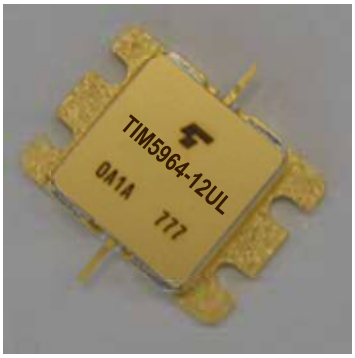
MICROWAVE POWER GaAs FET
TIM5964-12UL

FEATURES

- **BROAD BAND INTERNALLY MATCHED FET**
- **HIGH POWER**
  P1dB= 41.5dBm at 5.9GHz to 6.4GHz
- **HIGH GAIN**
  G1dB= 10.0dB at 5.9GHz to 6.4GHz
- **LOW INTERMODULATION DISTORTION**
  IM3= -47dBc at Pout= 30.5dBm (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= 2.6A f= 5.9 to 6.4GHz	dBm	40.5	41.5	—
Power Gain at 1dB Gain Compression Point	G1dB		dB	9.0	10.0	—
Drain Current	IDS1		A	—	3.2	3.8
Gain Flatness	ΔG		dB	—	—	±0.6
Power Added Efficiency	ηadd		%	—	40	—
3rd Order Intermodulation Distortion	IM3	Two-Tone Test Po= 30.5dBm, Δf= 5MHz (Single Carrier Level)	dBc	-44	-47	—
Drain Current	IDS2		A	—	2.6	3.0
Channel Temperature Rise	ΔTch	(VDS × IDS + Pin − P1dB) × Rth(c-c)	°C	—	—	80

Recommended Gate Resistance (Rg): 68 Ω

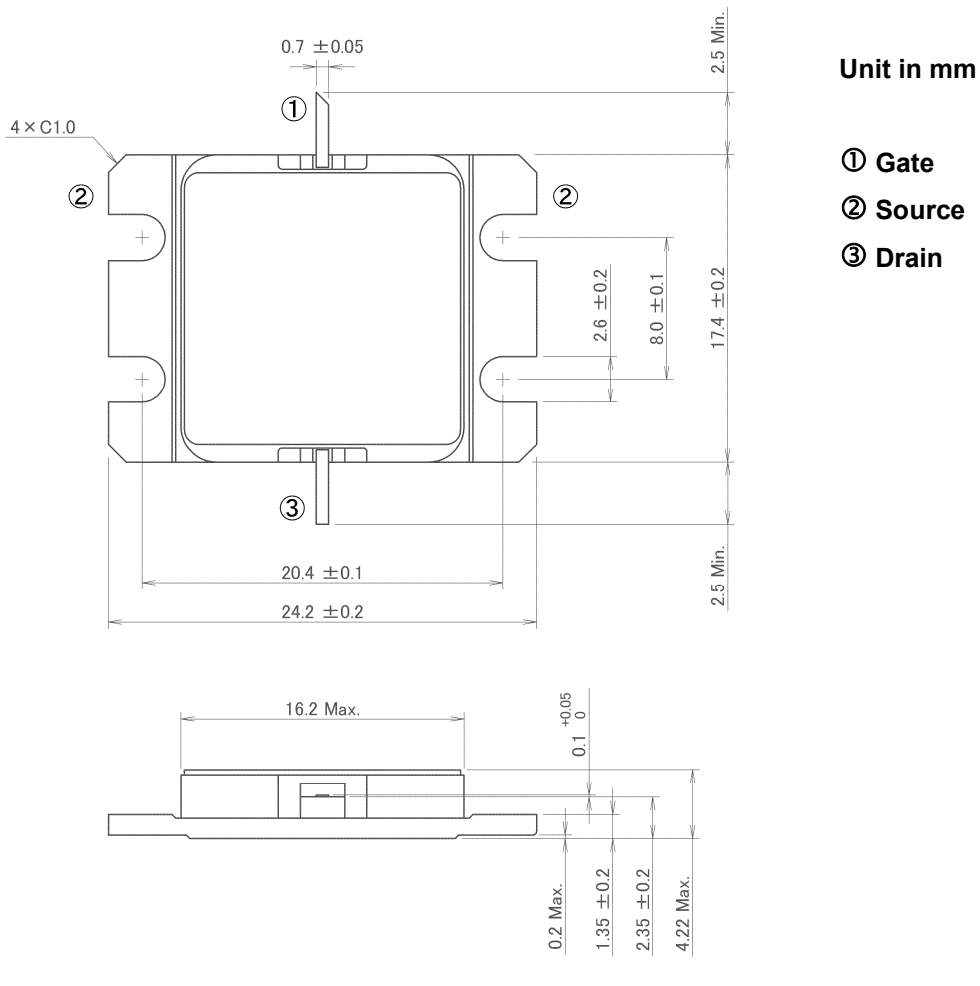
ELECTRICAL CHARACTERISTICS (Ta= 25°C)

