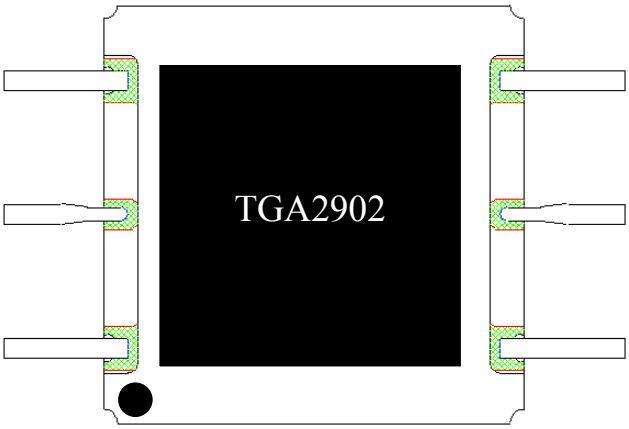
13 - 15 GHz 2 Watt Packaged Amplifier TGA2902-EPU



Key Features and Performance

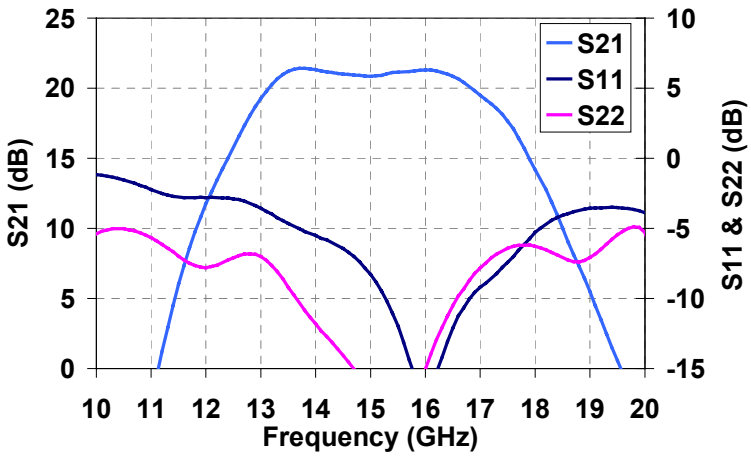
- 33.5 dBm Midband Pout
- 22 dB Nominal Gain
- 8 dB Typical Input Return Loss
- 10 dB Typical Output Return Loss
- Directional Power Detector with Reference
- 0.5µm pHEMT Technology
- Bias Conditions: 7V, 640mA
- Chip dimensions:2.0 x 1.4 x 0.1 mm (80 x 55 x 4 mils)

