

FEATURES

· BROAD BAND INTERNALLY MATCHED HEMT

· HIGH POWER

$P_{out} = 47.0\text{dBm}$ at $P_{in} = 42.0\text{dBm}$

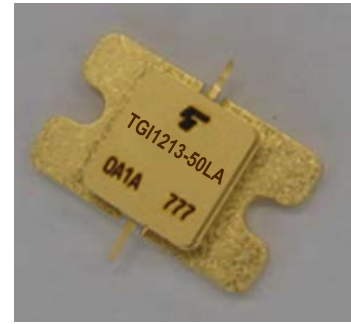
· HIGH GAIN

$GL = 8.0\text{dB}$ at 12.7GHz to 13.2GHz

· LOW INTERMODULATION DISTORTION

$IM3(\text{Min.}) = -25\text{dBc}$ at $P_{out} = 40.0\text{dBm}$ (Single Carrier Level)

· HERMETICALLY SEALED PACKAGE



RF PERFORMANCE SPECIFICATIONS ($T_a = 25^\circ\text{C}$)

CHARACTERISTICS	SYMBOL	CONDITIONS	UNIT	MIN.	TYP.	MAX.
Output Power	P_{out}	$V_{DS} = 24\text{V}$ $I_{DSset} = 2.0\text{A}$ $f = 12.7 \text{ to } 13.2\text{GHz}$ $@P_{in} = 42\text{dBm}$	dBm	46.0	47.0	—
Drain Current	I_{DS1}		A	—	5.0	6.0
Power Added Efficiency	PAE		%	—	29	—
Linear Gain	GL	$@P_{in} = 20\text{dBm}$	dB	7.0	8.0	—
Gain Flatness	ΔG		dB	—	—	± 0.8
3rd Order Intermodulation Distortion	IM3	Two-tone Test $P_o = 40.0\text{dBm}$ (Single Carrier Level) $\Delta f = 5\text{MHz}$ (IM3)	dBc	-25	-27	—
	IM3-2		dBc	-25	-27	—
Drain Current	I_{DS2}	$\Delta f = 150\text{MHz}$ (IM3-2)	A	—	3.5	4.5
Channel Temperature Rise	ΔT_{ch}	$(V_{DS} \times I_{DS} + P_{in} - P_{out})$ $\times R_{th(c-c)}$	$^\circ\text{C}$	—	130	160

Recommended Gate Resistance(R_g): 13.3 Ω

ELECTRICAL CHARACTERISTICS ($T_a = 25^\circ\text{C}$)