CHARACTERISTICS	SYMBOL	CONDITIONS	UNIT	MIN.	TYP.	MAX.
Transconductance	gm	VDS= 3V IDS= 4.0A	S	—	2.5	—
Pinch-off Voltage	VGSoff	VDS= 3V IDS= 40mA	V	-1.0	-2.5	-4.0
Saturated Drain Current	IDSS	VDS= 3V VGS= 0V	A	—	7.2	—
Gate-Source Breakdown Voltage	VGSO	IGS= -140μA	V	-5	—	—
Thermal Resistance	Rth(c-c)	Channel to Case	°C/W	—	2.0	2.4

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	10.0
Total Power Dissipation (Tc= 25°C)	PT	W	62.5
Channel Temperature	Tch	°C	175
Storage Temperature	Tstg	°C	-65 to +175

PACKAGE OUTLINE (2-16G1B)



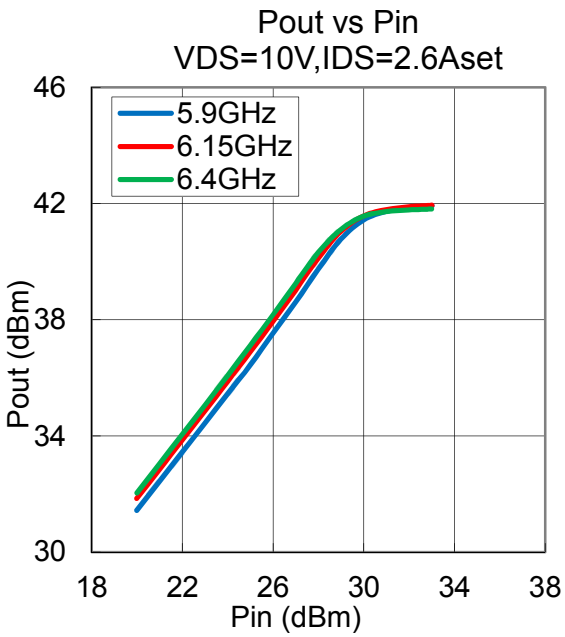
HANDLING PRECAUTIONS FOR PACKAGE MODEL

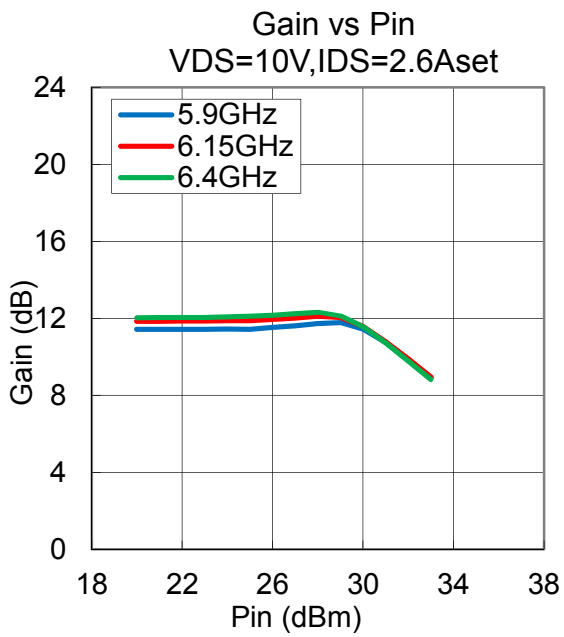
Soldering iron should be grounded and the operating time should not exceed 10 seconds at 260°C or 3 seconds at 350°C.

