

Ku-Band VSAT Packaged Amplifier

TGA2508-EPU-SM



Top View

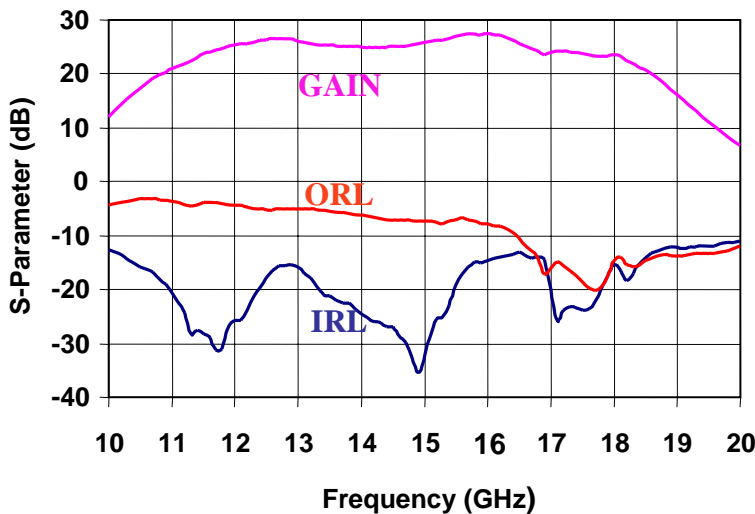
Bottom View

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)

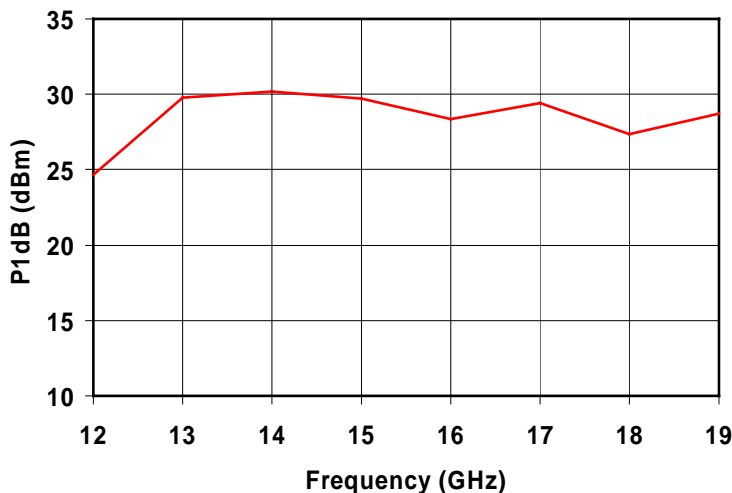
Preliminary Measured Data

Bias Conditions: $V_d = 7\text{ V}$, $I_d = 433\text{ mA}$



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

TABLE I
MAXIMUM RATINGS 5/

SYMBOL	PARAMETER	VALUE	NOTES
V ⁺	Positive Supply Voltage	8 V	<u>4/</u>
V ⁻	Negative Supply Voltage Range	-2 to 0 V	
I ⁺	Positive Supply Current (Quiescent)	591 mA	<u>4/</u>
I _G	Gate Supply Current	16 mA	
P _{IN}	Input Continuous Wave Power	17 dBm	
P _D	Power Dissipation	4.7 W	<u>3/ 4/</u>
T _{CH}	Operating Channel Temperature	150 °C	<u>1/ 2/</u>
T _M	Mounting Temperature (30 Seconds)	250 °C	
T _{STG}	Storage Temperature	-65 to 150 °C	
T _{CASE}	Package Operating Temperature	-40 to 110 °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 °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

