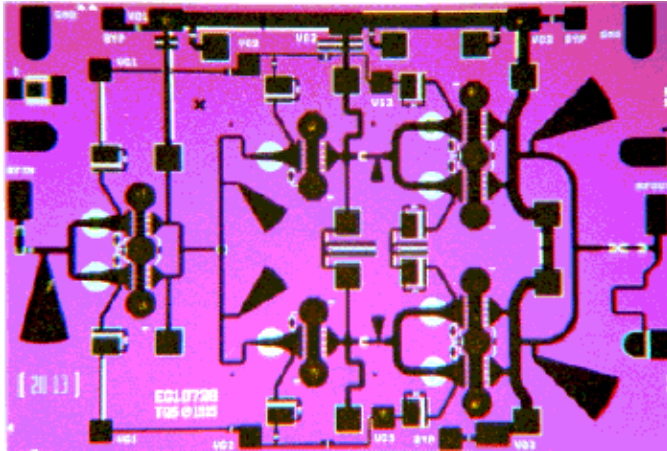


27- 32 GHz 0.7 Watt Power Amplifier

TGA1073B

Prototype Part #, Production Part # TBD



Key Features and Performance

- 0.25 μ m pHEMT Technology
- 25 dB Nominal Gain @ 28 GHz
- 28.5 dBm Nominal Pout @ P1dB (7V)
- -38 dBc IMR3 @ 18 dBm SCL
- Bias 6 - 8 V @ 420 mA
- Chip Dimensions 3.12mm x 2.16mm

Primary Applications

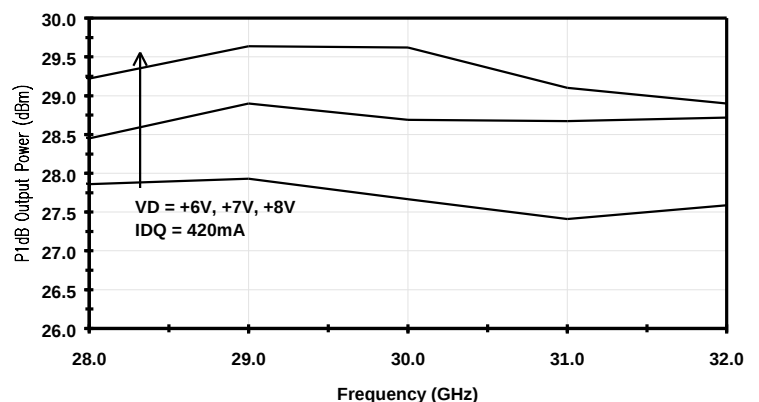
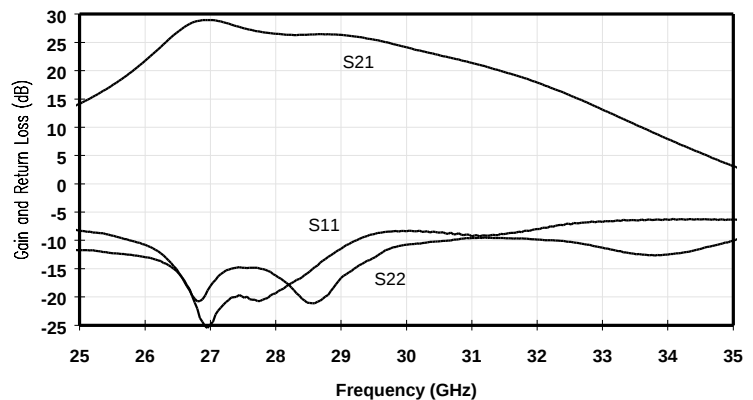
- Point-to-Point Radio
- Point-to-Multipoint Communications

The TriQuint TGA1073B-EPU is a three stage HPA MMIC design using TriQuint's proven 0.25 μ m Power pHEMT process. The TGA1073B is designed to support a variety of millimeter wave applications including point-to-point digital radio and LMDS/LMCS and Ka band satellite ground terminals.

The three stage design consists of a 2 x 300 μ m input stage driving a 2 x 600 μ m interstage followed by a 4 x 600 μ m output stage.

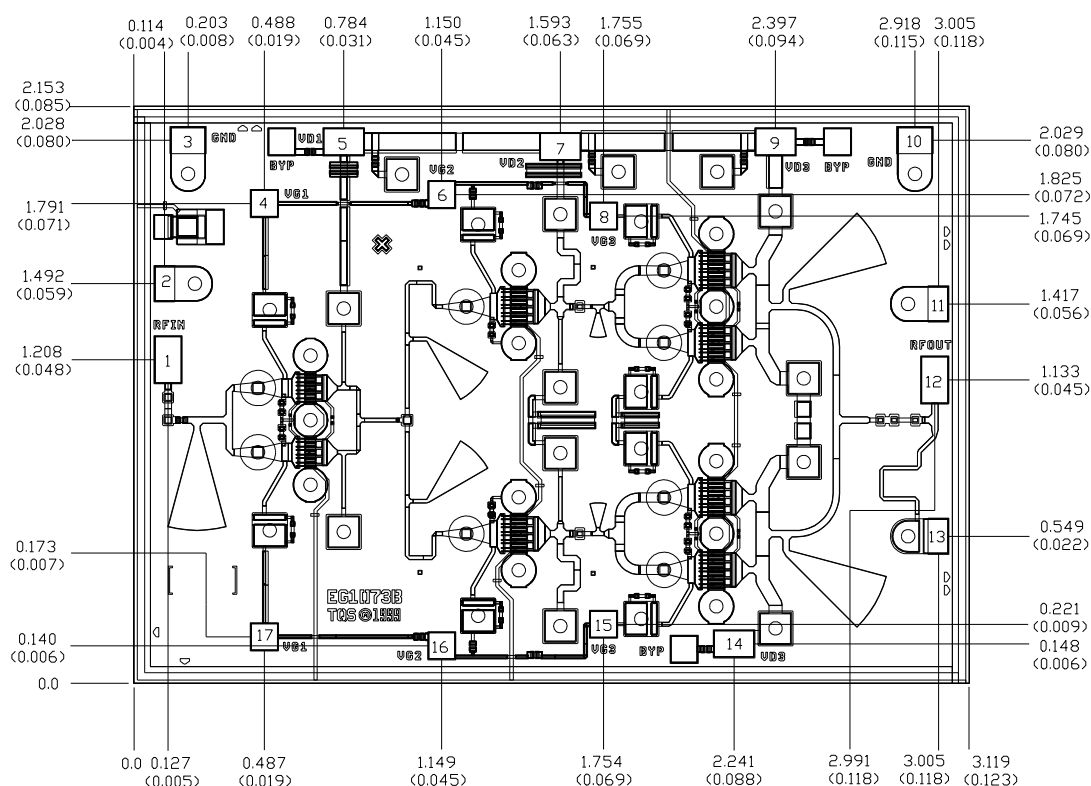
The TGA1073B provides 28.5 dBm nominal output power at 1dB compression across 27-32GHz. Typical small signal gain is 25 dB at 28GHz and 18dB at 32GHz.

The TGA1073B requires minimum off-chip components. Each device is 100% DC and RF tested on-wafer to ensure performance compliance. The device is available in chip form.



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

Mechanical Characteristics



Units: millimeters (inches)

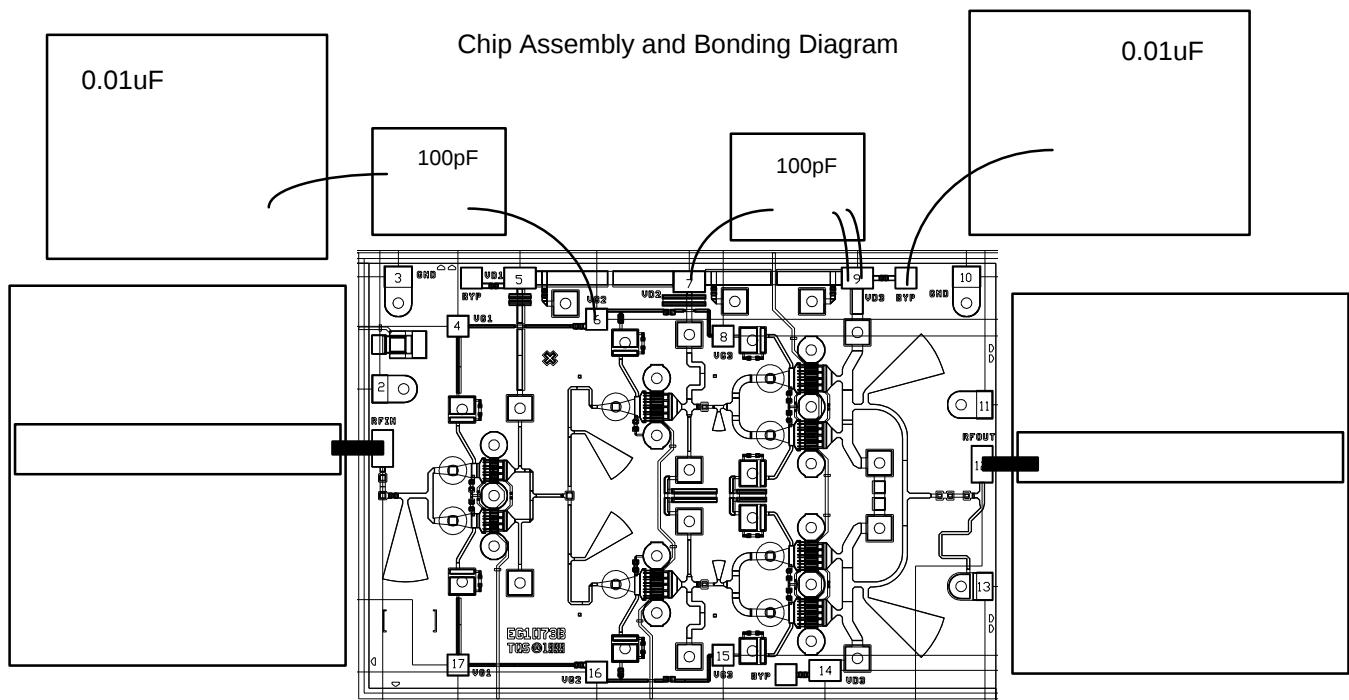
Thickness: 0.1016 (0.004)

Chip edge to bond pad dimensions are shown to center of bond pad

Chip size tolerance: +/- 0.051 (0.002)

Bond Pad #1 (RF Input)	0.105 x 0.180 (0.004 x 0.007)
Bond Pad #2 (GND)	0.078 x 0.136 (0.003 x 0.005)
Bond Pad #3 (GND)	0.103 x 0.136 (0.004 x 0.005)
Bond Pad #4 (VG1)	0.105 x 0.105 (0.004 x 0.004)
Bond Pad #5 (VD1)	0.105 x 0.155 (0.004 x 0.006)
Bond Pad #6 (VG2)	0.105 x 0.105 (0.004 x 0.004)
Bond Pad #7 (VD2)	0.105 x 0.155 (0.004 x 0.006)
Bond Pad #8 (VG3)	0.105 x 0.105 (0.004 x 0.004)
Bond Pad #9 (VD3)	0.105 x 0.155 (0.004 x 0.006)
Bond Pad #10 (GND)	0.103 x 0.136 (0.004 x 0.005)
Bond Pad #11 (GND)	0.078 x 0.136 (0.003 x 0.005)
Bond Pad #12 (RF Output)	0.105 x 0.180 (0.004 x 0.007)
Bond Pad #13 (GND)	0.078 x 0.136 (0.003 x 0.005)
Bond Pad #14 (VD3)	0.105 x 0.155 (0.004 x 0.006)
Bond Pad #15 (VG3)	0.105 x 0.105 (0.004 x 0.004)
Bond Pad #16 (VG2)	0.105 x 0.105 (0.004 x 0.004)
Bond Pad #17 (VG1)	0.105 x 0.105 (0.004 x 0.004)

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.



Recommended:

Solder MMIC to carrier using AuSn 80/20
Bond MMIC RF in and RF out with 5mil Au ribbon
Ribbon should be as short as possible
Bond DC Lines as shown with 1 mil bondwires

Reflow process assembly notes:

- AuSn (80/20) solder with limited exposure to temperatures at or above 300°C
- alloy station or conveyor furnace with reducing atmosphere
- no fluxes should be utilized
- coefficient of thermal expansion matching is critical for long-term reliability
- storage in dry nitrogen atmosphere

Component placement and adhesive attachment assembly notes:

- vacuum pencils and/or vacuum collets preferred method of pick up
- avoidance of air bridges during placement
- force impact critical during auto placement
- organic attachment can be used in low-power applications
- curing should be done in a convection oven; proper exhaust is a safety concern
- microwave or radiant curing should not be used because of differential heating
- coefficient of thermal expansion matching is critical

Interconnect process assembly notes:

- thermosonic ball bonding is the preferred interconnect technique
- force, time, and ultrasonics are critical parameters
- aluminum wire should not be used
- discrete FET devices with small pad sizes should be bonded with 0.0007-inch wire
- maximum stage temperature: 200°C

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