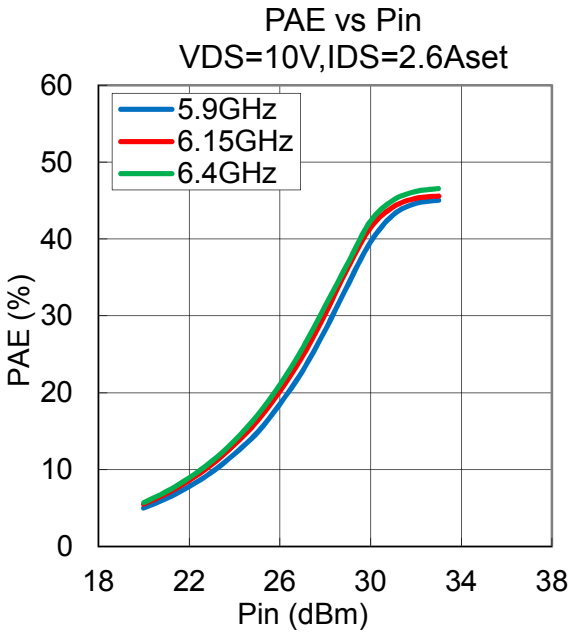
TYPICAL RF PERFORMANCE

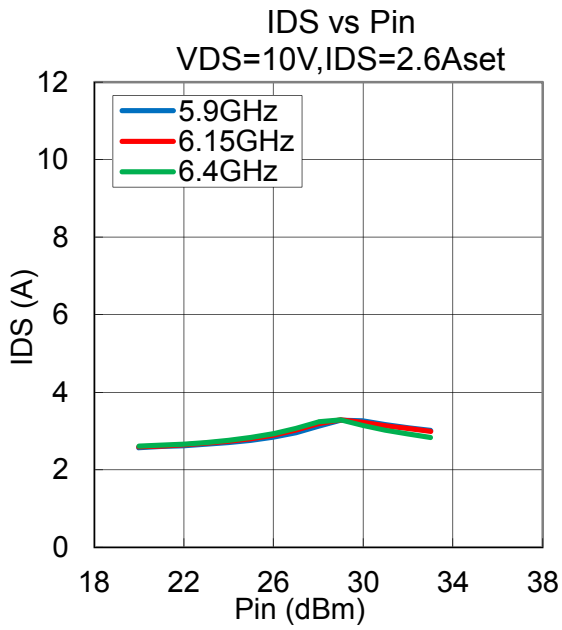
·Pout , Gain , PAE , IDS vs. Pin

VDS= 10 V, IDSset= 2.6 A, f= 5.9, 6.15, 6.4 GHz, Ta= +25 ℃