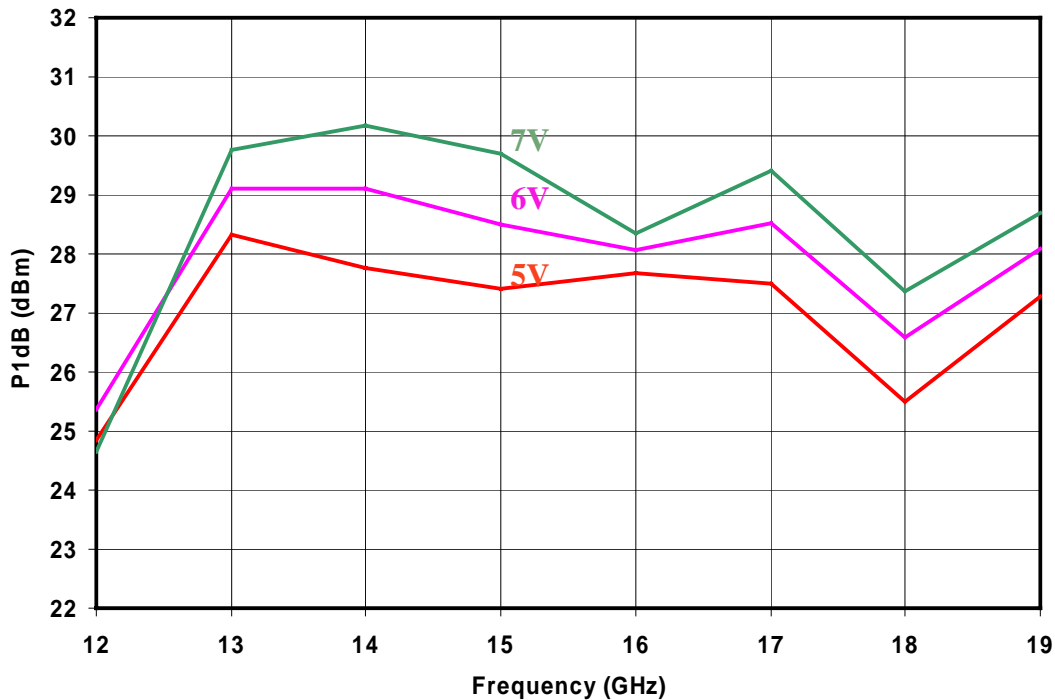
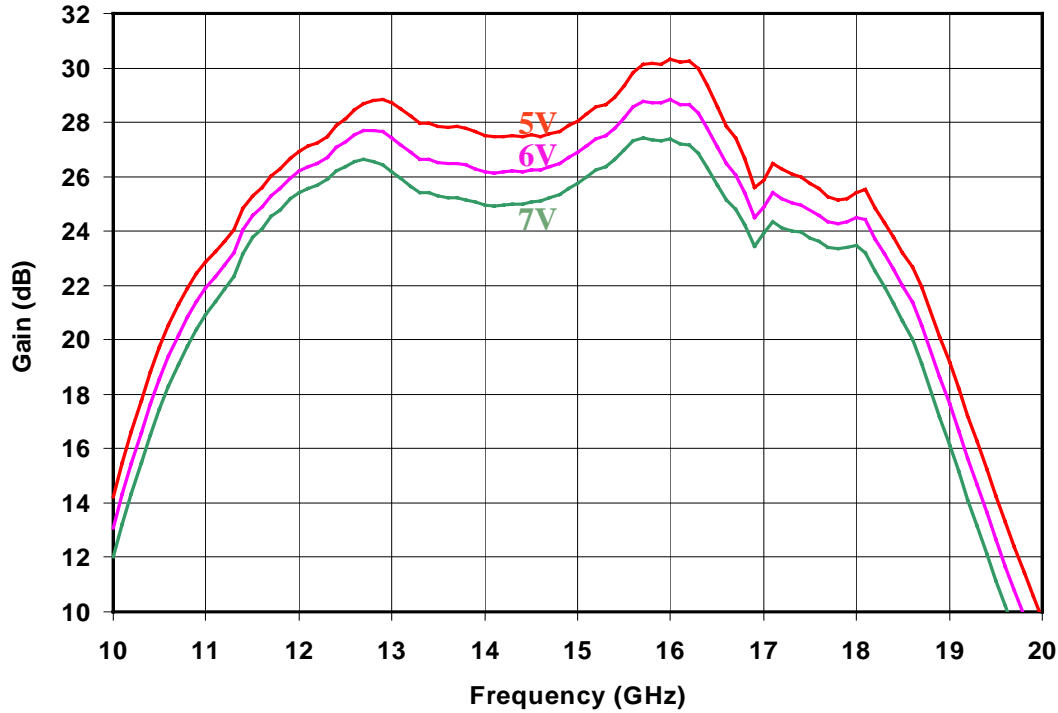
TABLE III
THERMAL INFORMATION

