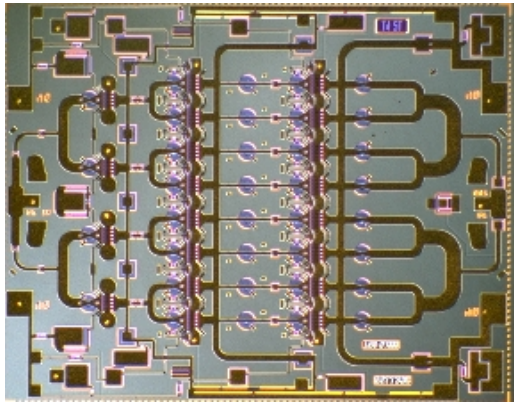


33-36 GHz 2W Power Amplifier

TGA1141



Chip Dimensions 4.13 mm x 3.3 mm

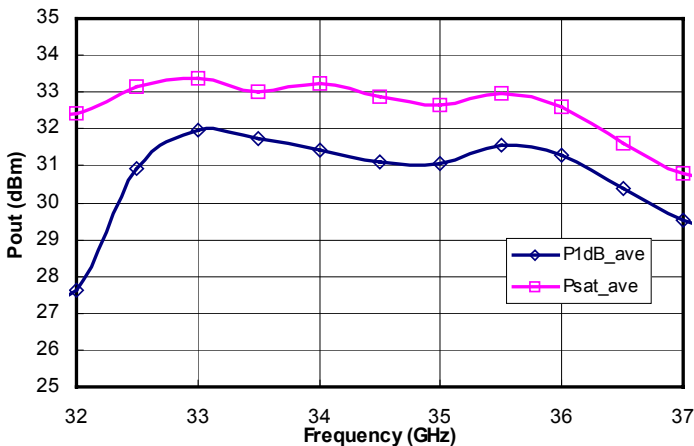
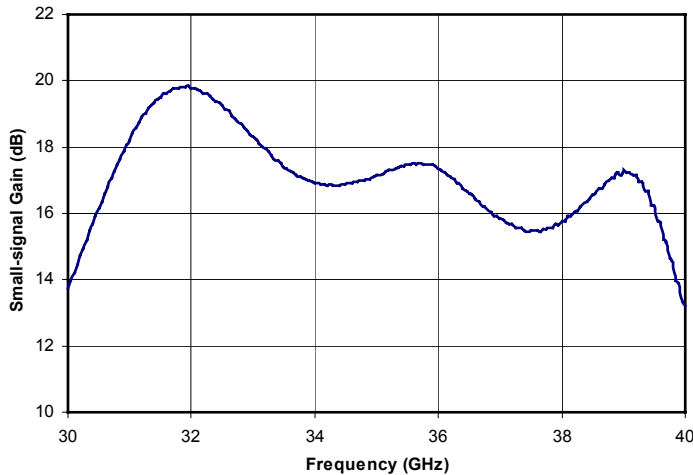
Key Features

- 0.25 um pHEMT Technology
- 17 dB Nominal Gain
- 31 dBm Pout @ P1dB,
- Psat 33dBm @ 6V , 34dBm @7V
- Bias 6 - 7V @ 1.5A

