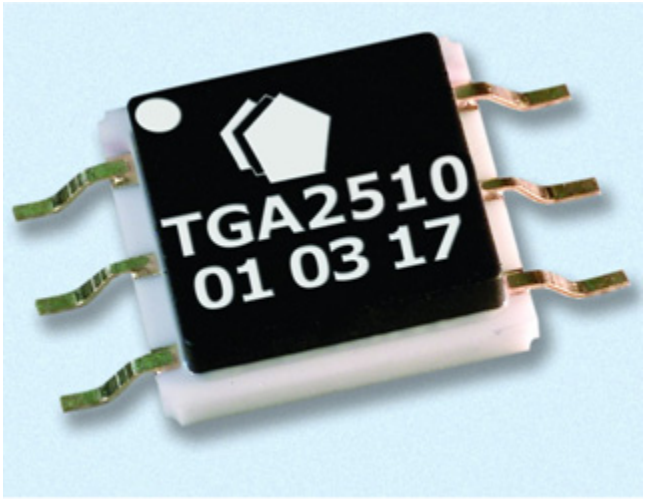
TriQuint SEMICONDUCTOR

Product Data Sheet
August 5, 2008

Ku Band 2 Watt Packaged Amplifier

TGA2510-SG



Key Features and Performance

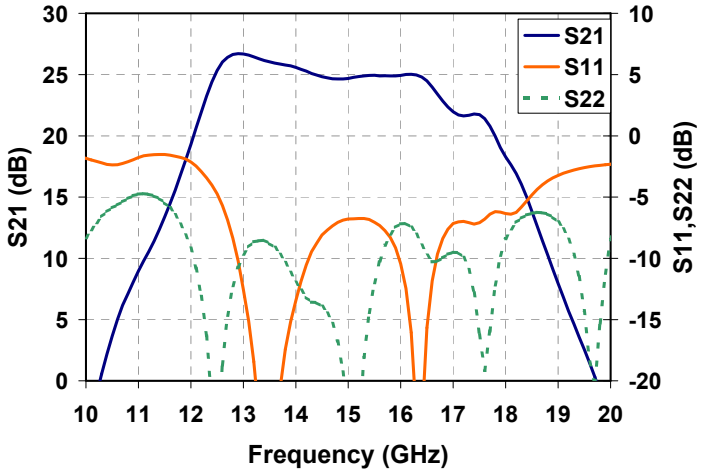
- 33.5 dBm Midband Psat
- 25 dB Nominal Gain
- 7 dB Typical Input Return Loss
- 10 dB Typical Output Return Loss
- 12.5 - 17 GHz Frequency Range
- Directional Power Detector with Reference
- 0.25µm pHEMT 3MI Technology
- Bias Conditions: 7.5V, 650mA
- Package Dimensions:
  9.4 x 6.4 x 1.8 mm
  (0.370 x 0.250 x 0.071 inches)

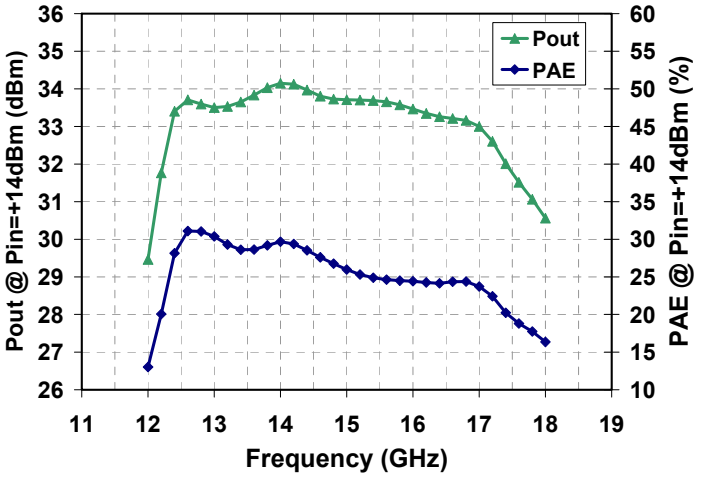
Primary Applications

- VSAT
- Point to Point

Preliminary Measured Performance

Bias Conditions: Vd=7.5V Id=650mA





Note: Datasheet is subject to change without notice.

TriQuint Semiconductor Texas Phone: (972)994-8465 Fax: (972)994 8504 Email: info-mmw@tqs.com Web: www.triquint.com

TABLE I
MAXIMUM RATINGS

Symbol	Parameter	Value	Notes
V_D	Drain Voltage	8 V	1/ 2/
V_G	Gate Voltage Range	-5V to 0V	1/
I_D	Drain Supply Current (Quiescent)	1300 mA	1/ 2/
$\| I_G \|$	Gate Supply Current	18 mA	1/
P_{IN}	Input Continuous Wave Power	24 dBm	1/ 2/
P_D	Power Dissipation	6.15 W	1/ 2/ 3/
T_{CH}	Operating Channel Temperature	150 ^{0}C	4/
T_M	Mounting Temperature (30 Seconds)	320 ^{0}C	
T_{STG}	Storage Temperature	-65 to 150 ^{0}C	

1/ These ratings represent the maximum operable values for this device

2/ Combinations of supply voltage, supply current, input power, and output power shall not exceed P_D at a package base temperature of 70°C