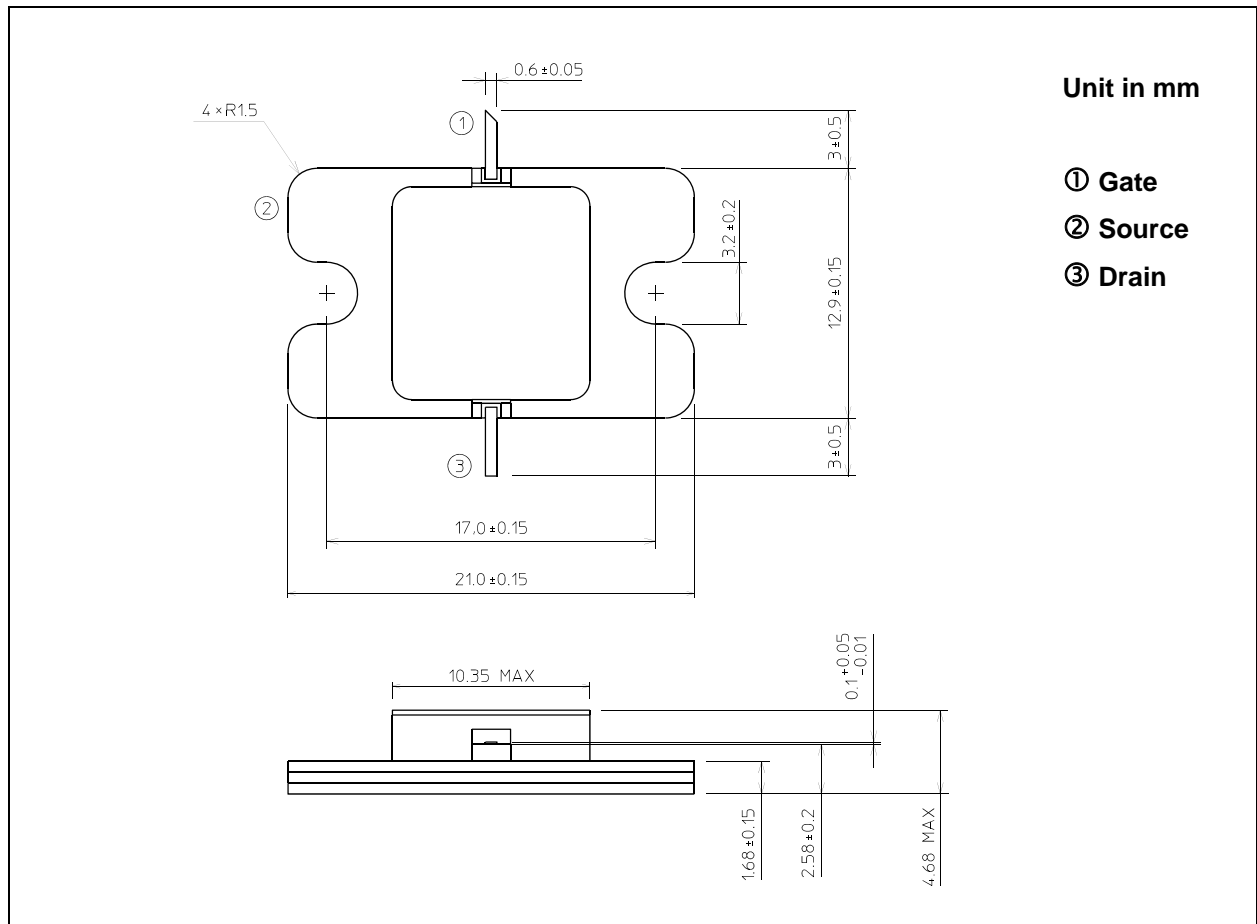
CHARACTERISTICS	SYMBOL	CONDITIONS	UNIT	MIN.	TYP.	MAX.
Transconductance	g_m	$V_{DS} = 5\text{V}$ $I_{DS} = 5.0\text{A}$	S	—	4.5	—
Pinch-off Voltage	V_{GSoff}	$V_{DS} = 5\text{V}$ $I_{DS} = 23\text{mA}$	V	-1.0	-4.0	-6.0
Saturated Drain Current	I_{DSS}	$V_{DS} = 5\text{V}$ $V_{GS} = 0\text{V}$	A	—	18	—
Gate-Source Breakdown Voltage	V_{GSO}	$I_{GS} = -10\text{mA}$	V	-10	—	—
Thermal Resistance	$R_{th(c-c)}$	Channel to Case	$^\circ\text{C/W}$	—	1.4	1.6

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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	15.0
Total Power Dissipation (Tc= 25°C)	PT	W	140
Channel Temperature	Tch	°C	250
Storage Temperature	Tstg	°C	-65 to +175

PACKAGE OUTLINE (7-AA07A)