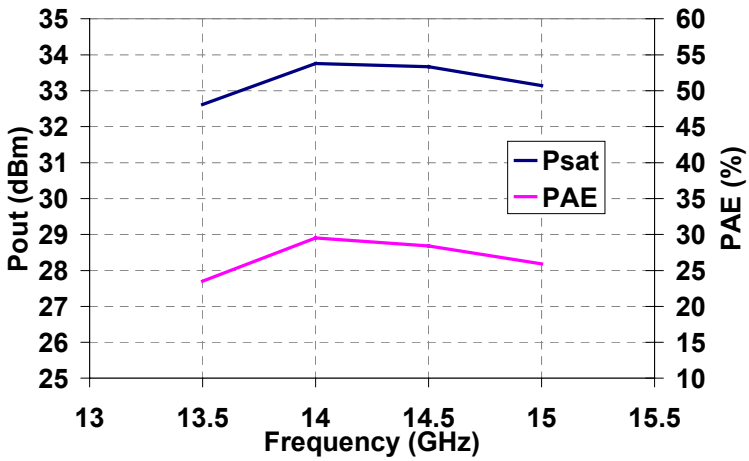
Primary Applications

- VSAT
- Point to Point

Preliminary Measured Performance

Bias Conditions: Vd=7V Id=640mA





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

Symbol	Parameter 4/	Value	Notes
V^+	Positive Supply Voltage	8 V	3/
V^-	Negative Supply Voltage Range	-5V to 0V	
I^+	Positive Supply Current (Quiescent)	TBD	3/
$\mid I_G \mid$	Gate Supply Current	18 mA	
P_{IN}	Input Continuous Wave Power	24 dBm	3/
P_D	Power Dissipation	TBD	3/
T_{CH}	Operating Channel Temperature	150 ^{0}C	1/ 2/
T_M	Mounting Temperature (30 Seconds)	320 ^{0}C	
T_{STG}	Storage Temperature	-65 to 150 ^{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/ Combinations of supply voltage, supply current, input power, and output power shall not exceed P_D.

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

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TABLE II
RF CHARACTERIZATION TABLE
(T_A = 25°C, Nominal)
(Vd = 7V, Id = 640mA ±5%)

SYMBOL	PARAMETER	TEST CONDITION	LIMITS			UNITS
			MIN	TYP	MAX	
Gain	Small Signal Gain	F = 13.75-14.5		22		dB
IRL	Input Return Loss	F = 13.75-14.5		8		dB
ORL	Output Return Loss	F = 13.75-14.5		10		dB
PWR	Output Power @ P2dB	F = 13.75-14.5		33.5		dBm
PAE	Power Added Efficiency @ P2dB	F = 13.75-14.5		27		%

Note: Table III Lists the RF Characteristics of typical devices as determined by fixtured measurements.

