

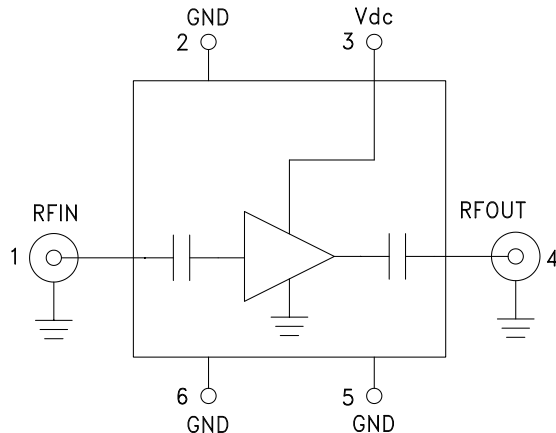


Typical Applications

The HMC-C027 Wideband LNA is ideal for:

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

Functional Diagram



Features

Noise Figure: 2.9 dB

Gain: 20 dB

OIP3: 22 dBm

P1dB Output Power: +11 dBm

50 Ohm Matched Input/Output

Hermetically Sealed Module

Field Replaceable 2.92 mm Connectors

-55 °C to +85 °C Operating Temperature

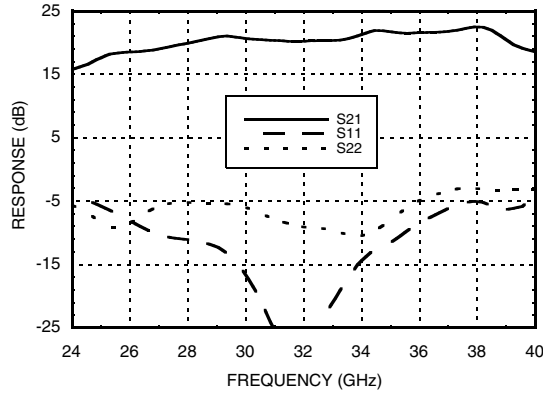
General Description

The HMC-C027 is a GaAs MMIC pHEMT Low Noise Amplifier in a miniature, hermetic module which operates between 29 and 36 GHz. This high dynamic range amplifier module provides 20 dB of gain, 2.9 dB noise figure and up to +22 dBm of output IP3 from a single +3V supply. The wideband amplifier I/Os are internally matched to 50 Ohms and DC blocked for robust performance. The module features positive gain slope, and consistent noise figure and output power performance across its operating band.

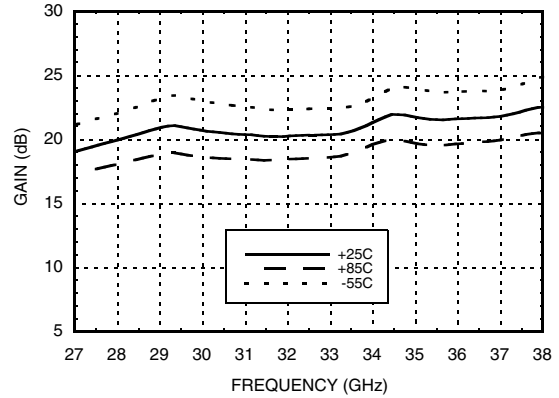
Electrical Specifications, $T_A = +25^\circ\text{C}$, $V_{dc} = +3\text{V}$

Parameter	Min.	Typ.	Max.	Units
Frequency Range	29 - 36			GHz
Gain	17	20		dB
Gain Variation Over Temperature		0.03	0.05	dB/ °C
Noise Figure		2.9	3.5	dB
Input Return Loss		14		dB
Output Return Loss		8		dB
Output Power for 1 dB Compression (P1dB)	8	11		dBm
Saturated Output Power (Psat)		13		dBm
Output Third Order Intercept (IP3)		22		dBm
Supply Current		80		mA