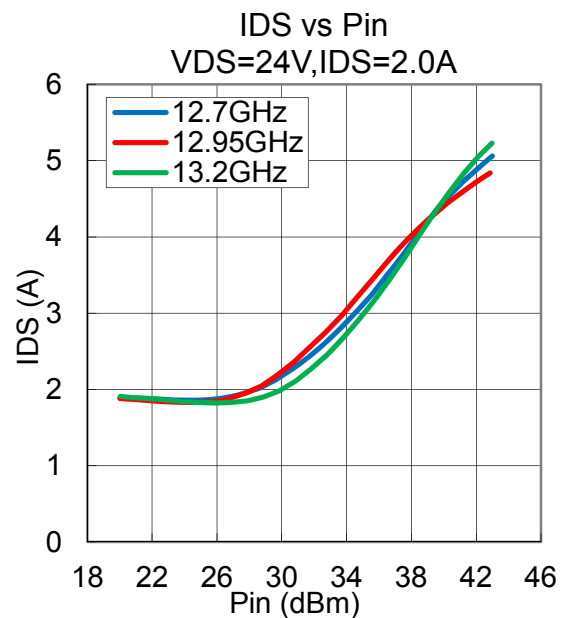
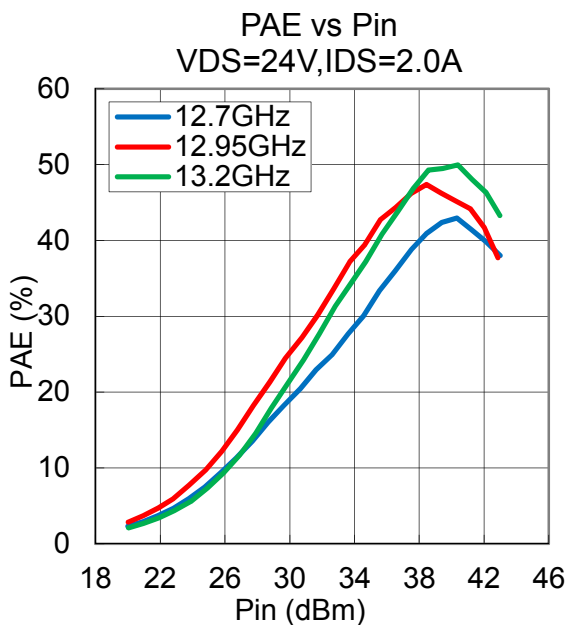
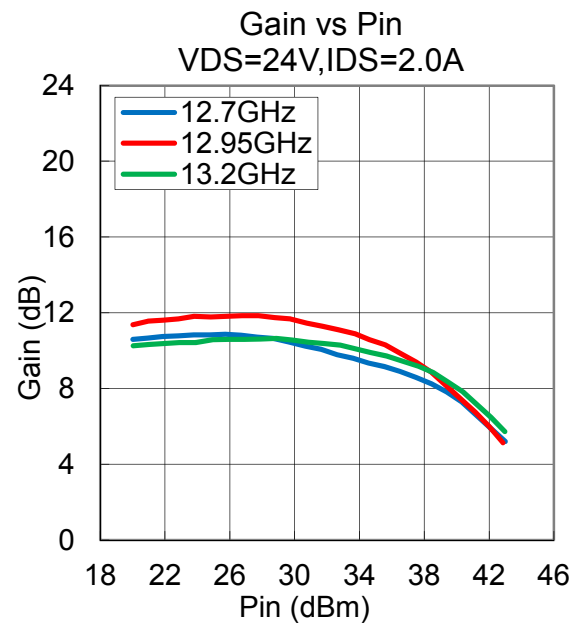
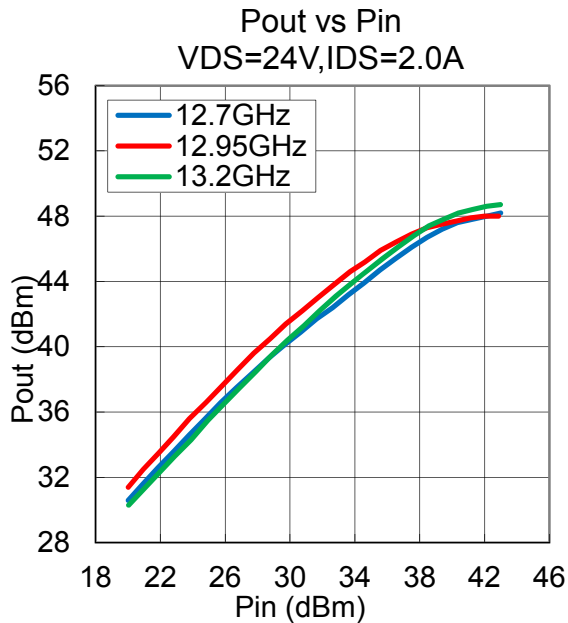


HANDLING PRECAUTIONS FOR PACKAGE MODEL

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

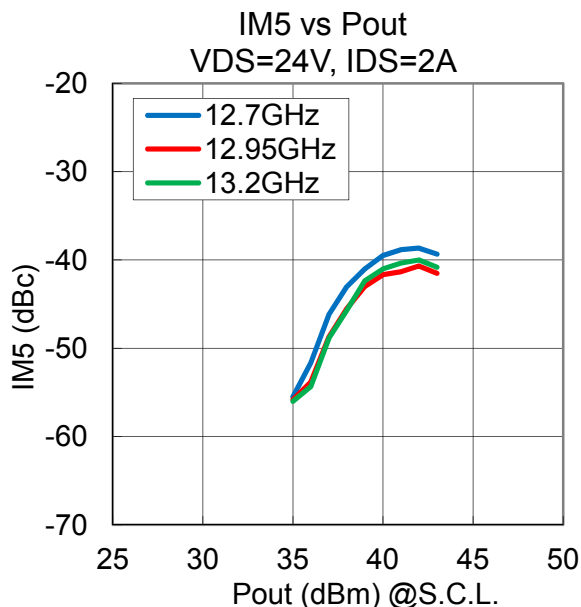
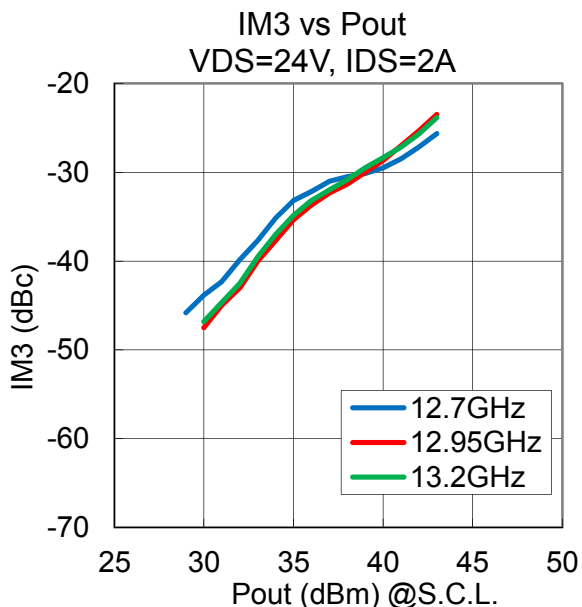
• Pout , Gain , PAE , IDS vs. Pin