Primary Applications

- Military Radar Systems
- Ka Band Sat-Com
- Point-to-Point Radio

Wafer Lot 9918802-1, -2, -3, +6V, ~ 880mA

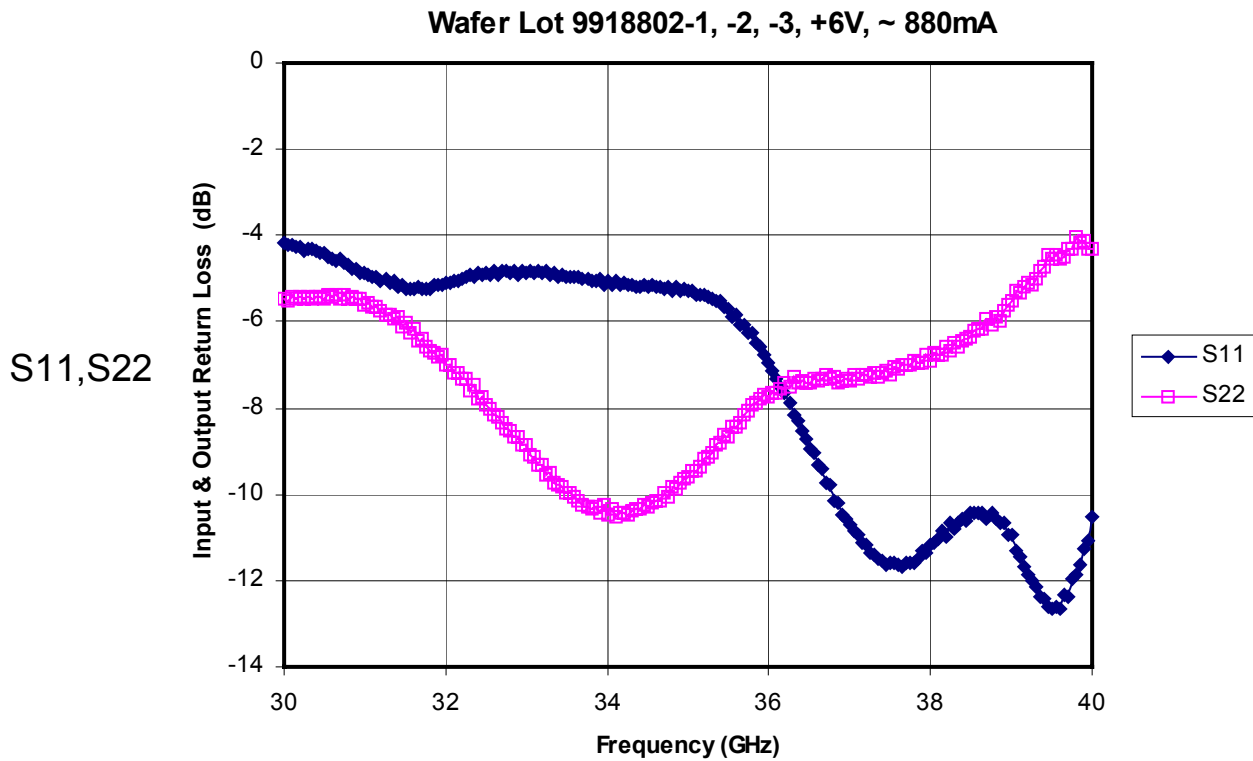
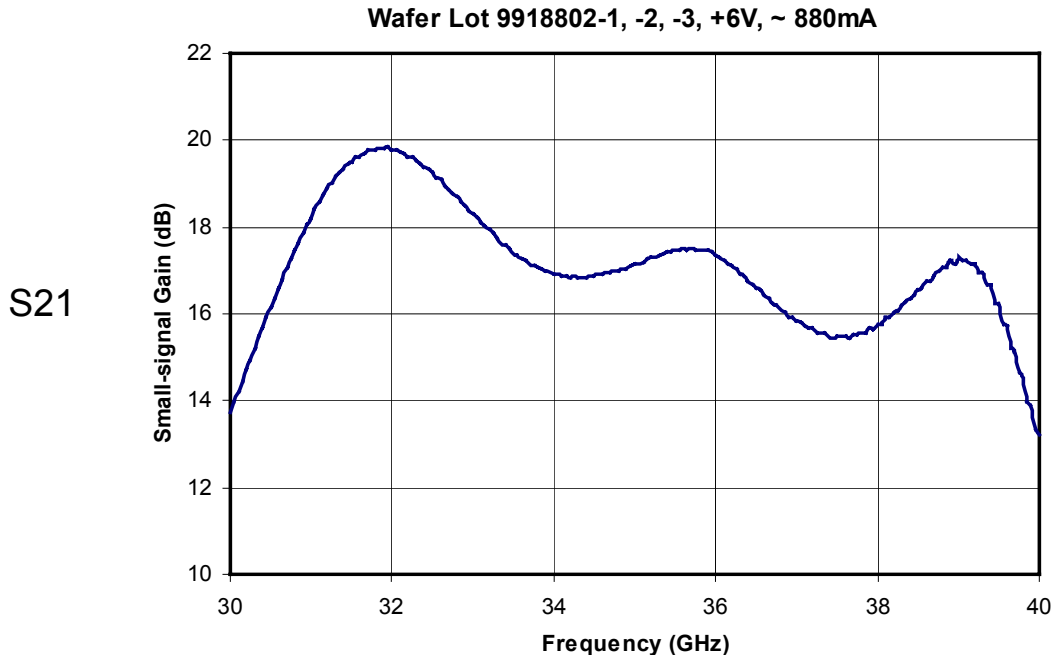