3/ When operated at this bias condition with a baseplate temperature of 70°C, the MTTF is reduced to 1.0E+6 hours

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

TABLE II
THERMAL INFORMATION

Parameter	Test Conditions	T_{CH} (°C)	$R_{\Theta JC}$ (°C/W)	MTTF (hrs)
$R_{\Theta JC}$ Thermal Resistance (Channel to Backside of Package)	V_D = 7.5V I_D = 650mA P_{DISS} = 4.88W T_{BASE} = 70°C	132.3	12.8	4.8E+6

TriQuint Semiconductor Texas Phone: (972)994-8465 Fax: (972)994 8504 Email: info-mmw@tqs.com Web: www.triquint.com

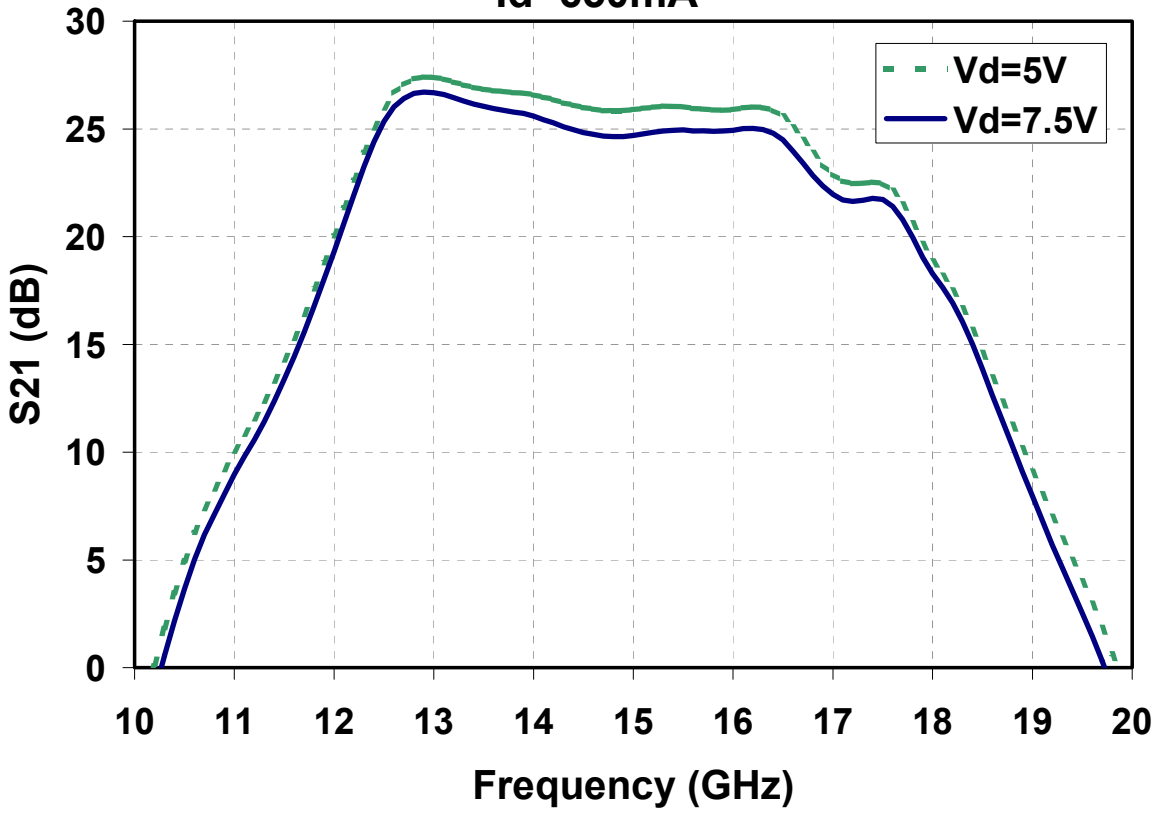
TABLE III
RF CHARACTERIZATION TABLE
(T_A = 25°C, Nominal)
(Vd = 7.5V, Id = 650mA ±5%)

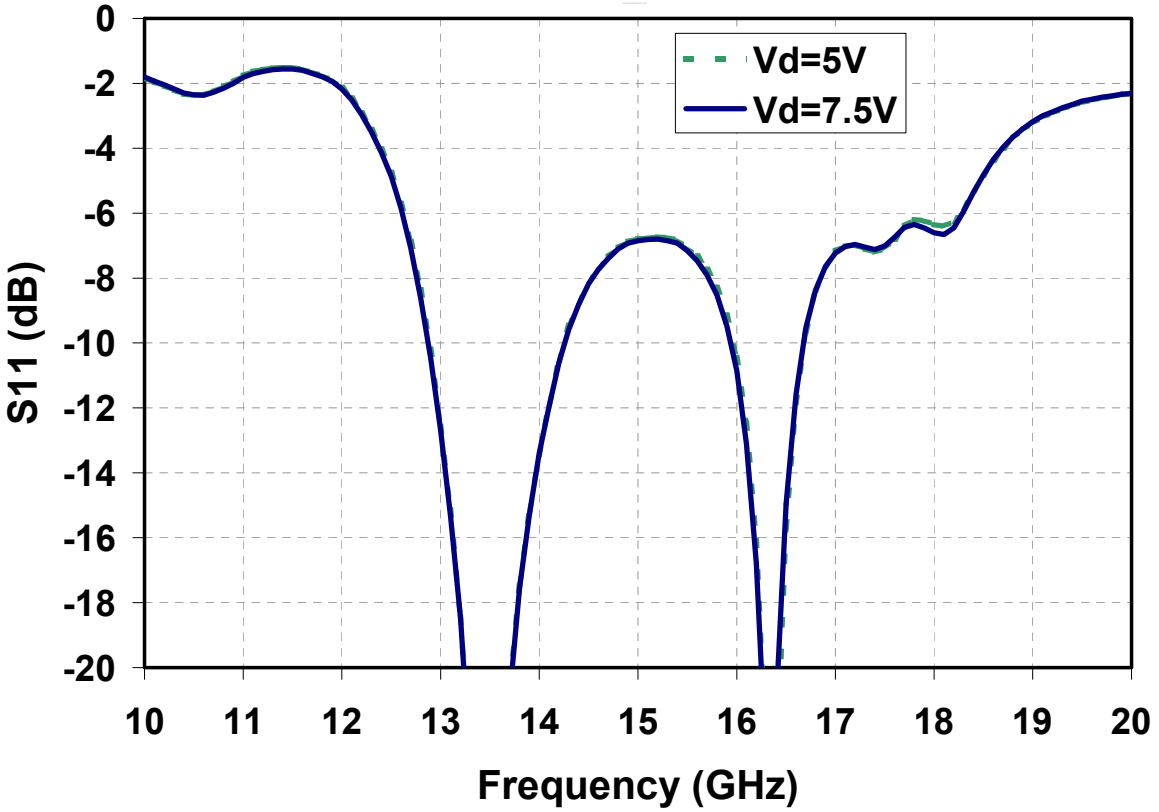
Symbol	Parameter	Test Conditions	Typ	Units	Notes
Gain	Small Signal Gain	F = 12.5 – 16 GHz	25	dB	
IRL	Input Return Loss	F = 12.5 – 16 GHz	7	dB	
ORL	Output Return Loss	F = 12.5 – 16 GHz	10	dB	
PWR	Output Power @ Pin = +14dBm	F = 12.5 – 16 GHz	33.5	dBm	
PAE	Power Added Efficiency @ Pin = +14dBm	F = 12.5 – 16 GHz	29	%	

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

TriQuint Semiconductor Texas Phone: (972)994-8465 Fax: (972)994 8504 Email: info-mmw@tqs.com Web: www.triquint.com

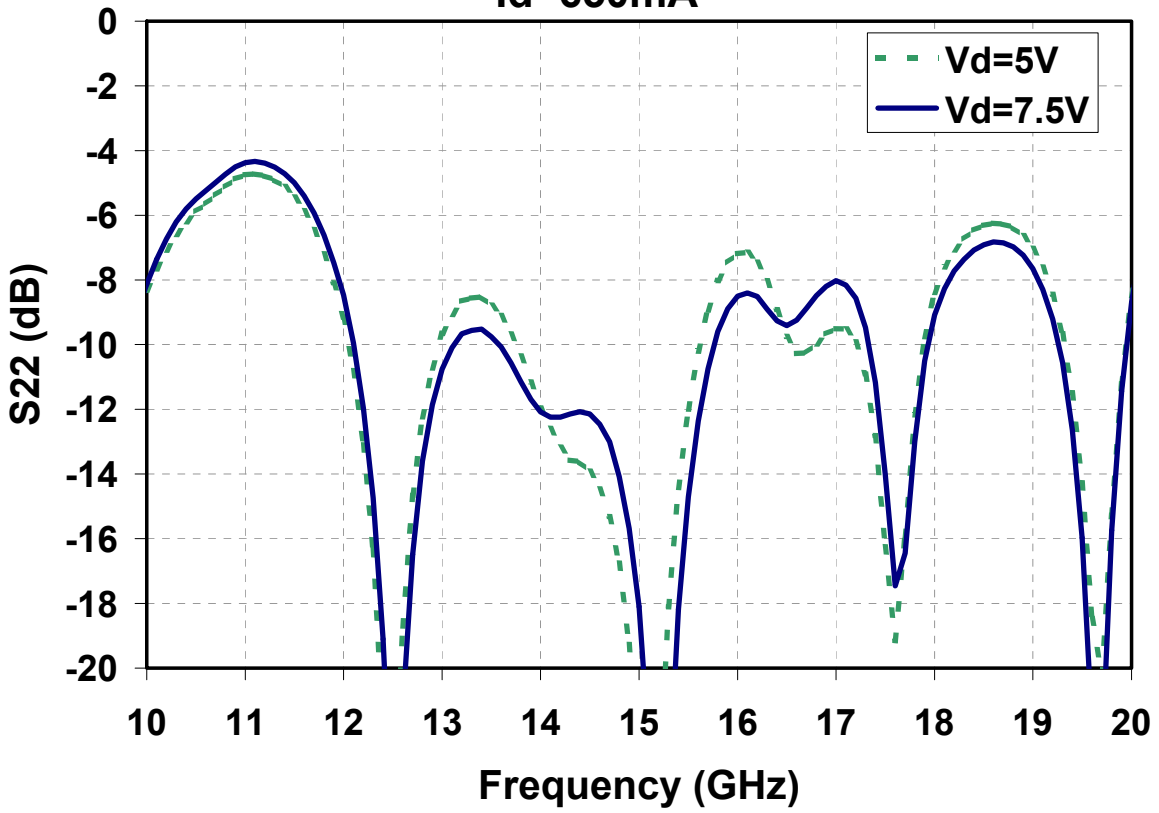
Typical Fixtured Performance
Id=650mA

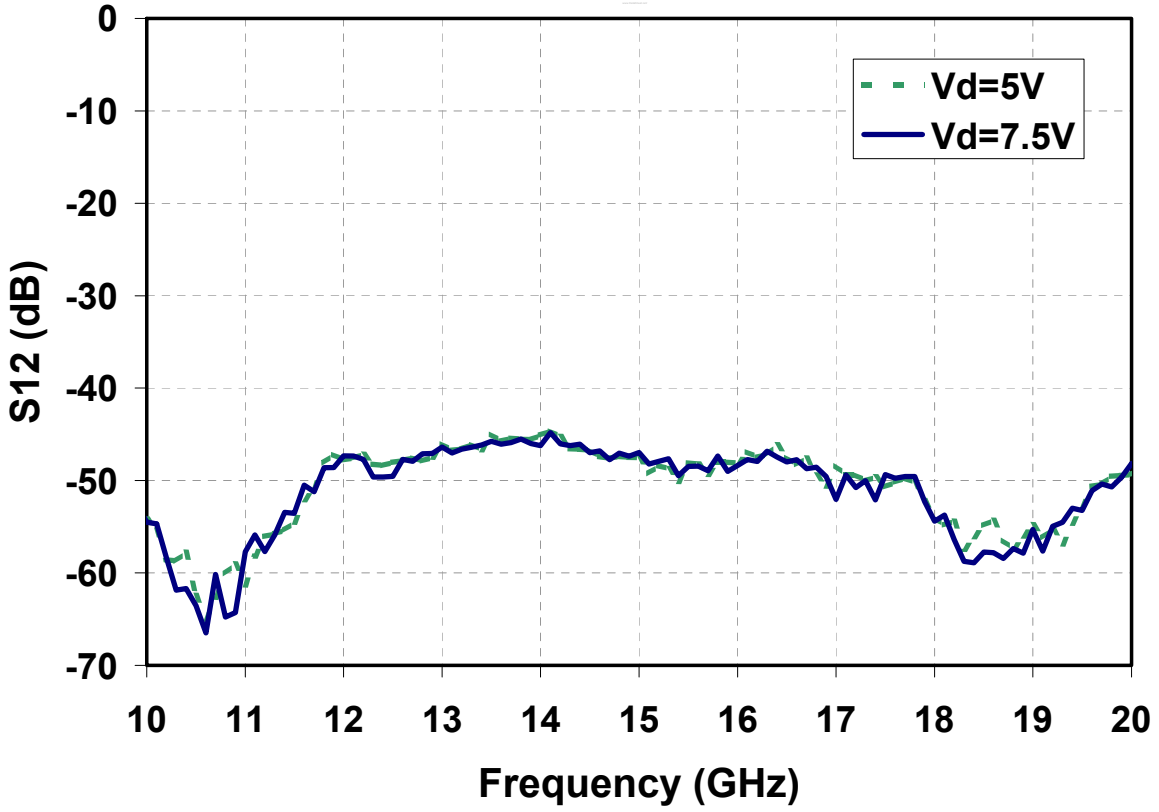




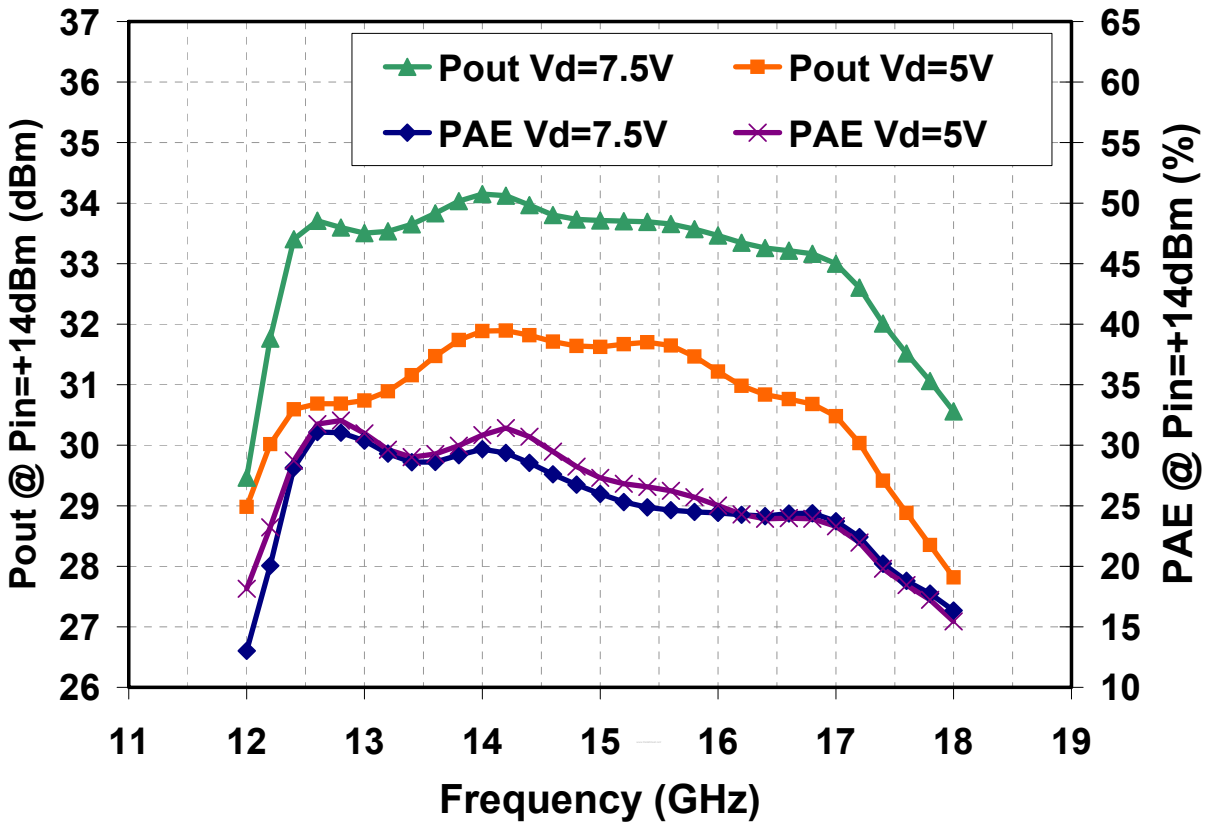
TriQuint Semiconductor Texas Phone: (972)994-8465 Fax: (972)994 8504 Email: info-mmw@tqs.com Web: www.triquint.com

