MICROWAVE POWER GaAs FET
TIM1314-4UL

FEATURES

·**BROAD BAND INTERNALLY MATCHED FET**

·**HIGH POWER**

P1dB= 36.5dBm at 13.75GHz to 14.5GHz

·**HIGH GAIN**

G1dB= 8.0dB at 13.75GHz to 14.5GHz

·**LOW INTERMODULATION DISTORTION**

IM3(MIN.) = -42dBc at Pout= 23dBm (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= 1.0A f= 13.75 to 14.5GHz	dBm	35.5	36.5	—
Power Gain at 1dB Gain Compression Point	G1dB		dB	7.0	8.0	—
Drain Current	IDS1		A	—	1.1	1.6
Power Added Efficiency	ηadd		%	—	34	—
3rd Order Intermodulation Distortion	IM3	Two Tone Test Po= 23dBm, Δf= 5MHz (Single Carrier Level)	dBc	-42	-45	—
Drain Current	IDS2		A	—	1.1	1.6
Channel Temperature Rise	ΔTch	(VDS × IDS + Pin − P1dB) × Rth(c-c)	°C	—	—	60

Recommended Gate Resistance(Rg): 100 Ω

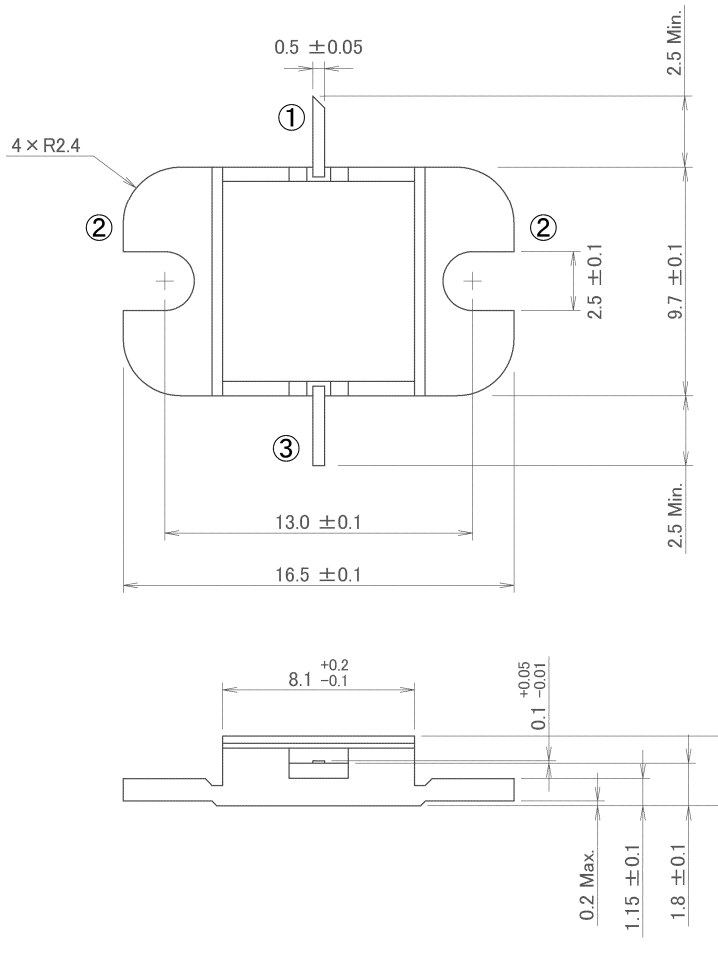
ELECTRICAL CHARACTERISTICS (Ta= 25°C)

CHARACTERISTICS	SYMBOL	CONDITIONS	UNIT	MIN.	TYP.	MAX.
Transconductance	gm	VDS= 3V IDS= 1.2A	S	—	1.2	—
Pinch-off Voltage	VGSoff	VDS= 3V IDS= 40mA	V	-0.5	-2.0	-4.5
Saturated Drain Current	IDSS	VDS= 3V VGS= 0V	A	—	2.2	—
Gate-Source Breakdown Voltage	VGSO	IGS= -40μA	V	-5	—	—
Thermal Resistance	Rth(c-c)	Channel to Case	°C/W	—	3.8	4.4