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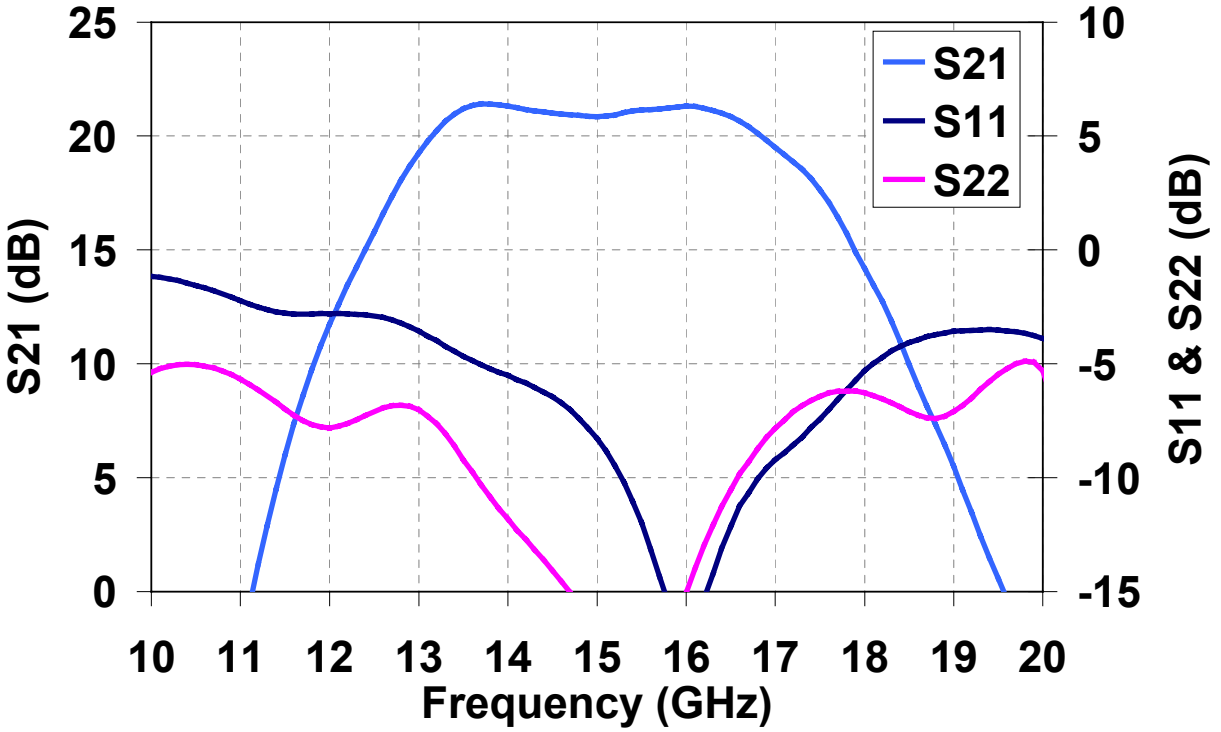
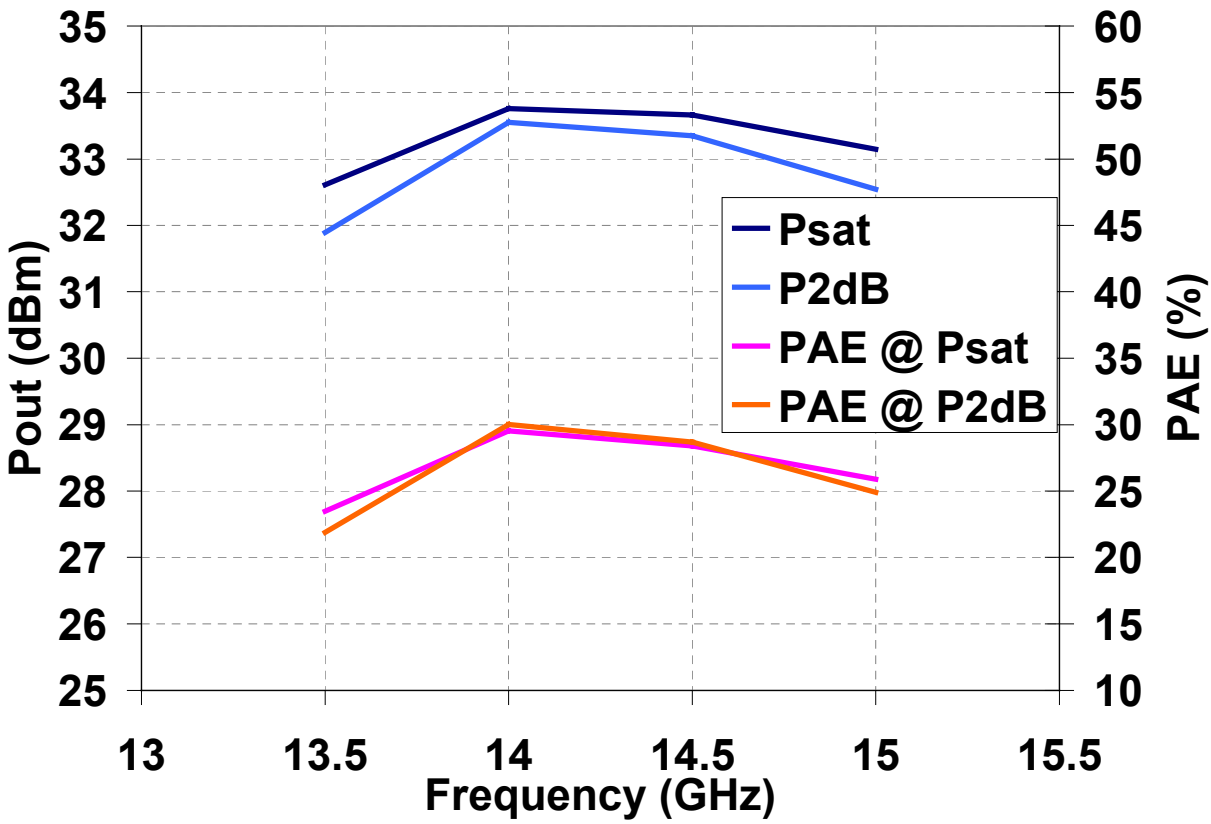
Typical Performance





