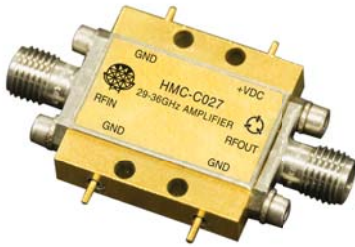


## LOW NOISE AMPLIFIER MODULE, 29 - 36 GHz

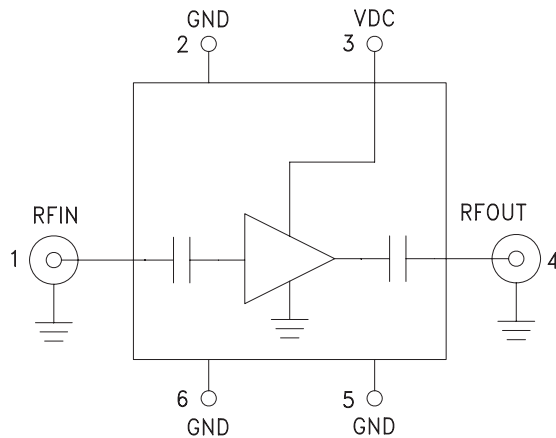


### Typical Applications

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 to +85°C Operating Temperature

### General Description

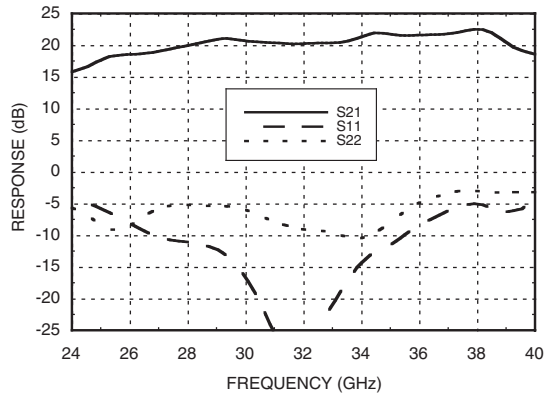
The HMC-C027 is a GaAs MMIC PHEMT Low Noise Amplifier in a miniature, hermetic module which operates between 29 and 36 GHz. This high dynamic range amplifier module provides 20 dB of gain, 2.9 dB noise figure and up to +22 dBm of output IP3 from a single +3V supply. The wideband amplifier I/Os are internally 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, $T_A = +25^\circ\text{C}$ , $V_{DC} = +3\text{V}$

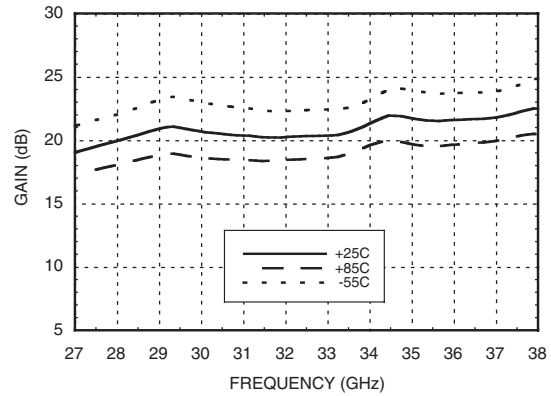
Parameter	Min.	Typ.	Max.	Units
Frequency Range	29 - 36			GHz
Gain	17	20		dB
Gain Variation Over Temperature		0.03	0.05	dB/ °C
Noise Figure		2.9	3.5	dB
Input Return Loss		14		dB
Output Return Loss		8		dB
Output Power for 1 dB Compression (P1dB)	8	11		dBm
Saturated Output Power (Psat)		13		dBm
Output Third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