PARAMETER	TEST CONDITIONS	T _{CH} (°C)	R _{θJC} (°C/W)	T _M (HRS)
R _{θJC} 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

Preliminary Measured Data

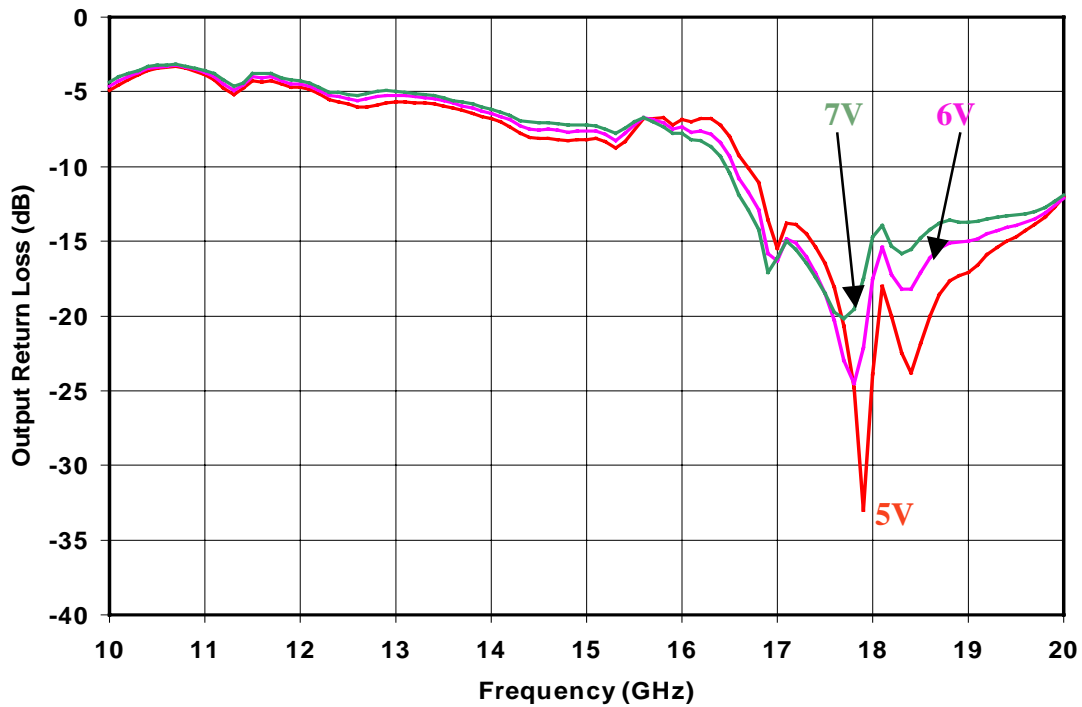
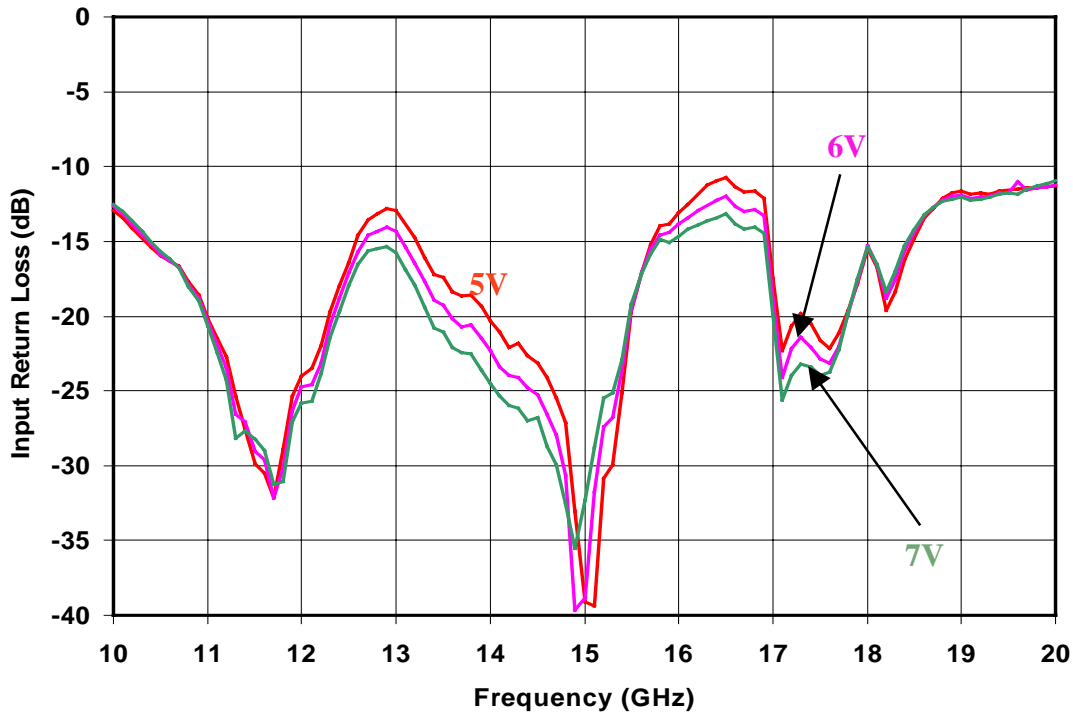
Bias Conditions: $V_d = 5 - 7 \text{ V}$, $I_d = 433 \text{ mA}$



