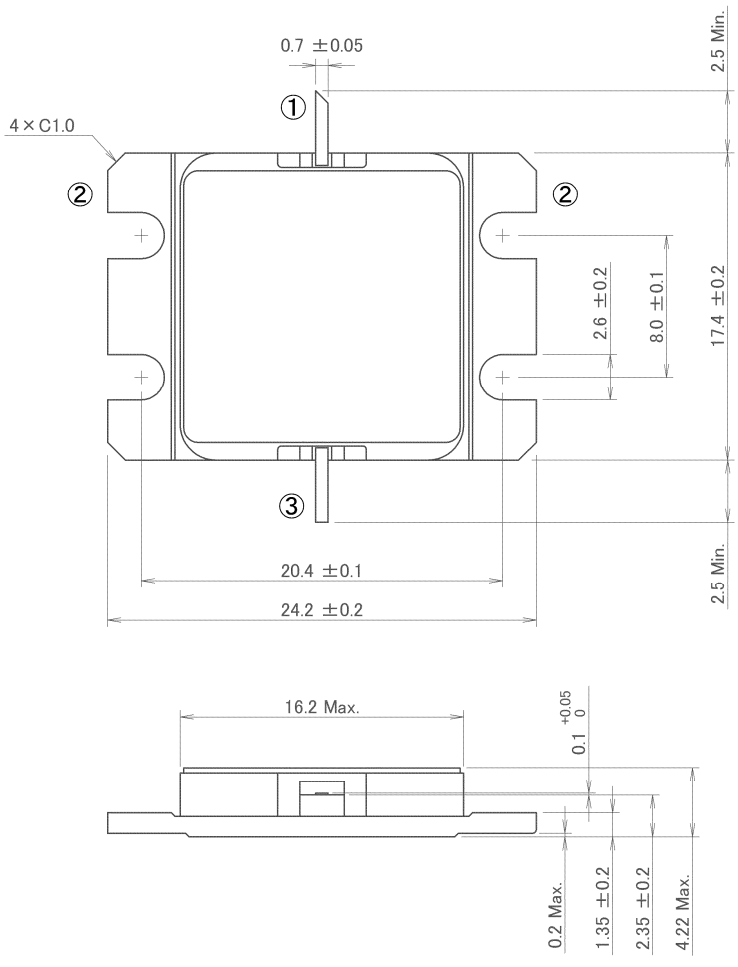
ELECTRICAL CHARACTERISTICS (Ta= 25°C)

CHARACTERISTICS	SYMBOL	CONDITIONS	UNIT	MIN.	TYP.	MAX.
Transconductance	gm	VDS= 3V IDS= 11.0A	S	—	8.0	—
Pinch-off Voltage	VGSoff	VDS= 3V IDS= 170mA	V	-1.0	-2.5	-4.0
Saturated Drain Current	IDSS	VDS= 3V VGS= 0V	A	—	24	—
Gate-Source Breakdown Voltage	VGSO	IGS= -500μA	V	-5	—	—
Thermal Resistance	Rth(c-c)	Channel to Case	°C/W	—	0.8	1.2

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
Total Power Dissipation (Tc= 25°C)	PT	W	125
Channel Temperature	Tch	°C	175
Storage Temperature	Tstg	°C	-65 to +175

PACKAGE OUTLINE (2-16G1B)



