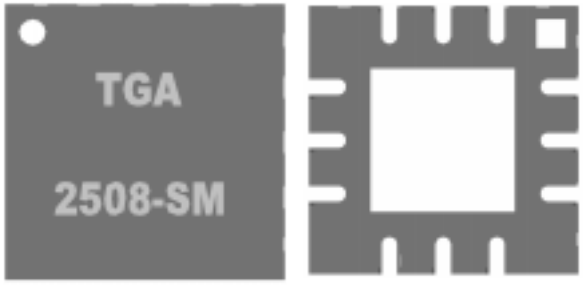
Ku-Band VSAT Packaged Amplifier

TGA2508-EPU-SM



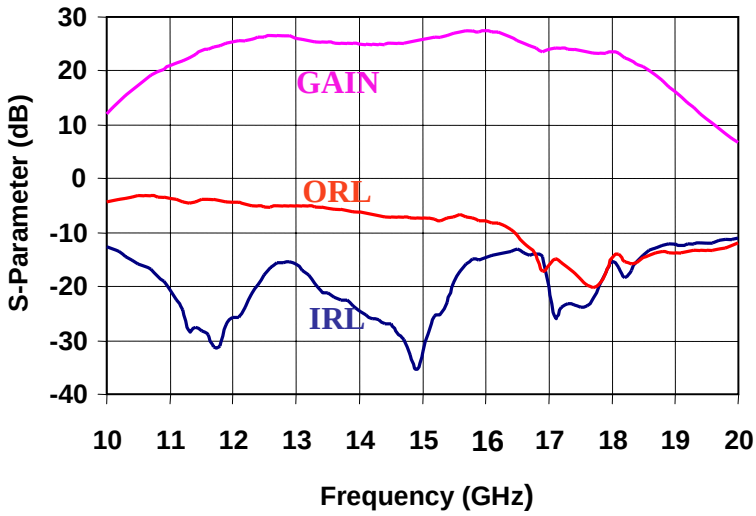
Top View **Bottom View**

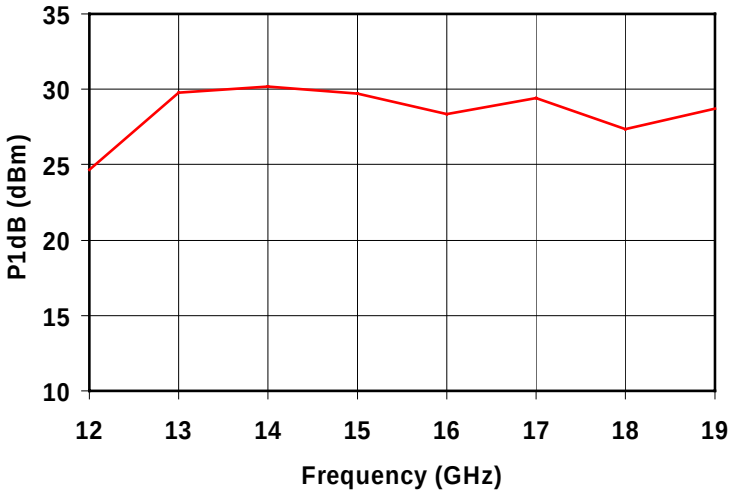
Key Features

- Typical Frequency Range: 12 - 19 GHz
- 25 dB Nominal Gain
- 29 dBm Nominal P1dB
- Bias Conditions: 7 V, 433 mA
- PHEMT Technology
- Low cost true surface mount package
- Package Dimensions:
  4.0 x 4.0 x 0.9 mm
  (0.157 x 0.157 x 0.035 in)

Preliminary Measured Data

Bias Conditions: Vd = 7 V, Id = 433 mA





Primary Applications

- VSAT Ground Terminals
- Point to Point Radio
- Military Ku Band
- Ku-Band Space

Note: Devices designated as EPU are typically early in their characterization process prior to finalizing all electrical and process specifications. Specifications are subject to change without notice

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TABLE I
MAXIMUM RATINGS 5/

SYMBOL	PARAMETER	VALUE	NOTES
V^+	Positive Supply Voltage	8 V	4/
V^-	Negative Supply Voltage Range	-2 to 0 V	
I^+	Positive Supply Current (Quiescent)	591 mA	4/
$\| I_G \|$	Gate Supply Current	16 mA	
P_{IN}	Input Continuous Wave Power	17 dBm	
P_D	Power Dissipation	4.7 W	3/ 4/
T_{CH}	Operating Channel Temperature	150 ^{0}C	1/ 2/
T_M	Mounting Temperature (30 Seconds)	250 ^{0}C	
T_{STG}	Storage Temperature	-65 to 150 ^{0}C	
T_{CASE}	Package Operating Temperature	-40 to 110 ^{0}C	

1/ These ratings apply to each individual FET.