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Preliminary Measured Data

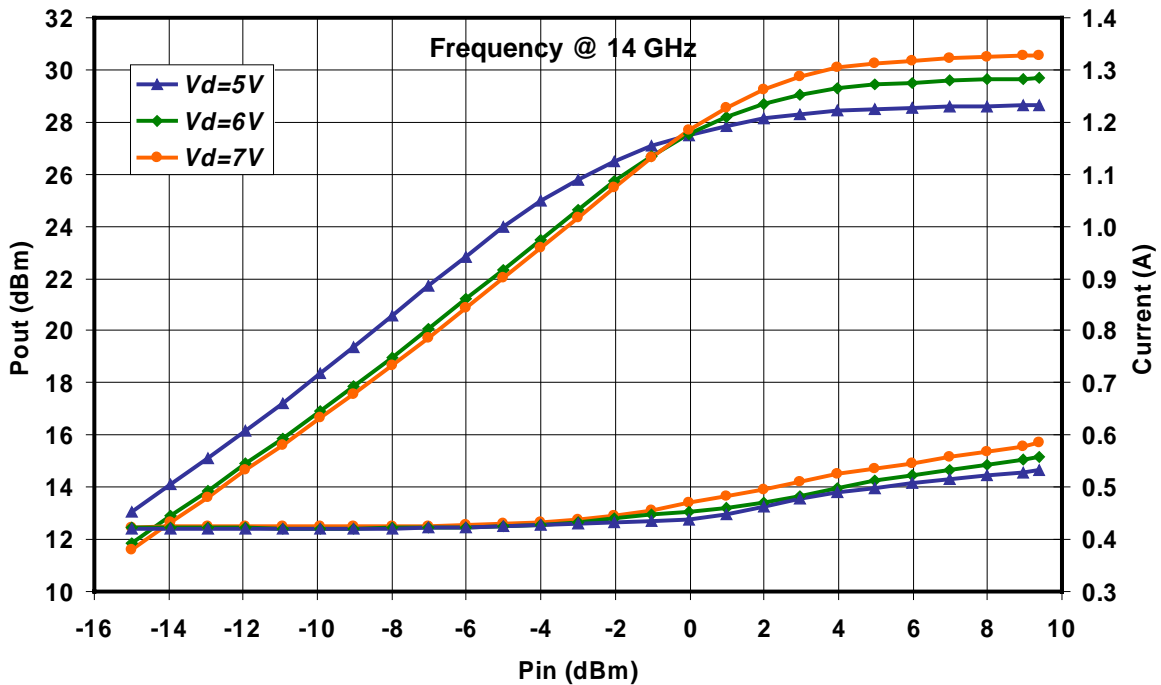
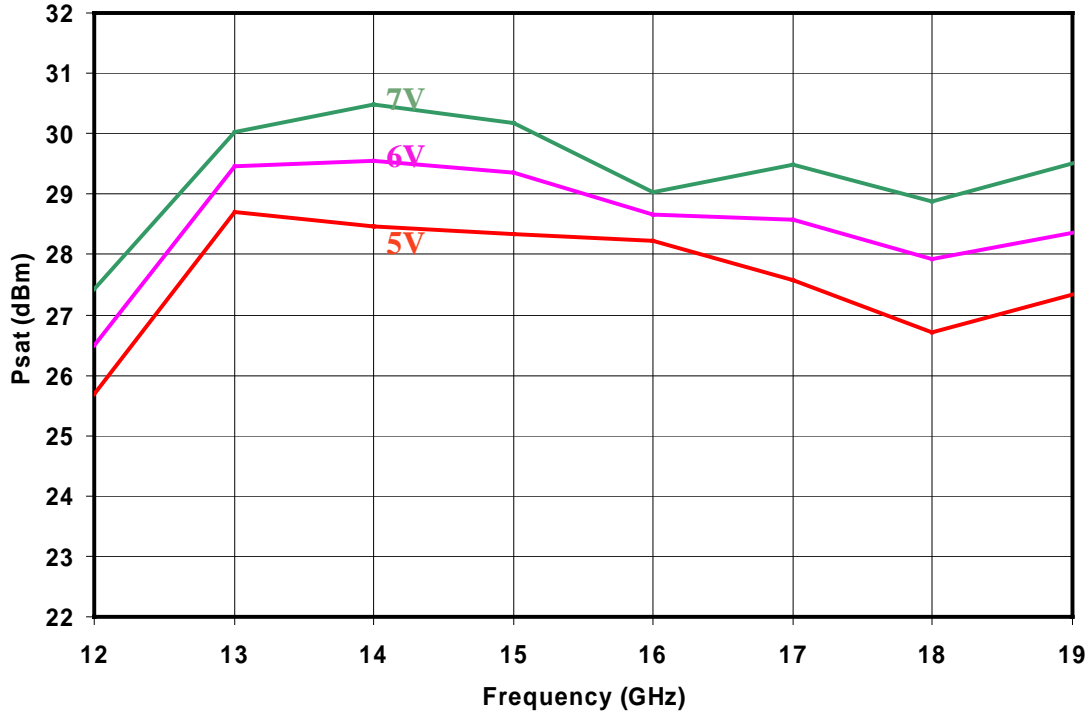