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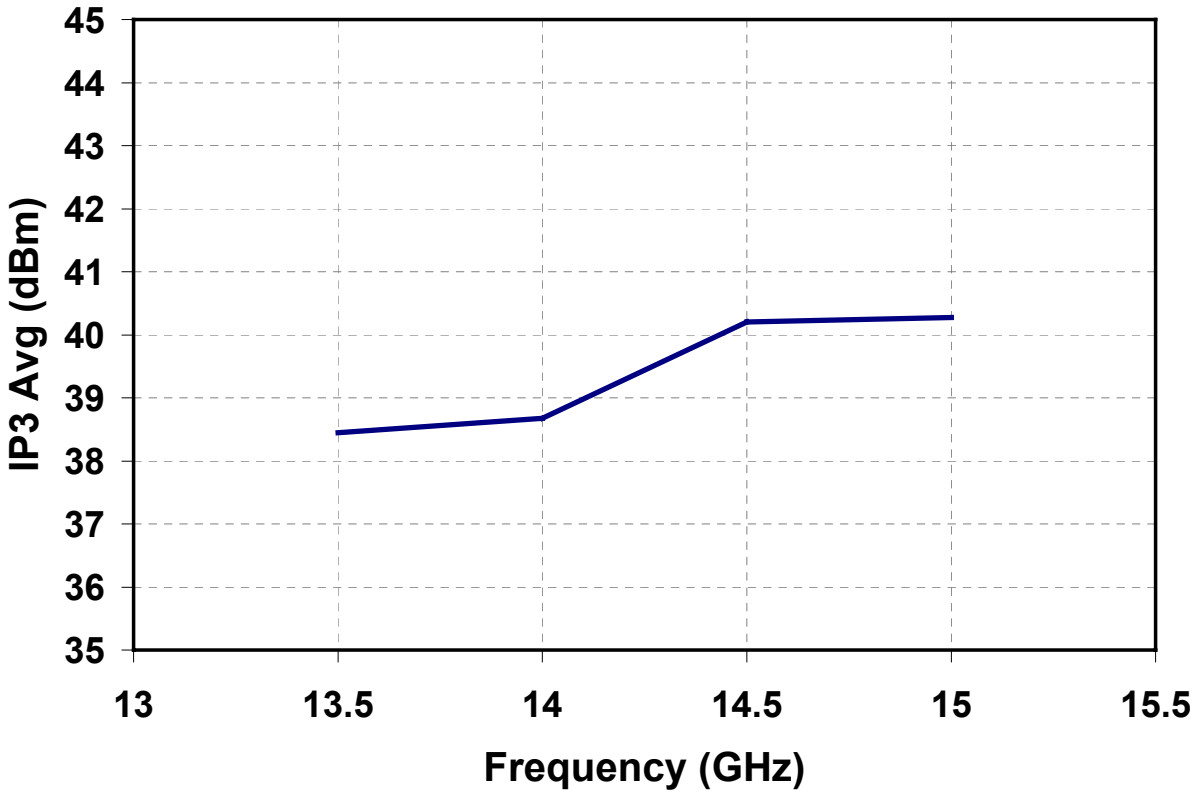
Typical Performance



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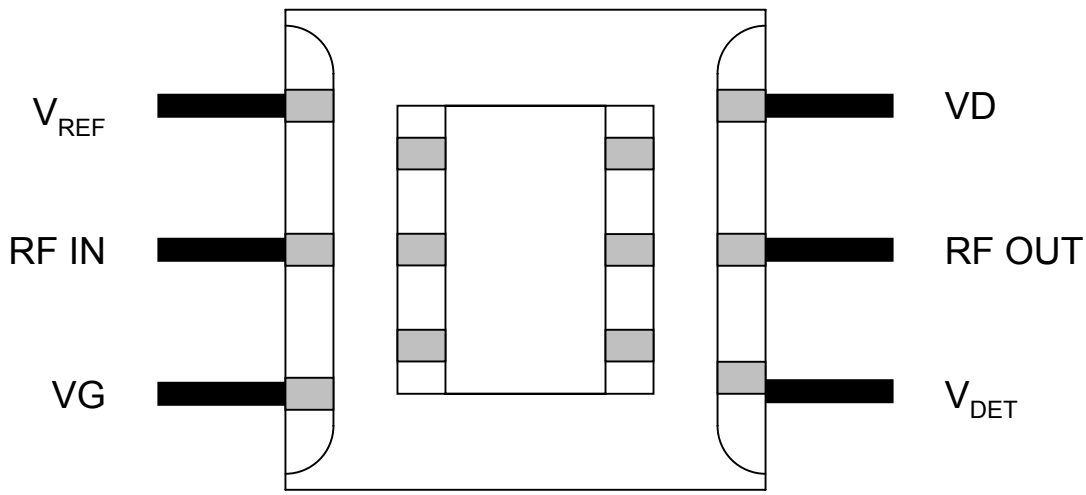
Package Pinout Diagram



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

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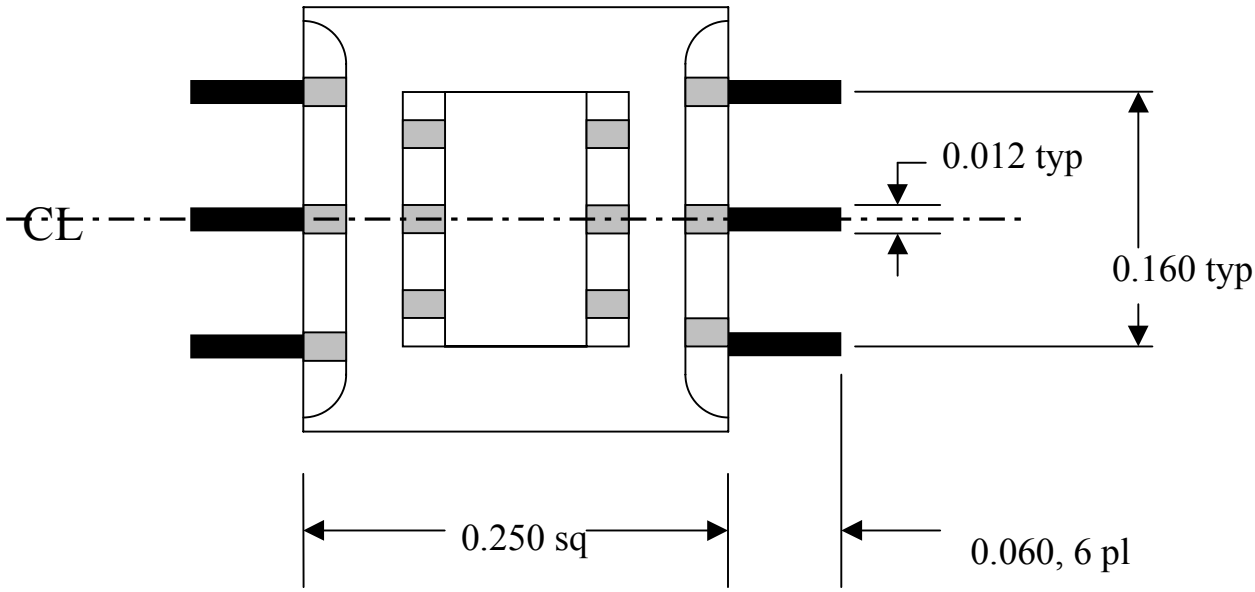
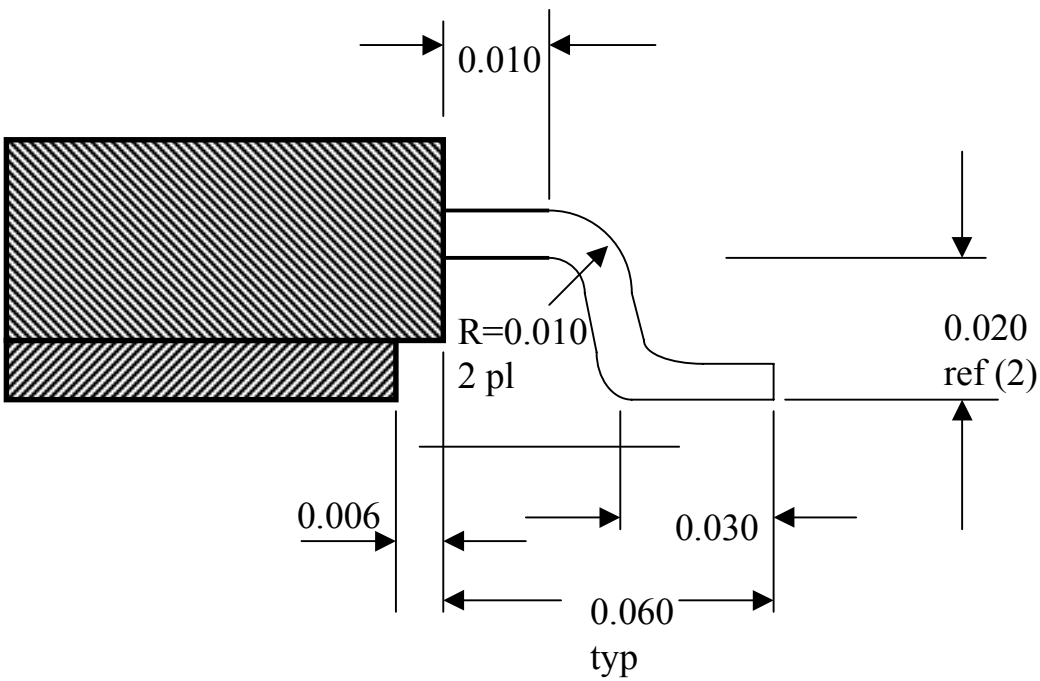
Mechanical Drawing