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	3.3
Total Power Dissipation (Tc= 25°C)	PT	W	34.1
Channel Temperature	Tch	°C	175
Storage Temperature	Tstg	°C	-65 to +175

PACKAGE OUTLINE (2-9D1B)



Unit in mm

① Gate
② Source
③ Drain

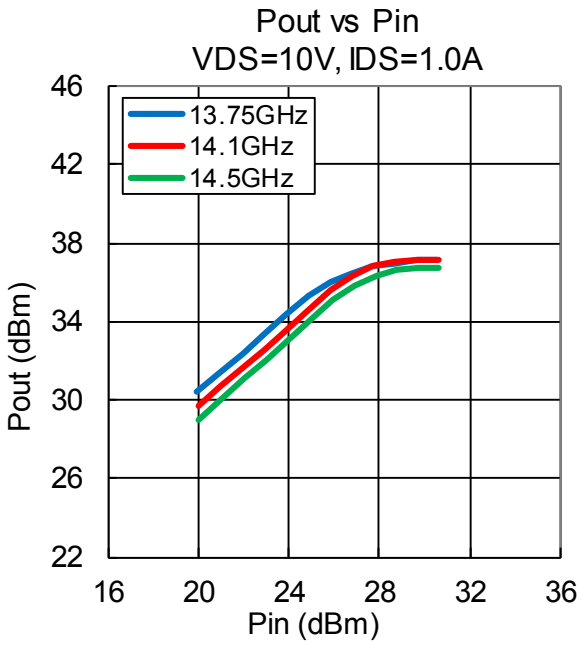
HANDLING PRECAUTIONS FOR PACKAGE MODEL

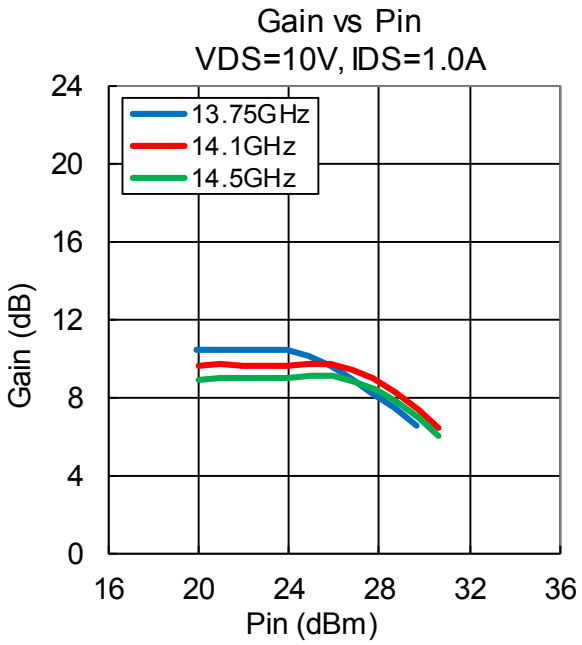
Soldering iron should be grounded and the operating time should not exceed 10 seconds at 260°C or 3 seconds at 350°C.