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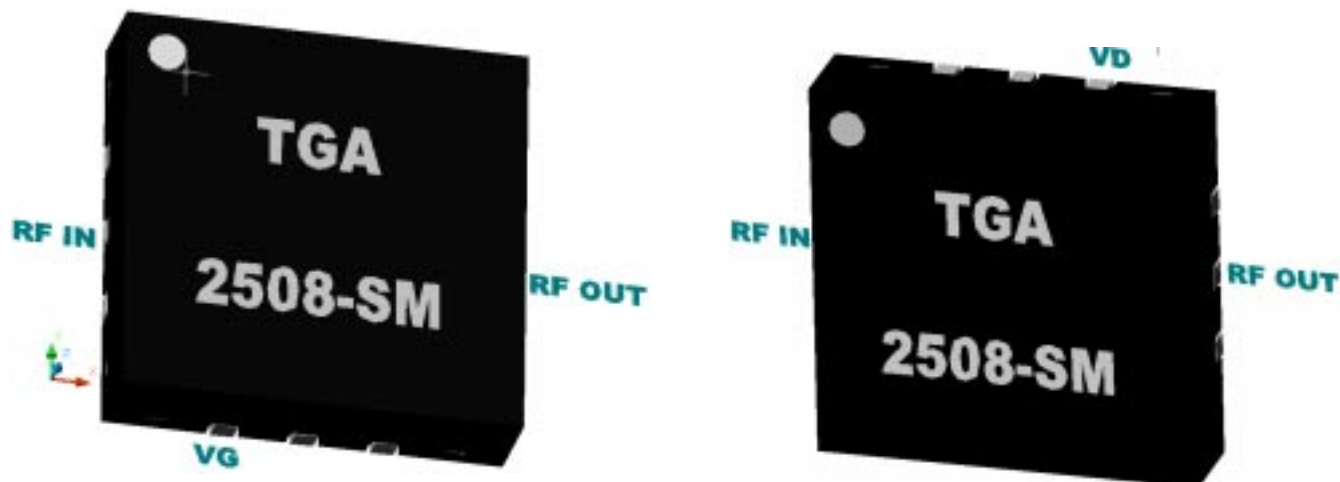
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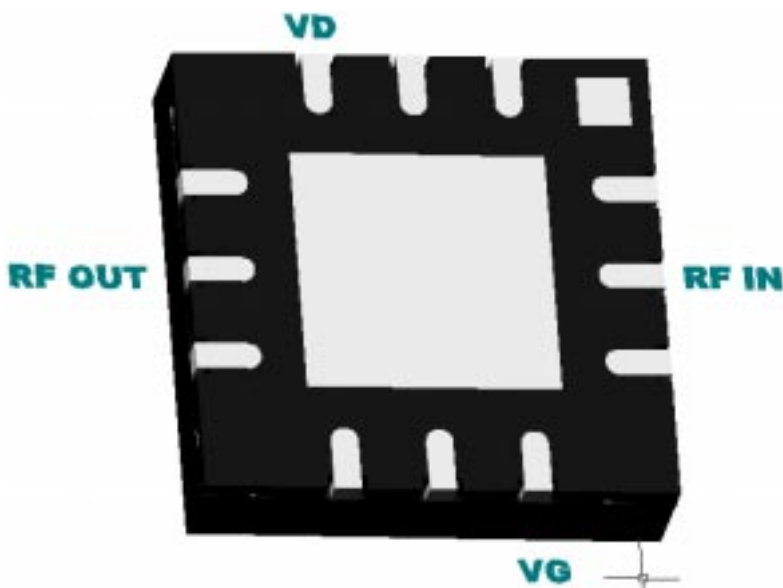