Dimensions in inches



Top View



Side View

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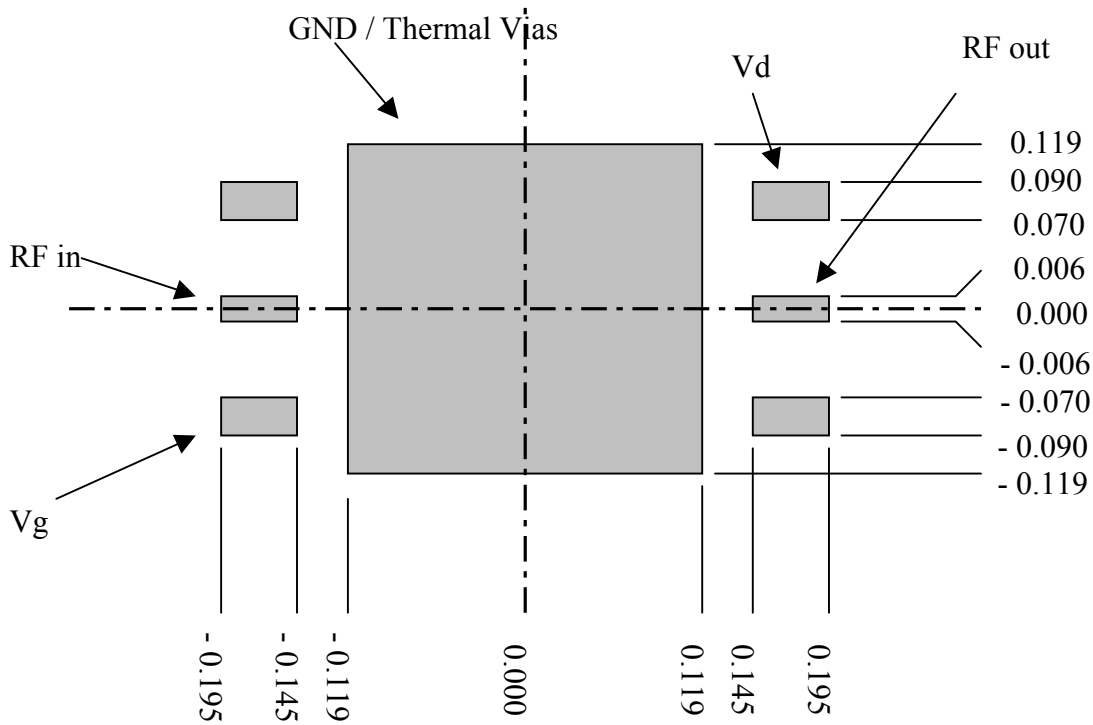
Recommended PWB Land Pattern

