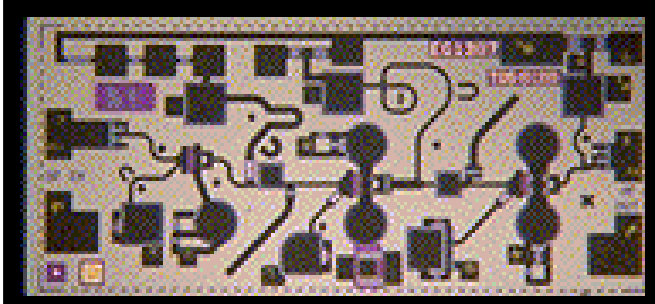


# Ka Band Low Noise Amplifier TGA1307-EPU



Chip Dimensions 2.54 mm x 1.15 mm

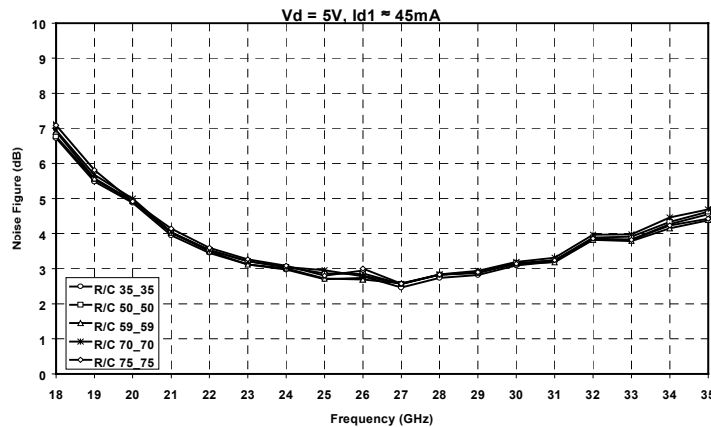
## Key Features and Performance

- 0.25um pHEMT Technology
- 23-29 GHz Frequency Range
- 3.1 dB Nominal Noise Figure 28GHz
- 17 dB Nominal Gain
- OTOI > 22dBm
- 5V, 50 mA Self-Bias