2/ Junction operating temperature will directly affect the device median time to failure (T_M). For maximum life, it is recommended that junction temperatures be maintained at the lowest possible levels.

3/ When operated at this bias condition with a base plate temperature of 70 ^{0}C, the median life is 4.3E+6 hrs.

4/ Combinations of supply voltage, supply current, input power, and output power shall not exceed P_D.

5/ These ratings represent the maximum operable values for this device.

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TABLE II
ELECTRICAL CHARACTERISTICS
(Ta = 25°C ± 5°C)

PARAMETER	TYPICAL	UNITS
Frequency Range	12 - 19	GHz
Drain Operating	7	V
Quiescent Current	433	mA
Small Signal Gain	25	dB
Input Return Loss (Linear Small Signal)	15	dB
Output Return Loss (Linear Small Signal	7	dB
Output Power @ 1 dB Compression Gain	29	dBm

TABLE III
THERMAL INFORMATION

PARAMETER	TEST CONDITIONS	T_{CH} (°C)	$R_{\theta JC}$ (°C/W)	T_M (HRS)
$R_{\theta JC}$ Thermal Resistance (Channel to Case)	Vd = 7 V I_D = 433 mA Pdiss = 3.031 W	111	13.5	3.8 E+7

Note: Worst case condition with no RF applied, 100% of DC power is dissipated, Case Temperature @ 70 °C

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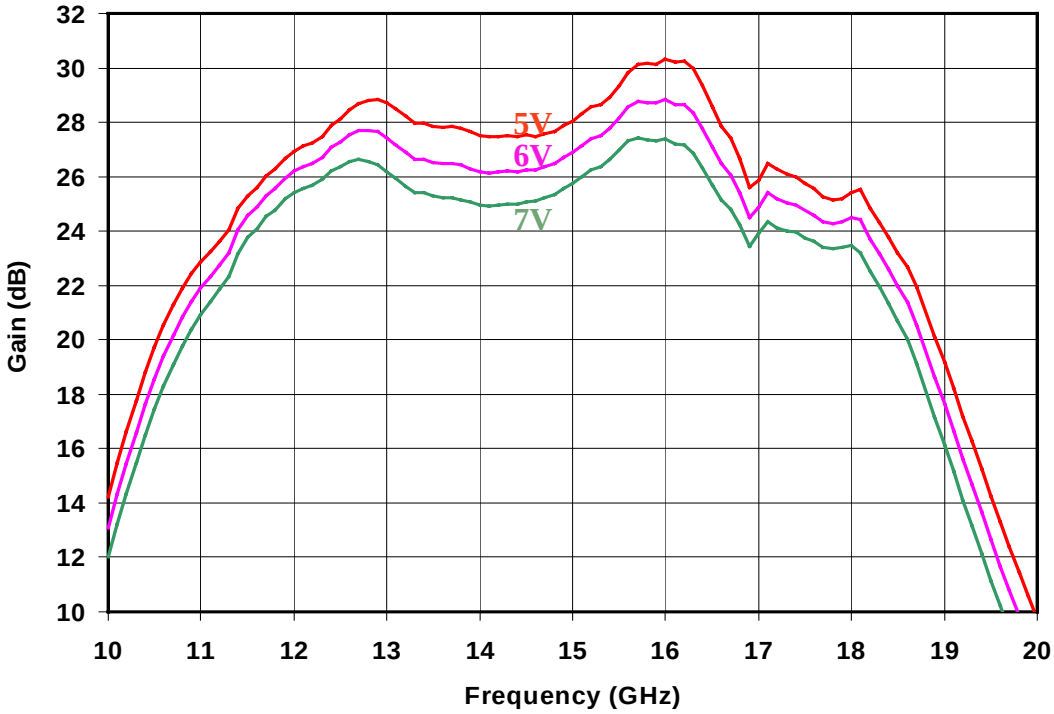
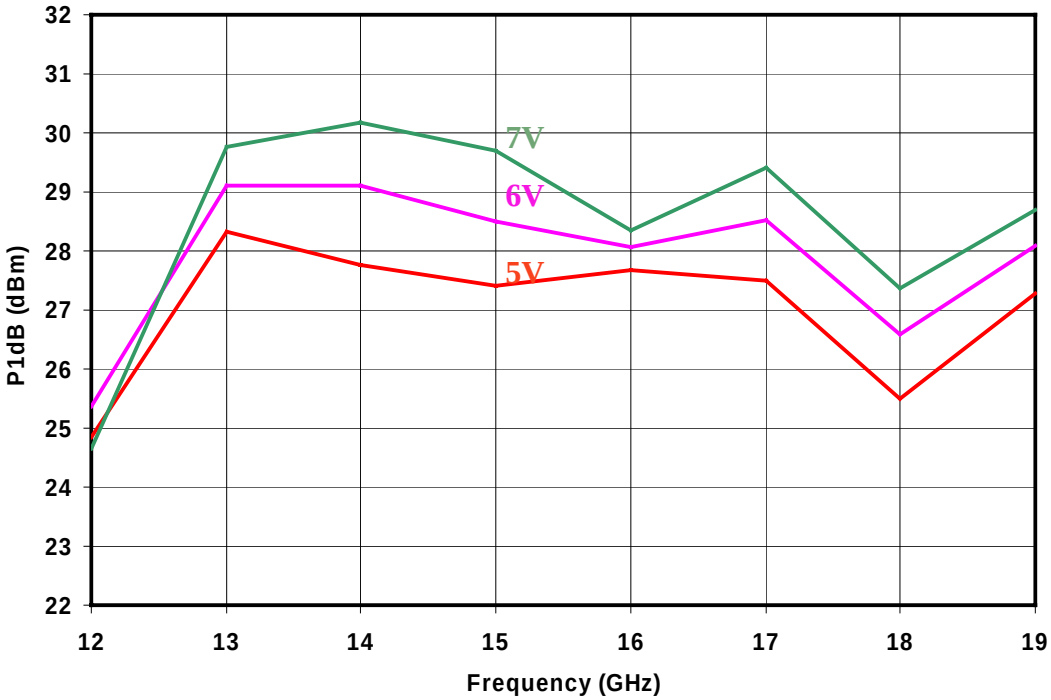
Preliminary Measured Data

