

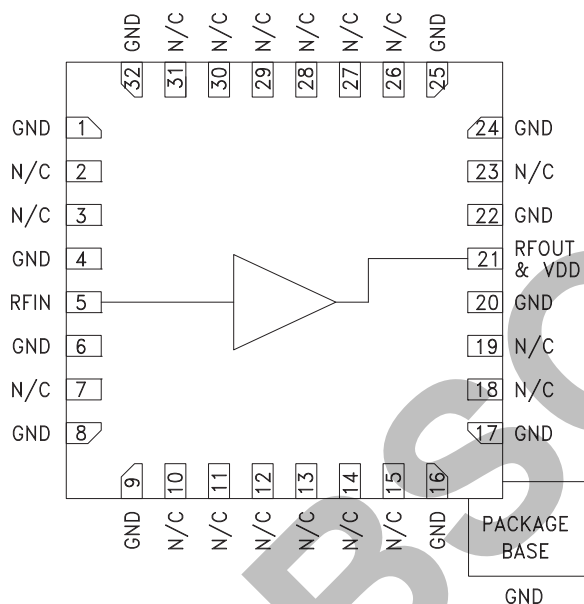
GaAs pHEMT MMIC POWER AMPLIFIER, 0.2 - 22 GHz

Typical Applications

The HMC907ALP5E is ideal for:

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

Functional Diagram



Features

- High P1dB Output Power: +26 dBm
- High Gain: 12 dB
- High Output IP3: +36 dBm
- Single Supply: +10 V @ 350 mA
- 50 Ohm Matched Input/Output
- 32 Lead 5x5 mm SMT Package: 25 mm²

General Description

The HMC907ALP5E is a GaAs MMIC pHEMT Distributed Power Amplifier which operates between 0.2 and 22 GHz. This self-biased power amplifier provides 12 dB of gain, +36 dBm output IP3 and +26 dBm of output power at 1 dB gain compression while requiring only 350 mA from a +10 V supply. Gain flatness is excellent at ± 0.7 dB from 0.2 to 22 GHz making the HMC907ALP5E ideal for EW, ECM, Radar and test equipment applications. The HMC907ALP5E amplifier I/Os are internally matched to 50 Ohms facilitating integration into Mutli-Chip-Modules (MCMs) and is packaged in a leadless QFN 5x5 mm surface mount package, and requires no external matching components.

Electrical Specifications, $T_A = +25^\circ\text{C}$, $V_{dd} = +10\text{ V}$, $I_{dd} = 350\text{ mA}$

Parameter	Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.	Units
Frequency Range	0.2 - 10			10 - 18			18 - 22			GHz
Gain	10	12		10	11.5		10	11.5		dB
Gain Flatness		± 0.7			± 0.6			± 0.7		dB
Gain Variation Over Temperature		0.01			0.013			0.014		dB/°C
Input Return Loss		15			9			8		dB
Output Return Loss		13			12			8		dB
Output Power for 1 dB Compression (P1dB)	23	26		21	25		19.5	21.5		dBm
Saturated Output Power (Psat)		28.5			27			24.5		dBm
Output Third Order Intercept (IP3)		36			34			31		dBm
Noise Figure		3.5			3.5			4		dB
Supply Current (Idd) (Vdd= 10V)		350	400		350	400		350	400	mA

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Absolute Maximum Ratings

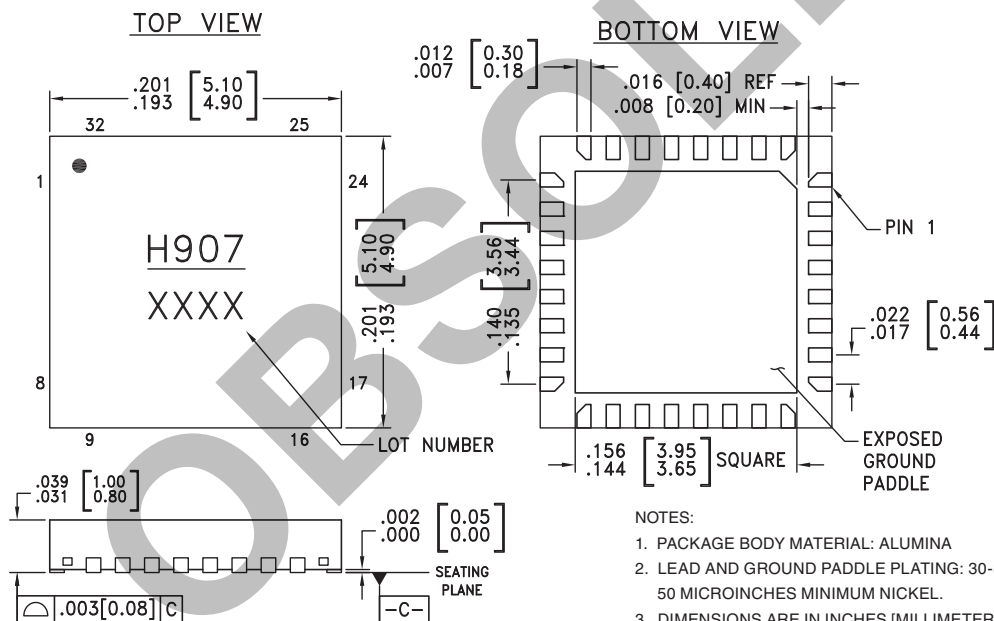
Drain Bias Voltage (Vdd)	+11 Vdc
RF Input Power (RFIN)(Vdd = +11V)	+20 dBm
Channel Temperature	150 °C
Continuous P _{diss} (T= 85 °C) (derate 63 mW/°C above 85 °C)	4.1 W
Thermal Resistance (channel to ground paddle)	15.9 °C/W
Storage Temperature	-65 to 150°C
Operating Temperature	-55 to 85 °C
ESD Sensitivity (HBM)	Class 1A

Typical Supply Current vs. Vdd

Vdd (V)	Idd (mA)
+8	335
+9	343
+10	350
+11	357



**ELECTROSTATIC SENSITIVE DEVICE
OBSERVE HANDLING PRECAUTIONS**

Outline Drawing

NOTES:

1. PACKAGE BODY MATERIAL: ALUMINA
2. LEAD AND GROUND PADDLE PLATING: 30-80 MICROINCHES GOLD OVER 50 MICROINCHES MINIMUM NICKEL.
3. DIMENSIONS ARE IN INCHES [MILLIMETERS].
4. LEAD SPACING TOLERANCE IS NON-CUMULATIVE
5. PACKAGE WARP SHALL NOT EXCEED 0.05mm DATUM [-C-]
6. ALL GROUND LEADS AND GROUND PADDLE MUST BE SOLDERED TO PCB RF GROUND.
7. CLASSIFIED AS MOISTURE SENSITIVITY LEVEL (MSL) 1.