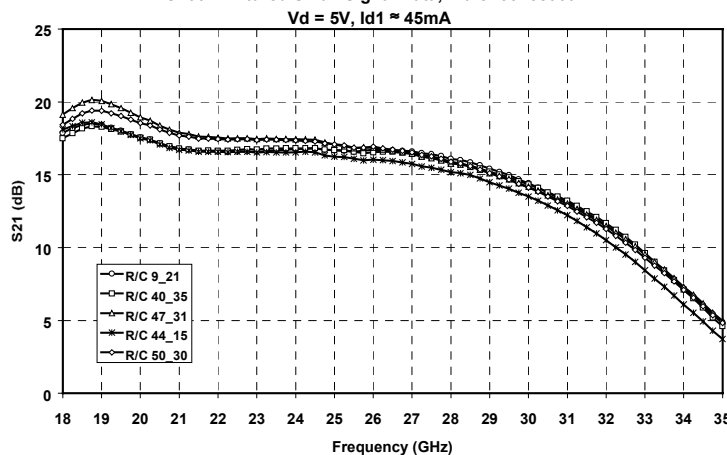
## Primary Applications

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

Typical NF @ 25C

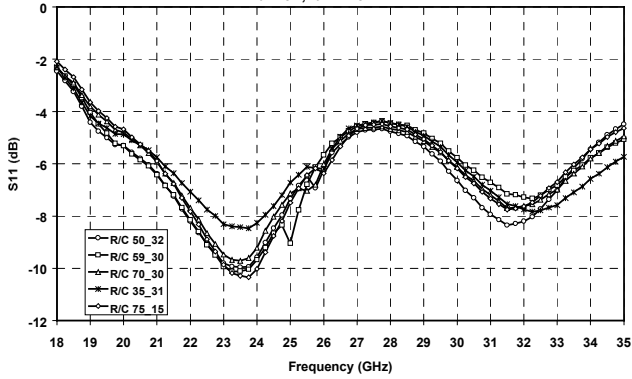


Typical Gain @ 25C

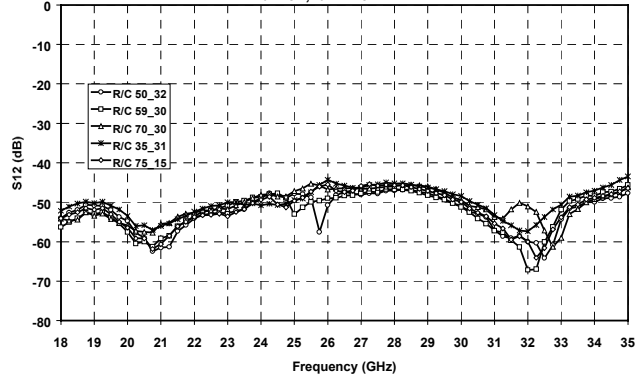


Note: Devices designated as EPU are typically early in their characterization process prior to finalizing all electrical and process specifications. Specifications subject to change without notice

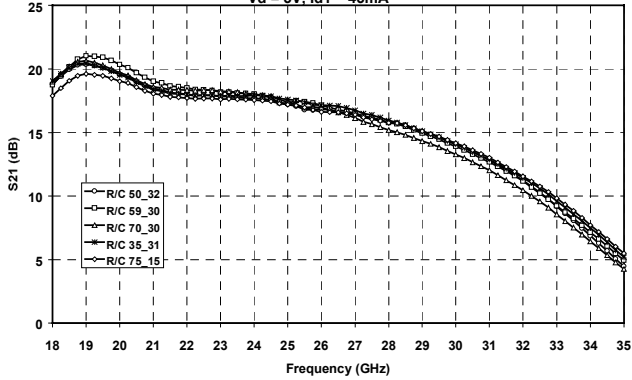
EG1307 Fixtured Small Signal Data, Wafer 991880603  
Vd = 5V, Id1 ≈ 45mA



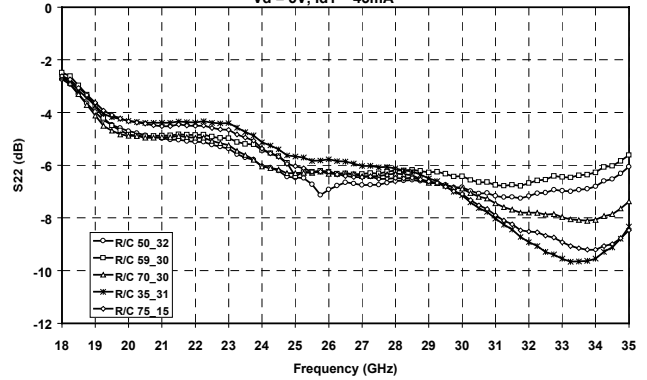
EG1307 Fixtured Small Signal Data, Wafer 991880603  
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Vd = 5V, Id1 ≈ 45mA

