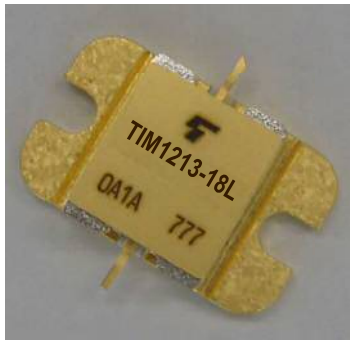
MICROWAVE POWER GaAs FET
TIM1213-18L

FEATURES

- **BROAD BAND INTERNALLY MATCHED FET**
- **HIGH POWER**
  P1dB= 42.5dBm at 12.7GHz to 13.2GHz
- **HIGH GAIN**
  G1dB= 6.0dB at 12.7GHz to 13.2GHz
- **LOW INTERMODULATION DISTORTION**
  IM3(MIN.) = -25dBc at Pout= 36.0dBm (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= 4.4A f = 12.7 to 13.2GHz	dBm	42.0	42.5	—
Power Gain at 1dB Gain Compression Point	G1dB		dB	5.0	6.0	—
Drain Current	IDS1		A	—	5.5	6.0
Gain Flatness	ΔG		dB	—	—	±0.8
Power Added Efficiency	ηadd		%	—	28	—
3rd Order Intermodulation Distortion	IM3	Two Tone Test Po= 36.0dBm, Δf= 5MHz (Single Carrier Level)	dBc	-25	-28	—
Drain Current	IDS2		A	—	5.5	6.0
Channel Temperature Rise	ΔTch	(VDS X IDS + Pin – P1dB) X Rth(c-c)	°C	—	—	100

Recommended Gate Resistance(Rg): 100 Ω

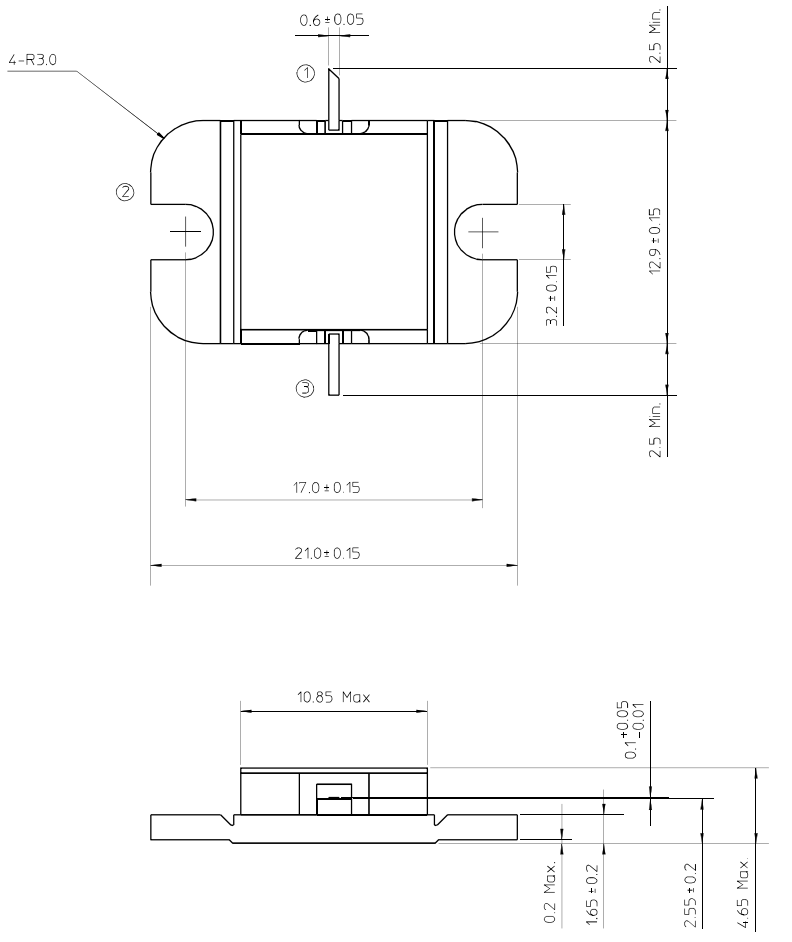
ELECTRICAL CHARACTERISTICS (Ta= 25°C)