VDS= 24 V, IDSset= 2.0 A, f= 12.7, 12.95, 13.2GHz, Ta= +25 °C



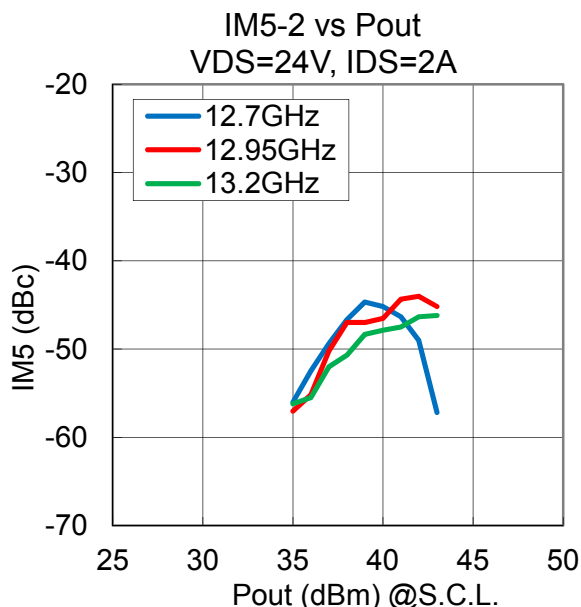
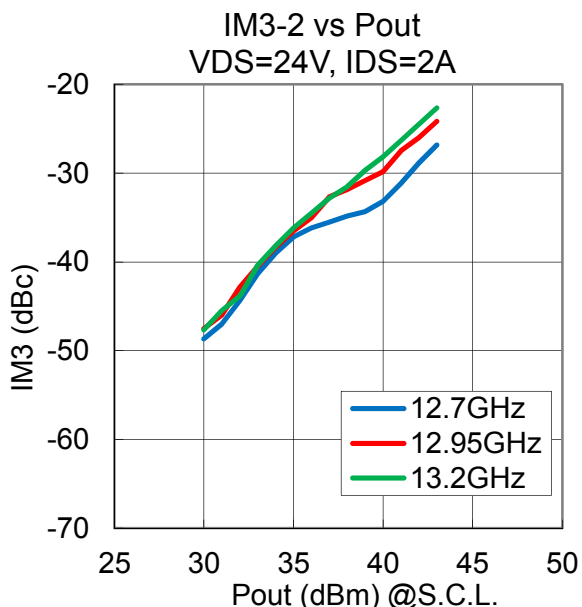
•IM3, IM5 vs. Pout