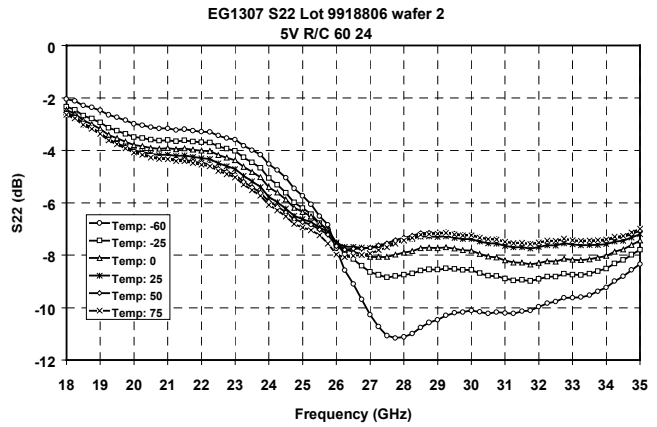
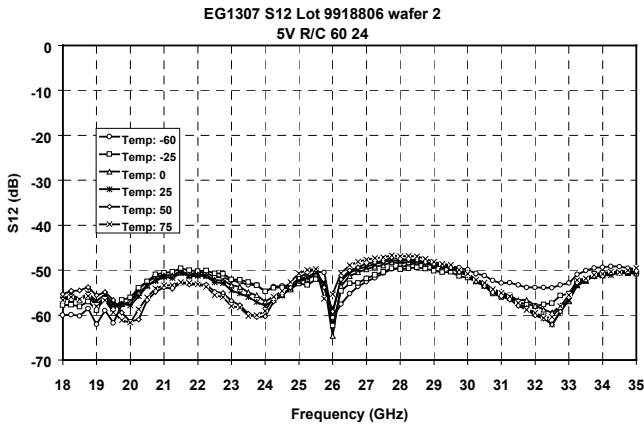
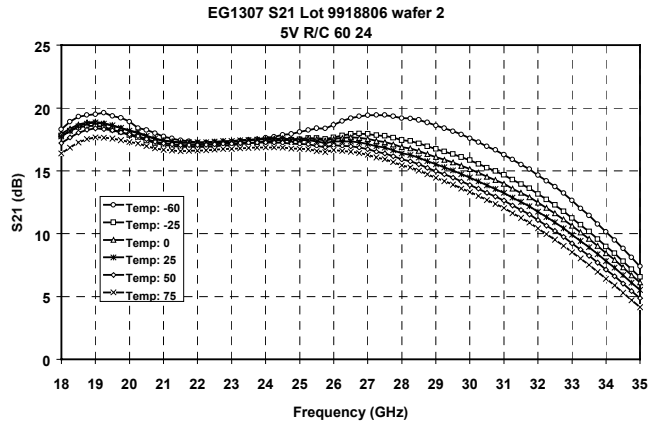
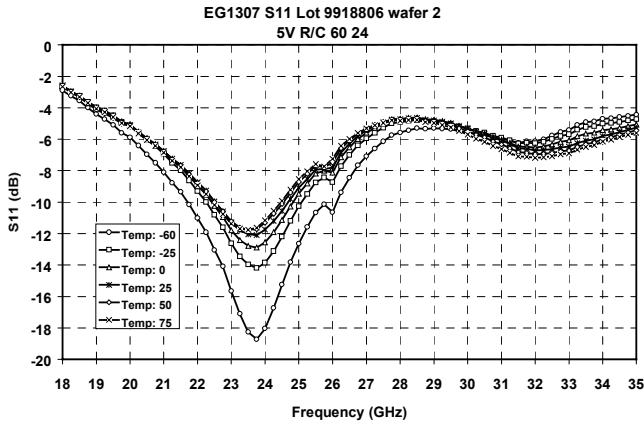