Bias Conditions: Vd = 5 - 7 V, Id = 433 mA





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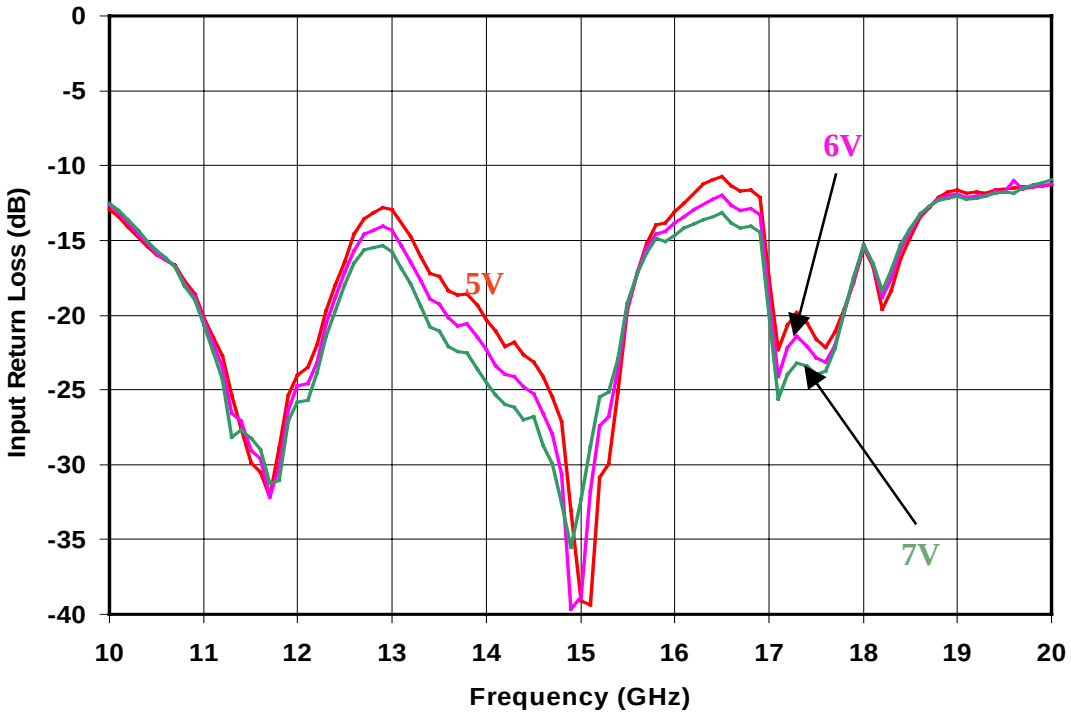