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

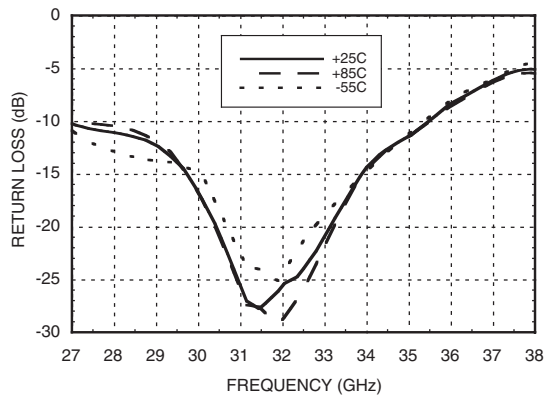
**Broadband Gain & Return Loss**



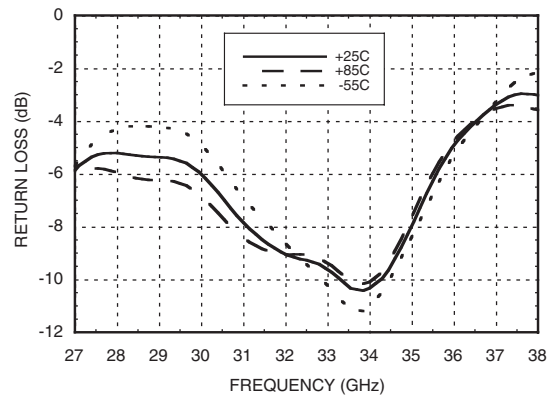
**Gain vs. Temperature**



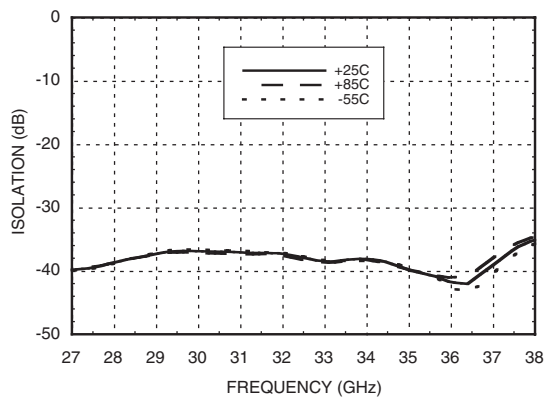
**Input Return Loss vs. Temperature**



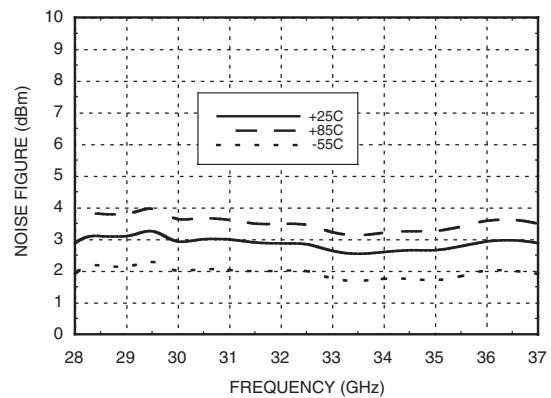
**Output Return Loss vs. Temperature**



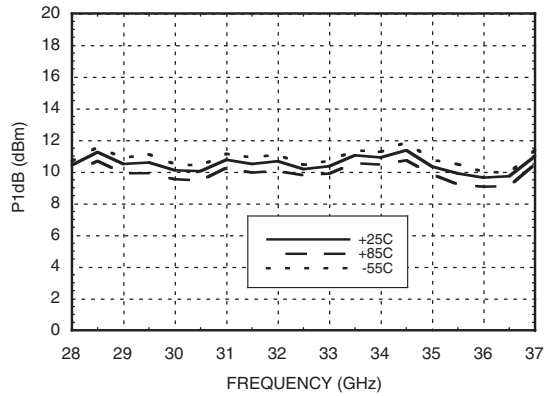
**Reverse Isolation vs. Temperature**



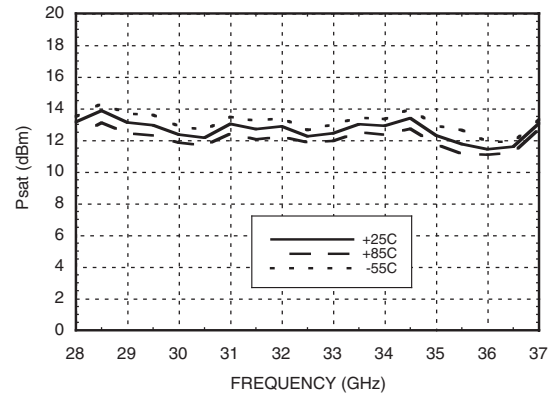
**Noise Figure vs. Temperature**



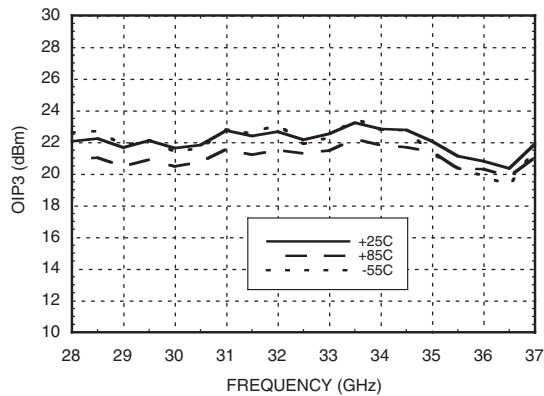
**P1dB vs. Temperature**



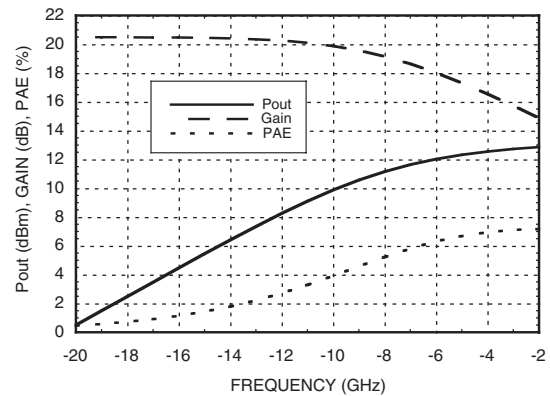
**Psat vs. Temperature**



**Output IP3 vs. Temperature**



**Power Compression @ 32 GHz**



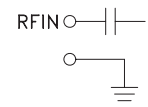

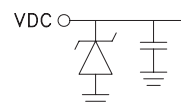
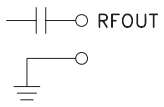
**Absolute Maximum Ratings**