VDS= 24 V, IDSset= 2.0 A, f= 12.7, 12.95, 13.2 GHz, Δf= 5 MHz, Ta= +25 °C



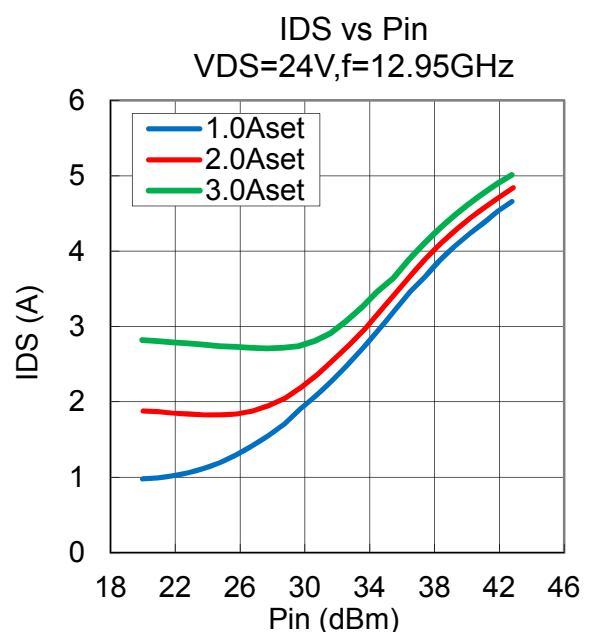
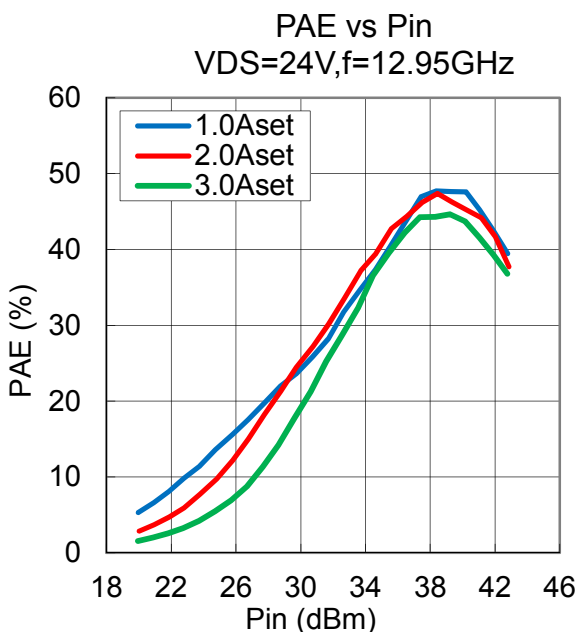
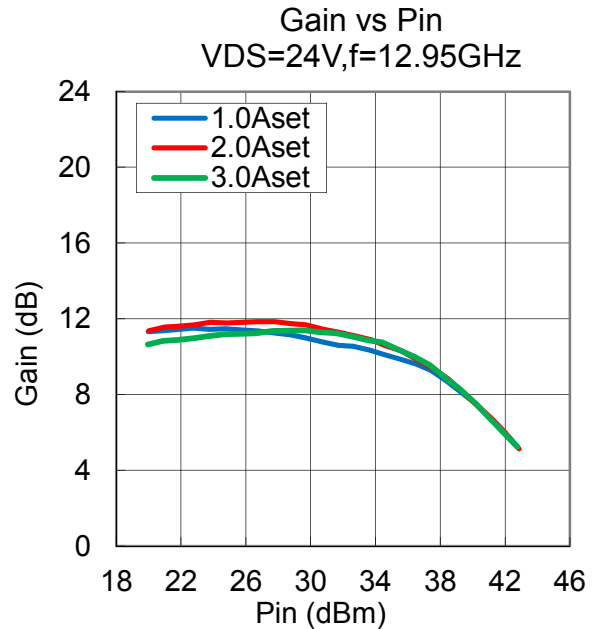
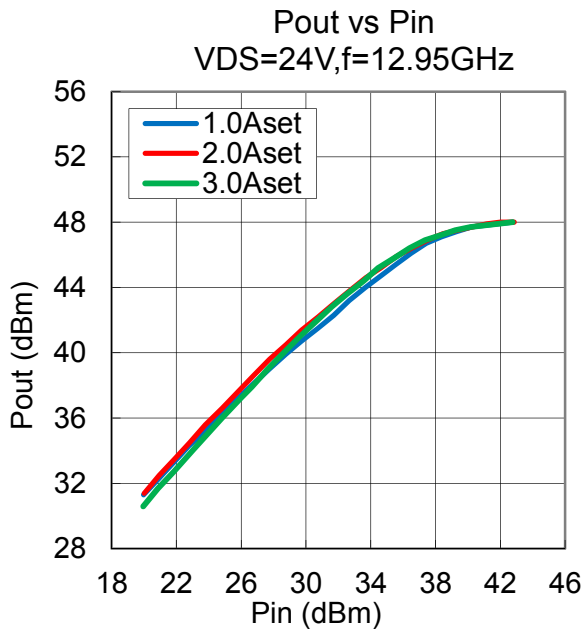
•IM3-2, IM5-2 vs. Pout