Unit in mm

① Gate
② Source
③ Drain

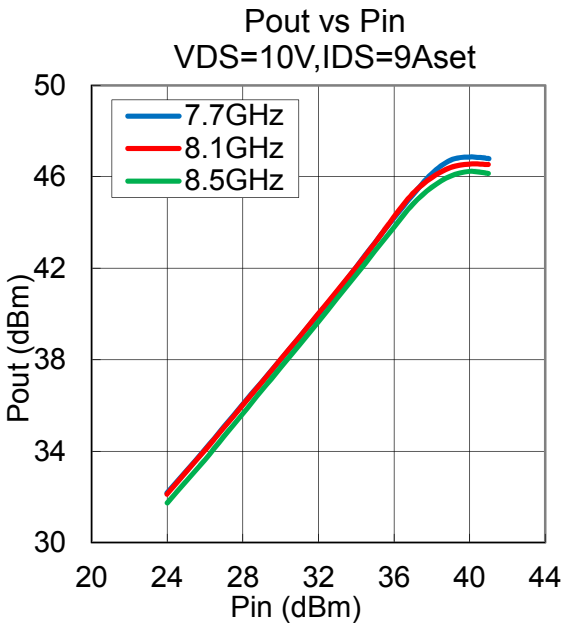
HANDLING PRECAUTIONS FOR PACKAGE MODEL

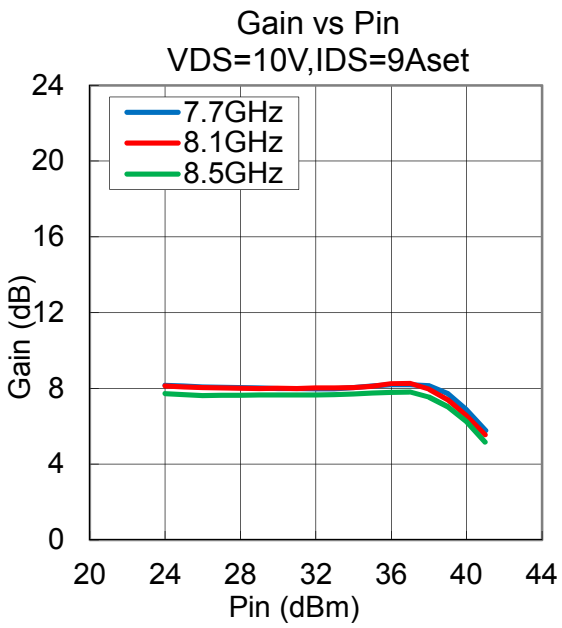
Soldering iron should be grounded and the operating time should not exceed 10 seconds at 260°C or 3 seconds at 350°C.

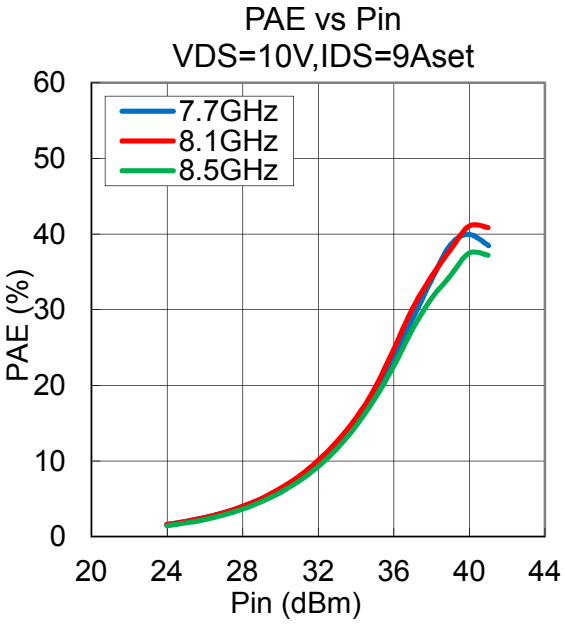
TYPICAL RF PERFORMANCE

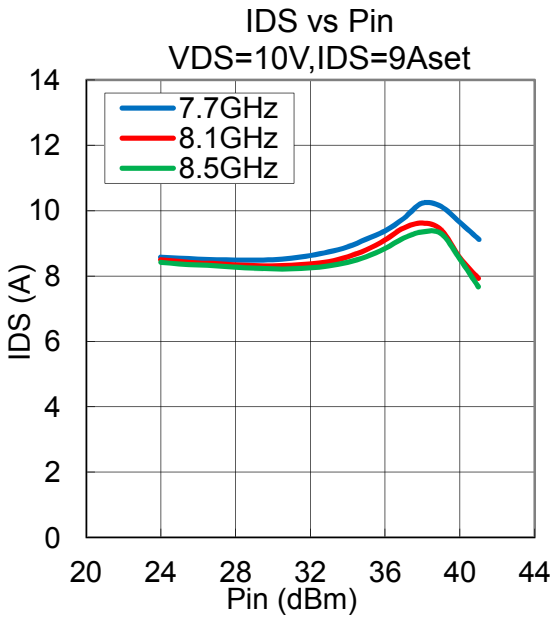
·Pout , Gain , PAE , IDS vs. Pin

VDS= 10 V, IDSset= 9 A, f= 7.7, 8.1, 8.5 GHz, Ta= +25 ℃



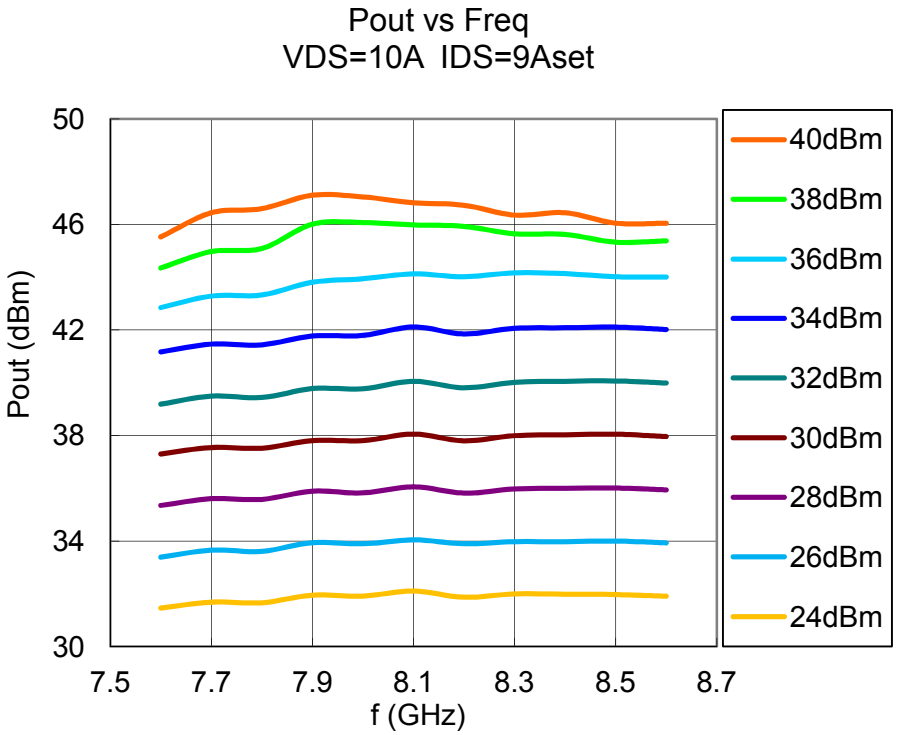






·Pout vs. Frequency

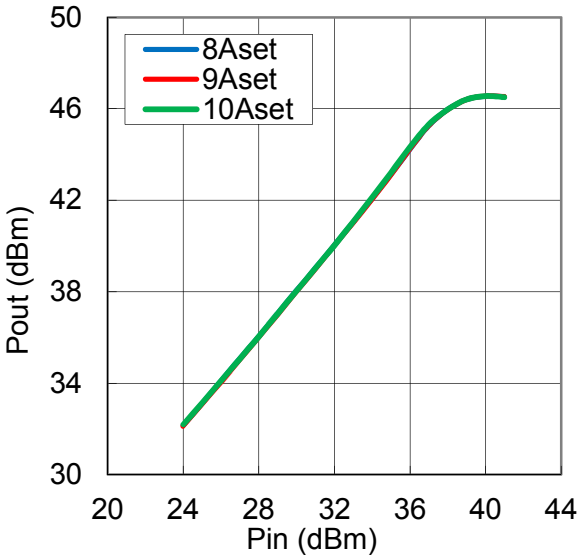
VDS= 10 V, IDSset= 9.0 A, Ta= +25 °C



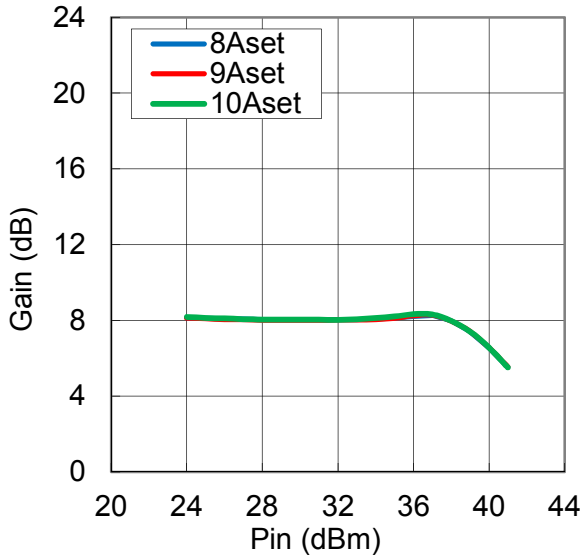
·Pout , Gain , PAE , IDS vs. Pin vs. IDSset

VDS= 10 V, IDSset= 8.0, 9.0, 10.0 A, f= 8.1 GHz, Ta= +25 ℃

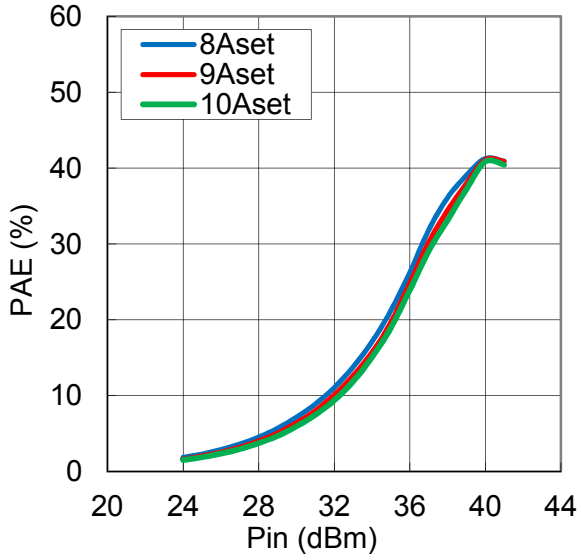
Pout vs Pin
VDS=10V,f=8.1GHz



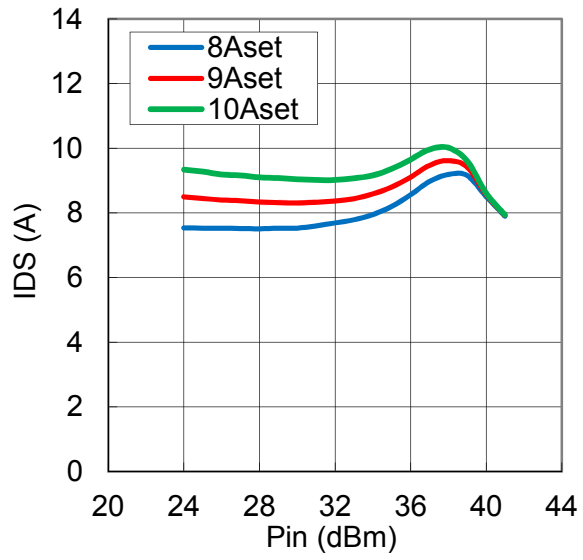
Gain vs Pin
VDS=10V,f=8.1GHz



PAE vs Pin
VDS=10V,f=8.1GHz

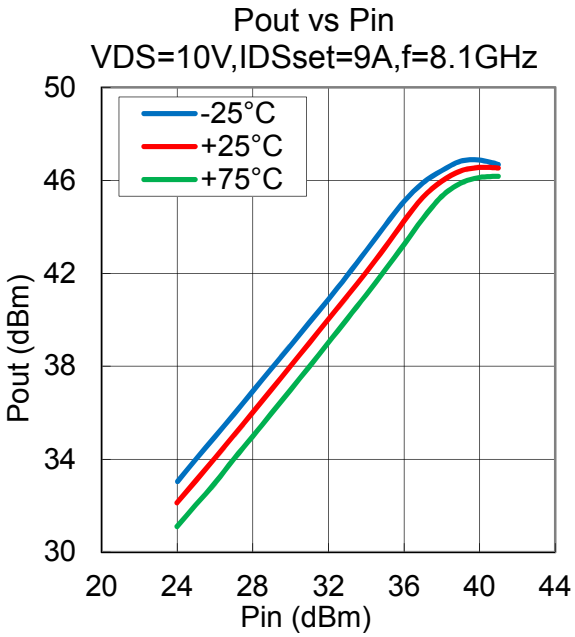


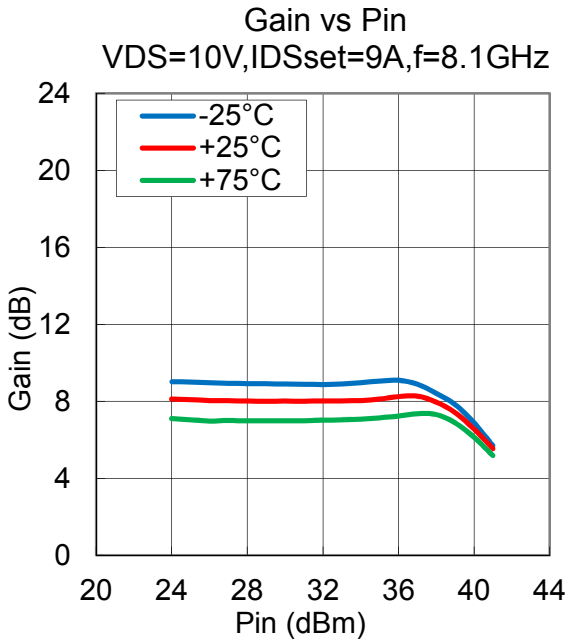
