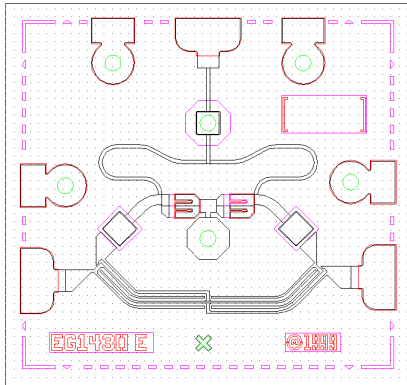


# Single-Balanced Down Converter

# TGC1430E



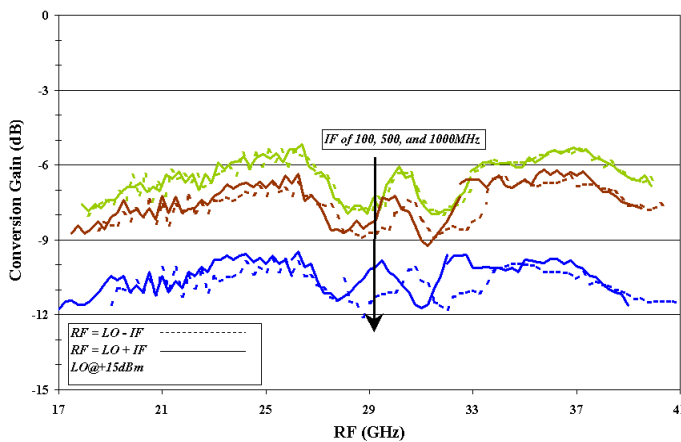
Chip Dimensions 1.26 mm x 1.19 mm

## Key Features and Performance

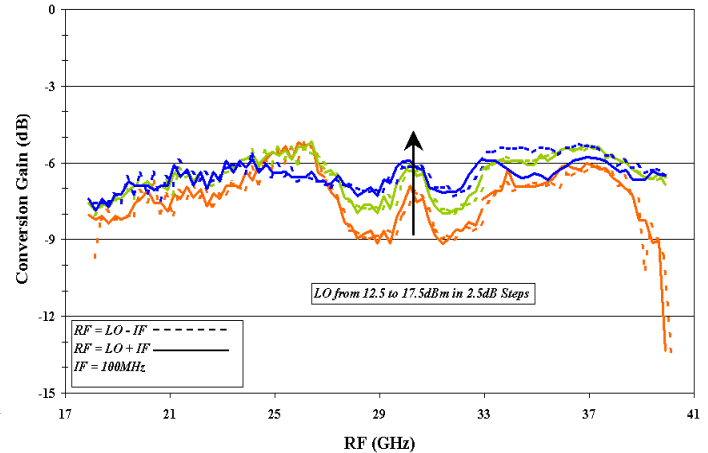
- 0.25um pHEMT Technology
- 20-40 GHz RF/LO Range
- DC -1GHz IF
- -8 dB conversion Gain at 500MHz IF
- +15dBm LO drive

## Primary Applications

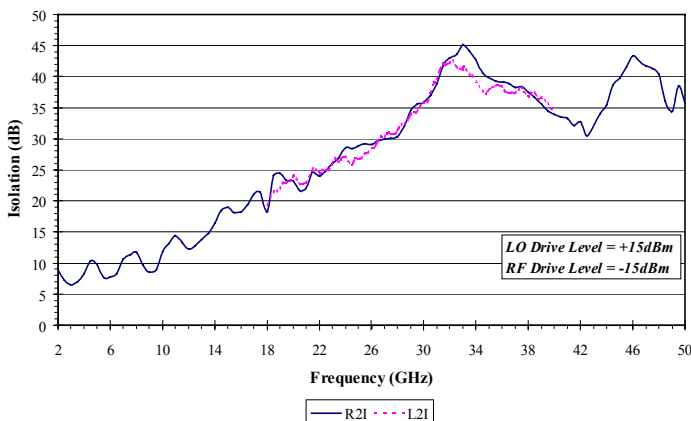
- Point-to-Point Radio
- Point-to-Multipoint Communications



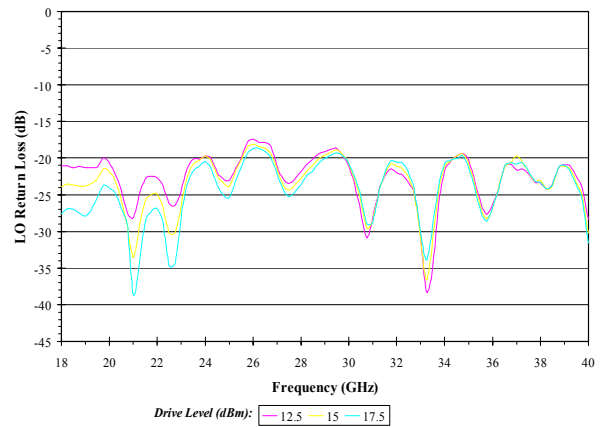
Conversion Gain vs IF Frequency



Conversion Gain vs LO Drive

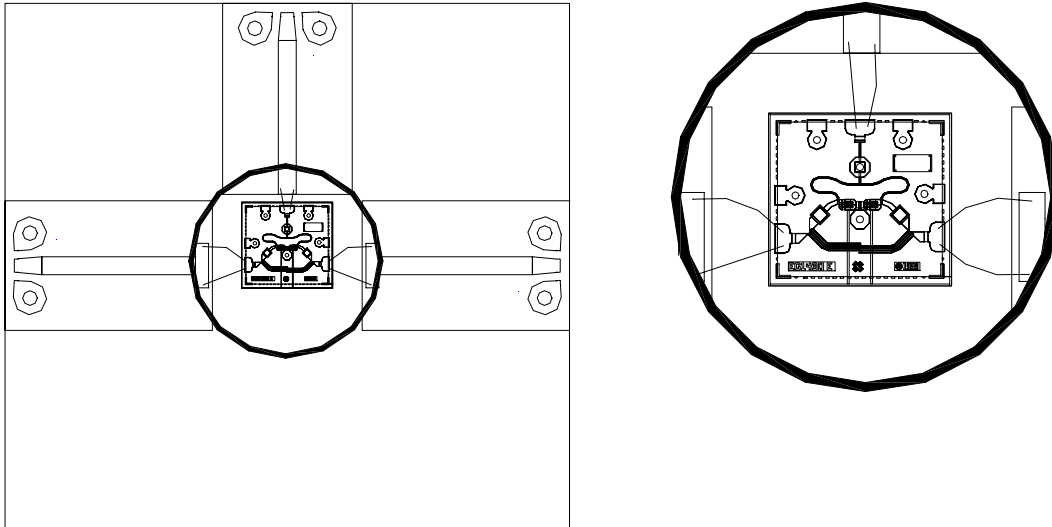


RF and LO to IF Isolation



LO Return Loss

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



TGC1430E - Recommended Assembly Drawing

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## Assembly Process Notes

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.***

*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.*