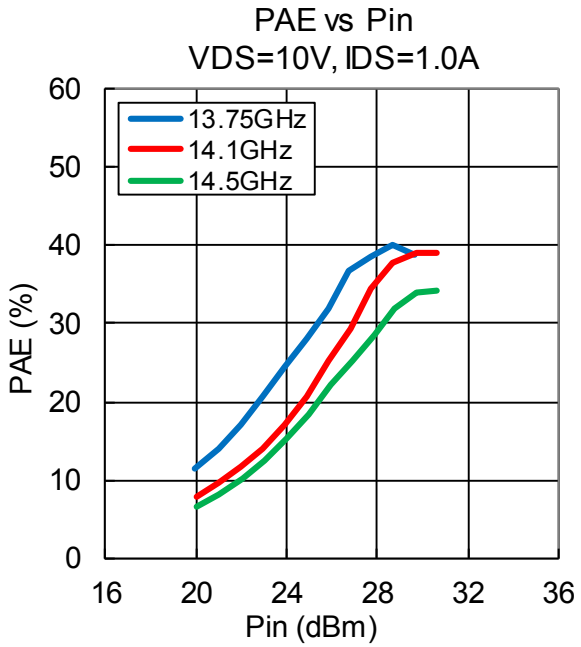
TYPICAL RF PERFORMANCE

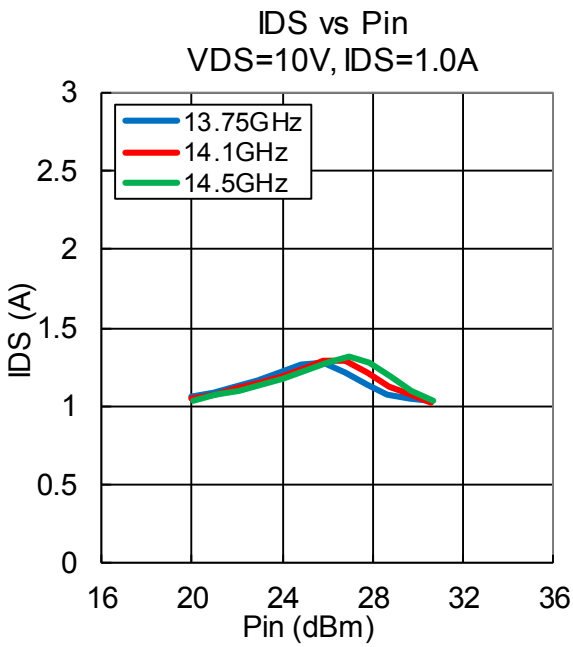
·Pout , Gain , PAE , IDS vs. Pin

VDS= 10 V, IDSset= 1.0 A, f= 13.75, 14.1, 14.5 GHz, Ta= +25 ℃



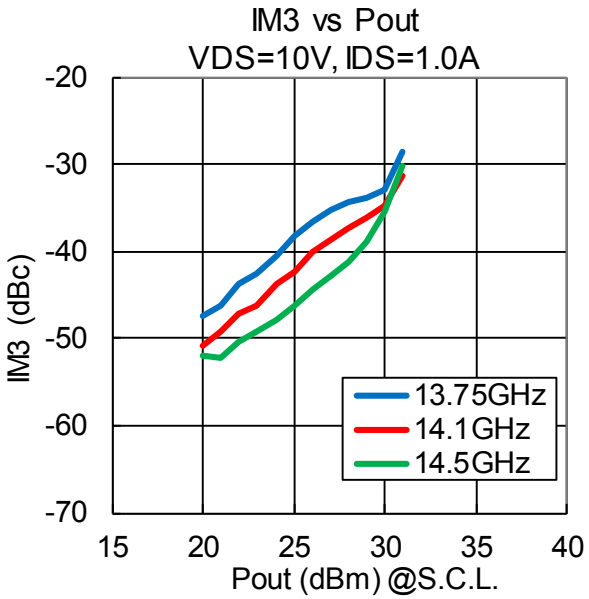






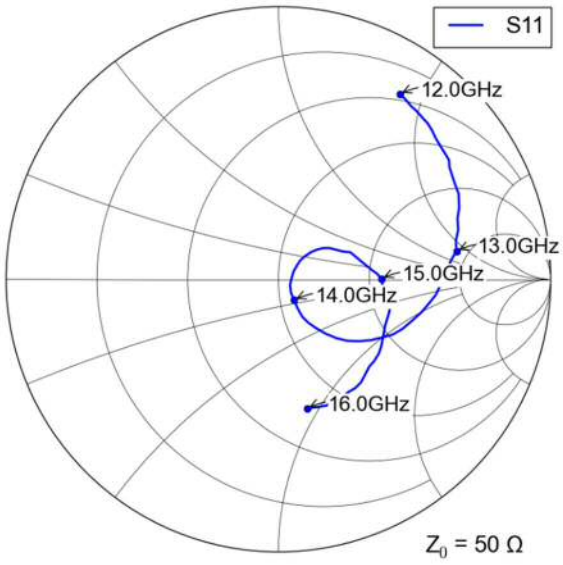
·IM3 vs. Pout