CHARACTERISTICS	SYMBOL	CONDITIONS	UNIT	MIN.	TYP.	MAX.
Transconductance	gm	VDS= 3V IDS= 4.8A	S	—	4.5	—
Pinch-off Voltage	VGSoff	VDS= 3V IDS= 145mA	V	-0.7	-2.0	-4.5
Saturated Drain Current	IDSS	VDS= 3V VGS= 0V	A	—	10.0	—
Gate-Source Breakdown Voltage	VGSO	IGS= -145μA	V	-5	—	—
Thermal Resistance	Rth(c-c)	Channel to Case	°C/W	—	1.8	2.3

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	11.5
Total Power Dissipation (Tc= 25°C)	PT	W	65
Channel Temperature	Tch	°C	175
Storage	Tstg	°C	-65 to +175

PACKAGE OUTLINE (2-11C1B)



Unit in mm

(1) Gate
(2) Source
(3) Drain

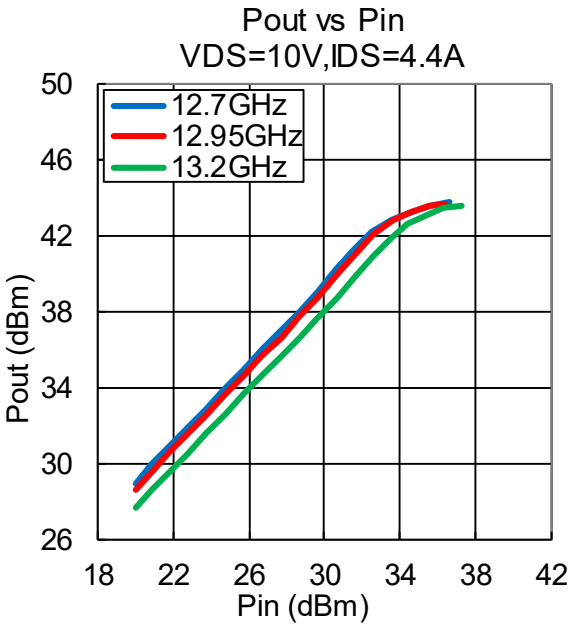
HANDLING PRECAUTIONS FOR PACKAGE MODEL

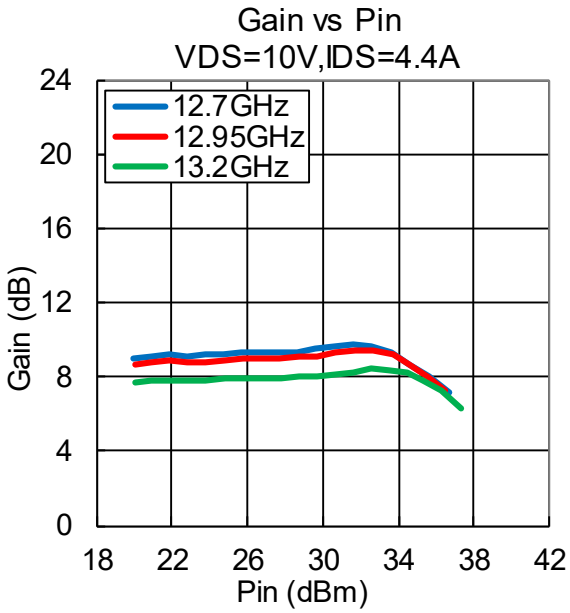
Soldering iron should be grounded and the operating time should not exceed 10 seconds at 260°C or 3 seconds at 350°C.

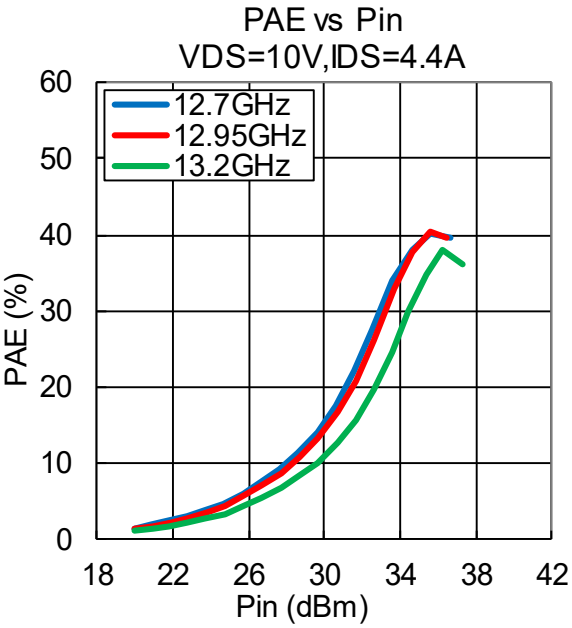
TYPICAL RF PERFORMANCE

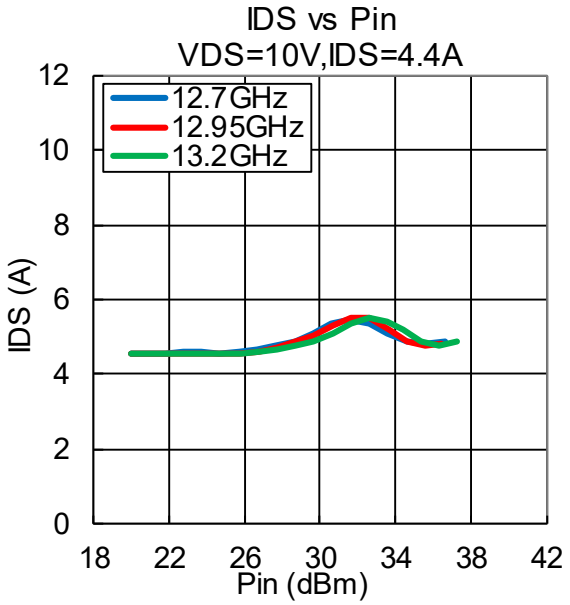
·Pout , Gain , PAE , IDS vs. Pin

VDS= 10 V, IDSset= 4.4 A, f= 12.7, 12.95, 13.2 GHz, Ta= +25 ℃



