

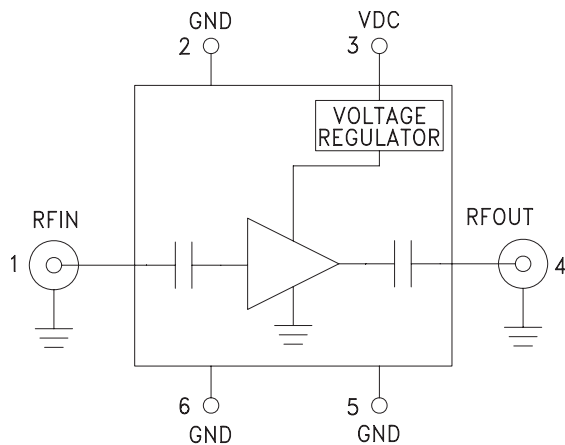


Typical Applications

The HMC-C045 LNA is ideal for:

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

Functional Diagram



Features

- Noise Figure: 0.7 dB @ 2.4 GHz
- Gain: 26 dB
- OIP3: +26 dBm
- P1dB Output Power: +15.5 dBm
- 50 Ohm Matched Input/Output
- Hermetically Sealed Module
- Field Replaceable SMA Connectors
- 55 to +85°C Operating Temperature

General Description

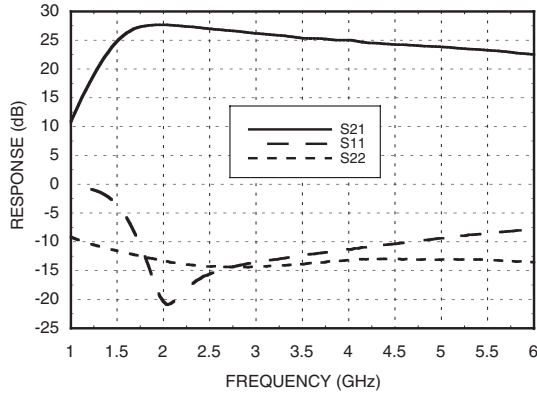
The HMC-C045 is a GaAs MMIC PHEMT Low Noise Amplifier in a miniature, hermetic module which operates between 1.8 and 4.2 GHz. This high dynamic range low noise amplifier module provides 26 dB of gain, sub-1 dB noise figure and up to +26 dBm of output IP3 while operating from a single positive supply between +8V and +15V. The amplifier I/Os are internally matched to 50 Ohms and DC blocked for robust performance. The module features removable coaxial connectors which can be detached to allow direct connection of the I/O pins to a microstrip or coplanar circuit.

Electrical Specifications, $T_A = +25^\circ\text{C}$, $V_{DC} = +12\text{V}$

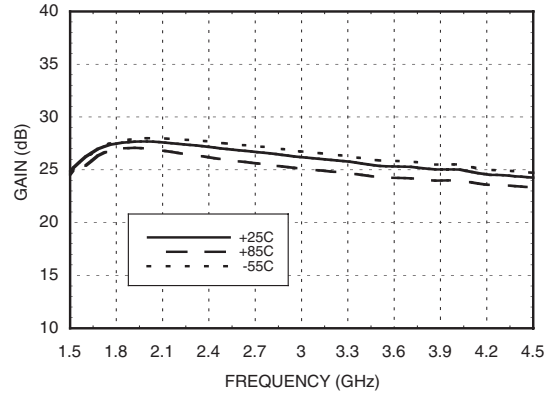
Parameter	Min.	Typ.	Max.	Min.	Typ.	Max.	Units
Frequency Range	1.8 - 4.2			2.0 - 3.8			GHz
Gain	23	26		23	26		dB
Gain Variation Over Temperature		0.03	0.05		0.03	0.05	dB/°C
Noise Figure		0.7	2.0		0.7	1.5	dB
Input Return Loss		13			13		dB
Output Return Loss		13			13		dB
Output Power for 1 dB Compression (P1dB)	12.5	15.5		12.5	15.5		dBm
Saturated Output Power (P _{sat})		17.5			17.5		dBm
Output Third Order Intercept (IP3)		26			26		dBm
Supply Current		112	140		112	140	mA