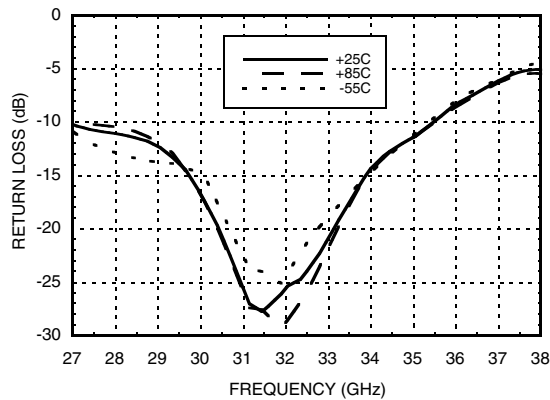
Broadband Gain & Return Loss



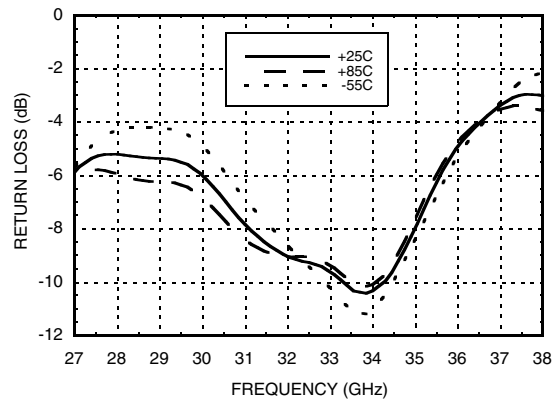
Gain vs. Temperature



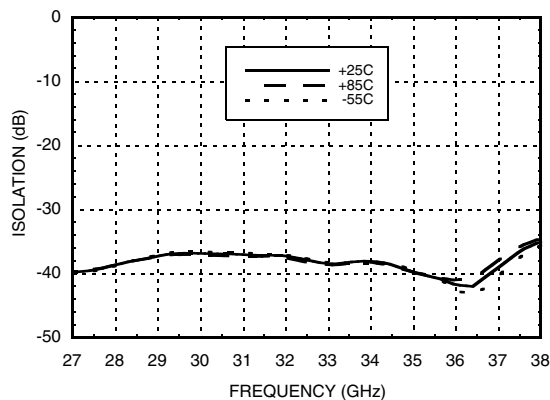
Input Return Loss vs. Temperature



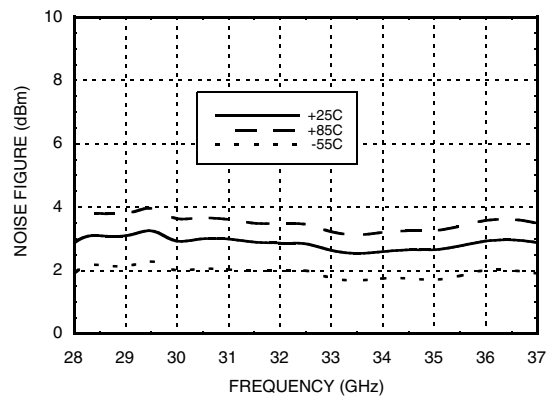
Output Return Loss vs. Temperature

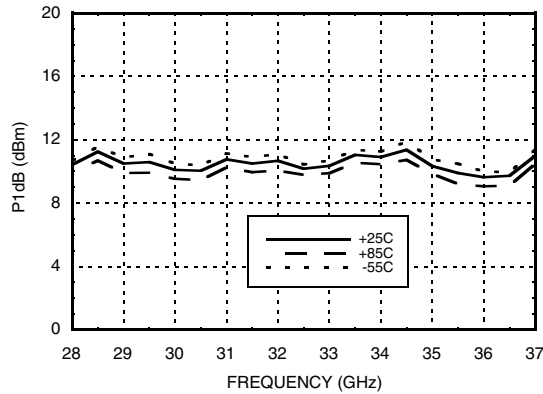
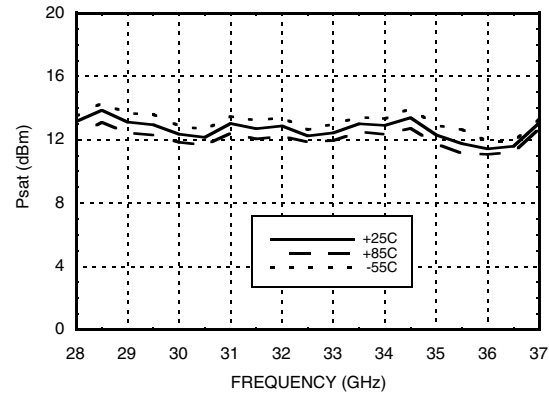
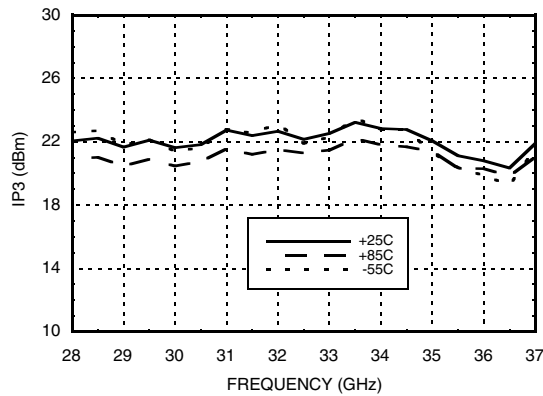
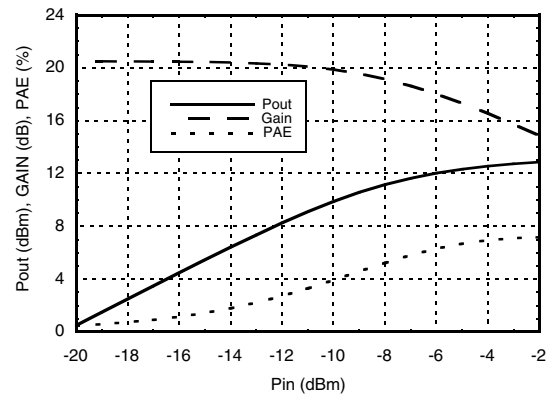


Reverse Isolation vs. Temperature



Noise Figure vs. Temperature



P1dB vs. Temperature

Psat vs. Temperature

Output IP3 vs. Temperature

Power Compression @ 32 GHz

Absolute Maximum Ratings

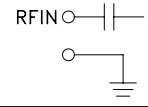

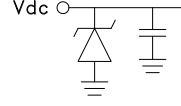
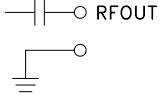
Bias Supply Voltage (Vdc)	+3.5 Vdc
RF Input Power (RFIN)	+5 dBm
Storage Temperature	-65 to +150 °C
Operating Temperature	-55 to +85 °C