EG1307 Fixtured Small Signal Data, Wafer 991880603  
Vd = 5V, Id1 ≈ 45mA



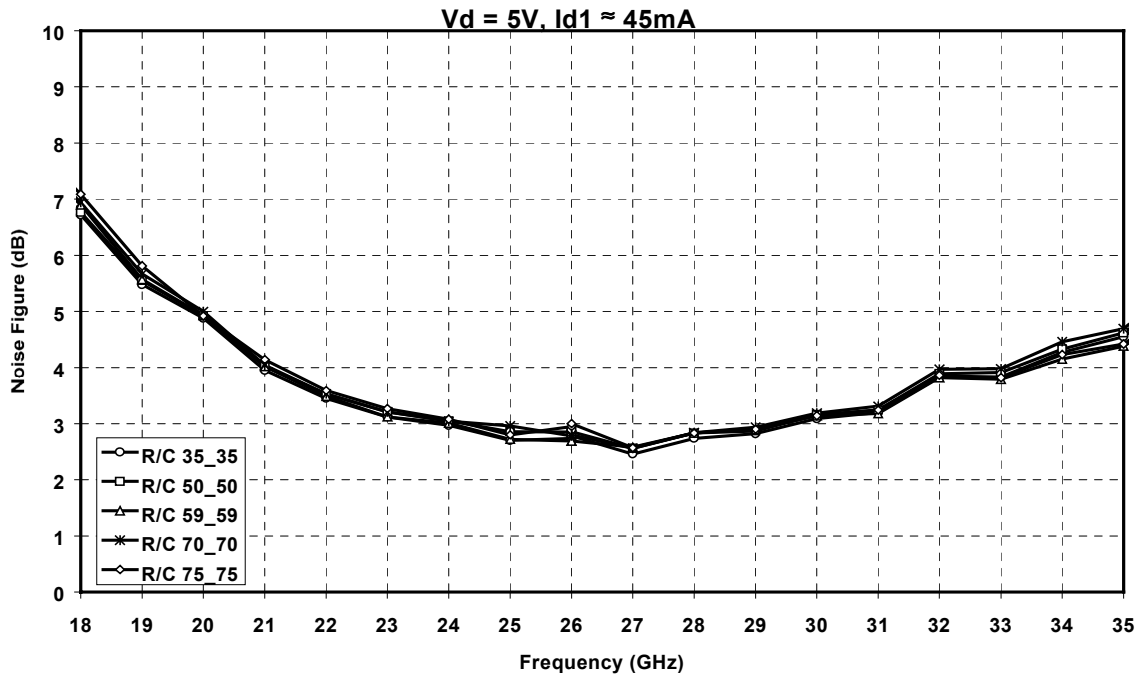
**Typical Small Signal S-parameters at 25C.**

*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.*



**Small Signal S-parameters over temperature.**

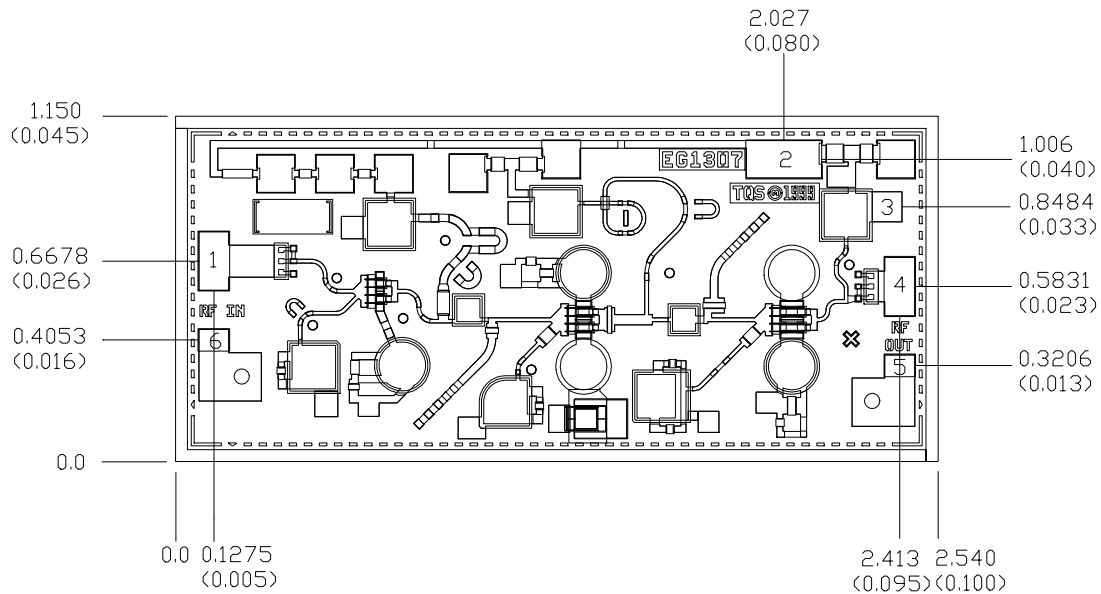
*Note: Devices designated as EPU are typically early in their characterization process prior to finalizing all electrical and process specifications. Specifications are subject to change without notice.*