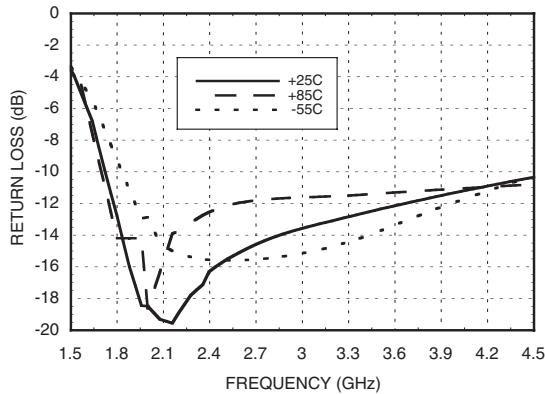
Broadband Gain & Return Loss



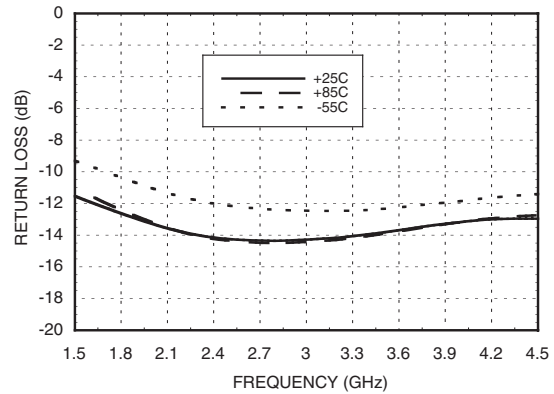
Gain vs. Temperature



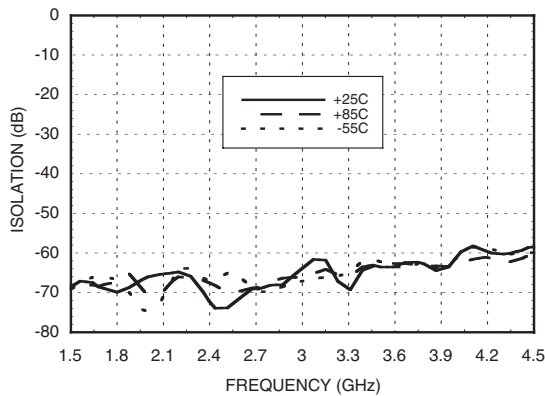
Input Return Loss vs. Temperature



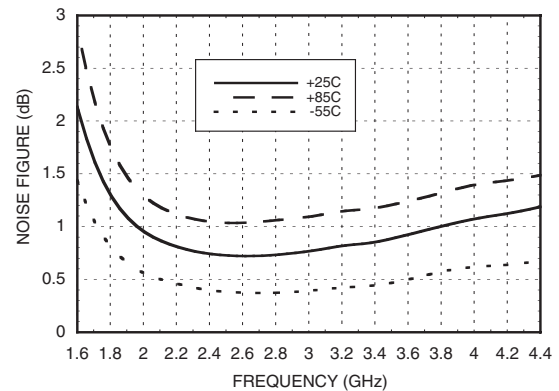
Output Return Loss vs. Temperature



Reverse Isolation vs. Temperature

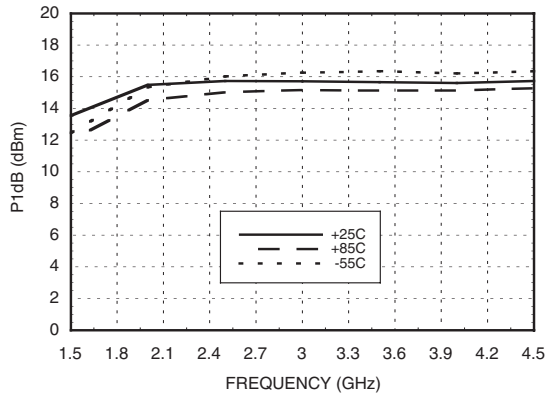


Noise Figure vs. Temperature

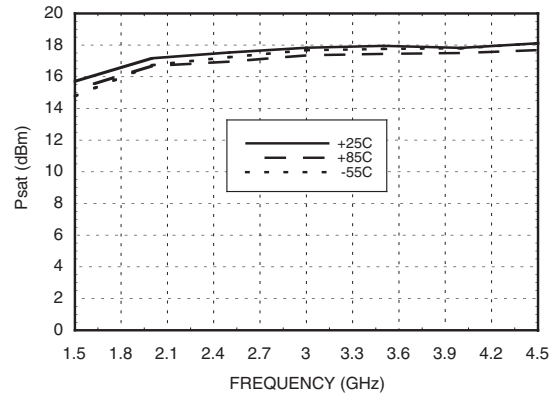




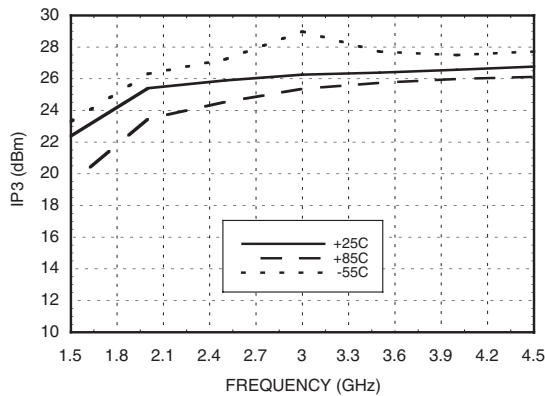
P1dB vs. Temperature



Psat vs. Temperature



Output IP3 vs. Temperature



Absolute Maximum Ratings

Bias Supply Voltage (VDC)	+15 Vdc
RF Input Power (RFIn)	+0 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.	
4	RFOUT & RF Ground	RF output connector, coaxial female, field replaceable. This pin is AC coupled and matched to 50 Ohms.	

