TOSHIBA

MICROWAVE SEMICONDUCTOR TECHNICAL DATA

MICROWAVE POWER GaN HEMT

TGI5867-25L

FEATURES

·**BROAD BAND INTERNALLY MATCHED HEMT**

·**HIGH POWER**

Pout= 44.5dBm at Pin= 35dBm

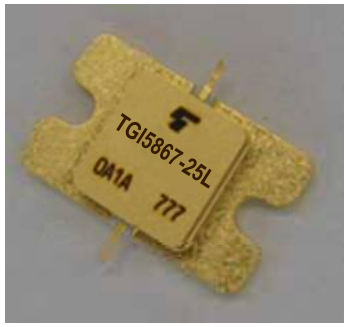
·**HIGH GAIN**

GL= 13.5dB at Pin= 20dBm

·**LOW INTERMODULATION DISTORTION**

IM3= -40dBc(Min.) at Pout= 29dBm (Single Carrier Level)

·**HERMETICALLY SEALED PACKAGE**



RF PERFORMANCE SPECIFICATIONS (Ta= 25°C)

CHARACTERISTICS	SYMBOL	CONDITIONS	UNIT	MIN.	TYP.	MAX.
Output Power	Pout	VDS= 24V IDSset= 1.75A f= 5.85 to 6.75 GHz @Pin= 35dBm	dBm	44.0	44.5	—
Drain Current	IDS1		A	—	2.7	3.2
Power Added Efficiency	ηadd		%	—	39	—
Linear Gain	GL	@Pin= 20dBm	dB	12.5	13.5	—
Gain Flatness	ΔG		dB	—	—	±0.8
3rd Order Intermodulation Distortion	IM3	Two-Tone Test Po= 29dBm, Δf= 5MHz (Single Carrier Level)	dBc	-40	-42	—
Drain Current	IDS2		A	—	—	2.0
Channel Temperature Rise	ΔTch	(VDS × IDS + Pin − Pout) × Rth(c-c)	°C	—	130	150

Recommended Gate Resistance(Rg): 60 Ω

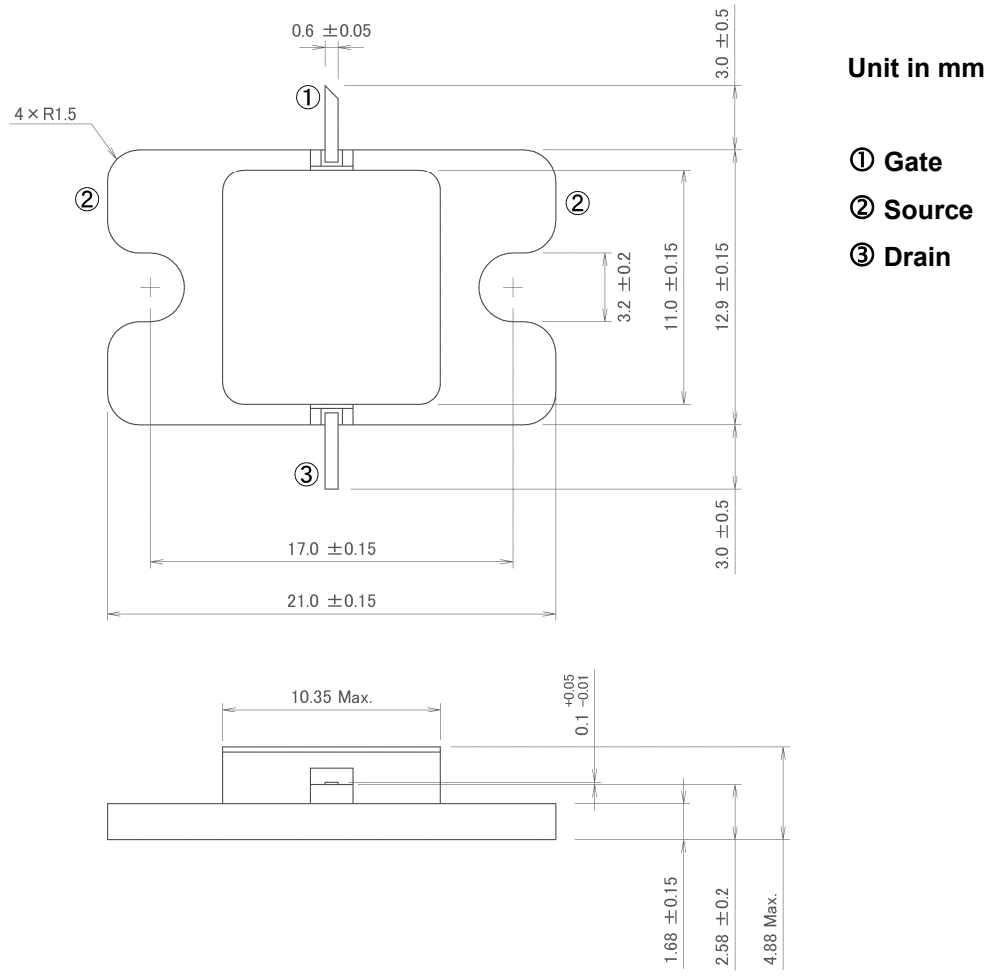
ELECTRICAL CHARACTERISTICS (Ta= 25°C)

