

HMC-C027

LOW NOISE AMPLIFIER MODULE, 29 - 36 GHz

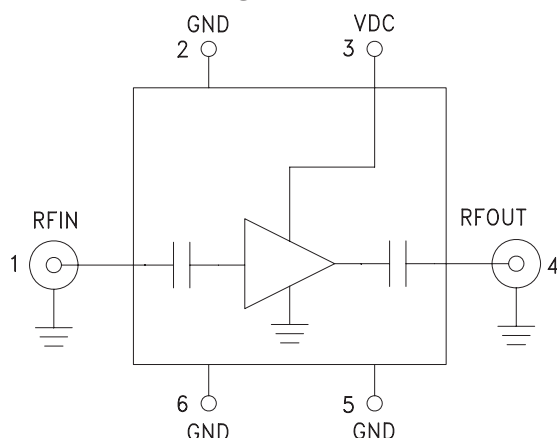


Typical Applications

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

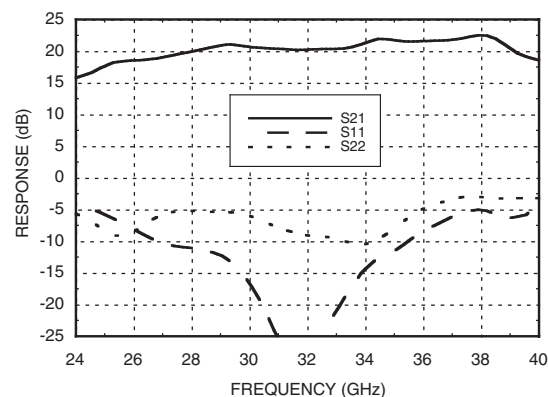
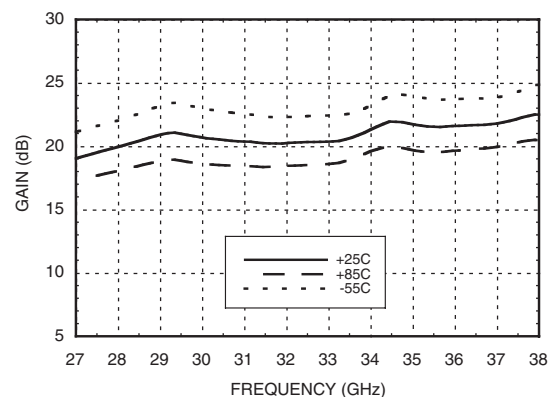
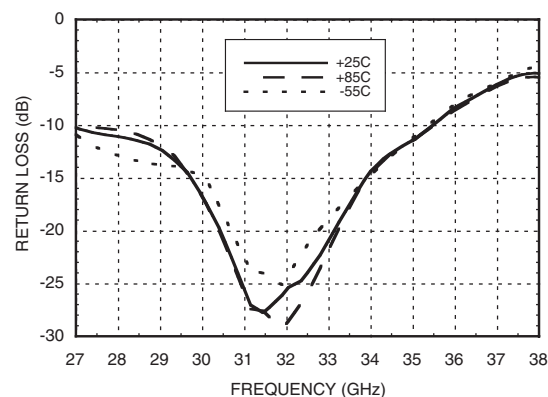
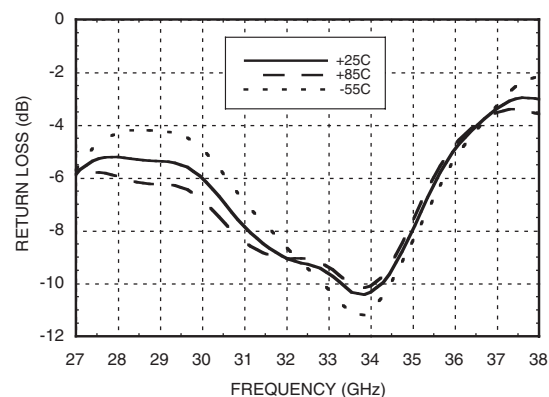
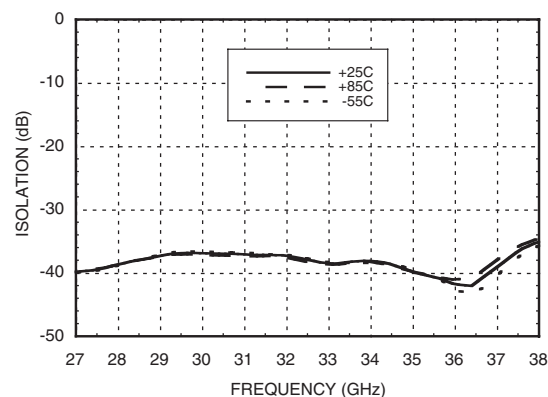
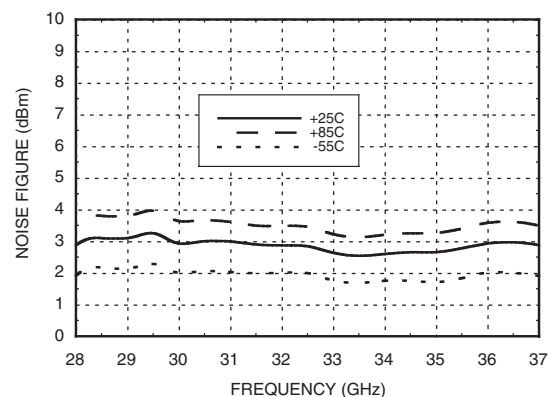
-55 to +85°C Operating Temperature