Performance Summary Table

| Description | Performance Evaluation Fixture with Flare TFNs |
|-----------------------------|---|
| Frequency range | 33 to 36 GHz |
| Small signal gain | > 17 dB nom, 34 - 35.2 GHz > 17 dB nom, 33 - 36 GHz |
| Input return loss | ~ 5 dB nom, 34 - 35.2 GHz ~ 5 dB nom. 33 - 36 GHz |
| Output return loss | > 8 dB nom, 34 - 35.2 GHz > 7 dB nom, 33 - 36 GHz |
| Output power | 32.3dBm min. 34 -35.2 GHz 31.5dBm min, 34 - 35.2 GHz over temp. |
| PAE | > 20% +25C |
| Operating temperature range | Tested under -26, +25, & +100C Predict: -43C |
| Ids | < 1.5 A max over operating frequency and Temp. range |
| Vds | + 6 V |
| Die size | 4.134 mm x 3.300 mm 13.6mm ² |

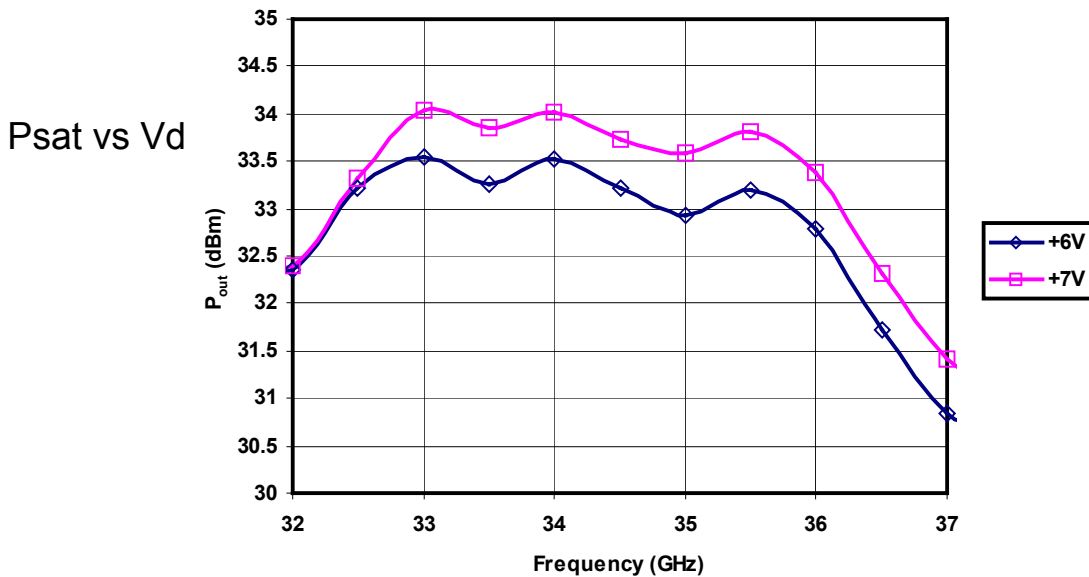
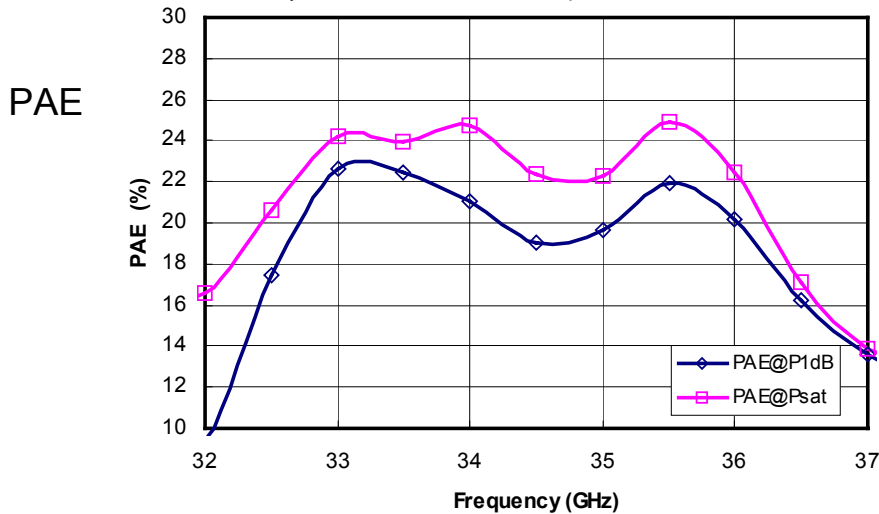
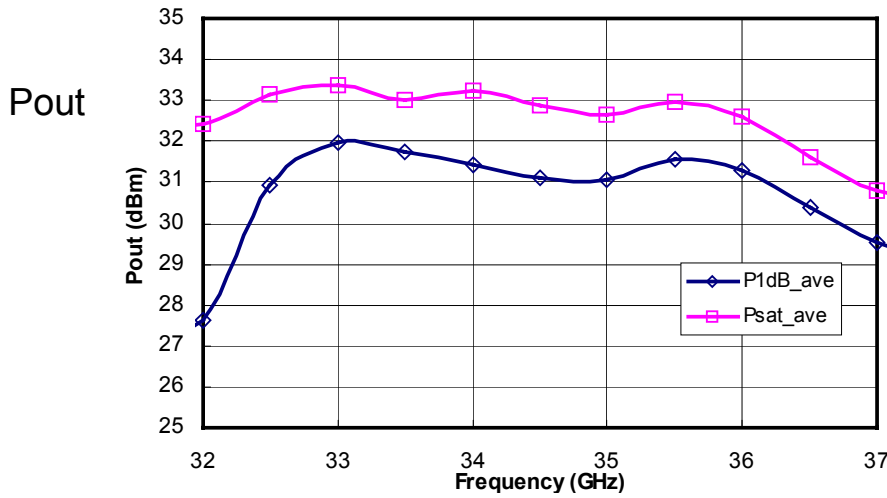
Note: Devices designated as EPU are typically early in their characterization process prior to finalizing all electrical and process specifications. Specifications are subject to change without notice