CHARACTERISTICS	SYMBOL	CONDITIONS	UNIT	MIN.	TYP.	MAX.
Transconductance	gm	VDS= 5V IDS= 2.5A	S	—	1.2	—
Pinch-off Voltage	VGSoff	VDS= 5V IDS= 12mA	V	-2.6	-4.0	-6.0
Saturated Drain Current	IDSS	VDS= 5V VGS= 0V	A	—	7.5	—
Gate-Source Breakdown Voltage	VGSO	IGS= -5mA	V	-10	—	—
Thermal Resistance	Rth(c-c)	Channel to Case	°C/W	—	2.8	3.2

ABSOLUTE MAXIMUM RATINGS (Ta= 25°C)

CHARACTERISTICS	SYMBOL	UNIT	RATING
Drain-Source Voltage	VDS	V	50
Gate-Source Voltage	VGS	V	-10
Drain Current	IDS	A	7.5
Total Power Dissipation (Tc= 25°C)	PT	W	70
Channel Temperature	Tch	°C	250
Storage Temperature	Tstg	°C	-65 to +175

PACKAGE OUTLINE (7-AA04A)



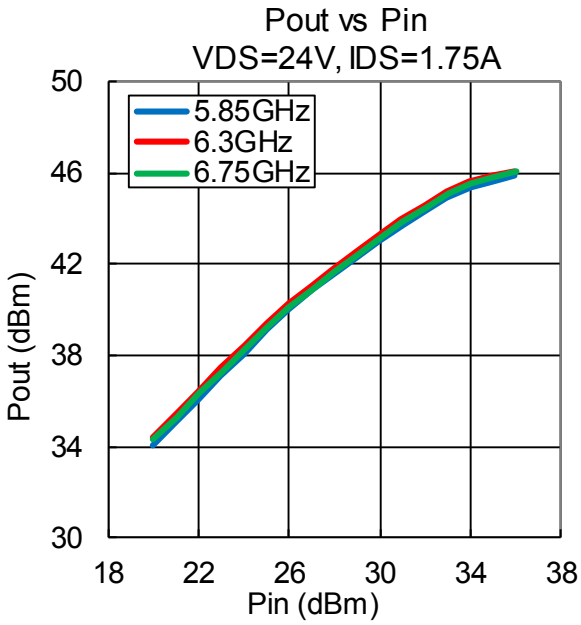
HANDLING PRECAUTIONS FOR PACKAGE MODEL

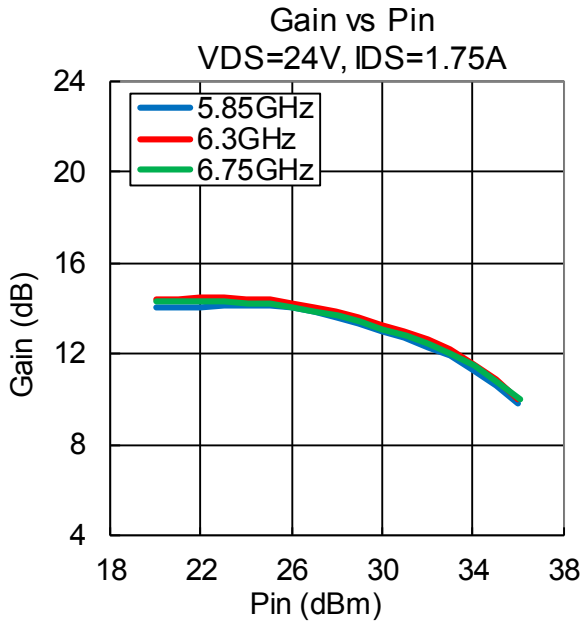
Soldering iron should be grounded and the operating time should not exceed 10 seconds at 260°C or 3 seconds at 350°C.

