

v00.1115

HMC907ALP5E

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, $T_A = +25 \text{ °C}$, Vdd = +10 V, Idd = 350 mA

Parameter	Min.	Тур.	Max.	Min.	Тур.	Max.	Min.	Тур.	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

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Drain Bias Voltage (Vdd)	+11 Vdc			
RF Input Power (RFIN)(Vdd = +11V)	+20 dBm			
Channel Temperature	150 °C			
Continuous Pdiss (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)	ldd (mA)
+8	335
+9	343
+10	350
+11	357



Outline Drawing TOP VIEW BOTTOM VIEW .012 0.30 .007 0.18 .016 [0.40] REF .008 [0.20] MIN-5.10 4.90 32 25 24 Г PIN 1 H907 XXXX 193 .022 0.56 8 Π Π ٥ 16 EXPOSED LOT NUMBER .156 3.95 3.65 SQUARE GROUND .039 .031 1.00 PADDLE 0.05 .002 .000 NOTES 1. PACKAGE BODY MATERIAL: ALUMINA SEATING 2. LEAD AND GROUND PADDLE PLATING: 30-80 MICROINCHES GOLD OVER PLANE 50 MICROINCHES MINIMUM NICKEL. □ .003[0.08] C -C-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.

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