Measured Average Small Signal Data



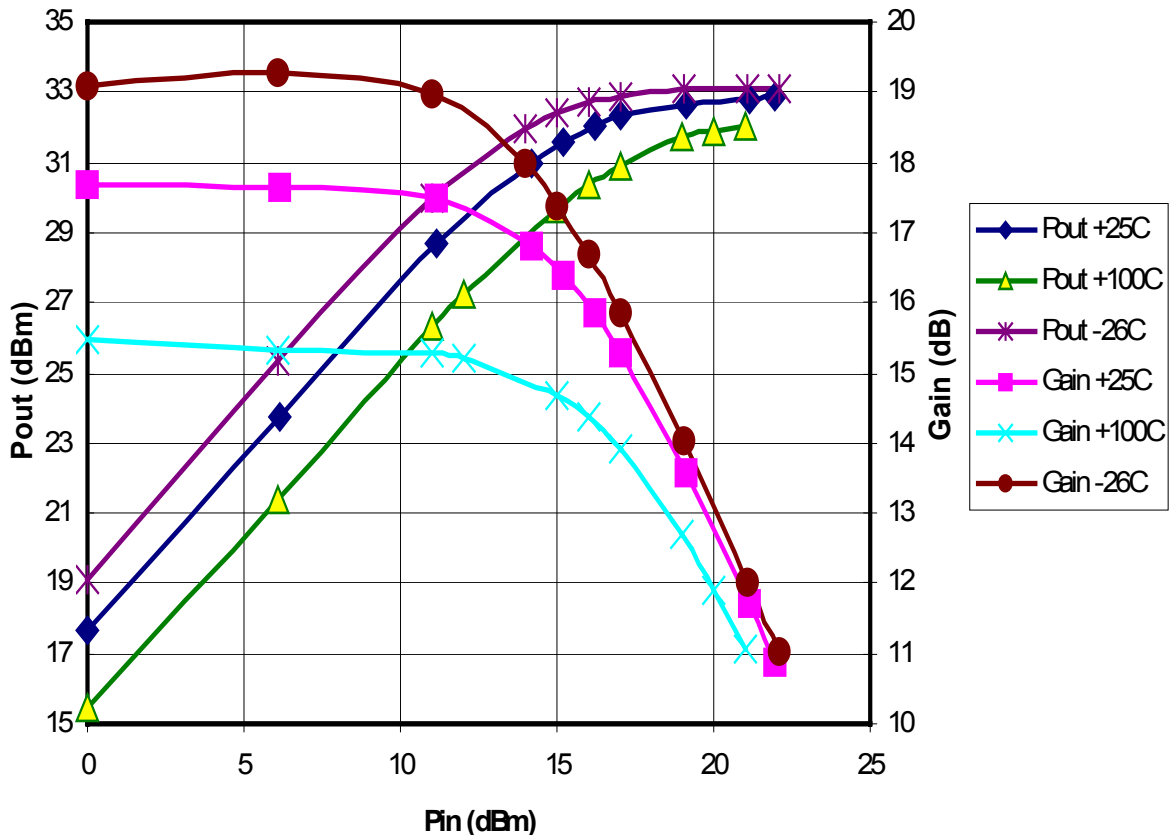
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Measured Power Data



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.