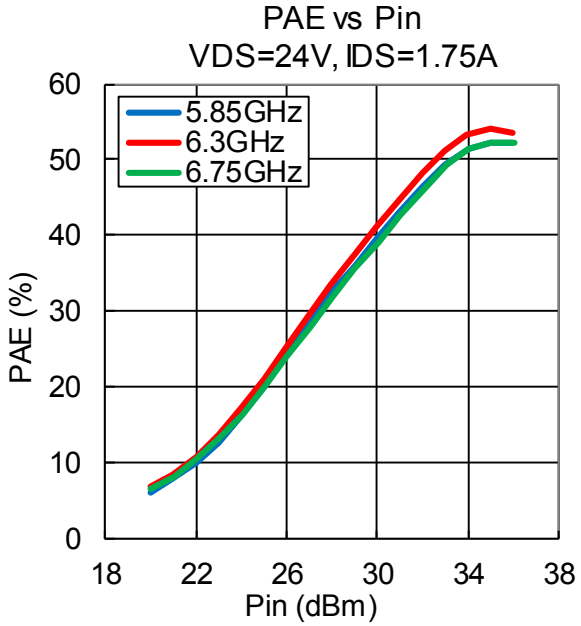
TYPICAL RF PERFORMANCE

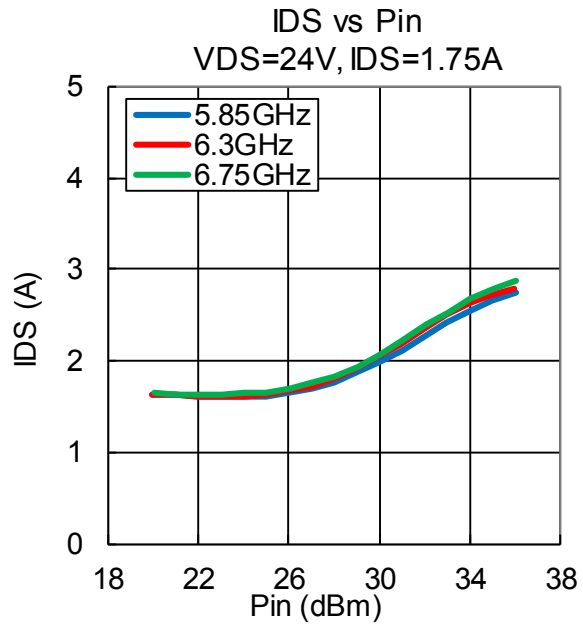
·Pout , Gain , PAE , IDS vs. Pin

VDS= 24 V, IDSset= 1.75 A, f= 5.85, 6.3, 6.75 GHz, Ta= +25 ℃