Typical Fixtured Performance
Id=650mA



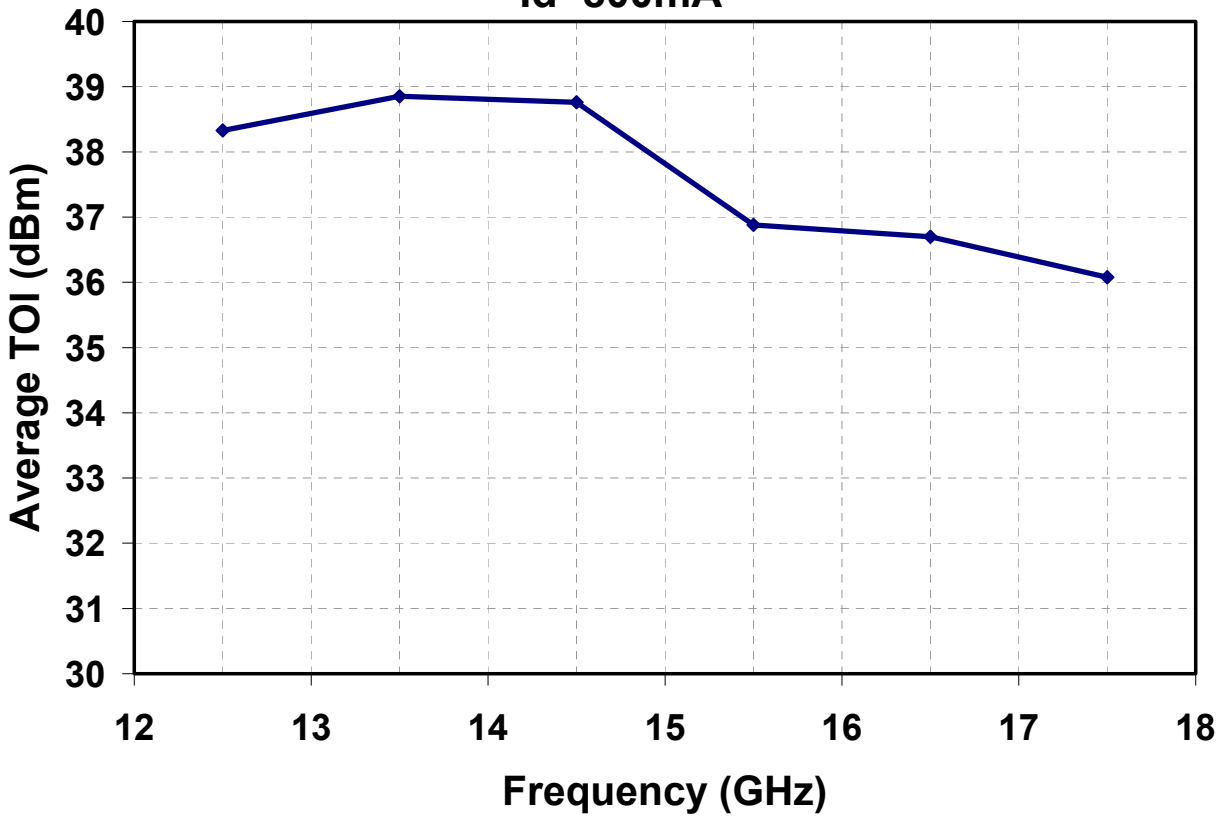


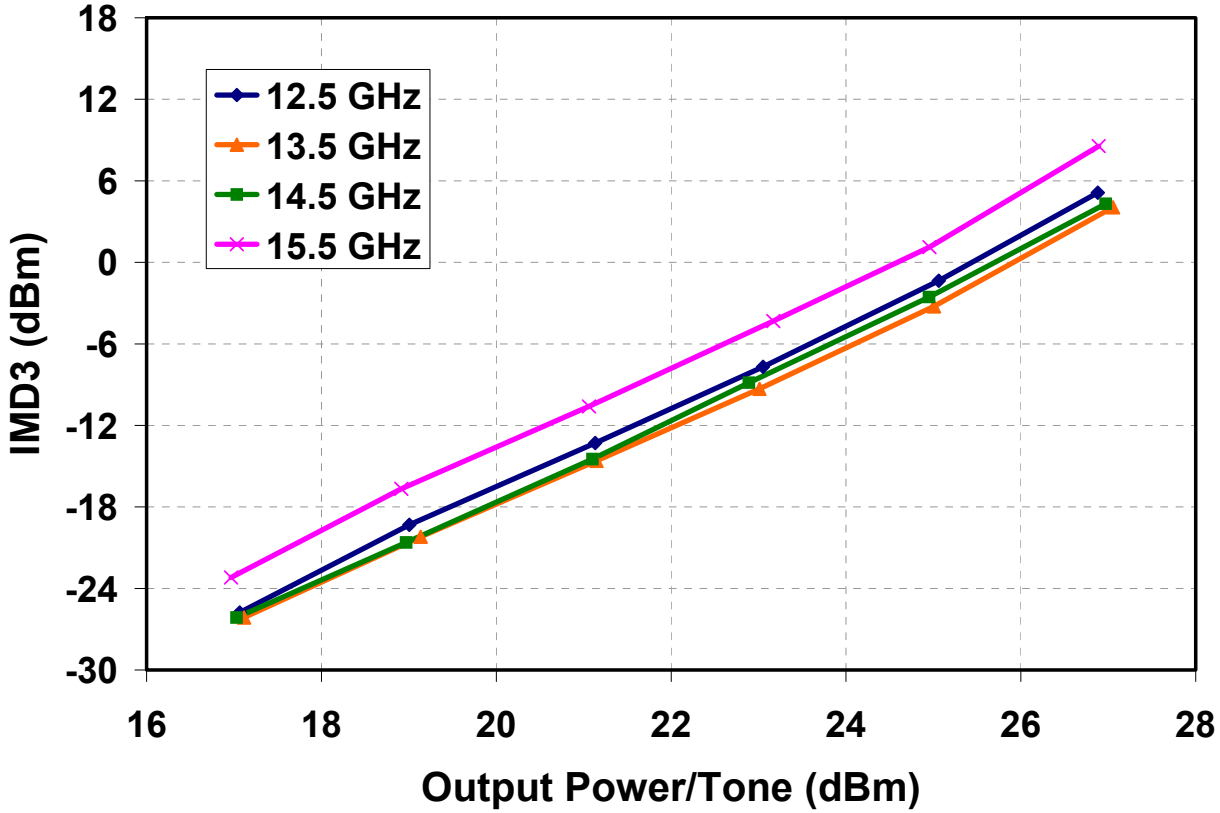
Typical Fixtured Performance
Id=650mA



TriQuint Semiconductor Texas Phone: (972)994-8465 Fax: (972)994 8504 Email: info-mmw@tqs.com Web: www.triquint.com

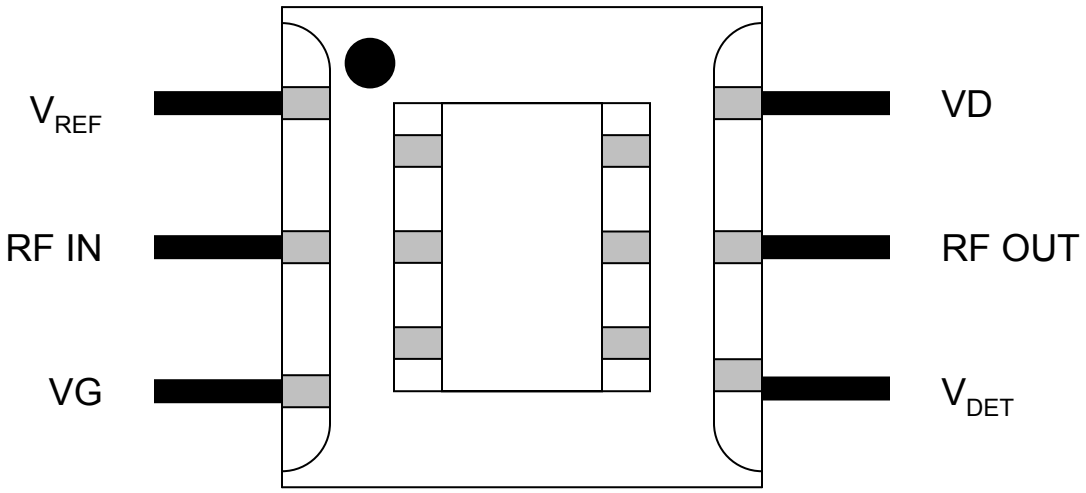
Typical Fixtured Performance
Id=800mA



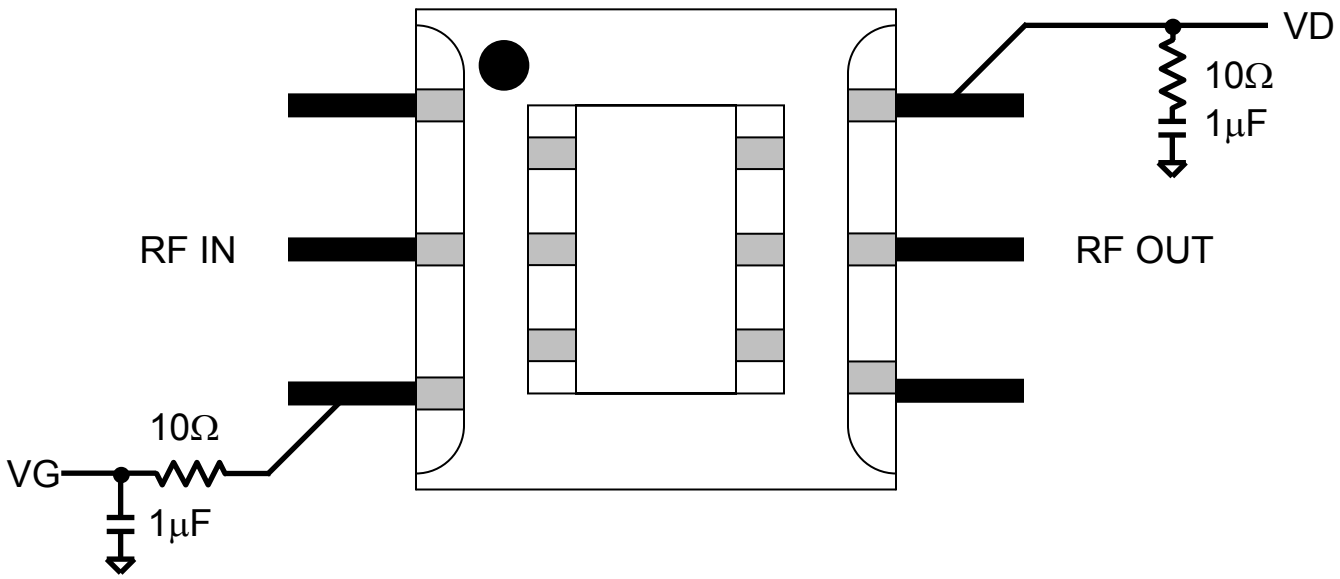


TriQuint Semiconductor Texas Phone: (972)994-8465 Fax: (972)994 8504 Email: info-mmw@tqs.com Web: www.triquint.com