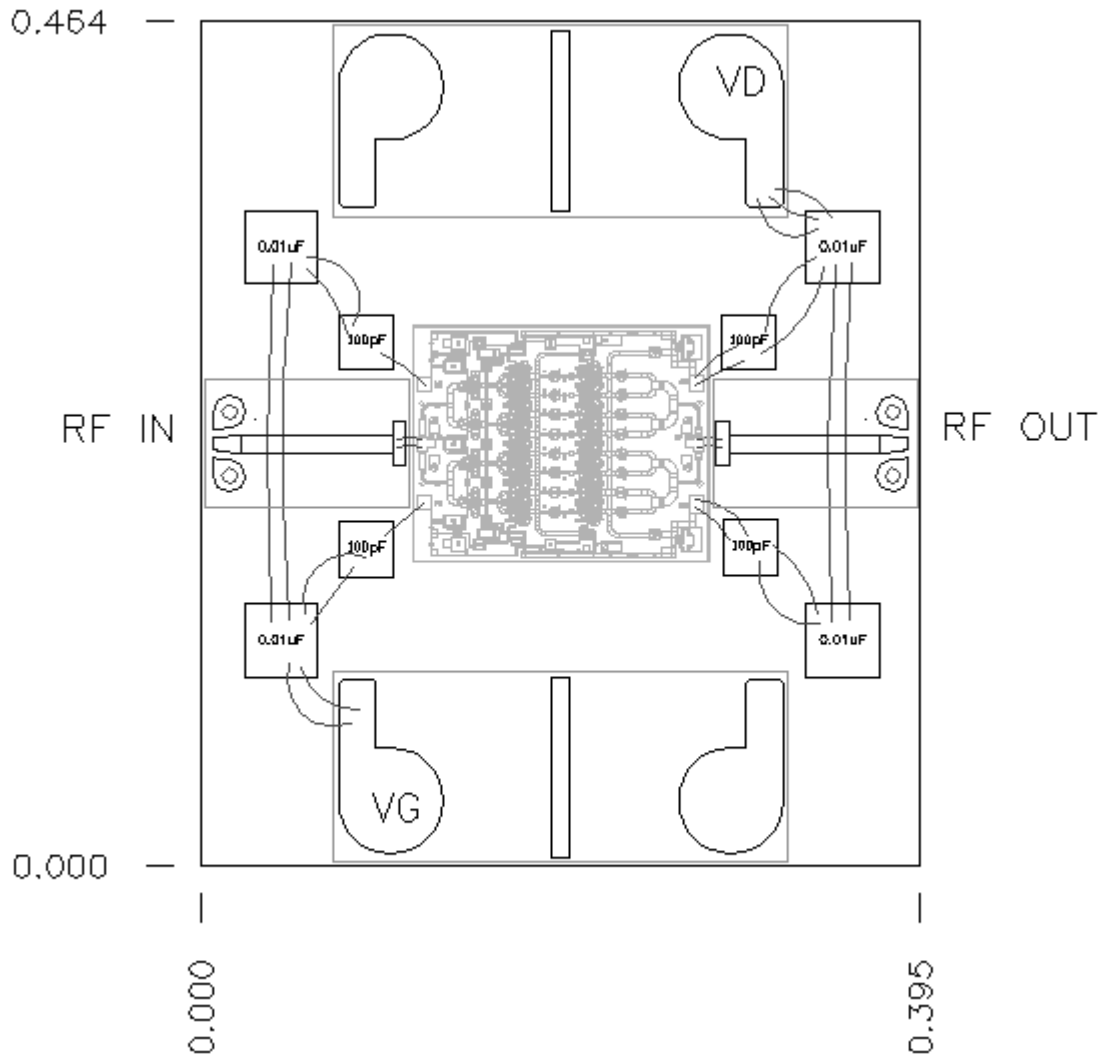
Pout, Gain vs. Pin at -26C, +25C and +100C
w9918802-1 Dev 2505: 34.0GHz +6V



Pout vs. Temperature Data Summary Matrix:

| Freq (GHz) | T= -26C | | T= +25C | | T= +100C | |
|-----------------|----------|-----------|----------|-----------|----------|-----------|
| | min Pout | mean Pout | min Pout | mean Pout | min Pout | mean Pout |
| 34 | 33 | 33 | 32.7 | 32.8 | 31.9 | 32 |
| 34.6 | 32.8 | 32.9 | 32.5 | 32.6 | 31.7 | 31.8 |
| 35.2 | 32.5 | 32.7 | 32.3 | 32.4 | 31.5 | 31.6 |
| Ave. Pout (dBm) | 32.8 | 32.9 | 32.5 | 32.6 | 31.7 | 31.8 |

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.



Chip Assembly and Bonding Diagram

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.

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

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