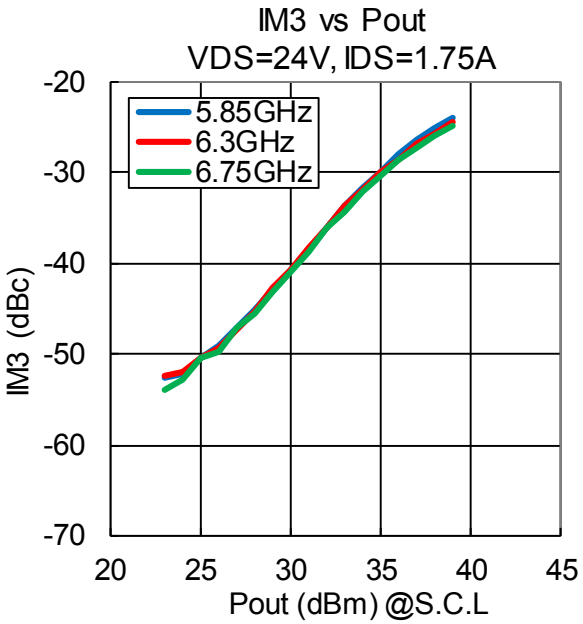


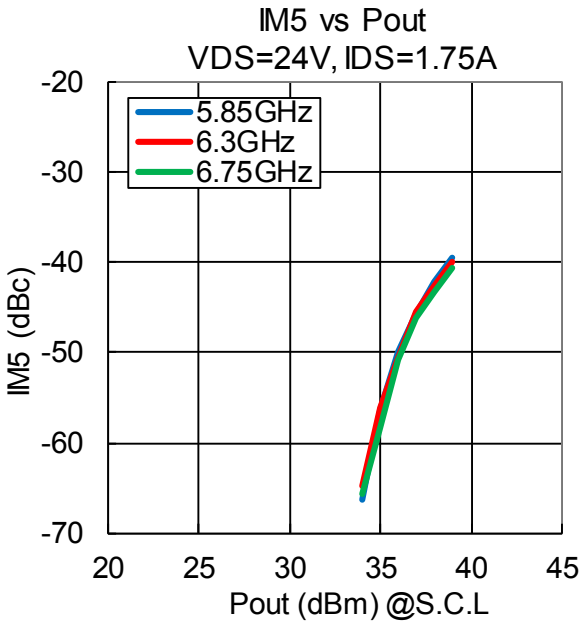




·IM3, IM5 vs. Pout

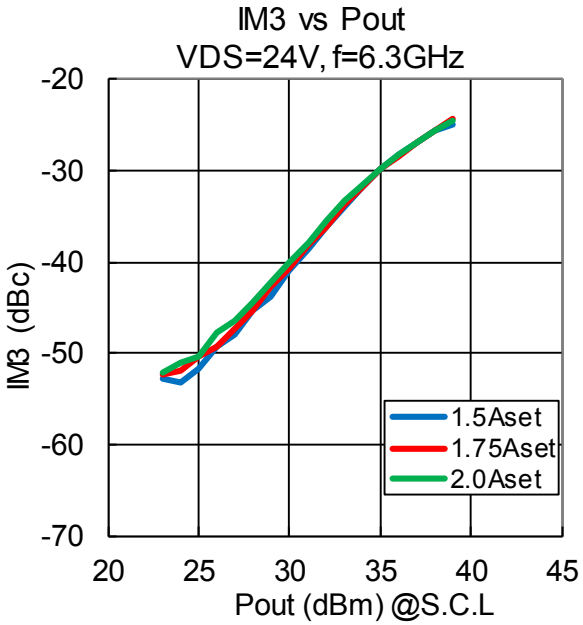
VDS= 24 V, IDSset= 1.75 A, f= 5.85, 6.3, 6.75 GHz, Δf= 5 MHz , Ta= +25 ℃