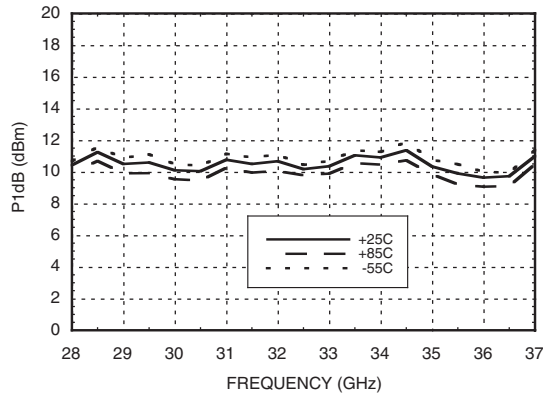
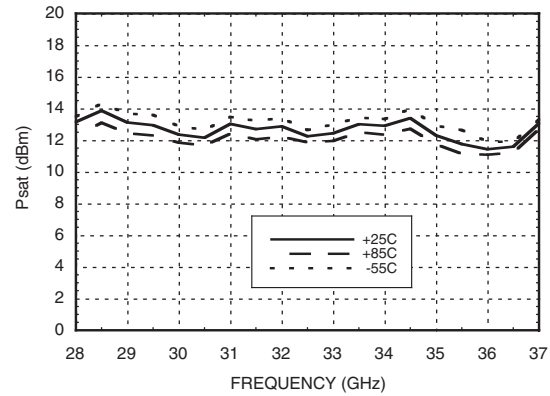
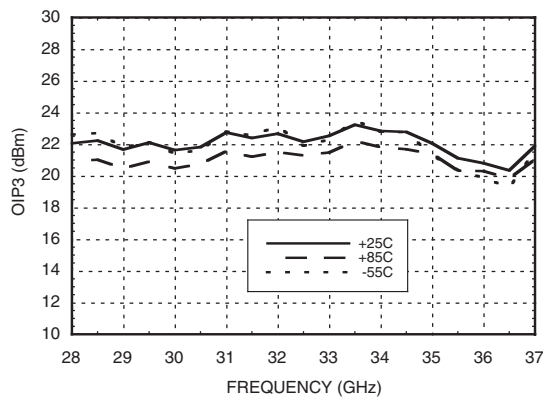
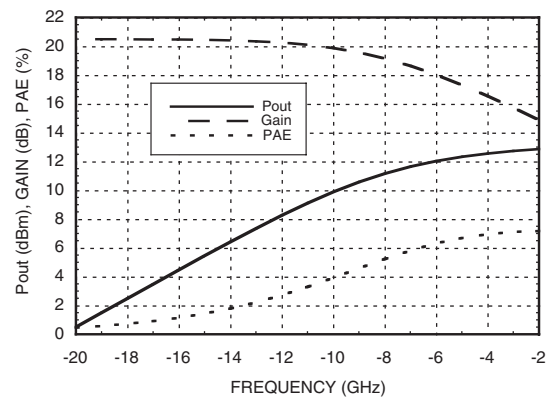
General Description