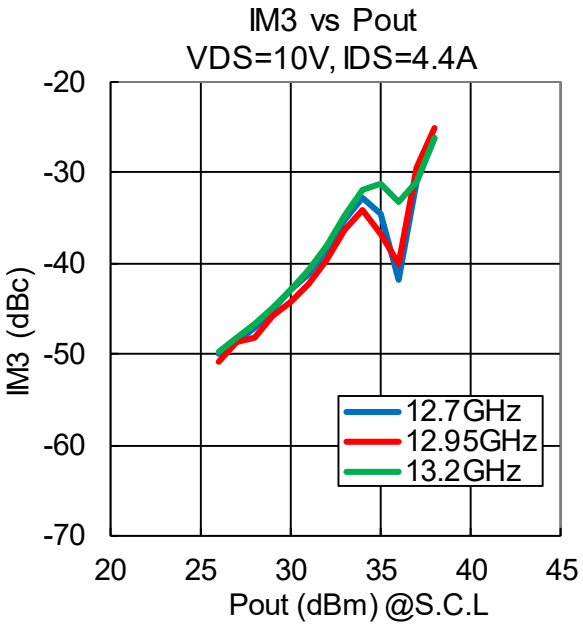


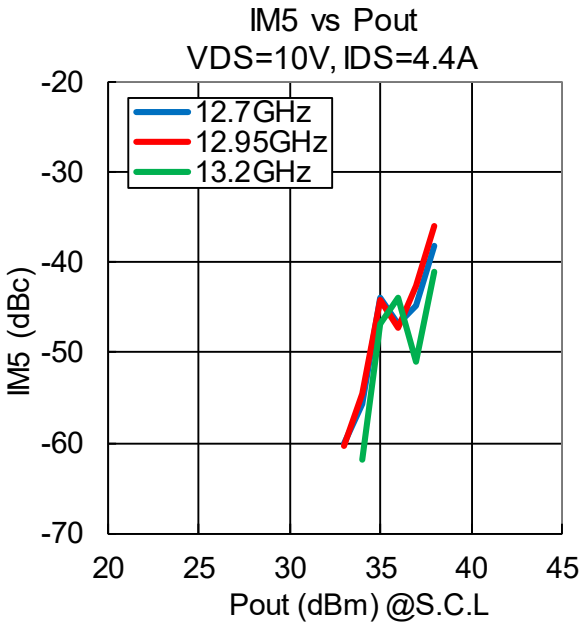




·IM3, IM5 vs. Pout

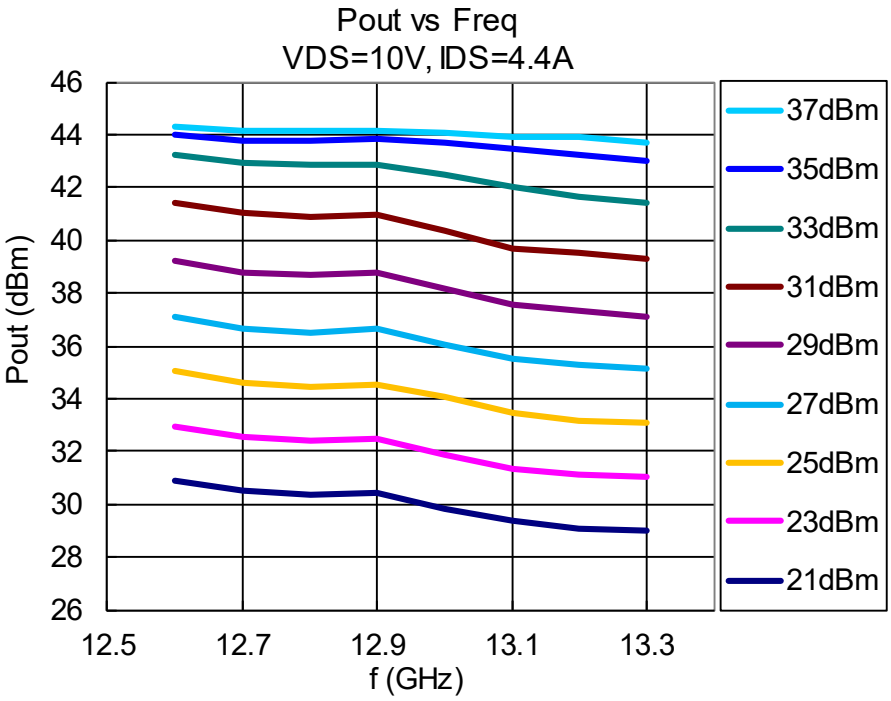
VDS= 10 V, IDSset= 4.4 A, f= 12.7, 12.95, 13.2 GHz, Δf= 5 MHz , Ta= +25 ℃





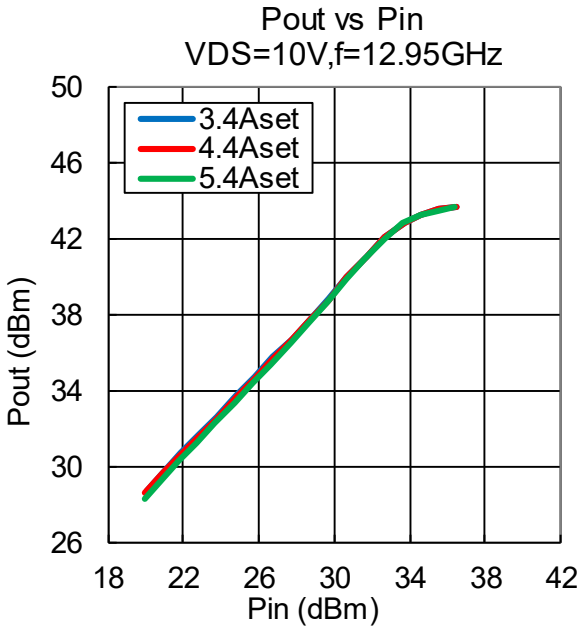
·Pout vs. Frequency

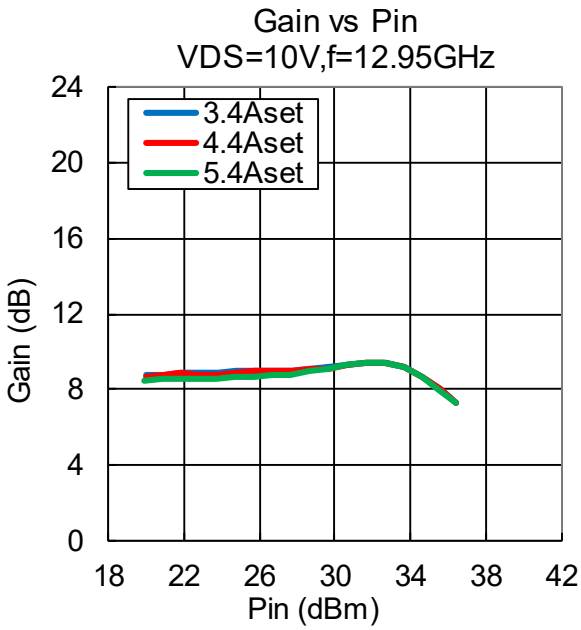
VDS= 10 V, IDSset= 4.4 A, Ta= +25 ℃

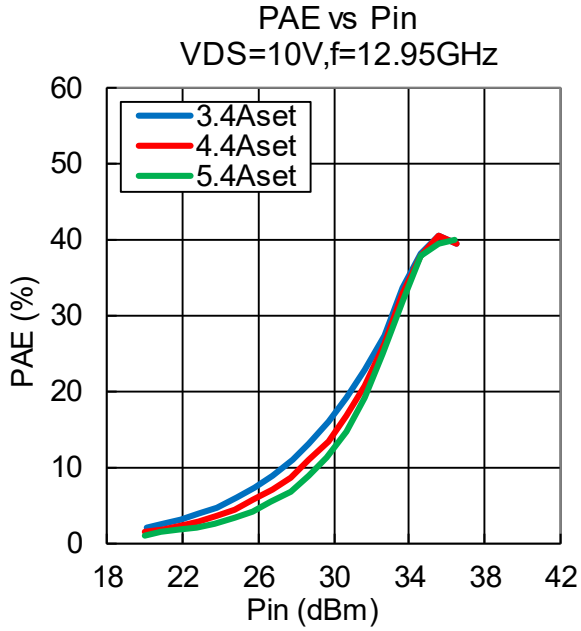


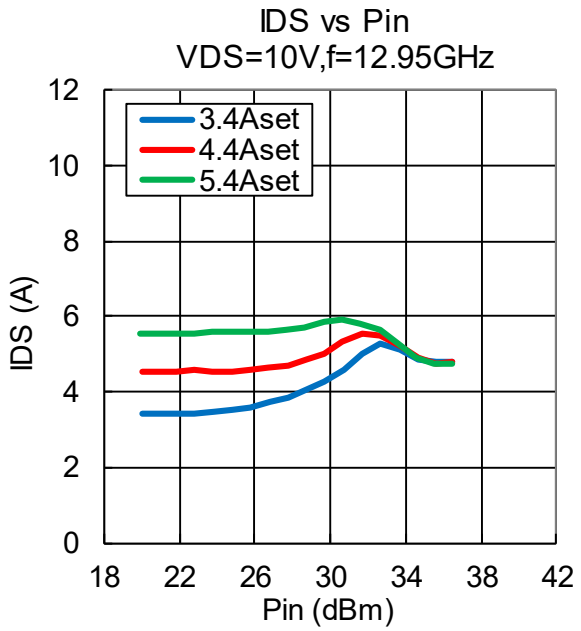
·Pout , Gain , PAE , IDS vs. Pin vs. IDSset