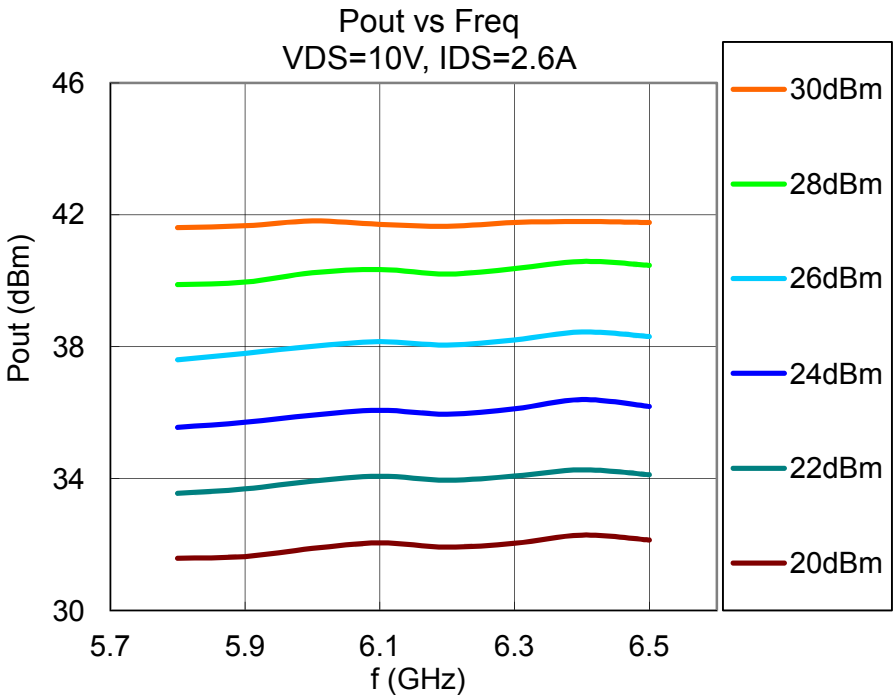






·Pout vs. Frequency

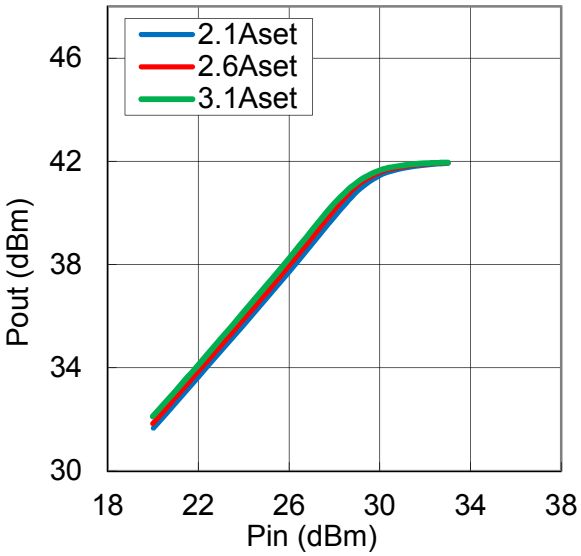
VDS= 10 V, IDSset= 2.6 A, Ta= +25 ℃



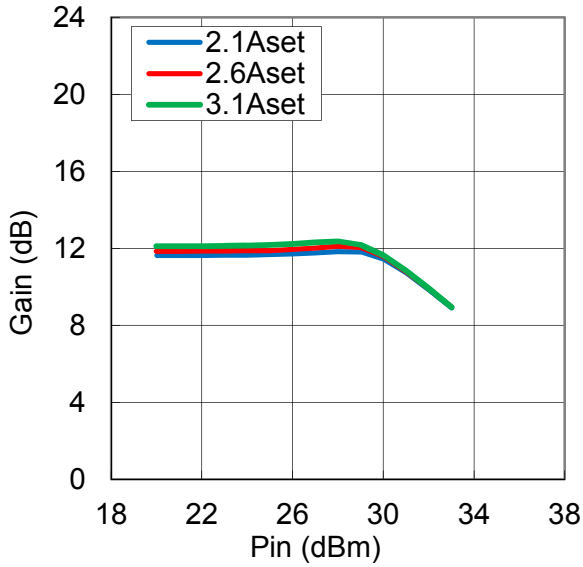
·Pout , Gain , PAE , IDS vs. Pin vs. IDSset