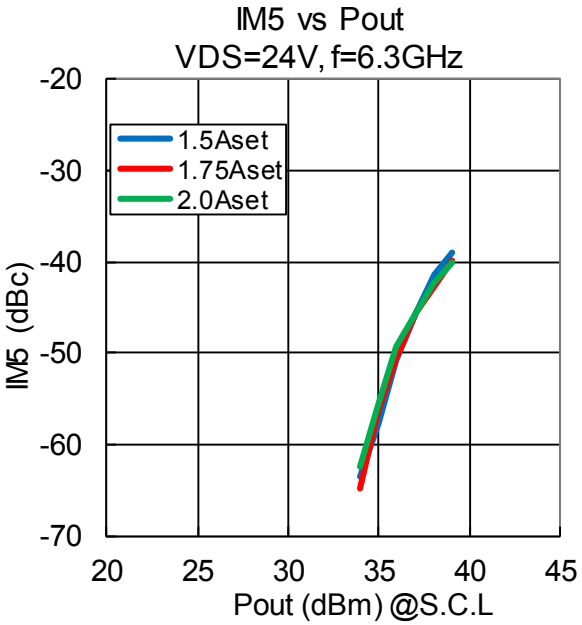




·IM3, IM5 vs. Pout

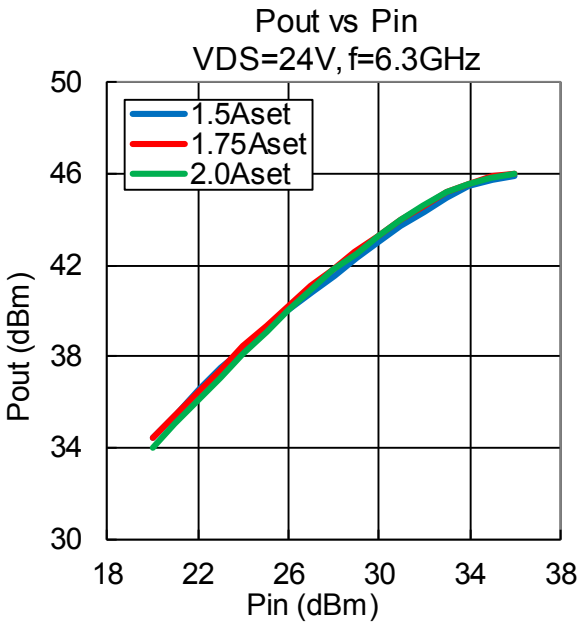
VDS= 24 V, IDSset= 1.5, 1.75, 2.0 A, f= 6.3 GHz, Ta= +25 ℃