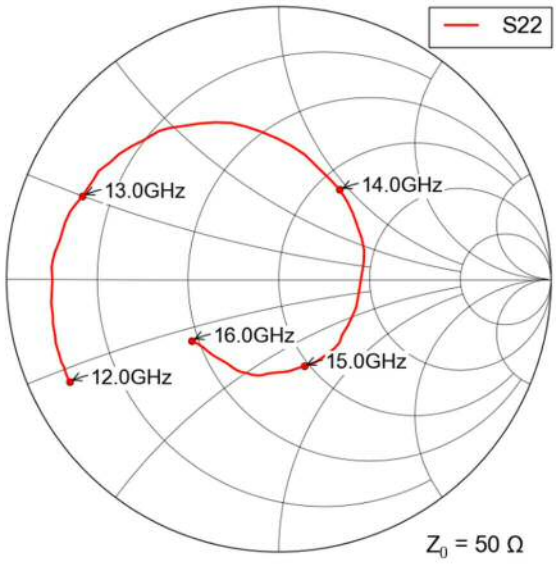
VDS= 10 V, IDSset= 1.0 A, f= 13.75, 14.1, 14.5 GHz, Δf= 5 MHz , Ta= +25 ℃

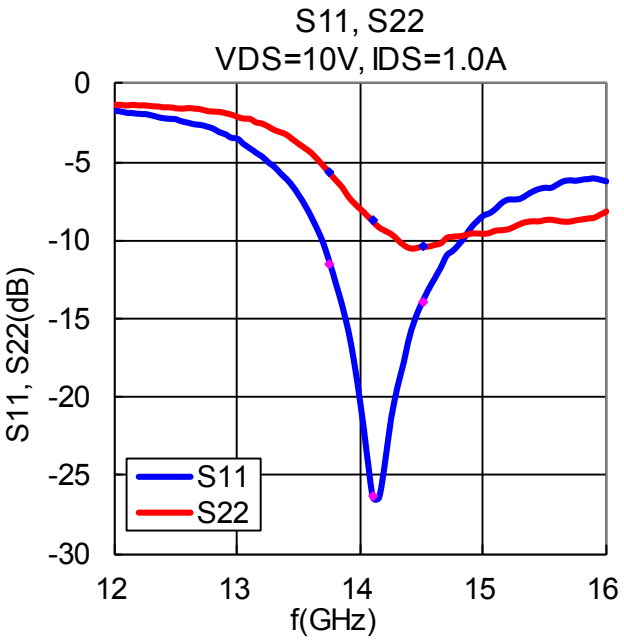


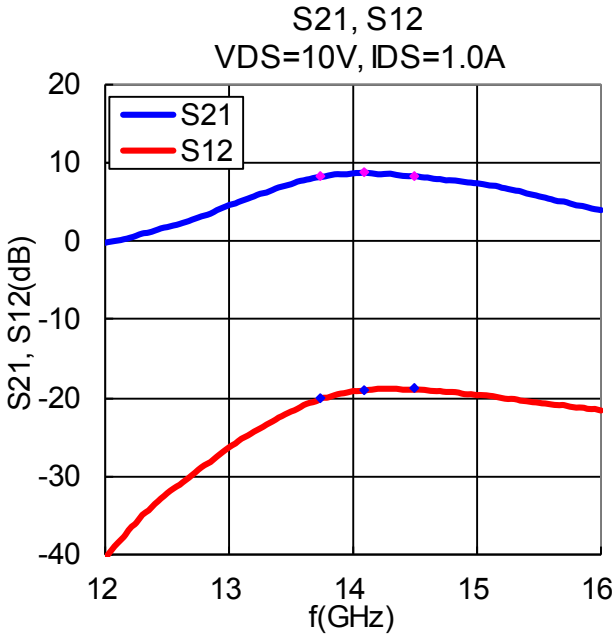
·S-Parameters

VDS= 10 V, IDSset= 1.0 A, f= 12.0 to 16.0 GHz, Ta= +25 ℃









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