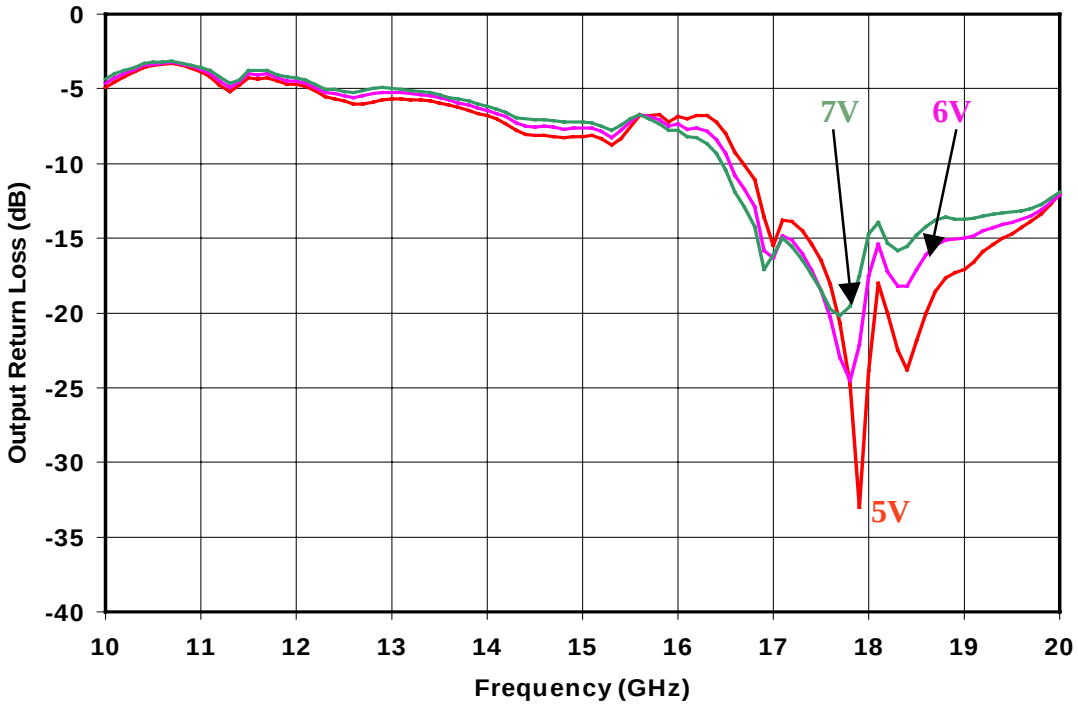

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Preliminary Measured Data

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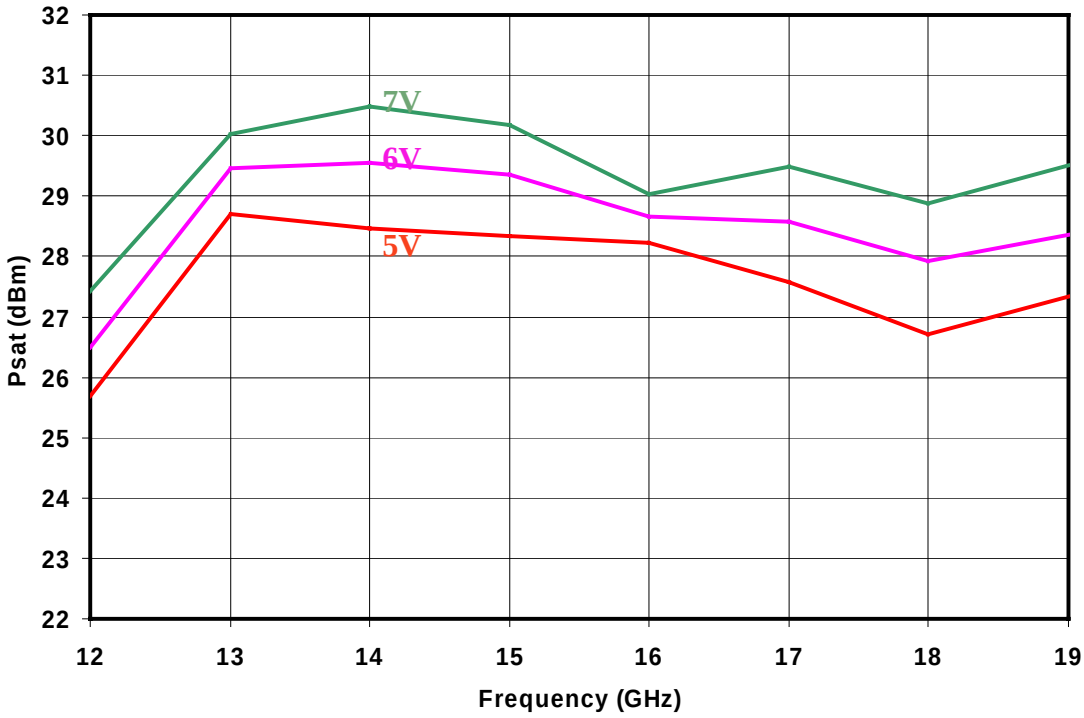

