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With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



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Typical Applications

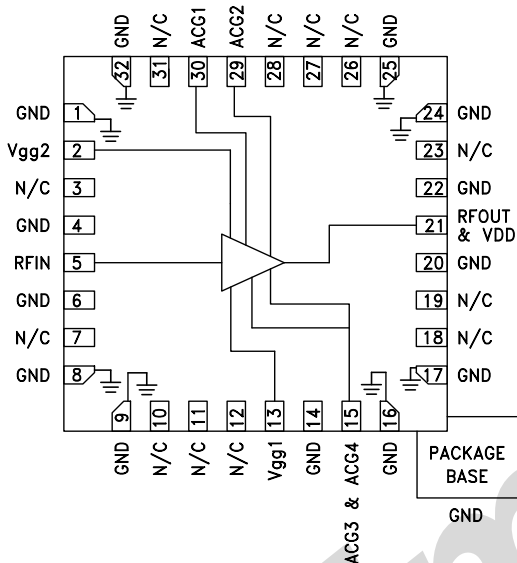
The HMC797APM5E is ideal for:

- Test Instrumentation
- Microwave Radio & VSAT
- Military & Space
- Telecom Infrastructure
- Fiber Optics

Features

- High P1dB Output Power: 28 dBm
- High Psat Output Power: 29.5 dBm
- High Gain: 13.5 dB
- High Output IP3: 39 dBm
- Supply Voltage: +10 V @ 400 mA
- 50 Ohm Matched Input/Output
- 32 Lead 5x5 mm SMT Package: 25 mm²

Functional Diagram



General Description

The HMC797APM5E is a GaAs MMIC pHEMT Distributed Power Amplifier which operates between DC and 22 GHz. The amplifier provides 13.5 dB of gain, 39 dBm output IP3 and +28 dBm of output power at 1 dB gain compression while requiring 400 mA from a +10 V supply. This versatile PA exhibits a positive gain slope from 4 to 20 GHz making it ideal for EW, ECM, Radar and test equipment applications. The HMC797APM5E amplifier I/Os are internally matched to 50 Ohms facilitating integration into multi-chip-modules (MCMs), is packaged in a leadless QFN 5x5 mm surface mount package, and requires no external matching components.

Electrical Specifications, $T_A = +25^\circ\text{C}$, $V_{dd} = +10\text{V}$, $V_{gg2} = +3.5\text{V}$, $I_{dd} = 400\text{mA}^*$

| Parameter | Min. | Typ. | Max. | Min. | Typ. | Max. | Min. | Typ. | Max. | Units |
|--|---------|-------|------|---------|-------|------|---------|-------|------|-------|
| Frequency Range | DC - 12 | | | 12 - 18 | | | 18 - 22 | | | GHz |
| Gain | 11 | 12.5 | | 11 | 13.5 | | 11 | 13.5 | | dB |
| Gain Flatness | | ±0.7 | | | ±0.5 | | | ±0.5 | | dB |
| Gain Variation Over Temperature | | 0.012 | | | 0.008 | | | 0.008 | | dB/°C |
| Input Return Loss | | 13 | | | 15 | | | 15 | | dB |
| Output Return Loss | | 12 | | | 16 | | | 13 | | dB |
| Output Power for 1 dB Compression (P1dB) | 26 | 28 | | 25 | 27 | | 23.5 | 25.5 | | dBm |
| Saturated Output Power (Psat) | | 29.5 | | | 29 | | | 27 | | dBm |
| Output Third Order Intercept (IP3) | | 39 | | | 37 | | | 35 | | dBm |
| Noise Figure | | 3.5 | | | 4 | | | 6 | | dB |
| Supply Current (I _{dd}) (V _{dd} = 10V, V _{gg1} = -0.8V Typ.) | | 400 | 440 | | 400 | 440 | | 400 | 440 | mA |

* Adjust V_{gg1} between -2 to 0 V to achieve I_{dd} = 400 mA typical.

HMC797APM5E* PRODUCT PAGE QUICK LINKS

Last Content Update: 02/23/2017

COMPARABLE PARTS

View a parametric search of comparable parts.

EVALUATION KITS

- HMC797APM5 Evaluation Board

DOCUMENTATION

Data Sheet

- HMC797APM5E: GaAs pHEMT MMIC 1 Watt Power Amplifier, DC - 22 GHz Preliminary Data Sheet

DESIGN RESOURCES

- HMC797APM5E Material Declaration
- PCN-PDN Information
- Quality And Reliability
- Symbols and Footprints

DISCUSSIONS

View all HMC797APM5E EngineerZone Discussions.

SAMPLE AND BUY

Visit the product page to see pricing options.

TECHNICAL SUPPORT

Submit a technical question or find your regional support number.

DOCUMENT FEEDBACK

Submit feedback for this data sheet.


**GaAs pHEMT MMIC
1 WATT POWER AMPLIFIER, DC - 22 GHz**
Absolute Maximum Ratings

| | |
|--|-------------------------------------|
| Nominal Drain Supply to GND | +12.0 V |
| Gate Bias Voltage (V _{gg1}) | -3.0 to 0 Vdc |
| Gate Bias Current (I _{gg1}) | < +10 mA |
| Gate Bias Voltage (V _{gg2}) | +2.0 V to (V _{dd} - 6.5 V) |
| Gate Bias Current (I _{gg2}) | < +10 mA |
| Continuous P _{diss} (T= 85 °C) (derate 69 mW/°C above 85 °C) | 4.5 W |
| RF Input Power | +27 dBm |
| Output Power into VSWR >7:1 | +29 dBm |
| Storage Temperature | -65 to 150 °C |
| Max Peak Reflow Temperature | 260 °C |
| ESD Sensitivity (HBM) | Class 1A |

Reliability Information

| | |
|---|---------------|
| Junction Temperature to Maintain 1 Million Hour MTF | 150 °C |
| Nominal Junction Temperature (T=85 °C, V _{dd} = 10 V) | 144 °C |
| Thermal Resistance (channel to ground paddle) | 14.6 °C/W |
| Operating Temperature | -40 to +85 °C |

9

AMPLIFIERS - LINEAR & POWER - SMT


**ELECTROSTATIC SENSITIVE DEVICE
OBSERVE HANDLING PRECAUTIONS**
Typical Supply Current vs. V_{dd}

| V _{dd} (V) | I _{dd} (mA) |
|---------------------|----------------------|
| +9 | 400 |
| +10 | 400 |
| +11 | 400 |

Outline Drawing