VDS= 10 V, IDSset= 2.1, 2.6, 3.1 A, f= 6.15 GHz, Ta= +25 ℃

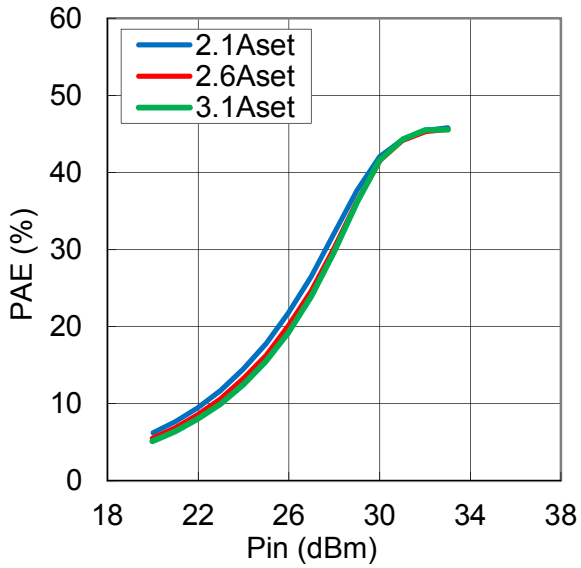
Pout vs Pin
VDS=10V,f=6.15GHz



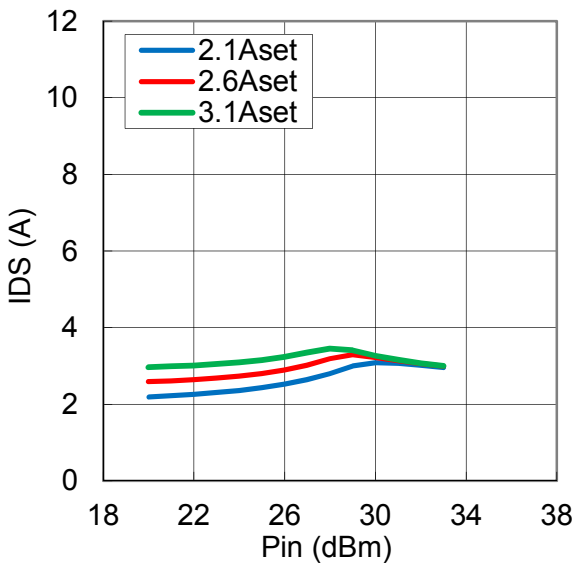
Gain vs Pin
VDS=10V,f=6.15GHz



PAE vs Pin
VDS=10V,f=6.15GHz

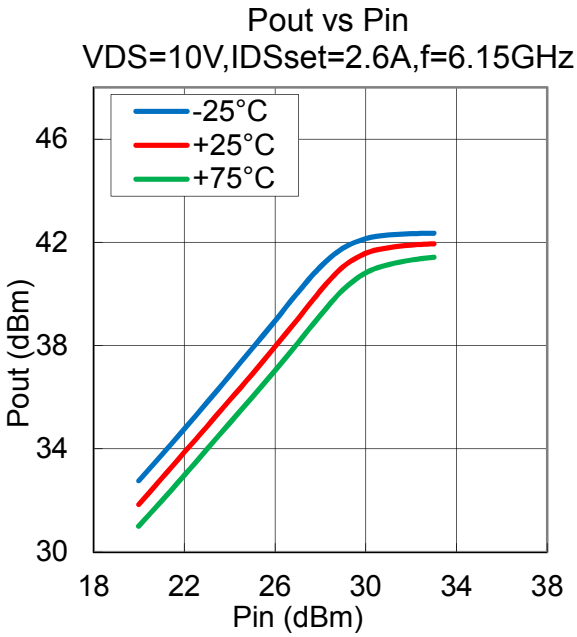


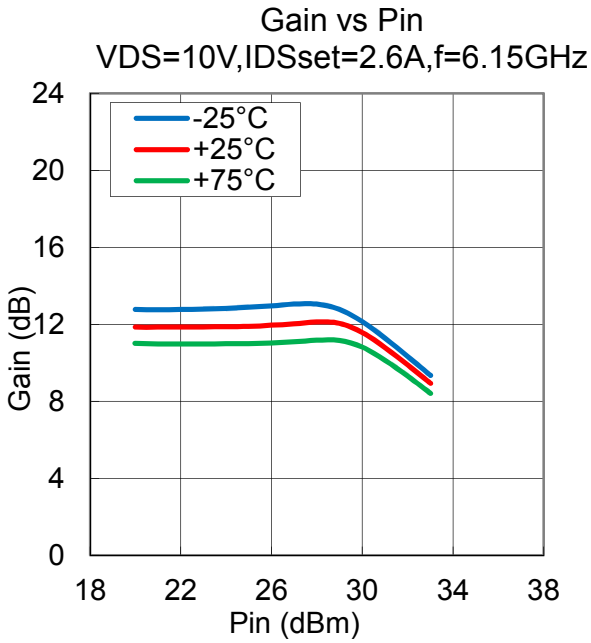