Dimensions in inches



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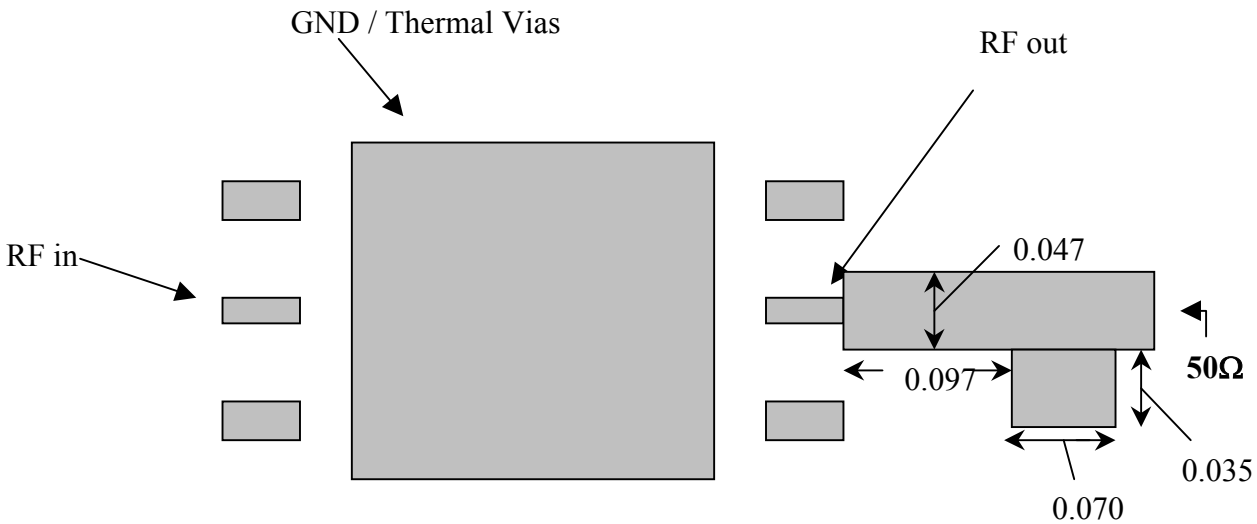
Required Tuning Stub

Shown on Rogers RO4003® high frequency laminates 0.020" board
($\varepsilon_r = 3.38$)

Dimensions in inches



RO4003® is a registered trademark of Rogers Corporation.