**Typical Noise Figure - 5 devices**

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Units: millimeters (inches)

Thickness: 0.1016 (0.004) (reference only)

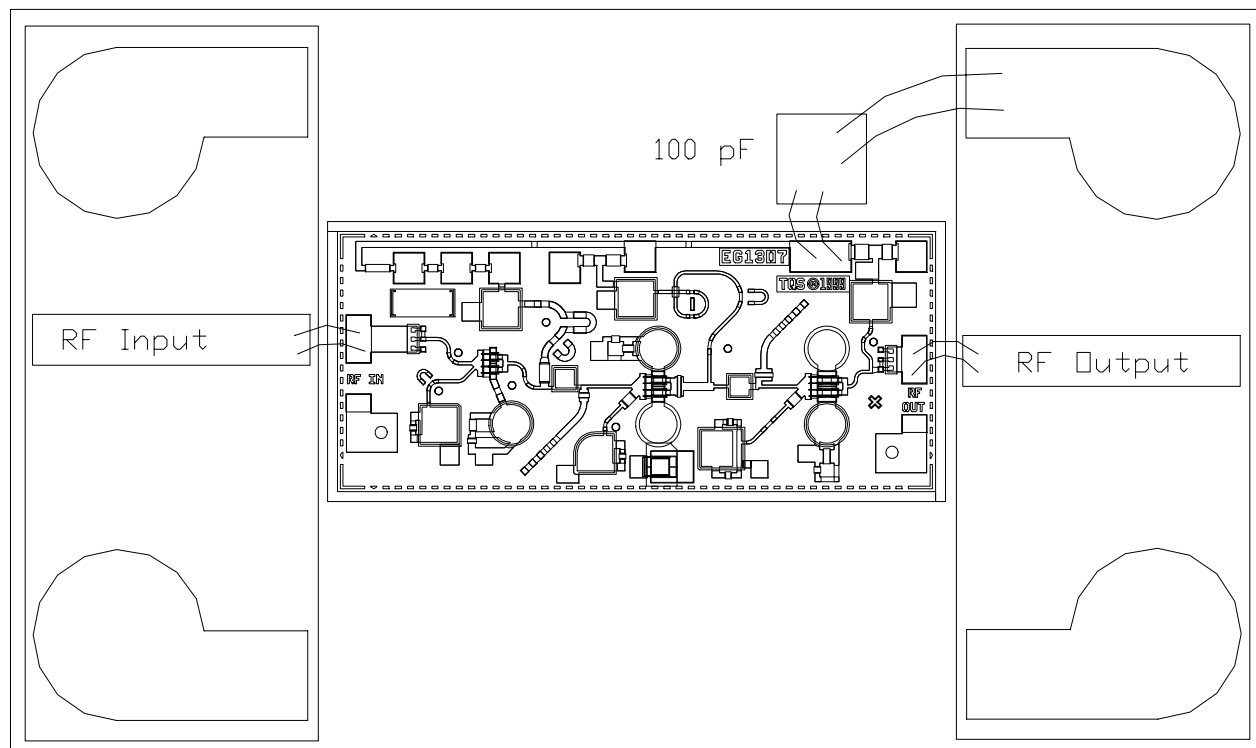
Chip to bond pad dimensions are shown to center of bond pad

Chip size tolerance: +/- 0.051 (0.002)

Bond Pad #1 (RF Input)	0.105 x 0.200 (0.004 x 0.008)
Bond Pad #2 (Vd)	0.130 x 0.253 (0.005 x 0.010)
Bond Pad #3 (GND)	0.100 x 0.100 (0.004 x 0.004)
Bond Pad #4 (RF Output)	0.105 x 0.200 (0.004 x 0.008)
Bond Pad #5 (GND)	0.075 x 0.105 (0.003 x 0.004)
Bond Pad #6 (GND)	0.075 x 0.105 (0.003 x 0.004)

**TGA1307-EPU - Mechanical Drawing**

*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*



TGA1307-EPU - Recommended Assembly Drawing

*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:

- 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.*

