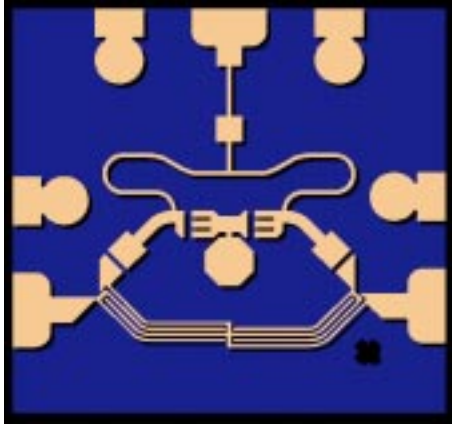


Single-Balanced Down Converter

TGC1430E-EPU



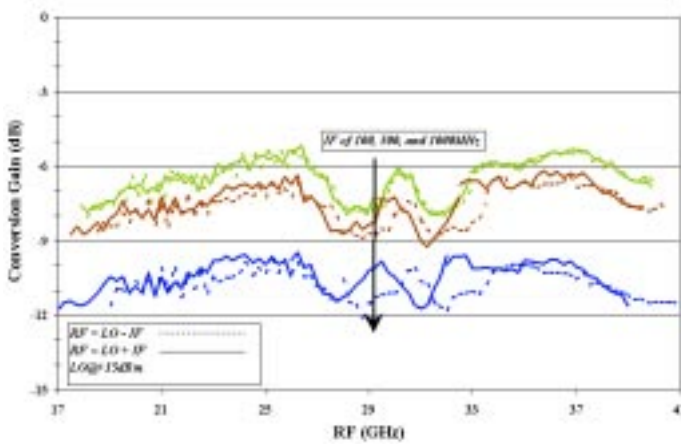
Chip Dimensions 1.26 mm x 1.19 mm

Key Features and Performance

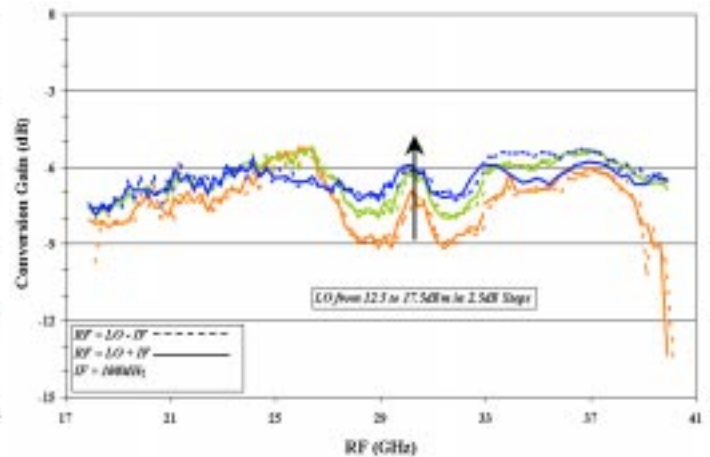
- 0.25um pHEMT Technology
- 20-40 GHz RF/LO Range
- DC -1GHz IF
- -8 dB conversion Gain at 500MHz IF
- +15dBm LO drive

Primary Applications

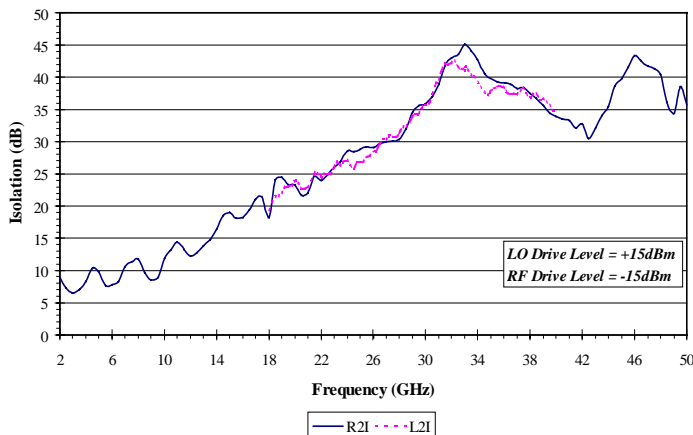
- Point-to-Point Radio
- Point-to-Multipoint Communications