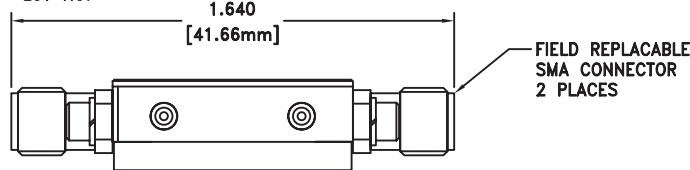
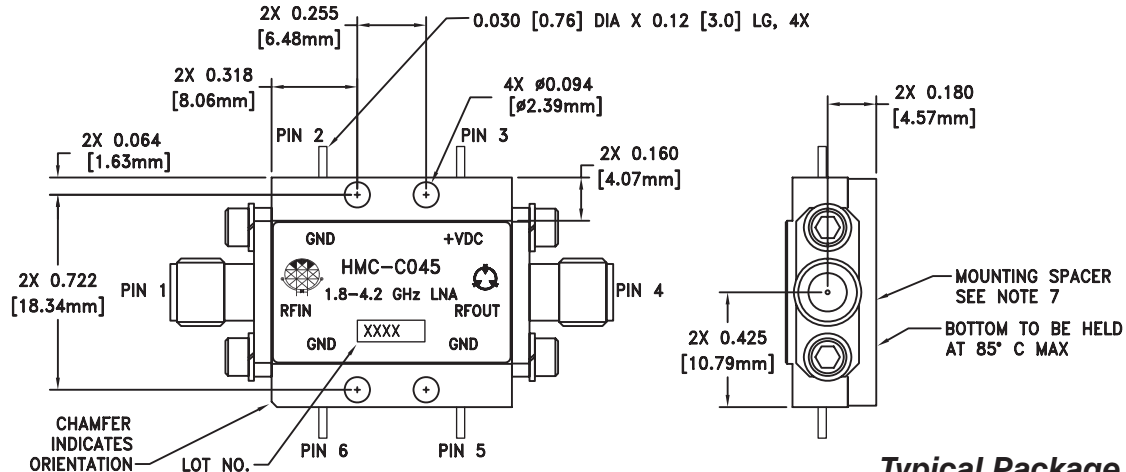


**LOW NOISE AMPLIFIER
MODULE, 1.8 - 4.2 GHz**

1

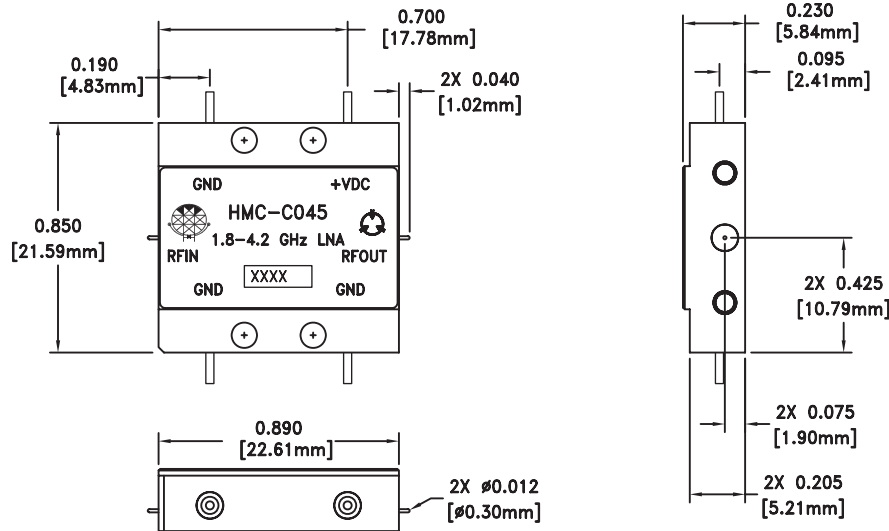
AMPLIFIERS

C-10 Outline Drawing



Typical Package Weight

Package	18.7 gms
Spacer	3.3 gms
±1 gms Tolerance	



VIEW SHOWN WITH CONNECTORS AND MOUNTING SPACER REMOVED

- NOTES:
1. PACKAGE, LEADS, COVER MATERIAL: KOVAR™
 2. SPACER MATERIAL: NICKEL PLATED ALUMINUM
 3. PLATING: ELECTROLYTIC GOLD 50 MICROINCHES MIN.,
OVER ELECTROLYTIC NICKEL 75 MICROINCHES MIN.
 4. ALL DIMENSIONS ARE IN INCHES [MILLIMETERS].
 5. TOLERANCES ±.010 [0.25] UNLESS OTHERWISE SPECIFIED.
 6. FIELD REPLACEABLE SMA CONNECTORS.
TENSOLITE 5602-5CCSF OR EQUIVALENT.
 7. SPACER DIMENSIONS: 0.88 X 0.84 X 0.105.



Notes: