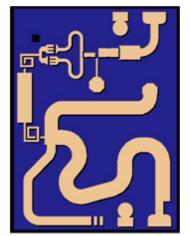


# 20 - 40 GHz X3 Frequency Multiplier

## **TGC1430G**



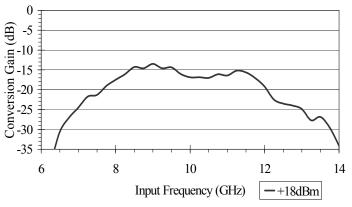
Chip Dimensions 1.50 mm x 2.0 mm

### **Key Features and Performance**

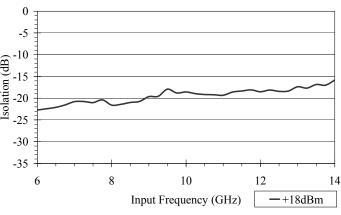
- 0.25um pHEMT Technology
- 20 40 GHz Output Frequencies
- 8.5 13.5 GHz Fundamental Frequencies
- -15 +/- 2dB Conversion Gain
- 18 dBm Input Drive Optimum
- 15dB Fundamental Isolation
- 30dB 2nd Harmonic Isolation

### **Primary Applications**

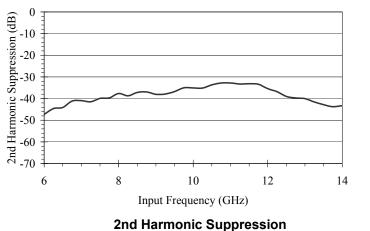
- Point-to-Point Radio
- Point-to-Multipoint Communications



Conversion Gain vs Input Frequency (Input @ 18dBm)



**Fundamental Isolation** 

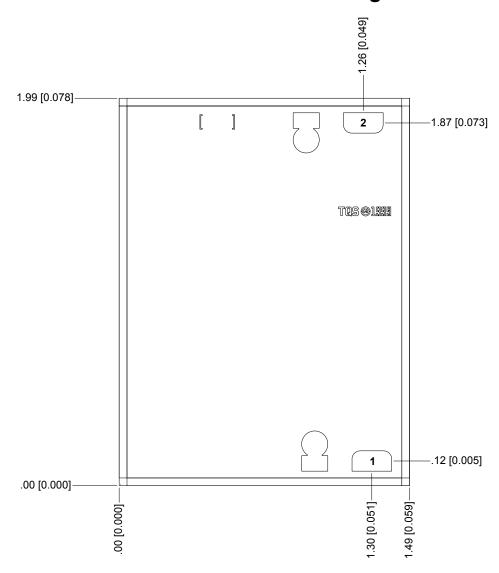


Note: Datasheet is subject to change without notice.





## **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.

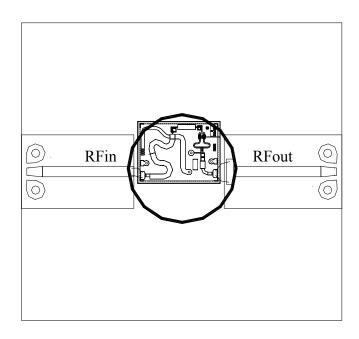
Chip size tolerance: ±0.05 [0.002] RF ground through backside

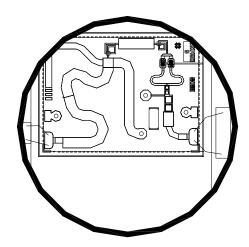
Bond Pad #1 RF Input 0.10 x 0.20 [0.004 x 0.008] Bond Pad #2 RF Output 0.10 x 0.20 [0.004 x 0.008]

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



# **Recommended Assembly Drawing**





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

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



# Product Data Sheet August 5, 2008 TGC1430G

## **Assembly Process Notes**

### Reflow process assembly notes:

- Use AuSn (80/20) solder with limited exposure to temperatures at or above 300°C (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°C.

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