VDS= 24 V, IDSset= 2.0 A, f= 12.7, 12.95, 13.2 GHz, Δf= 150 MHz, Ta= +25 °C



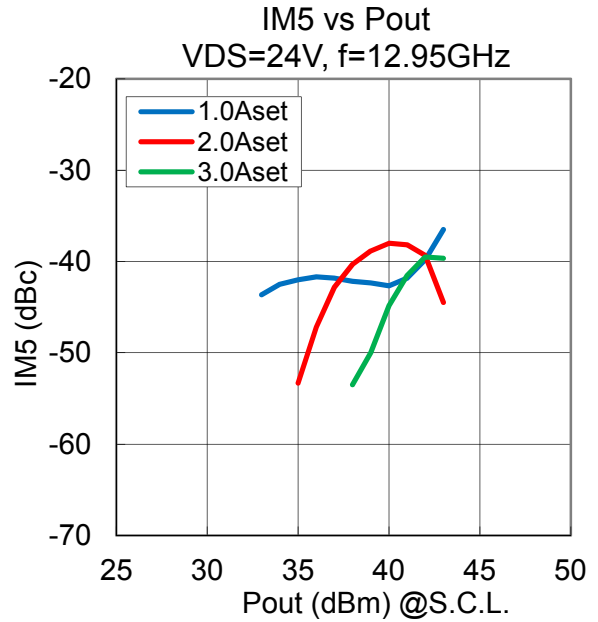
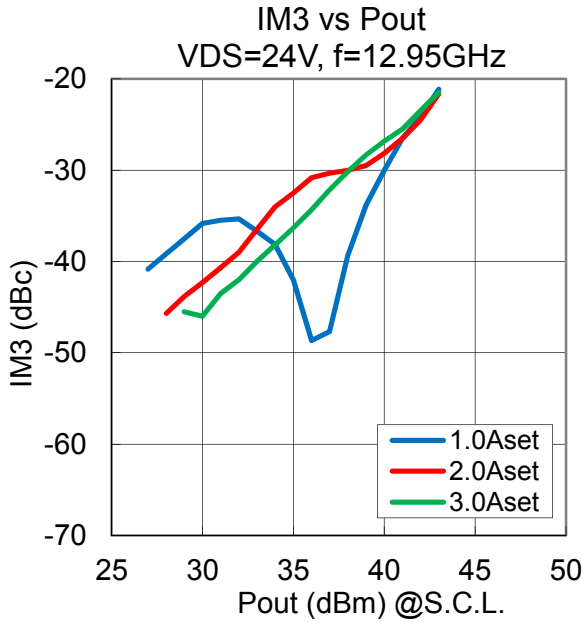
• Pout , Gain , PAE , IDS vs. Pin vs. IDSset

VDS= 24 V, IDSset= 1.0, 2.0, 3.0 A, f= 12.95 GHz, Ta= +25 °C



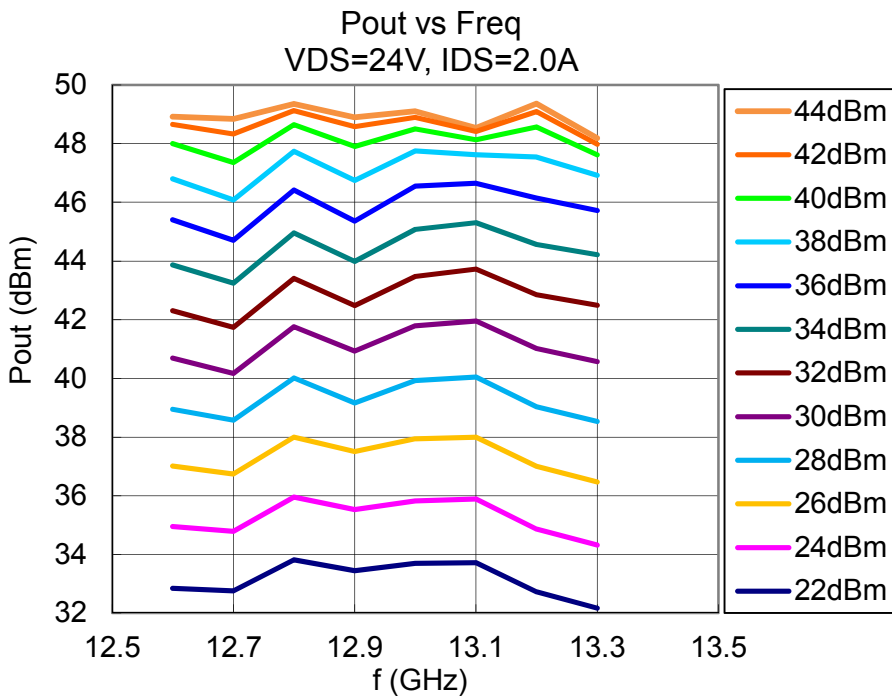
•IM3, IM5 vs. Pout vs. IDSset

VDS= 24 V, IDSset= 1.0, 2.0, 3.0 A, f= 12.95 GHz, Δf= 5 MHz, Ta= +25 °C



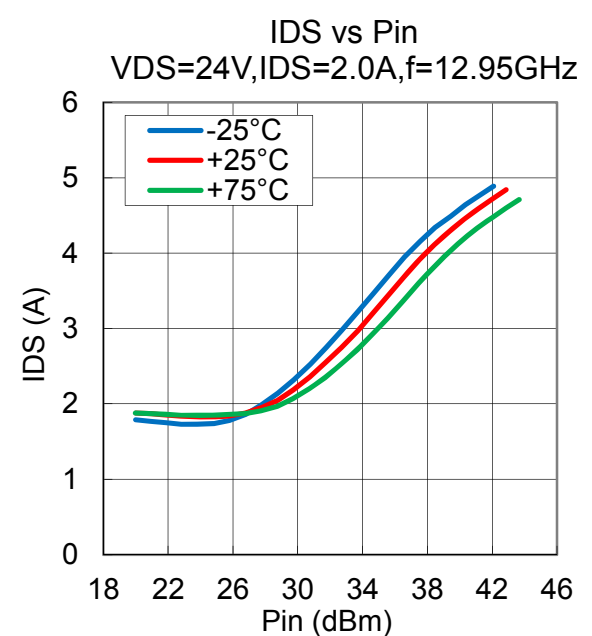
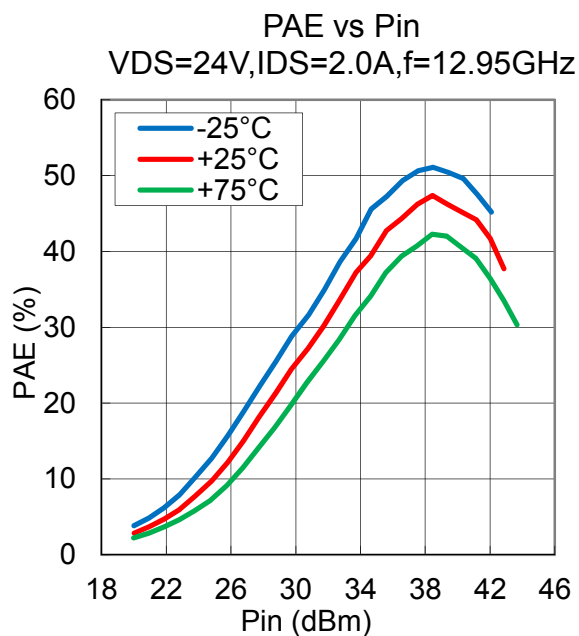
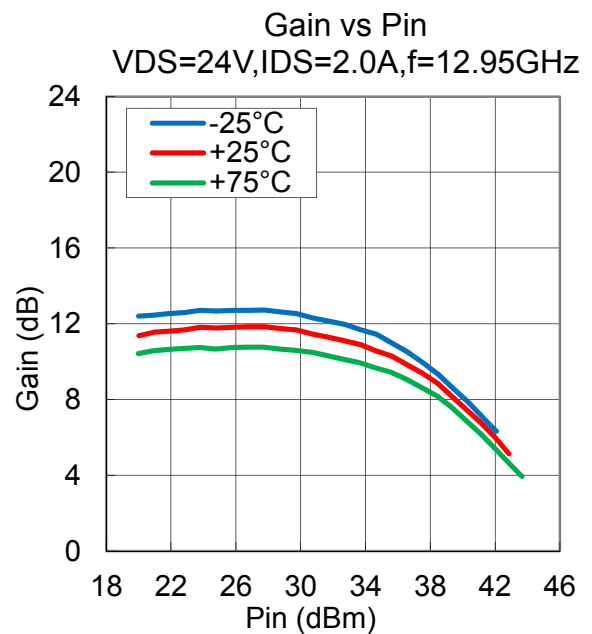
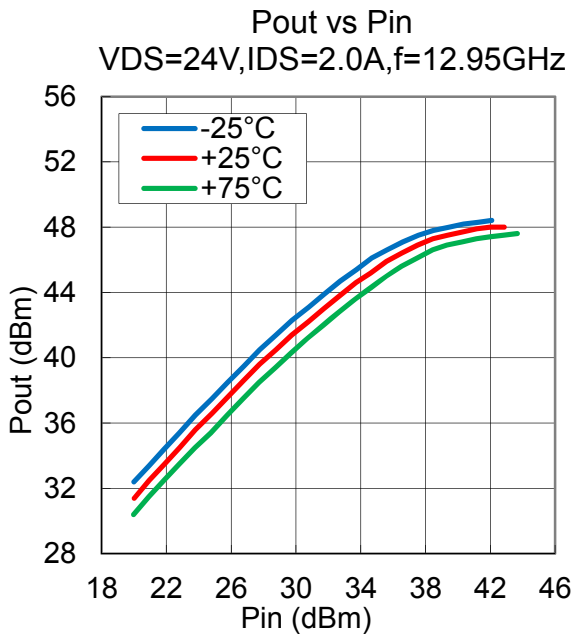
•Pout vs. Frequency