Package Pinout Diagram



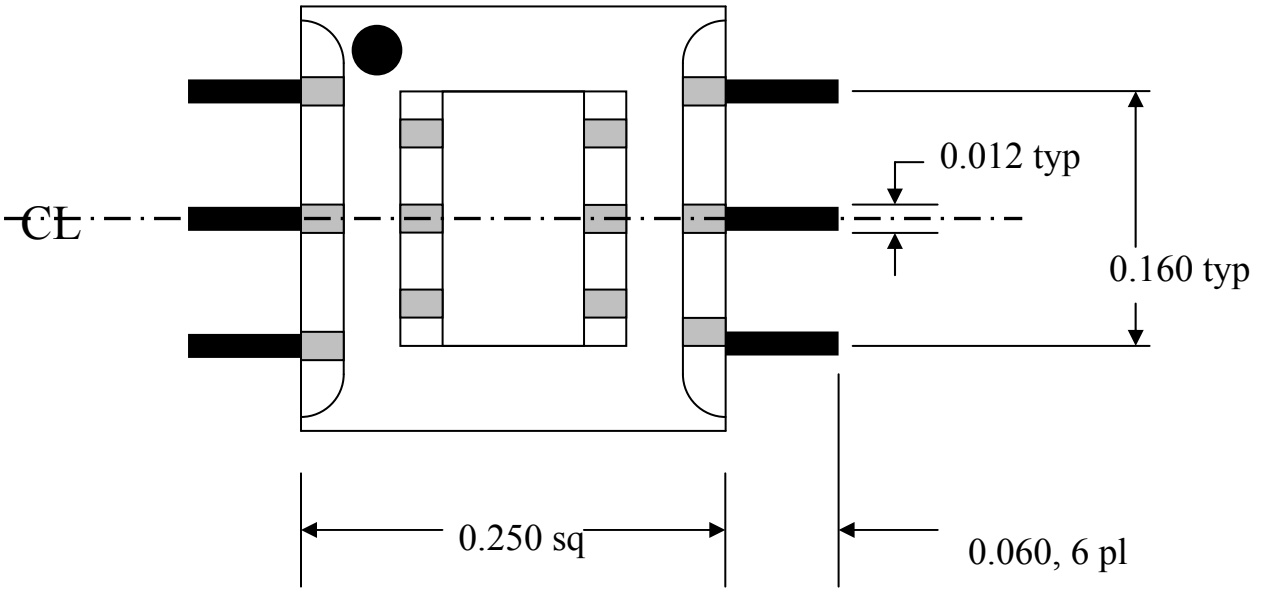
Package Assembly Diagram



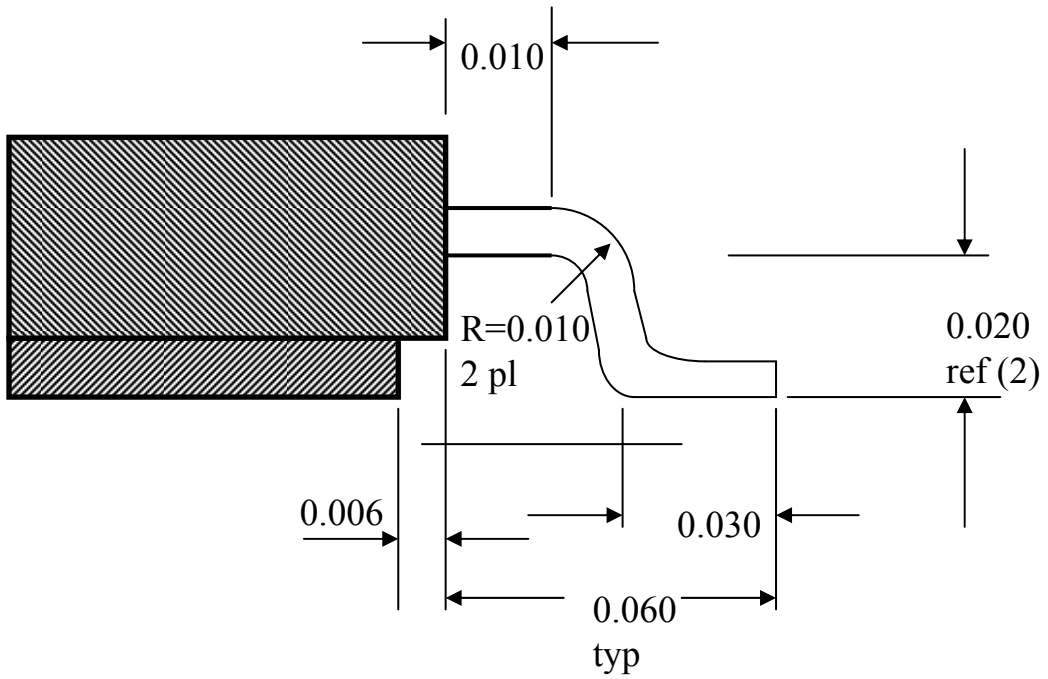
GaAs MMIC devices are susceptible to damage from Electrostatic Discharge. Proper precautions should be observed during handling, assembly and test.

Mechanical Drawing

Dimensions in inches



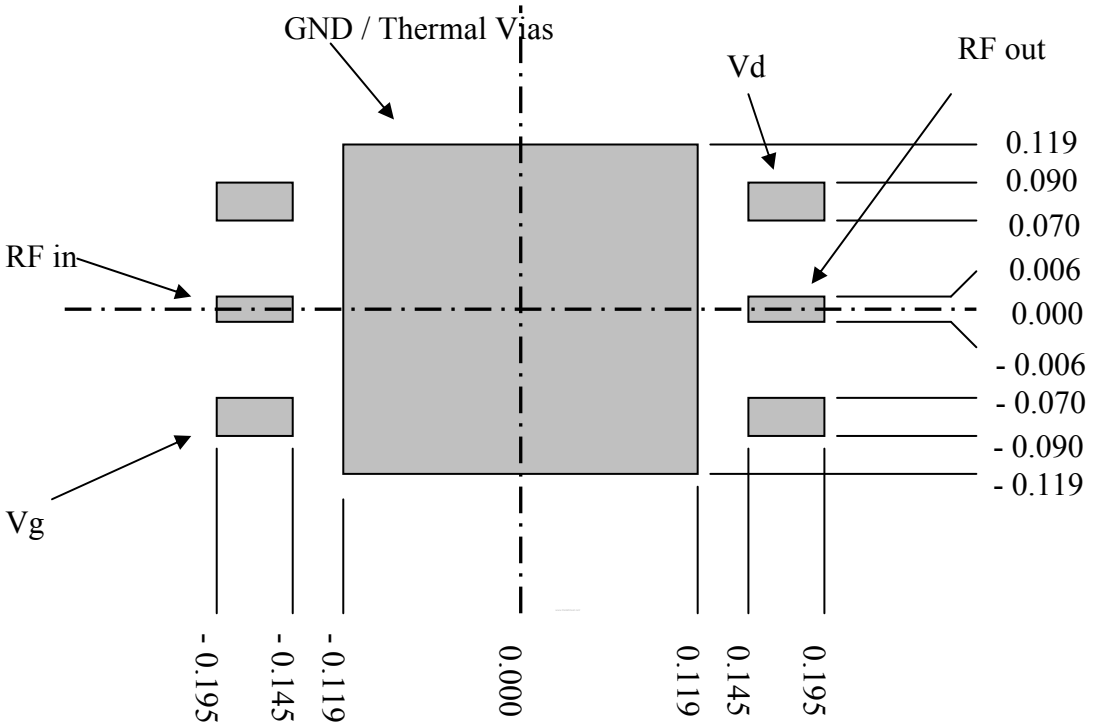
Top View



Side View

Recommended PWB Land Pattern

Dimensions in inches



TriQuint Semiconductor Texas Phone: (972)994-8465 Fax: (972)994 8504 Email: info-mmw@tqs.com Web: www.triquint.com

Power Detector