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**

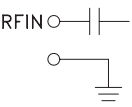
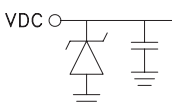
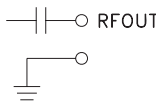
**LOW NOISE AMPLIFIER
MODULE, 29 - 36 GHz**
P1dB vs. Temperature**Psat vs. Temperature****Output IP3 vs. Temperature****Power Compression @ 32 GHz****Absolute Maximum Ratings**

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

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

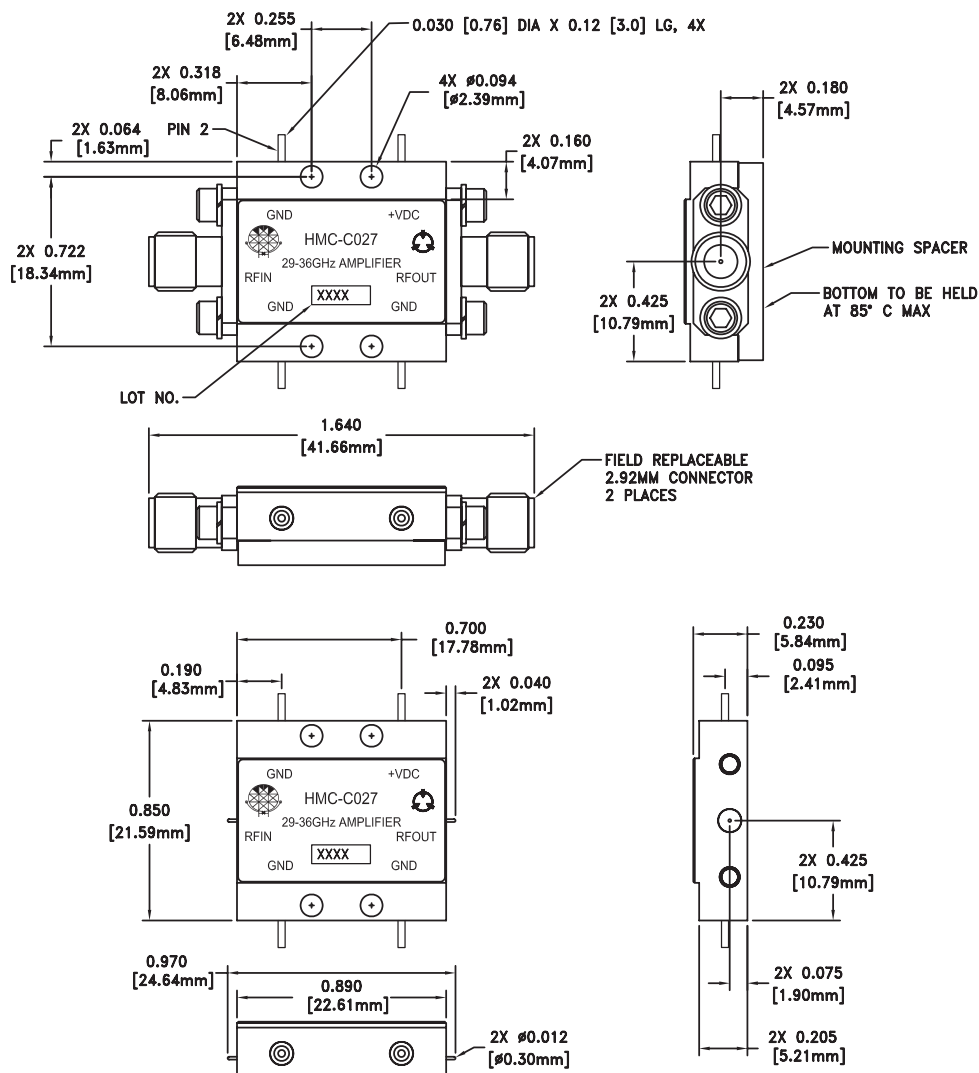
Pin Number	Function	Description	Interface Schematic
1	RFIN & RF Ground	RF input connector, coaxial female, field replaceable. This pin is AC coupled and matched to 50 Ohms from 29 - 36 GHz.	
2, 5, 6	GND	One of these pins must be connected to power supply ground.	
3	VDC	Power supply voltage for the amplifier. 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**

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AMPLIFIERS - CONNECTORIZED MODULES

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 ±.005 [0.13] UNLESS OTHERWISE SPECIFIED.
6. FIELD REPLACEABLE 2.92mm CONNECTORS. TENSOLITE 231CCSF OR EQUIVALENT.

Notes: