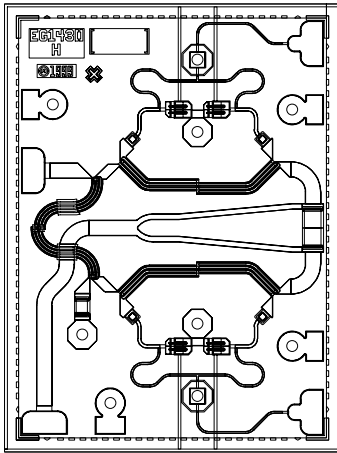


20 - 40 GHz IQ Mixer

TGC1430H



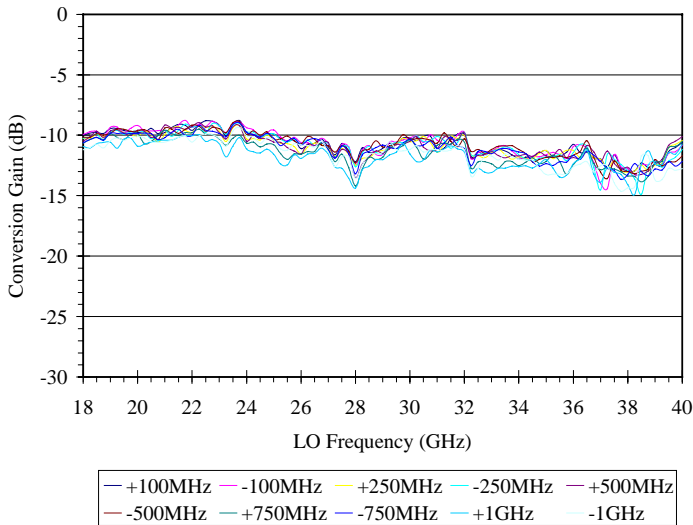
Chip Dimensions 1.50 mm x 2.0 mm

Key Features and Performance

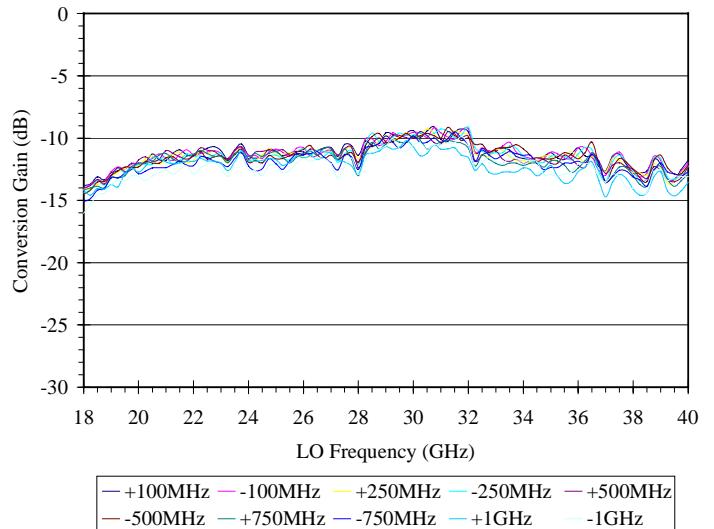
- 0.25um pHEMT Technology
- 20 - 40 GHz RF/LO Frequencies
- DC - 1GHz IF
- -11 +/- 1dB Conversion Gain
- 15 dBm Input Drive

Primary Applications

- Point-to-Point Radio
- Point-to-Multipoint Communications
- Image Reject Mixers