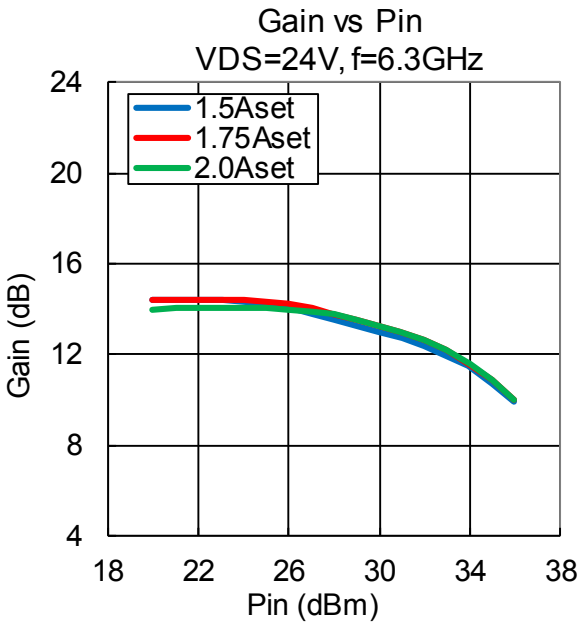


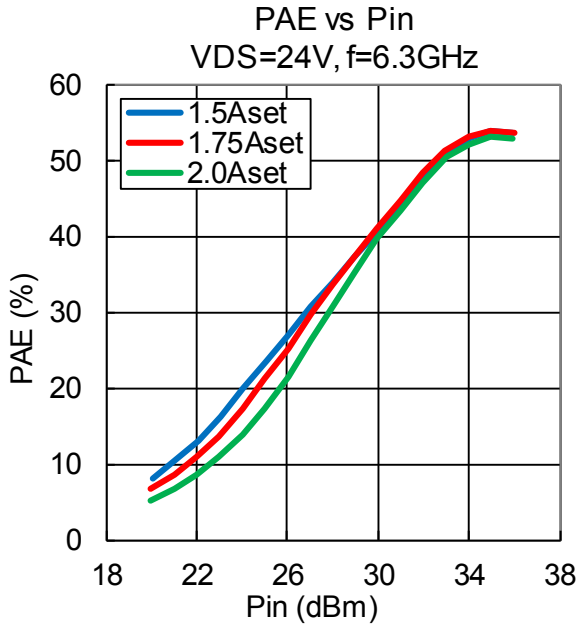


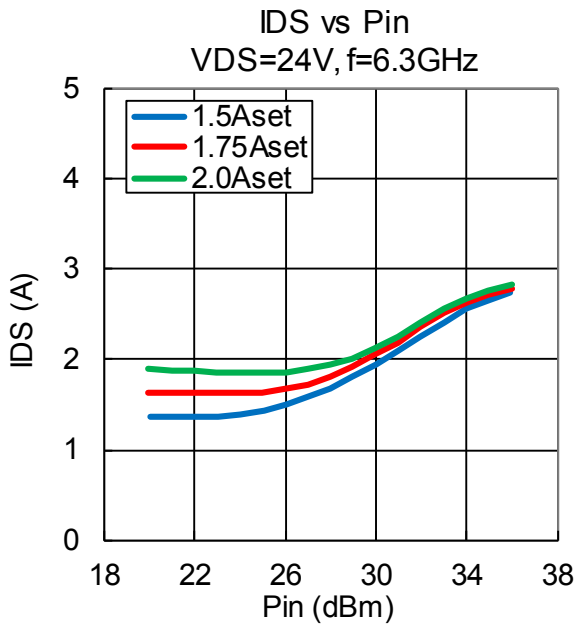
·Pout , Gain , PAE , IDS vs. Pin vs. IDSset

