North Texas NTMS Microwave Society

5 watt 24 GHz amp donated to NTMS

Donated by Rich Osman

TriQuint 7 W TGA4915-CP

TriQuint SEMICONDUCTOR

TGA4915-CP

7 W Ka Band Packaged Power Amplifier

Key Features and Performance

- Frequency Range: 26 - 31 GHz
- 38 dBm Typical Psat @ Pin =21 dBm
- 22 dB Nominal Gain
- 15 dB Typical Return Loss
- 0.25µm pHEMT Technology
- Bias Conditions: Vd = 6V, Idq = 4.2 A
- Package Dimensions: 0.526 x 0.650 x 0.073 in

Primary Applications

- Satellite Ground Terminals
- Point to Point

Product Description

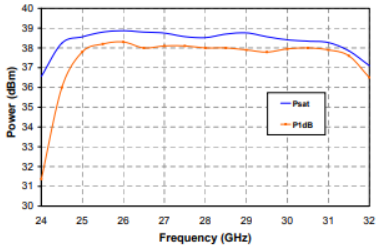
The TriQuint TGA4915-CP is a compact 7 Watt High Power Amplifier for Ka band applications. The part is designed using TriQuint's proven standard 0.25 um gate Power pHEMT production process.

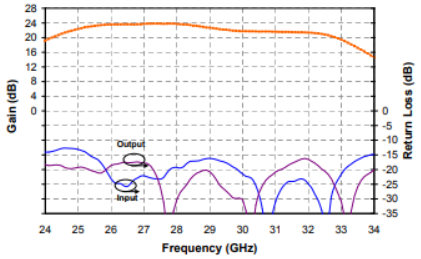
The TGA4915-CP provides a nominal 38 dBm of output power at an input power level of 21 dBm with a small signal gain of 22 dB.

The part is ideally suited for low cost emerging markets such as base station transmitters for satellite ground terminals and point to point radio.

Preliminary Measured Performance

Bias Conditions: Vd=6 V Idq=4.2 A





Analog Devices HMC499

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AMPLIFIERS - LINEAR & POWER - SMT

ANALOG DEVICES

HMC499LC4

v06.0418

SMT PHEMT MEDIUM POWER AMPLIFIER 21 - 32 GHz

Typical Applications

The HMC499LC4 is ideal for:

- Point-to-Point Radios
- Point-to-Multi-Point Radios & VSAT
- Test Equipment & Sensors
- Military End-Use

Features

Output IP3: +34 dBm

Saturated Power: +24 dBm @ 16% PAE

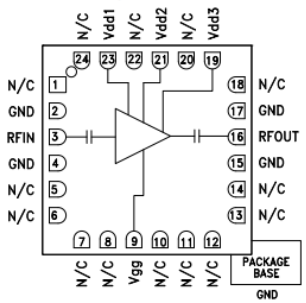
Gain: 17 dB

Supply: +5V @ 200mA

50 Ohm Matched Input/Output

RoHS Compliant 4x4 mm SMT Package

Functional Diagram



General Description

The HMC499LC4 is a high dynamic range GaAs PHEMT MMIC Medium Power Amplifier housed in a leadless "Pb free" RoHS Compliant SMT package. Operating from 21 to 32 GHz, the amplifier provides 16 dB of gain, +24 dBm of saturated power and 16% PAE from a +5V supply voltage. The RF I/Os are DC blocked and matched to 50 Ohms for ease of use. The HMC499LC4 eliminates the need for wire bonding, allowing use of surface mount manufacturing techniques.

*Electrical Specifications, T_A = +25° C, Vdd1, 2, 3 = 5V, Idd = 200 mA**

Parameter	Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.	Units
Frequency Range		21 - 24			24 - 28			28 - 32		GHz
Gain	14	17		13	16		9	13		dB
Gain Variation Over Temperature		0.02	0.03		0.02	0.03		0.02	0.03	dB/ °C
Input Return Loss		10			8			8		dB
Output Return Loss		11			12			8		dB
Output Power for 1 dB Compression (P1dB)	20	23		20	23		20	23		dBm
Saturated Output Power (Psat)		23.5			23.5			24		dBm
Output Third Order Intercept (IP3)		31			34			33.5		dBm
Noise Figure		6			5			5		dB
Supply Current (Idd)(Vdd = +5V, Vgg = -0.8V Typ.)		200			200			200		mA

** Adjust Vgg between -2 to 0V to achieve Idd = 200 mA typical.*

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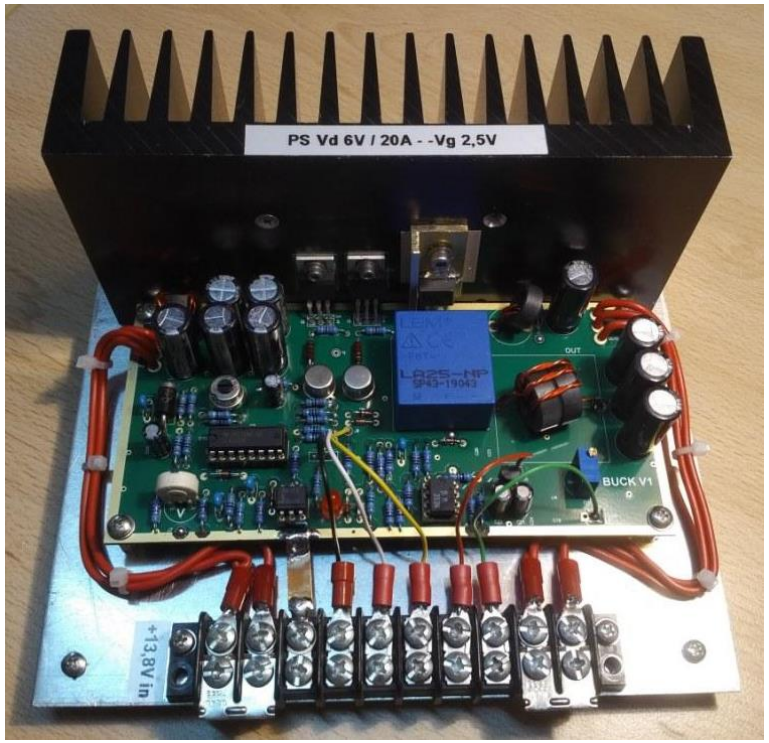
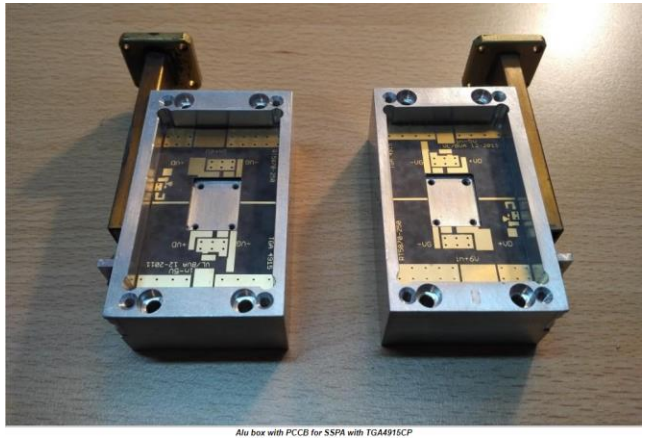
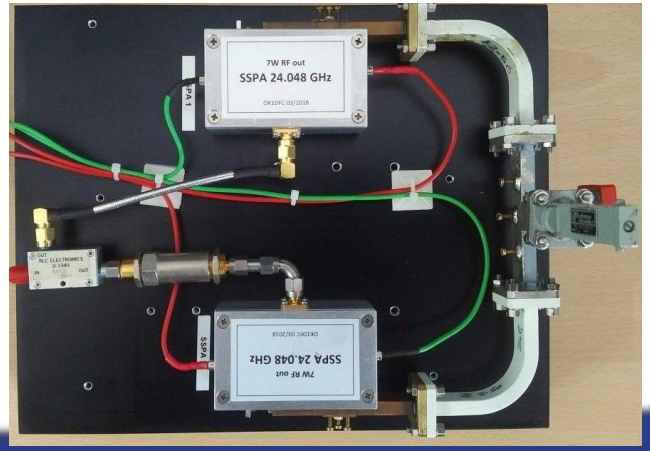
F6CSX power supply for TGA4915-CP





Alu box with PCCB for SSPA with TGA4915CP



Extra! 47 GHz beacon

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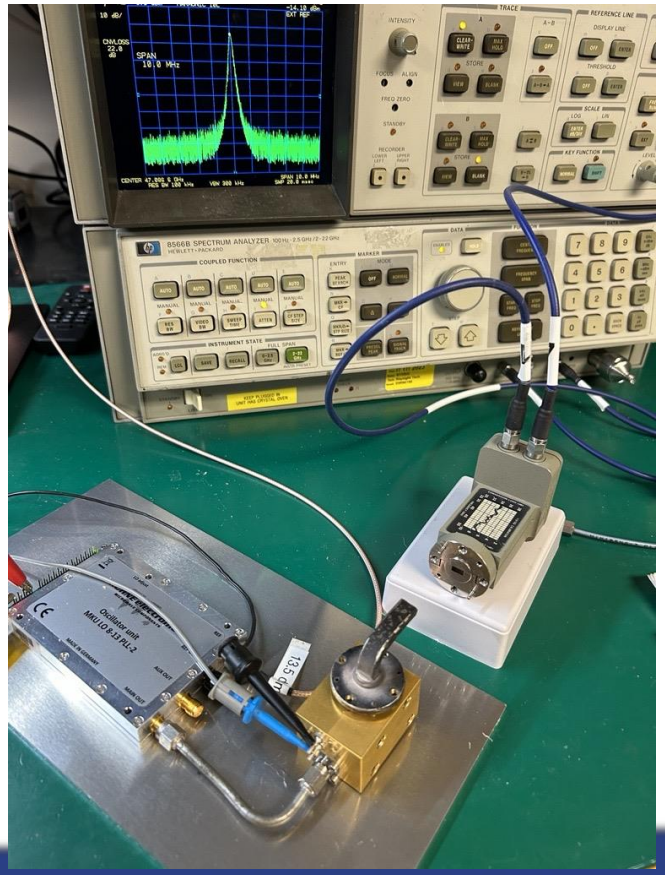
Beacon base components

- DB6NT LO programmed to 11.772 GHz
- Beacon message programmed into LO
- WA1MBA quadrupler from 2023 MUD

Strong 47 GHz output through the air to mixer



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