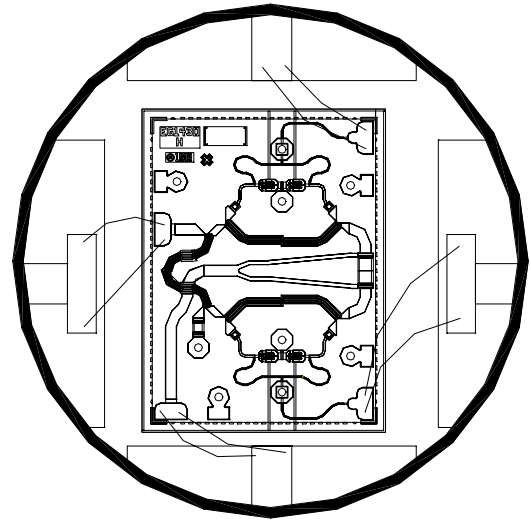
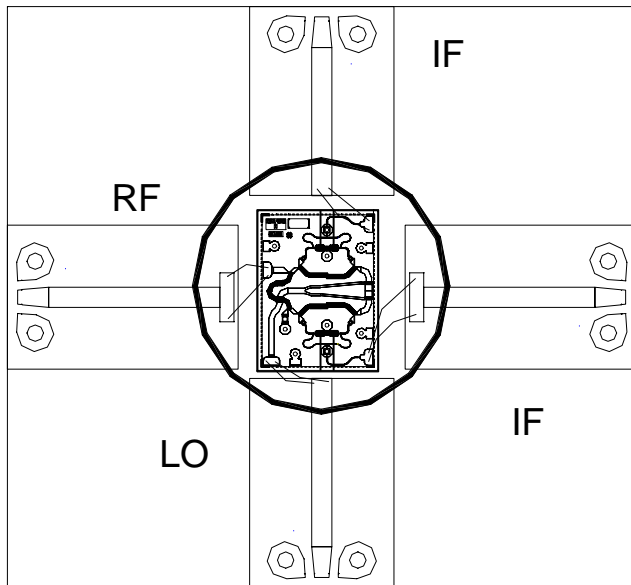


Conversion Gain vs IF Frequency
(LO Input @ +15dBm)
In-Phase IF Port



Conversion Gain vs IF Frequency
(LO Input @ +15dBm)
Quadrature IF Port

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

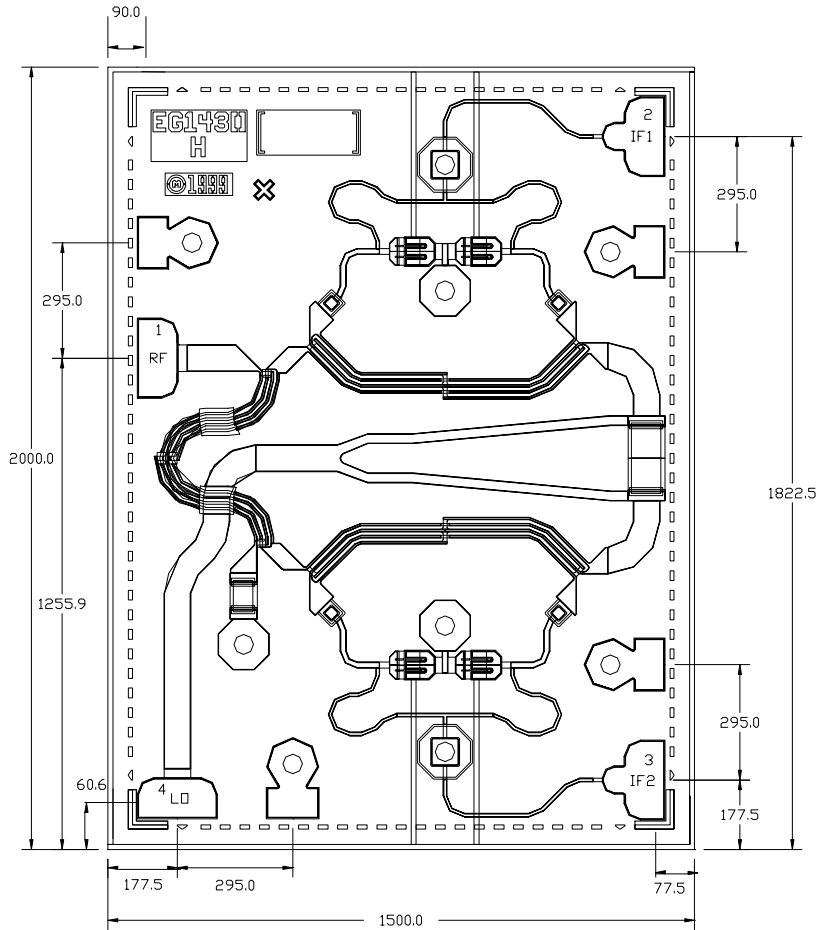


TGC1430H - Recommended Assembly Drawing

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 subject to change without notice

Mechanical Drawing



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)	0.118 x 0.200 (0.005 x 0.008)
Bond pad #2 (IF1)	0.154 x 0.200 (0.006 x 0.008)
Bond pad #3 (IF2)	0.154 x 0.200 (0.006 x 0.008)
Bond pad #4 (LD)	0.118 x 0.200 (0.005 x 0.008)

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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

Assembly Process Notes

Reflow process assembly notes:

- Use AuSn (80/20) solder with limited exposure to temperatures at or above 300°C.
- 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.
- Discrete FET devices with small pad sizes should be bonded with 0.0007-inch wire.
- 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.

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.