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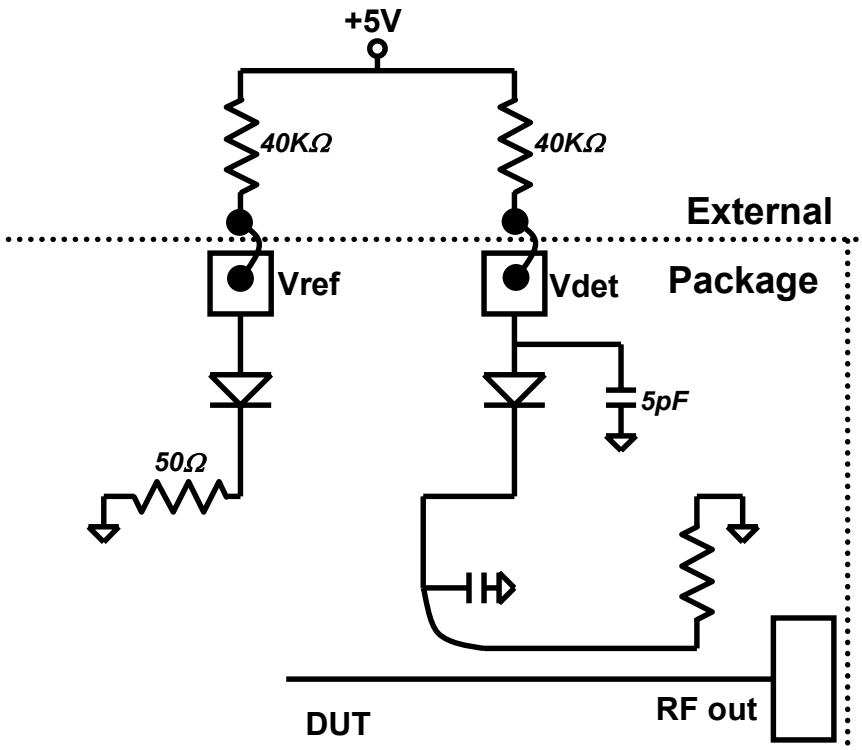
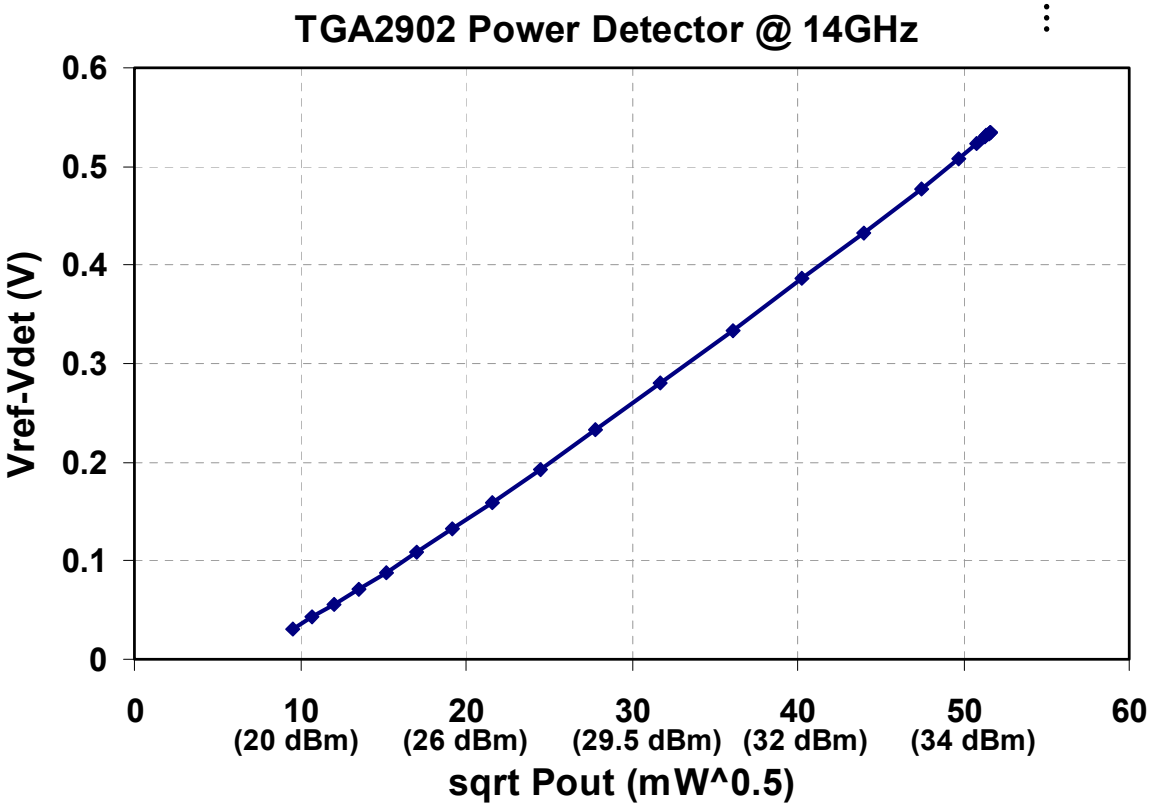
Power Detector





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