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



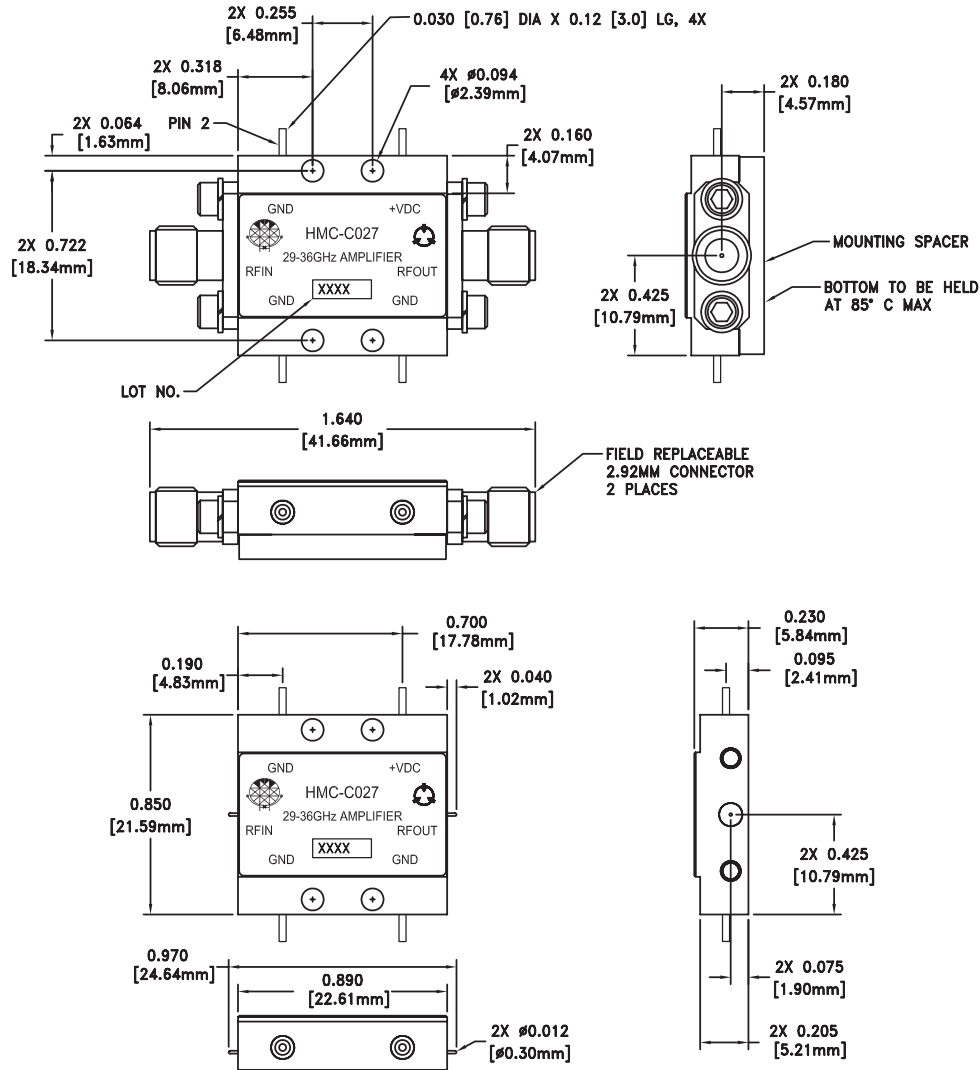
**ELECTROSTATIC SENSITIVE DEVICE  
OBSERVE HANDLING PRECAUTIONS**

**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 from 29 - 36 GHz.	
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 from 29 - 36 GHz.	

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

**Outline Drawing**



**NOTES:**

1. PACKAGE, LEADS, COVER MATERIAL: KOVAR™
2. SPACER MATERIAL: ALUMINUM
3. PLATING: ELECTROLYTIC GOLD 50 MICROINCHES MIN., OVER ELECTROLYTIC NICKEL 75 MICROINCHES MIN.
4. ALL DIMENSIONS ARE IN INCHES [MILLIMETERS].
5. TOLERANCES  $\pm$ .005 [0.13] UNLESS OTHERWISE SPECIFIED.
6. FIELD REPLACEABLE 2.92mm CONNECTORS. TENSOLITE 231CCSF OR EQUIVALENT.

**Notes:**