VDS= 10 V, IDSset= 3.4, 4.4, 5.4 A, f= 12.95 GHz, Ta= +25 ℃



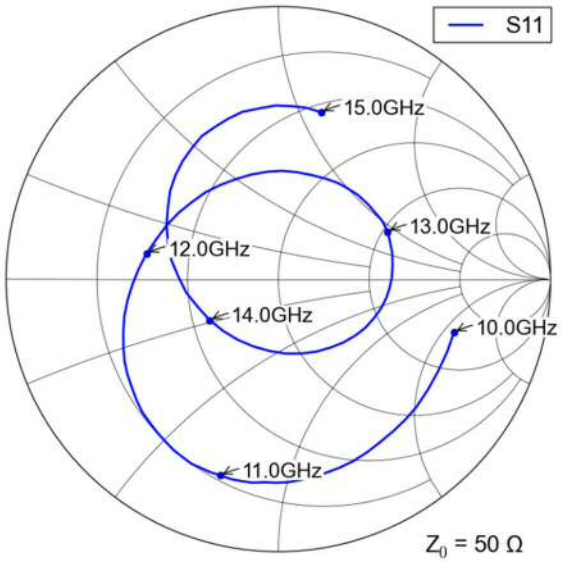


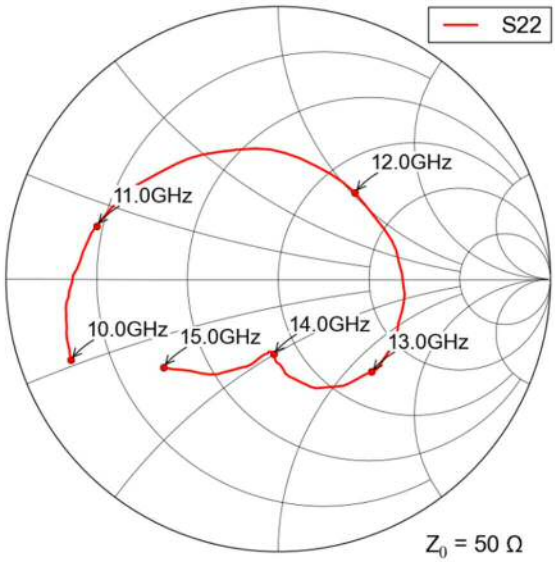


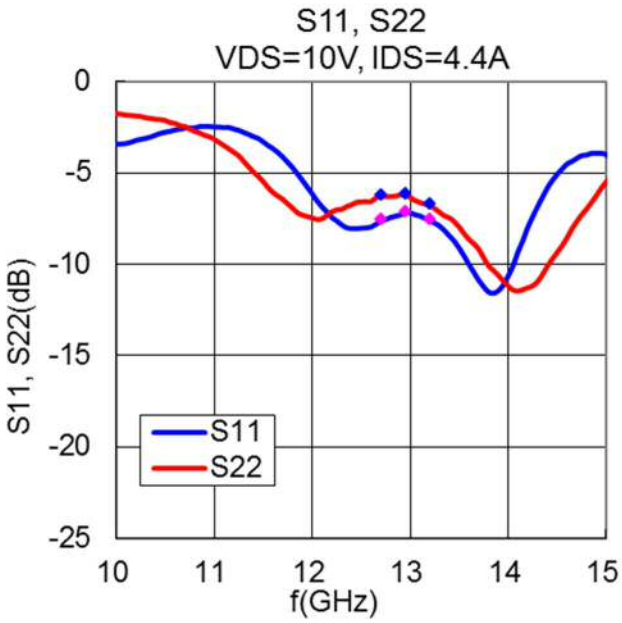


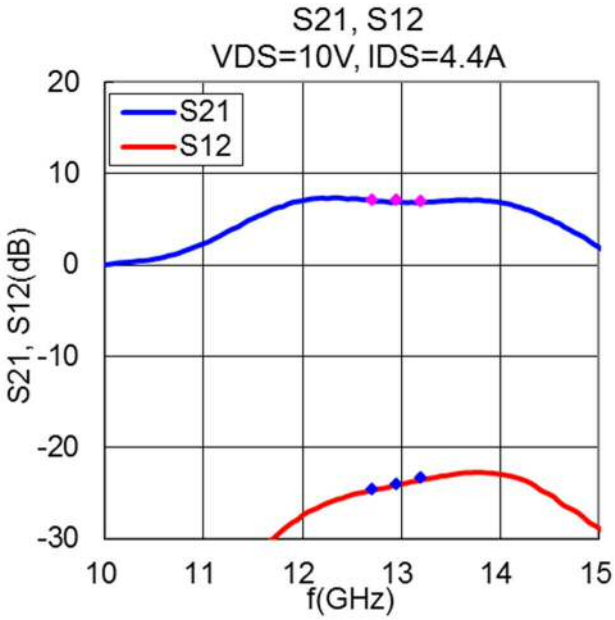
·S-Parameters

VDS= 10 V, IDSset= 4.4 A, f= 10.0 to 15.0 GHz, Ta= +25 ℃









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