IDS vs Pin
VDS=10V,f=8.1GHz

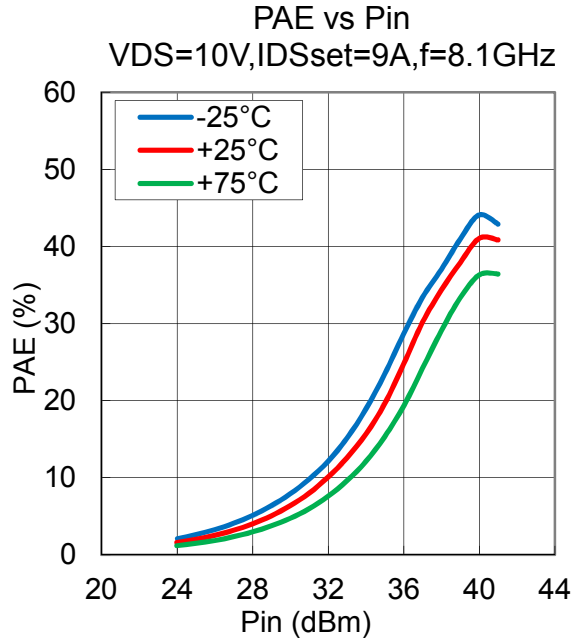


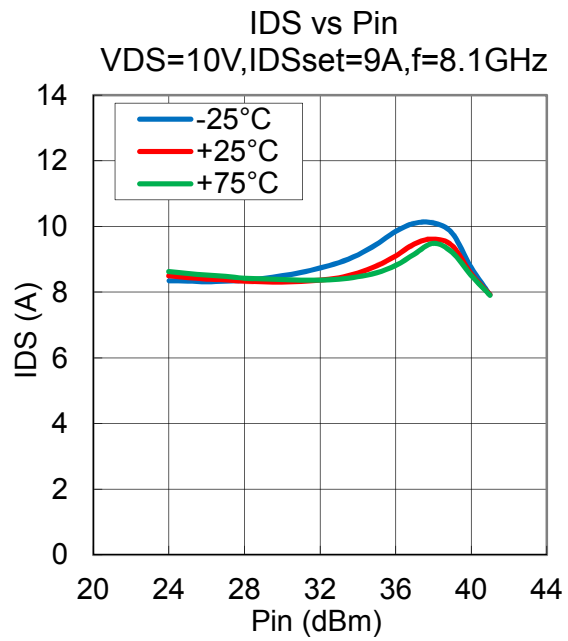
·Pout , Gain , PAE , IDS vs. Pin vs. Temperature

VDS= 10 V, IDSset= 9.0 A, f= 8.1 GHz, Ta= -25, +25, +75 ℃









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