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Package Layout



Top View

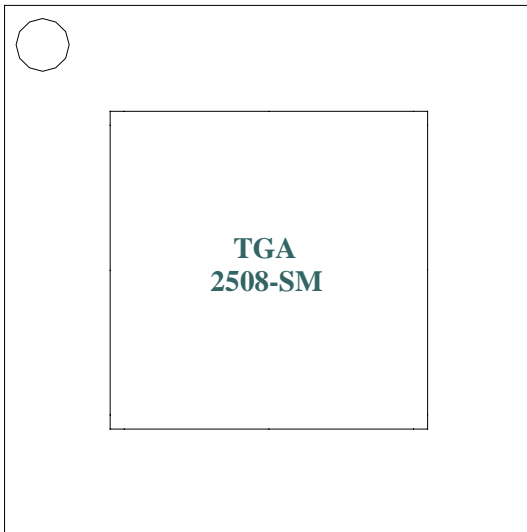


Bottom View

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

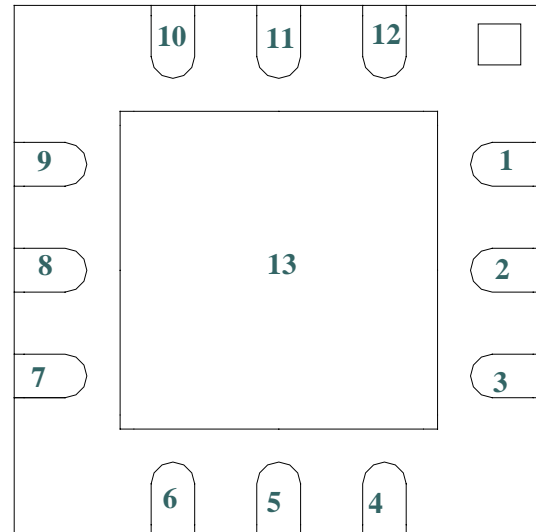
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Package Pinout Diagram