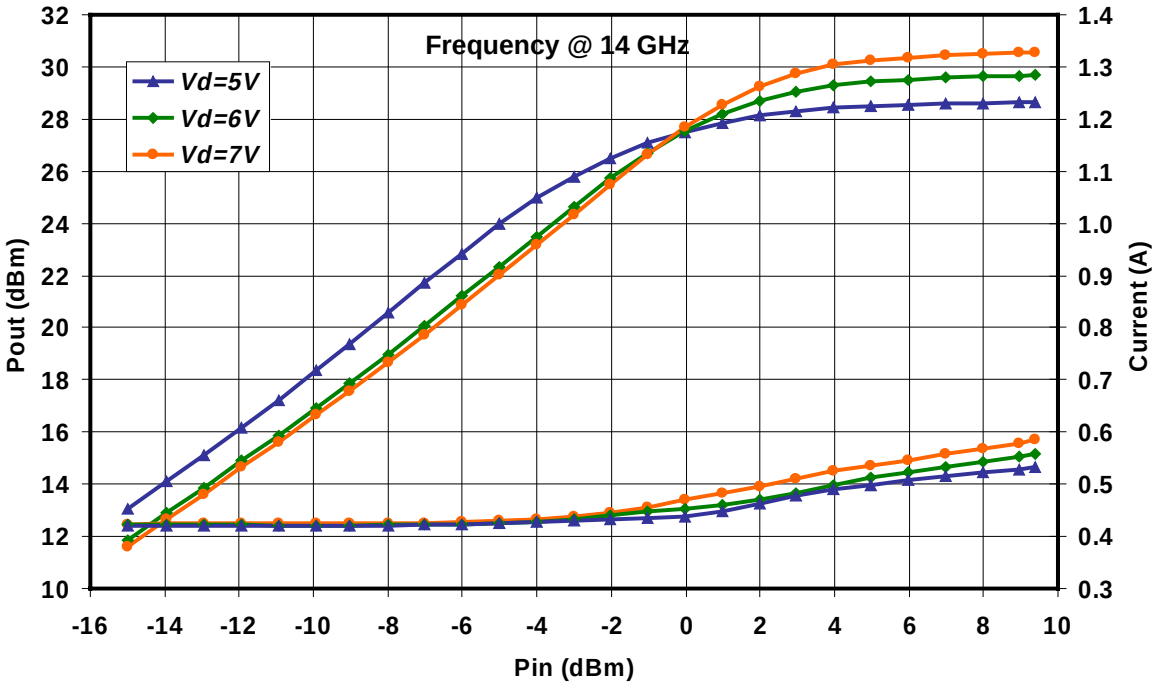

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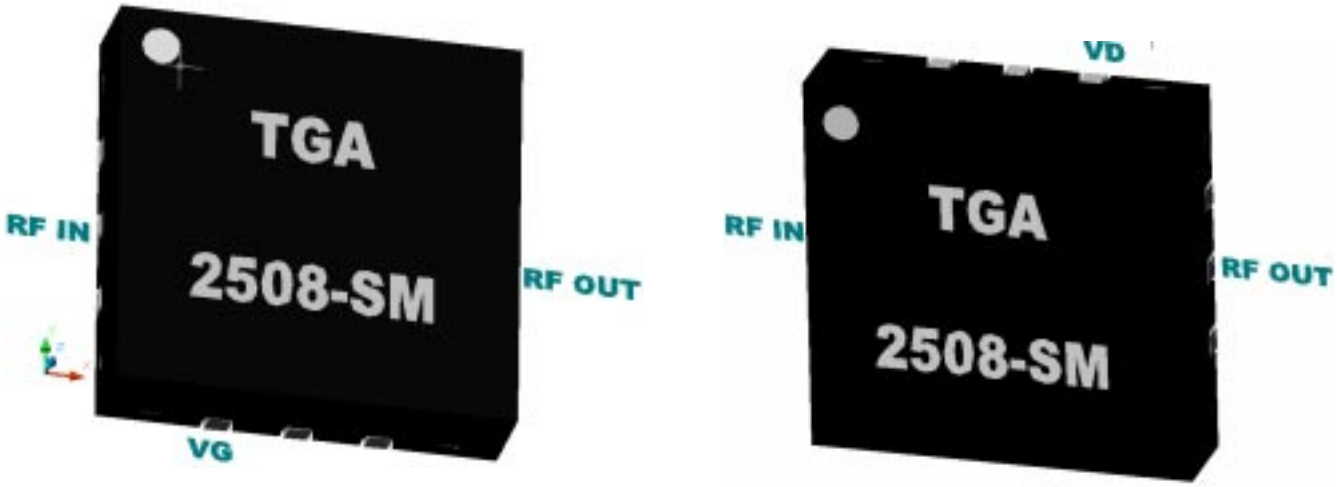
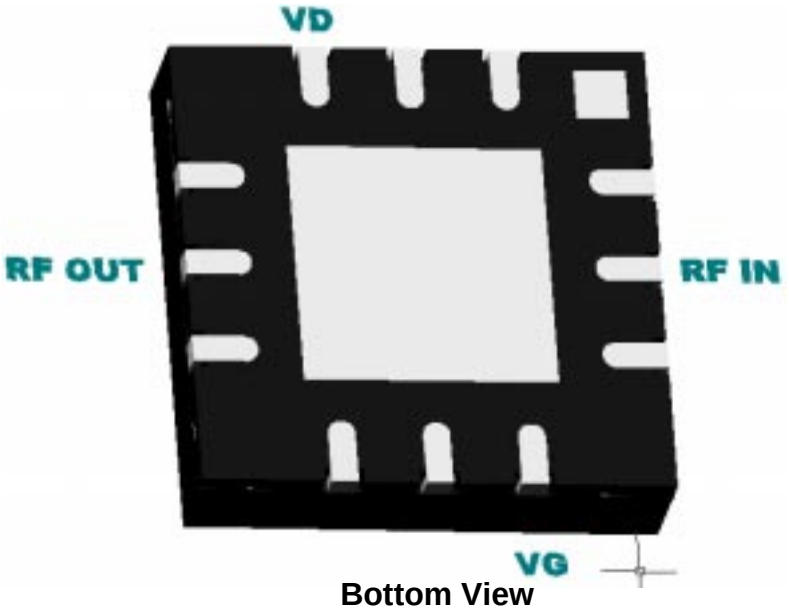
Package Layout



Top View



Bottom View

GaAs MMIC devices are susceptible to damage