VDS= 24 V, IDSset= 2.0 A, Ta= +25 °C



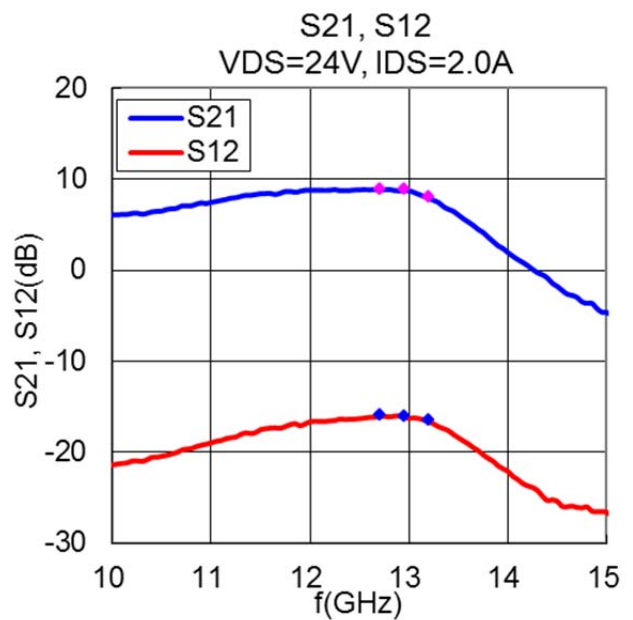
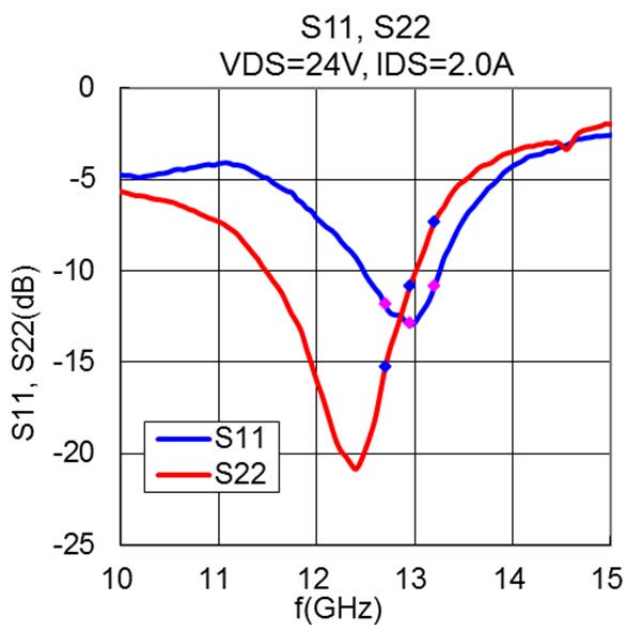
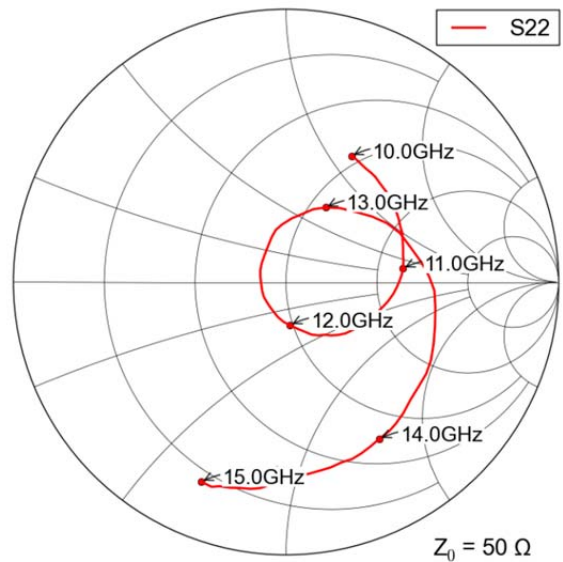
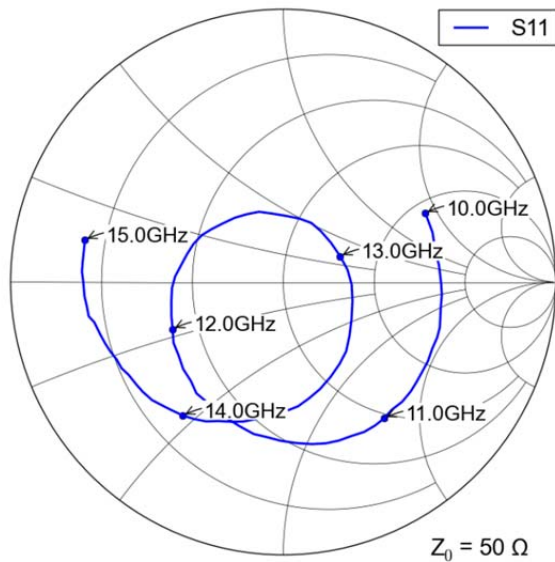
• Pout , Gain , PAE , IDS vs. Pin vs. Temperature

VDS= 24 V, IDSset= 2.0 A, f= 12.95 GHz, Ta= -25, +25, +75 °C



•S-Parameters

VDS= 24 V, IDSset= 2.0 A, f= =10.0 to 15.0 GHz, Ta= +25 °C



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