**ELECTROSTATIC SENSITIVE DEVICE
OBSERVE HANDLING PRECAUTIONS**

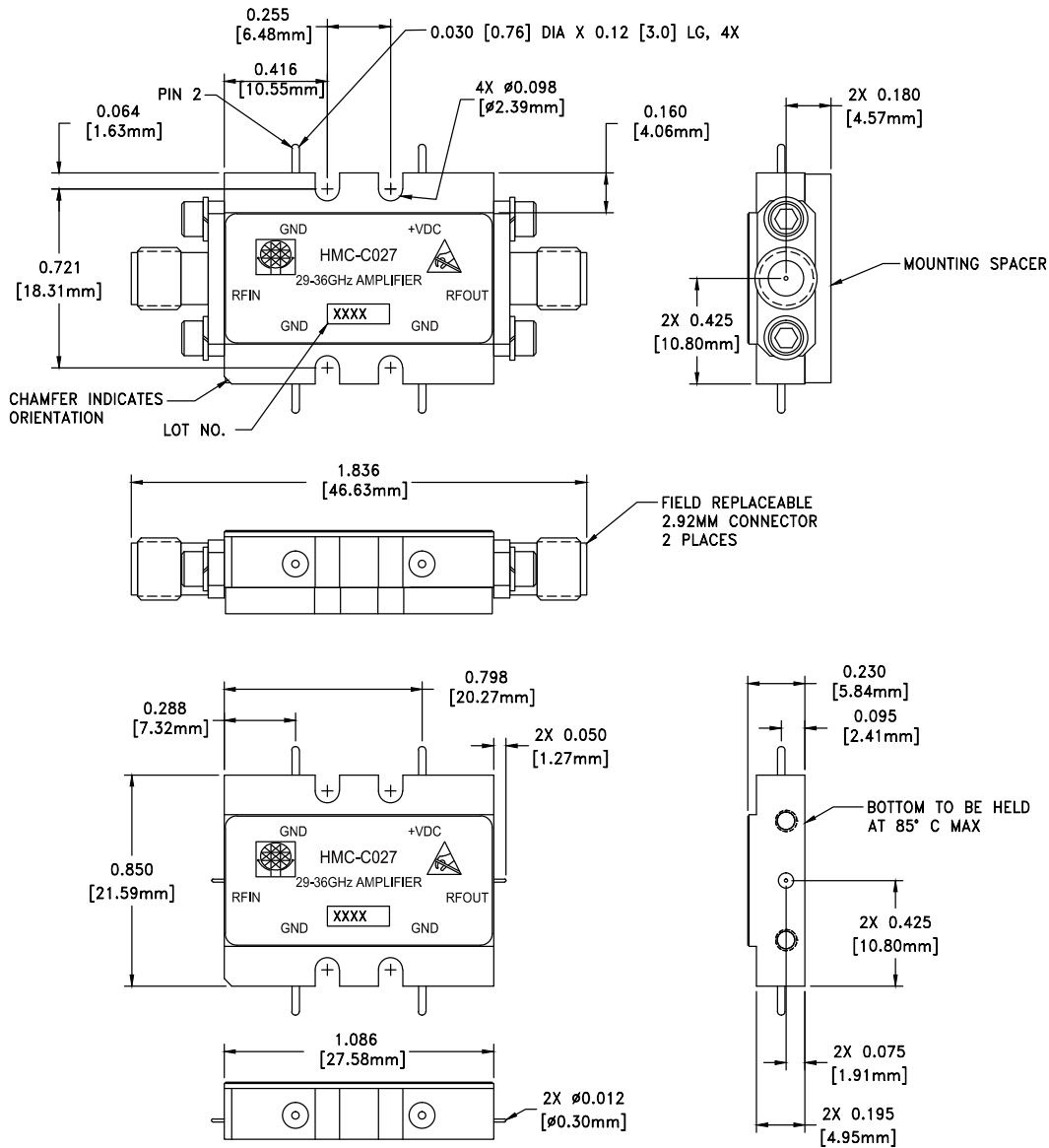


Pin Descriptions

Pin Number	Function	Description	Interface Schematic
1	RFIN & RF Ground	RF input connector, coaxial female, field replaceable. This pin is AC coupled and matched to 50 Ohms.	
2, 5, 6	GND	One of these pins must be connected to power supply ground.	
3	Vdc	Power supply voltage for the amplifier. Includes zener diode for over voltage and negative voltage protection.	
4	RFOUT & RF Ground	RF output connector, coaxial female, field replaceable. This pin is AC coupled and matched to 50 Ohms.	



Outline Drawing



VIEW SHOWN WITH CONNECTORS AND MOUNTING SPACER REMOVED

Package Information

Package Type	C-10
Package Weight ^[1]	18.7 gms ^[2]
Spacer Weight	3.3 gms ^[2]

[1] Includes the connectors

[2] ±1 gms Tolerance

NOTES:

1. PACKAGE, LEADS, COVER MATERIAL: KOVAR™
2. FINISH: GOLD PLATE OVER NICKEL PLATE
3. ALL DIMENSIONS ARE IN INCHES [MILLIMETERS]
4. TOLERANCES:
 - 4.1 .XX = ±0.02
 - 4.2 .XXX = ±0.010
5. FIELD REPLACEABLE 2.92mm CONNECTORS
TENSOLITE 231CCSF OR EQUIVALENT



MICROWAVE CORPORATION v05.0711



HMC-C027

**LOW NOISE AMPLIFIER
MODULE, 29 - 36 GHz**

Notes:

1

AMPLIFIERS