Top Side

Dot indicates Pin 1

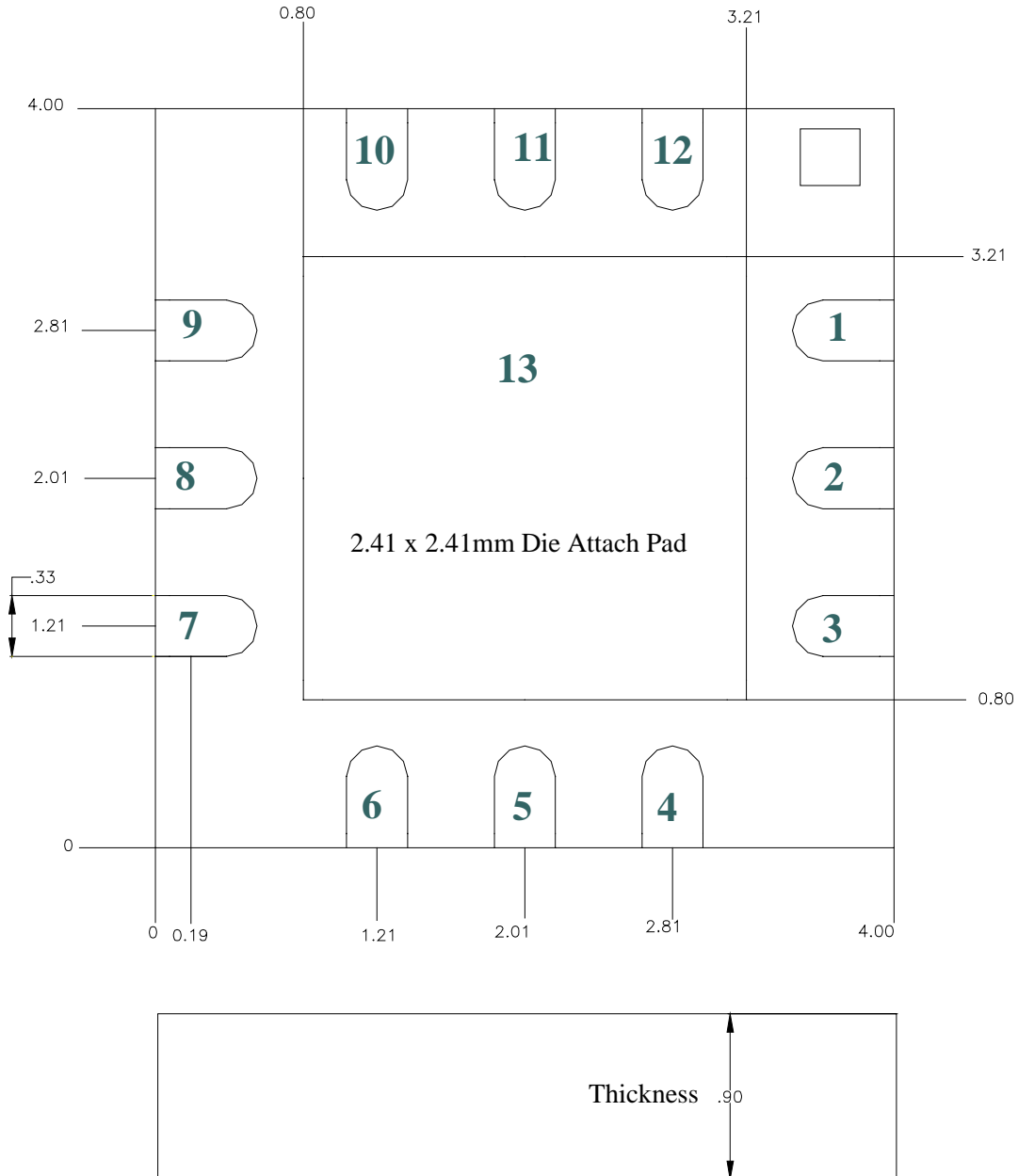


Bottom Side

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)**