from Electrostatic Discharge. Proper precautions should be observed during handling, assembly and test.

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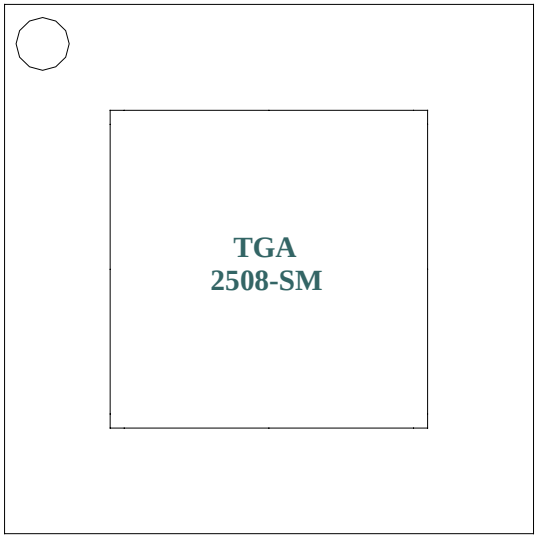
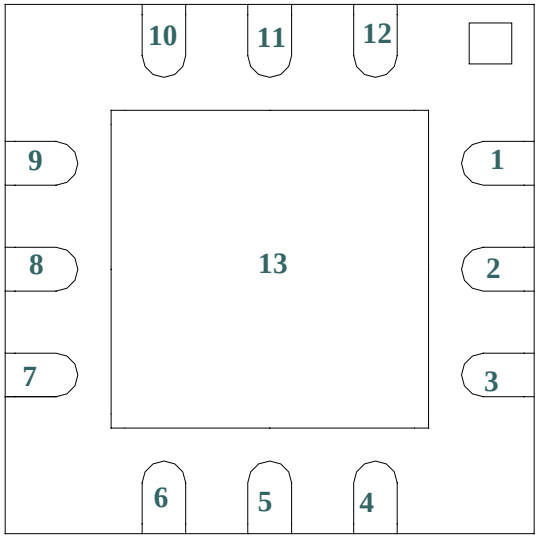
Package Pinout Diagram



Top Side



Bottom Side

Dot indicates Pin 1

Pin	Description
1	NC
2	RF Input
3	NC
4	Vg
5 - 7	NC
8	RF Output
9	NC
10	Vd
11, 12	NC
13	GND

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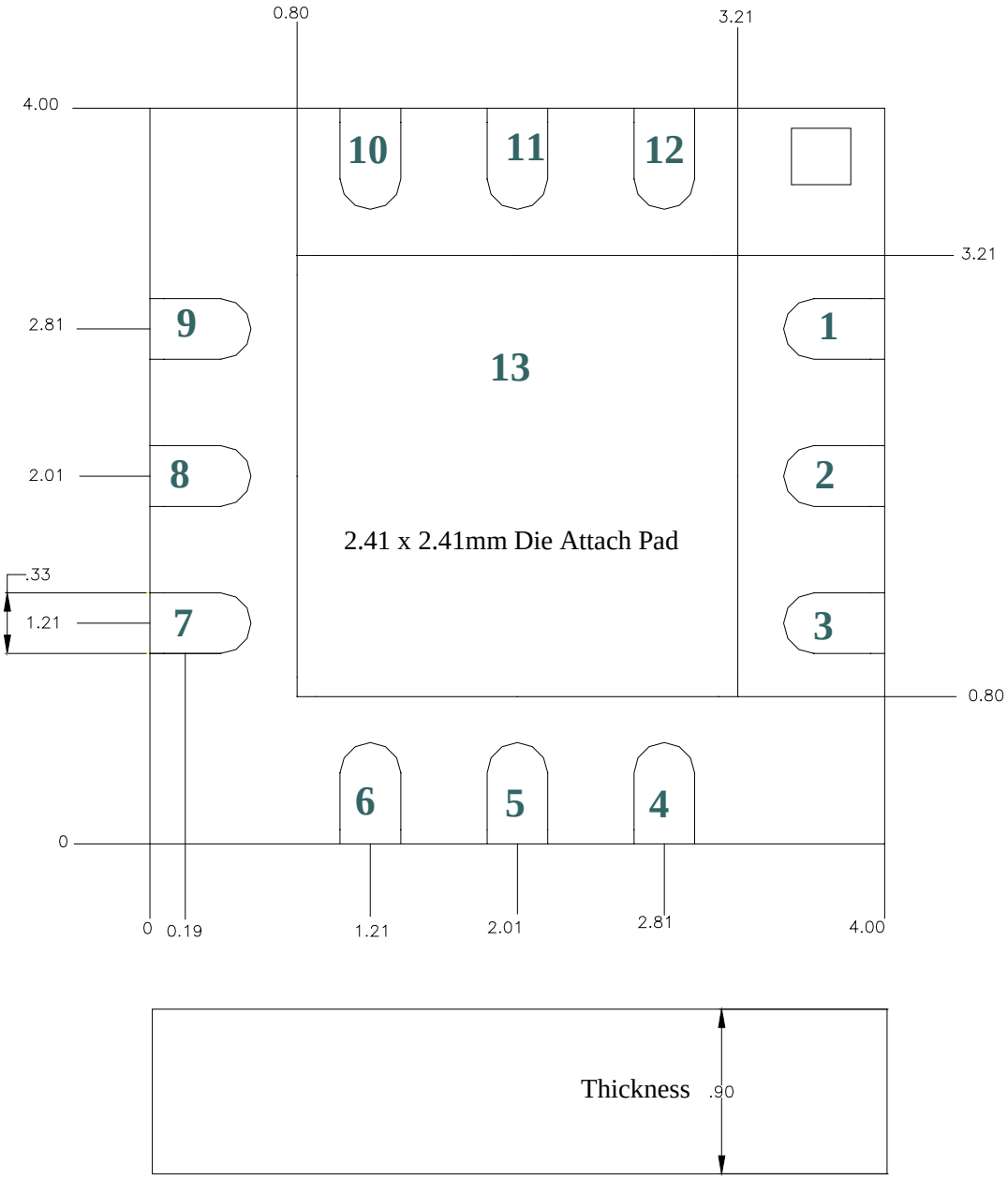
Mechanical Drawing
(Bottom Side)