VDS= 24 V, IDSset= 1.5, 1.75, 2.0 A, f= 6.3 GHz, Ta= +25 ℃



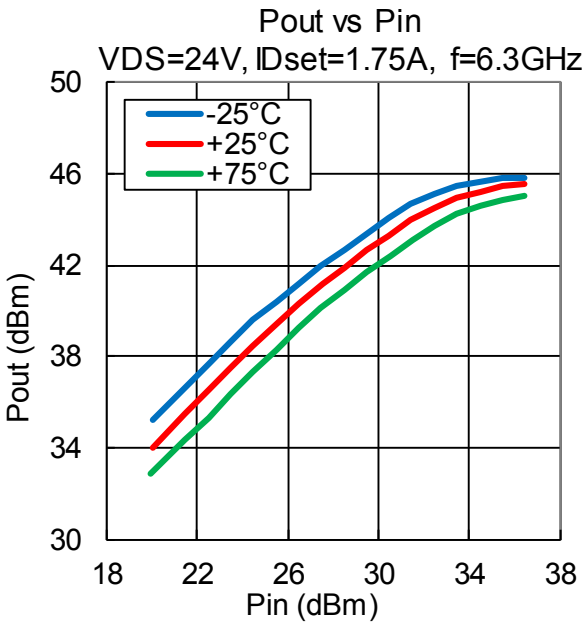


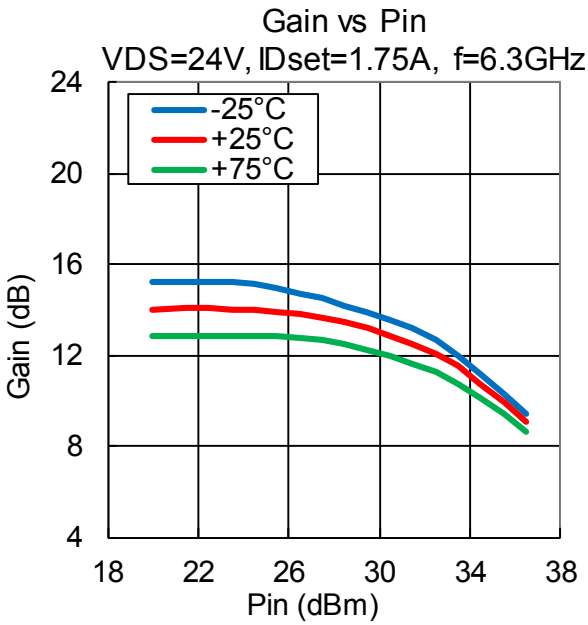


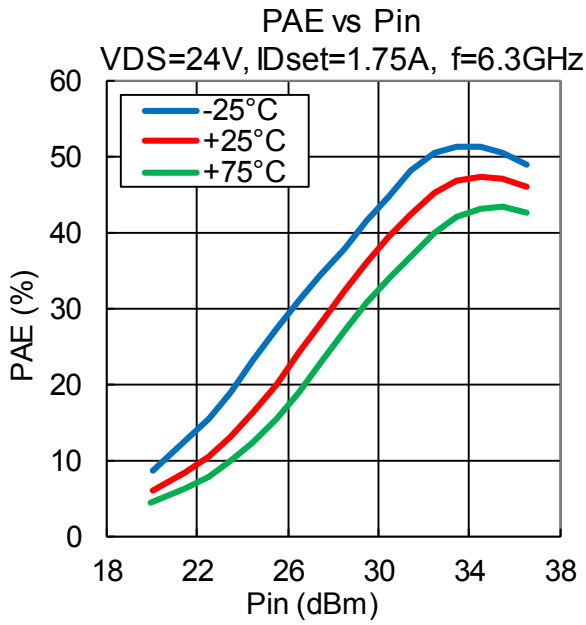


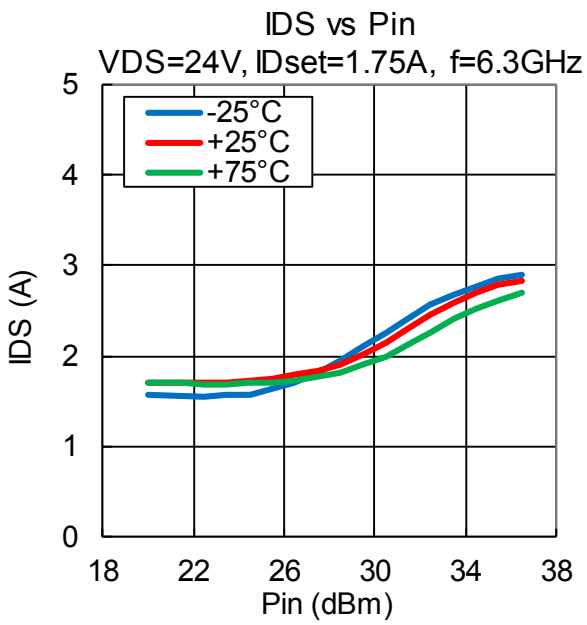
·Pout , Gain , PAE , IDS vs. Pin vs. Temperature

VDS= 24 V, IDSset= 1.75 A, f= 6.3 GHz, Ta= -25, +25, +75 ℃



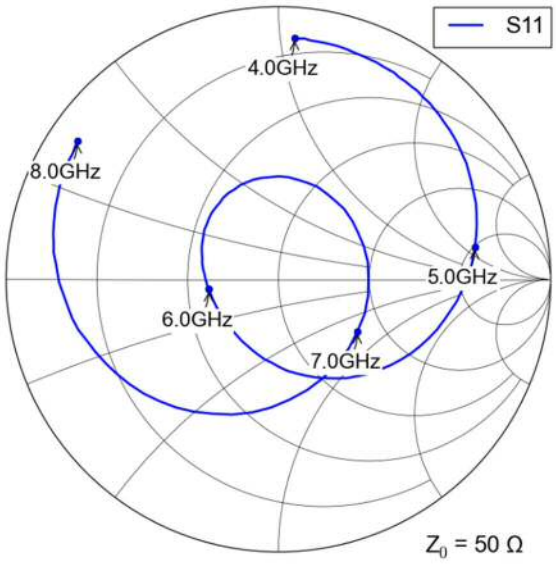


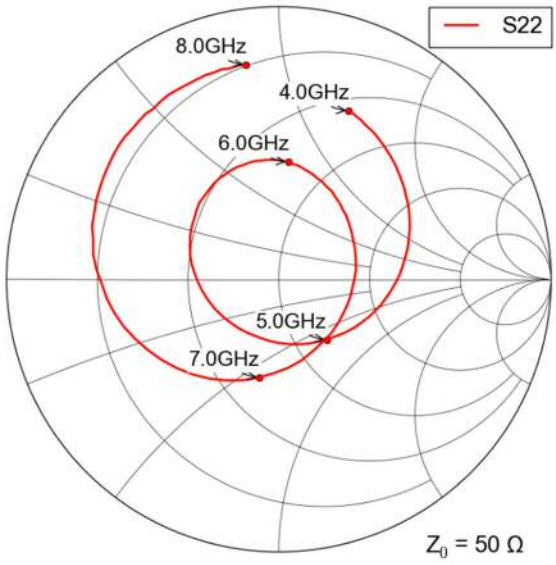


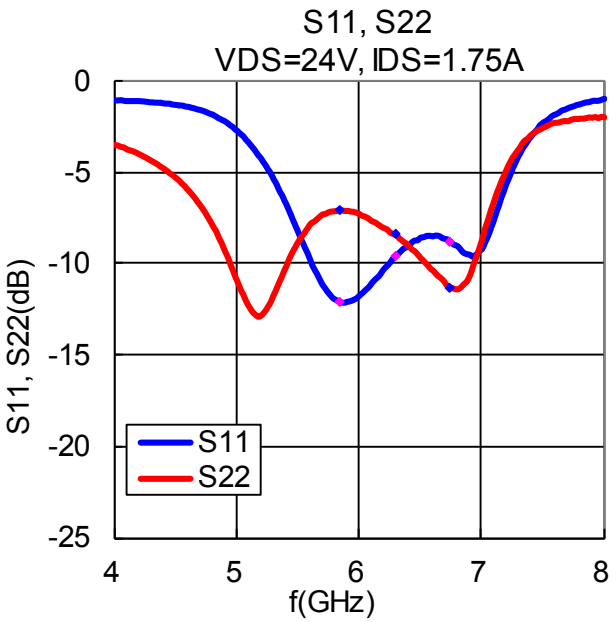


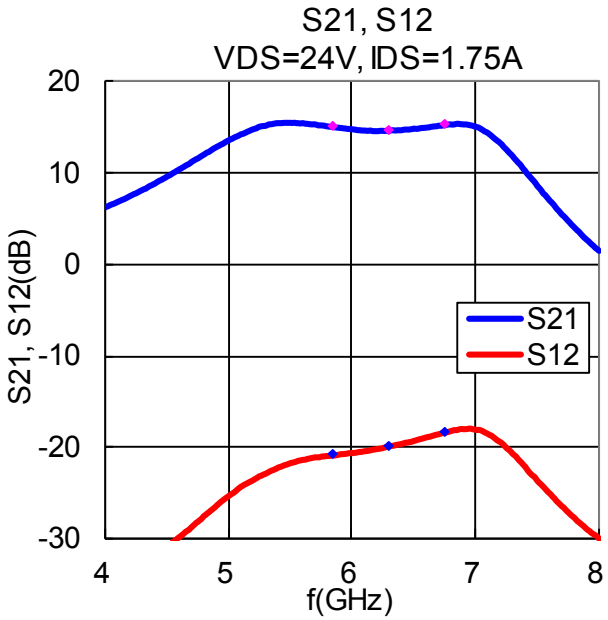
·S-Parameters

VDS= 24 V, IDSset= 1.75 A, f= 4.0 to 8.0 GHz, Ta= +25 ℃









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