IDS vs Pin
VDS=10V,f=6.15GHz

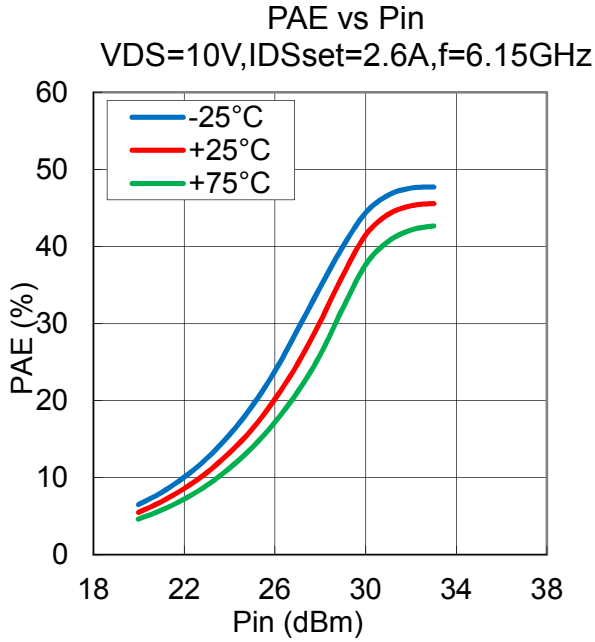


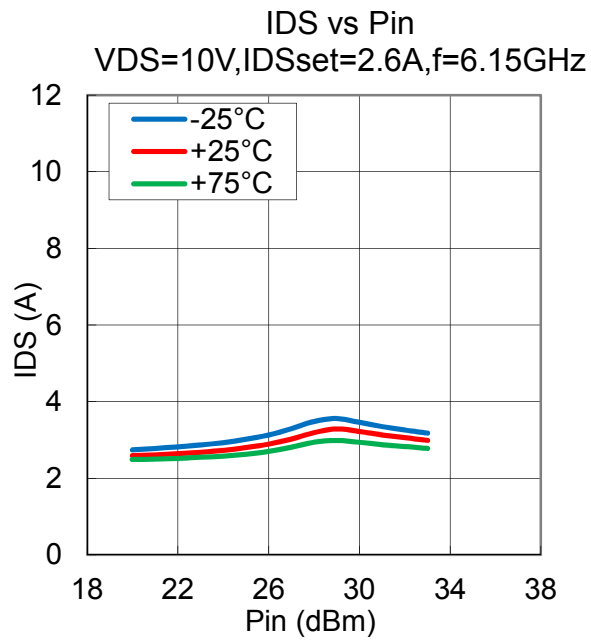
·Pout , Gain , PAE , IDS vs. Pin vs. Temperature

VDS= 10 V, IDSset= 2.6 A, f= 6.15 GHz, Ta= -25, +25, +75 ℃









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