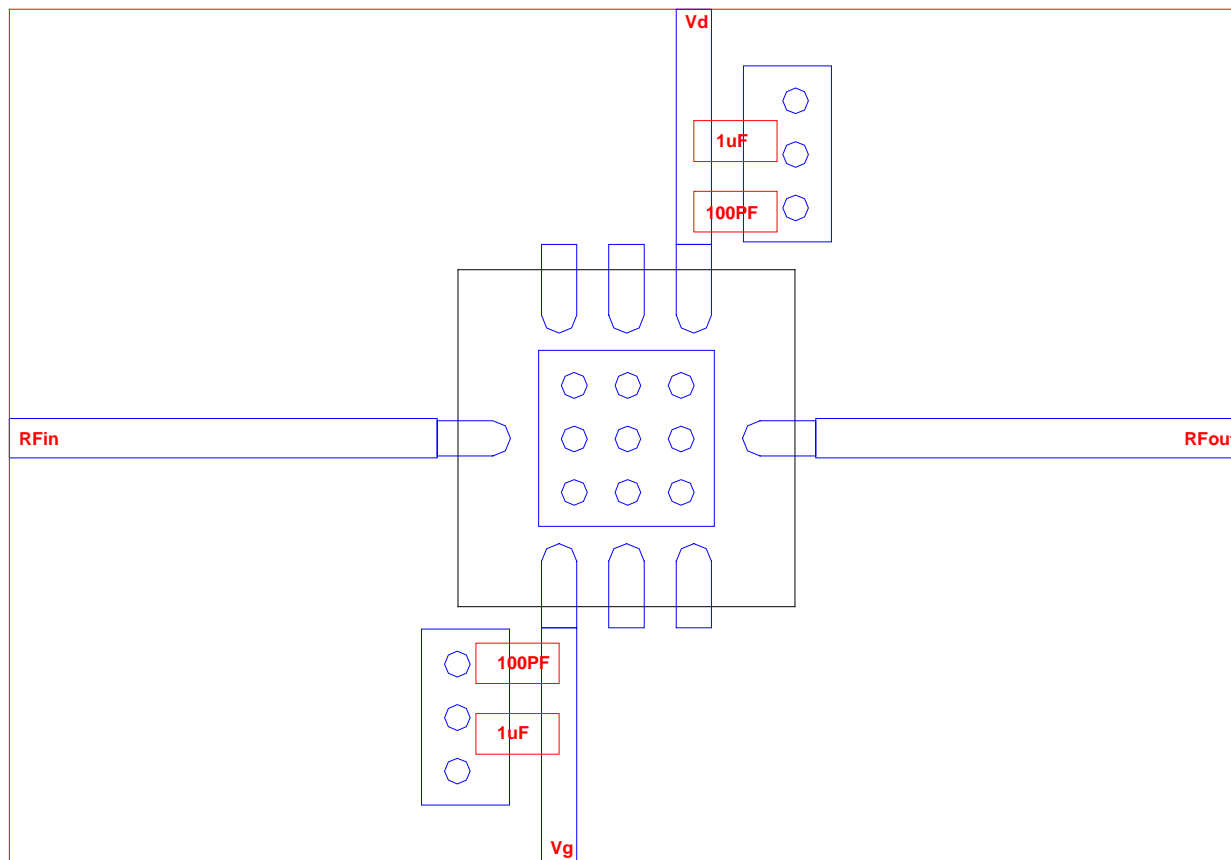
Units: Millimeters

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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