Units: Millimeters
Package tolerance: +/- 0.10

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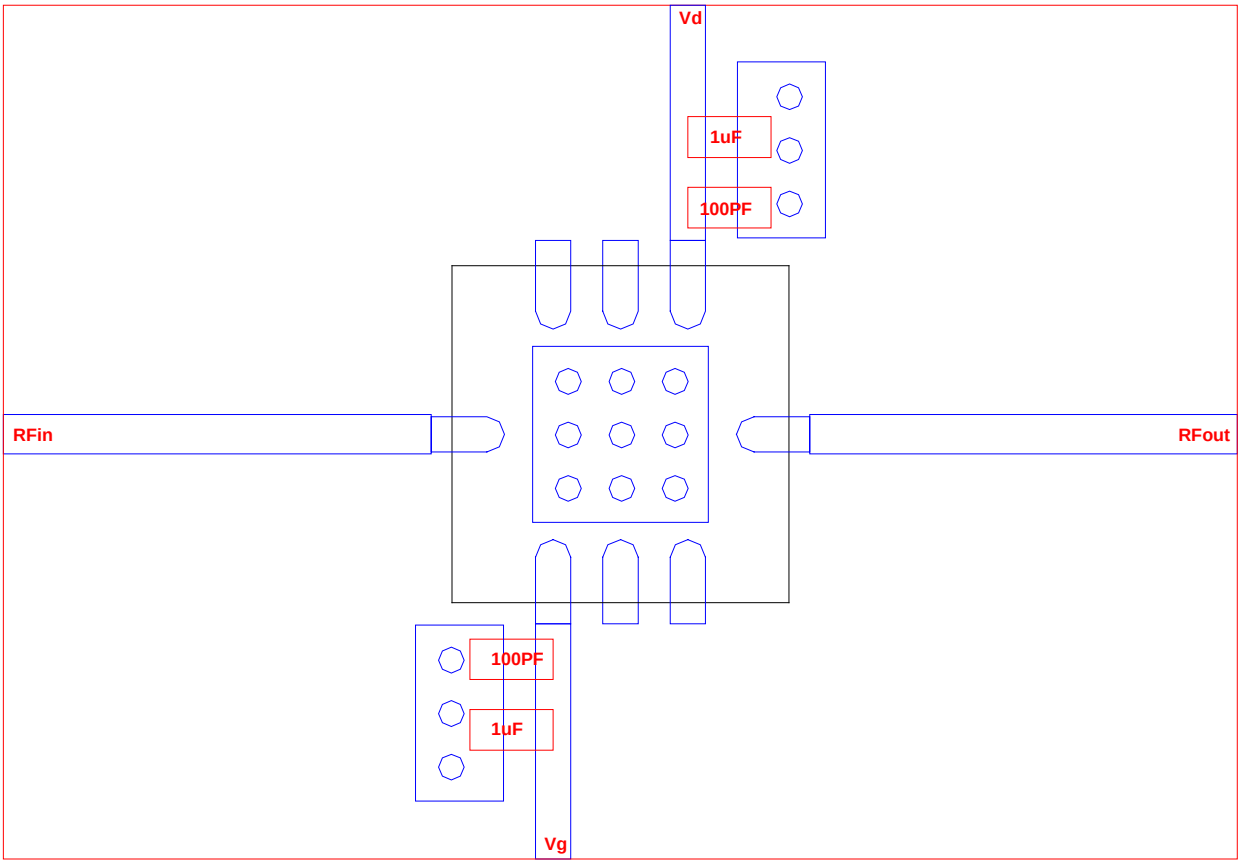
Recommended Board Layout Assembly



All measurement was made with part solder to 0.008 in thick of RO4003

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