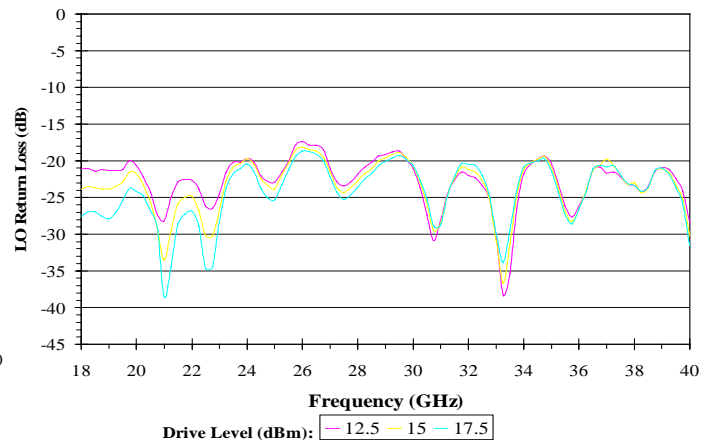
Conversion Gain vs IF Frequency



Conversion Gain vs LO Drive



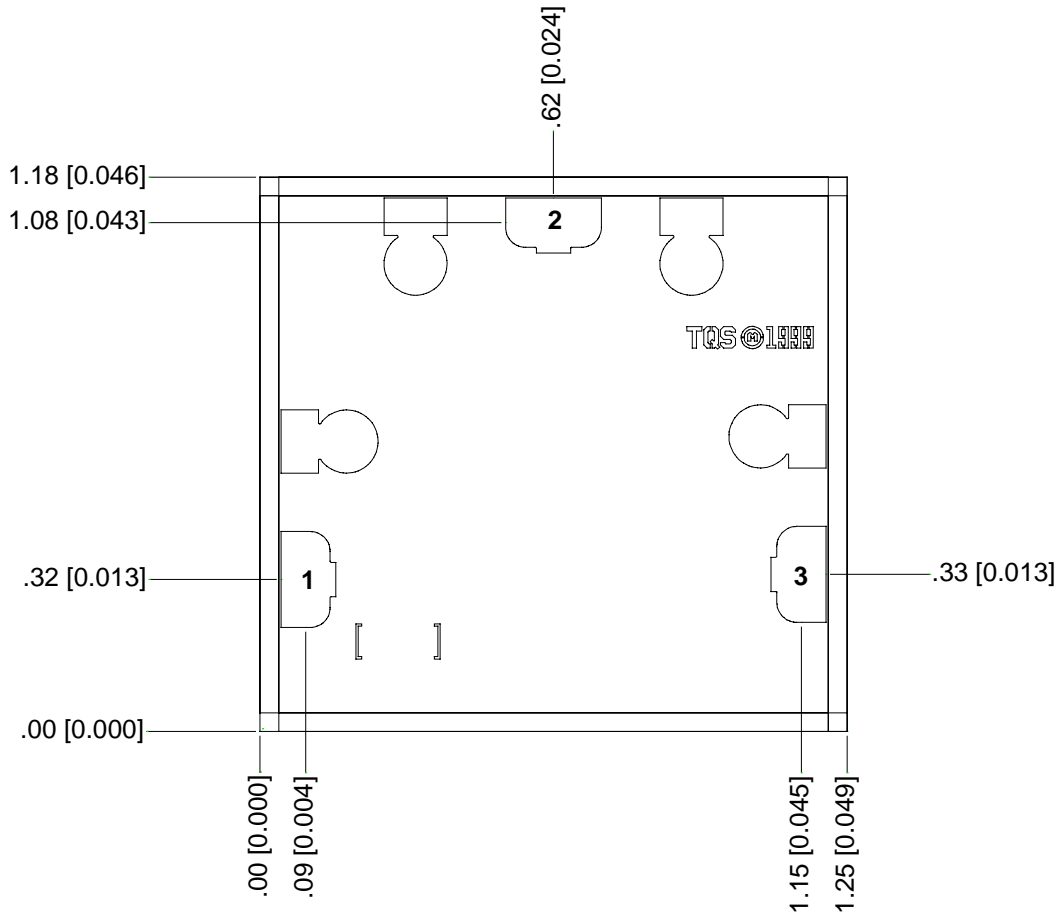
RF and LO to IF Isolation



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

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]

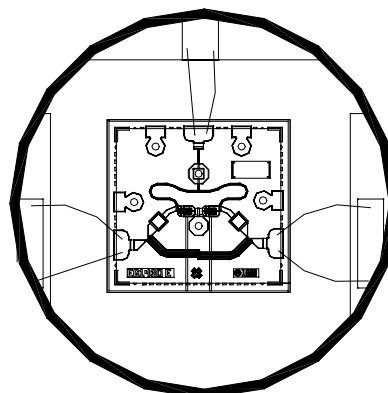
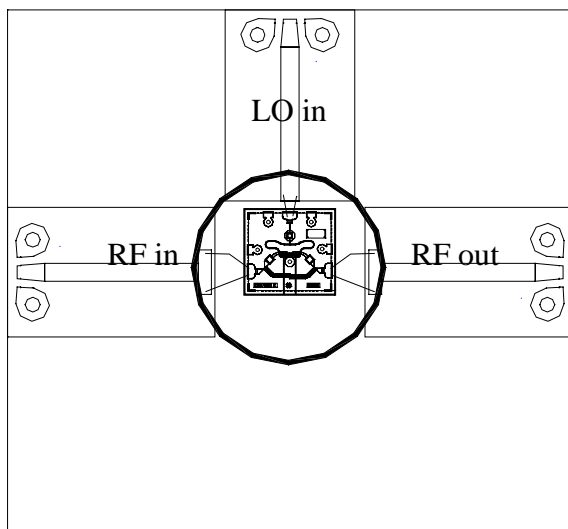
RF ground through backside

Bond Pad #1	RF Input	0.10 x 0.20	[0.004 x 0.008]
Bond Pad #2	LO Input	0.10 x 0.20	[0.004 x 0.008]
Bond Pad #3	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.

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

Recommended Assembly Drawing



Attach 3 TFNs and MMIC to carrier plate as shown using conductive epoxy.
Bond 6 wires as shown using minimum length.

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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 (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.

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