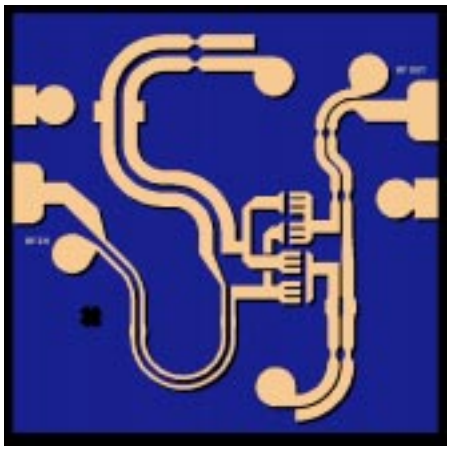
20 - 40 GHz X2 Frequency Multiplier TGC1430F-EPU



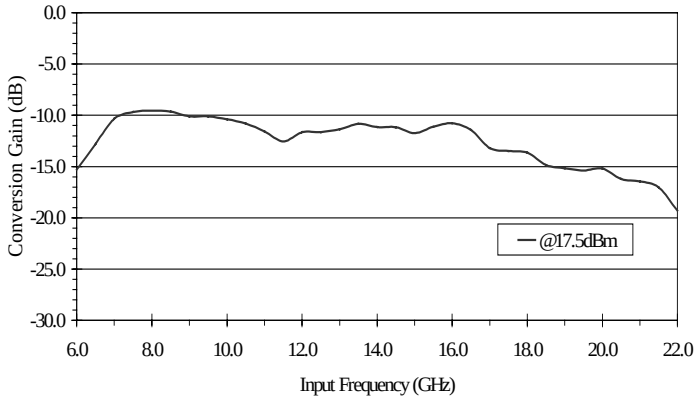
Chip Dimensions 1.50 mm x 1.50 mm

Key Features and Performance

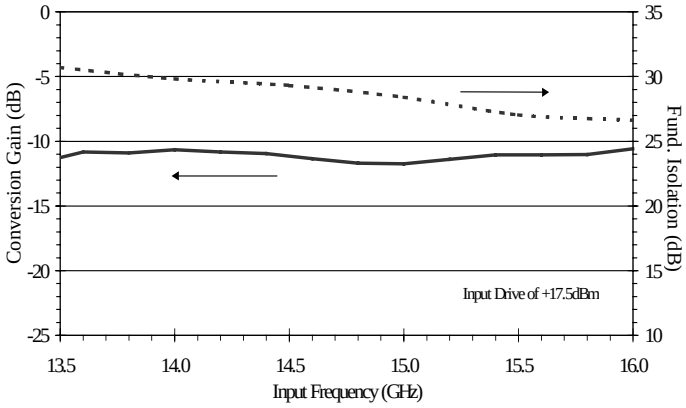
- 0.25um pHEMT Technology
- 20 - 40 GHz Output Frequencies
- 10 - 20 GHz Fundamental Frequencies
- -12 +/- 2dB Conversion Gain
- 18 dBm Input Drive Optimum
- 25dB Fundamental Isolation

Primary Applications

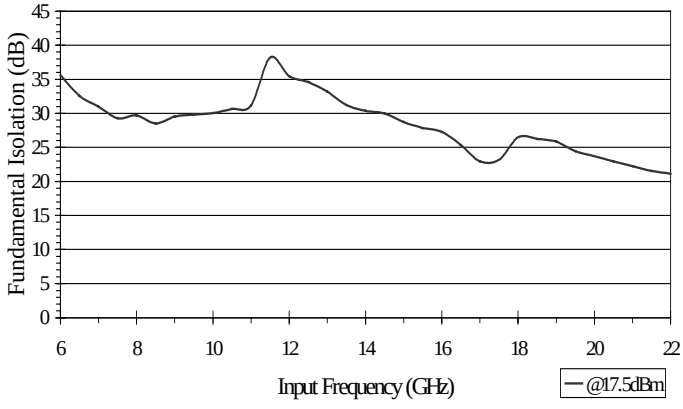
- Point-to-Point Radio
- Point-to-Multipoint Communications



Conversion Gain vs Input Frequency (Input @ 17.5dBm)



Conversion Gain and Fundamental Isolation for 27 - 32 GHz Output



Fundamental Isolation

Note: Devices designated as EPU are typically early in their characterization process prior to finalizing all electrical and process specifications. Specifications subject to change without notice

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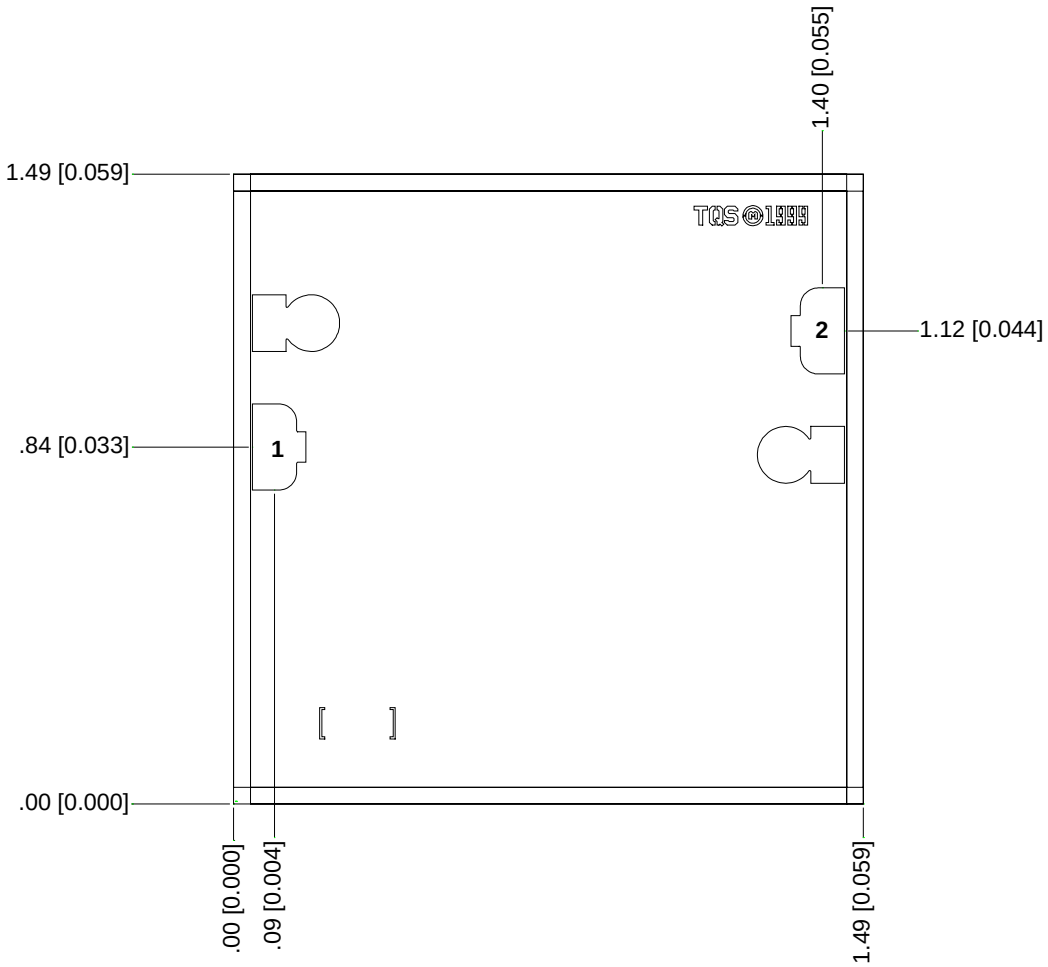
Mechanical Drawing



Units: millimeters [inches]
Thickness: 0.10 [0.004] (reference only)
Chip edge to bond pad dimensions are shown to center of bond pads.
Chip size tolerance: ±0.05 [0.002]
RF ground through backside

Bond Pad #1	**RF Input**	**0.10 x 0.20**	**[0.004 x 0.008]**
Bond Pad #2	**RF Output**	**0.10 x 0.20**	**[0.004 x 0.008]**

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

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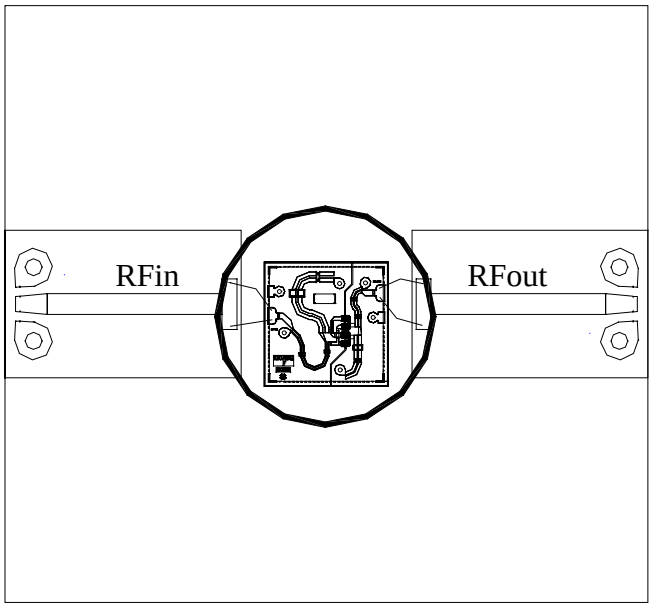
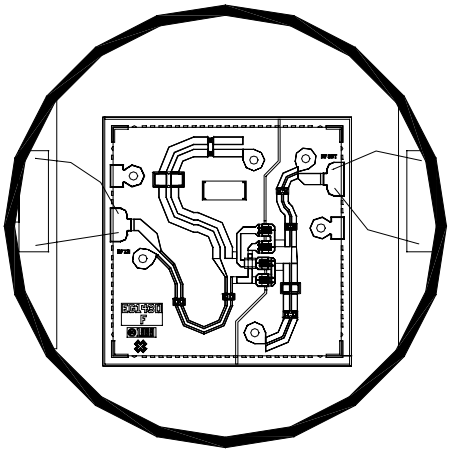
Recommended Assembly Drawing





Attach 2 TFNs and MMIC to carrier plate as shown using conductive epoxy.
Bond 4 wires as shown using minimum length.

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Assembly Process Notes

Reflow process assembly notes:

- Use AuSn (80/20) solder with limited exposure to temperatures at or above 300^0C (30 seconds max).
- An alloy station or conveyor furnace with reducing atmosphere should be used.
- No fluxes should be utilized.
- Coefficient of thermal expansion matching is critical for long-term reliability.
- Devices must be stored in a dry nitrogen atmosphere.

Component placement and adhesive attachment assembly notes:

- Vacuum pencils and/or vacuum collets are the preferred method of pick up.
- Air bridges must be avoided during placement.
- The force impact is 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.
- Maximum stage temperature is 200^0C.

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

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