v00.1007

HMC-C048

LOW NOISE AMPLIFIER MODULE, 5 - 9 GHz

Typical Applications

The HMC-C048 LNA is ideal for:

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

Features

Low Noise Figure: 1.4 dB @ 6 GHz

High Gain: 24 dB

Output IP3: +25 dBm

P1dB Output Power: +14.8 dBm

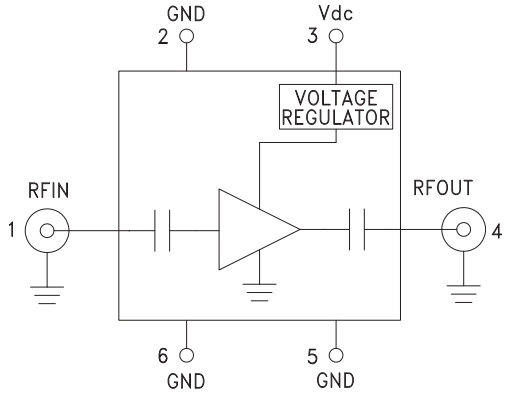
50 Ohm Matched & DC Blocked RF I/Os

Hermetically Sealed Module

Field Replaceable SMA Connectors

-55 to +85˚C Operating Temperature

Functional Diagram



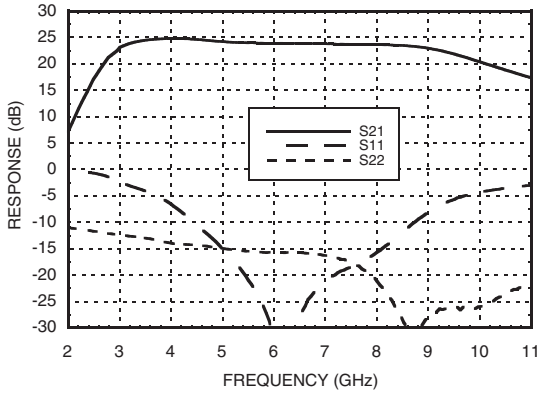
General Description

The HMC-C048 is a GaAs MMIC PHEMT Low Noise Amplifier in a miniature, hermetic module which operates between 5 and 9 GHz. This high dynamic range low noise amplifier module provides 24 dB of gain and up to +25 dBm of output IP3 while operating from a single positive supply between +8V and +16V. 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.

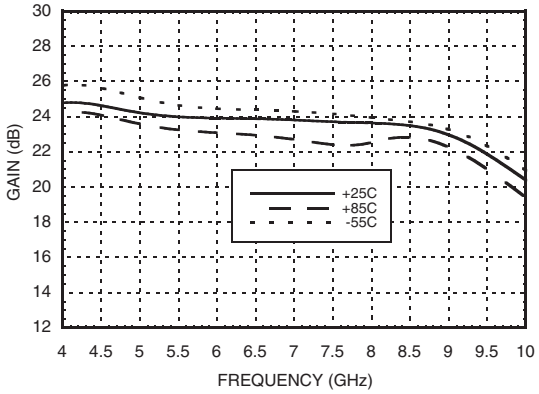
Electrical Specifications, T_A = +25° C, Vdc = +12V

Parameter	Min.	Typ.	Max.	Units
Frequency Range		5 - 9		GHz
Gain	20	24		dB
Gain Variation Over Temperature		0.015		dB/ °C
Noise Figure		1.4	2	dB
Input Return Loss		14		dB
Output Return Loss		18		dB
Output Power for 1 dB Compression (P1dB)	12	14.8		dBm
Saturated Output Power (Psat)		16.7		dBm
Output Third Order Intercept (IP3)		25		dBm
Supply Current		105	140	mA

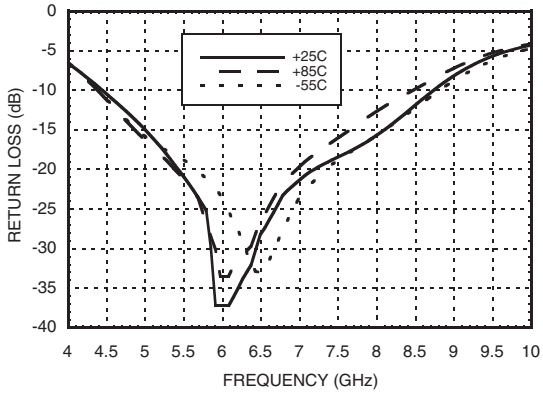
Broadband Gain & Return Loss



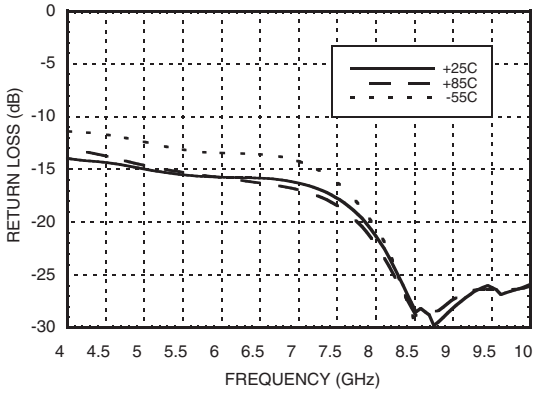
Gain vs. Temperature



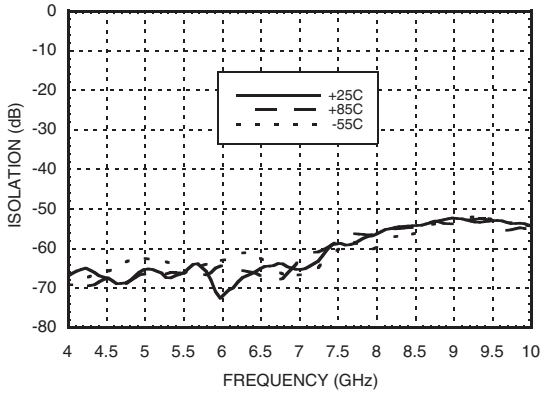
Input Return Loss vs. Temperature



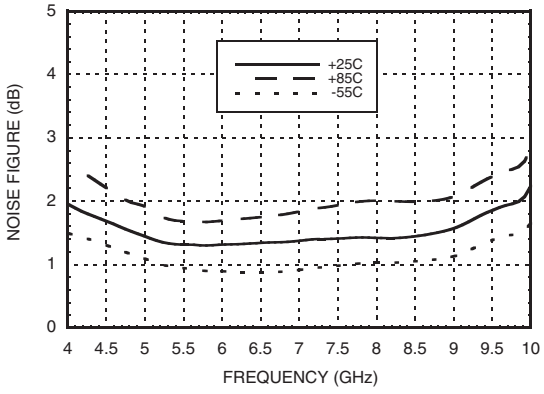
Output Return Loss vs. Temperature



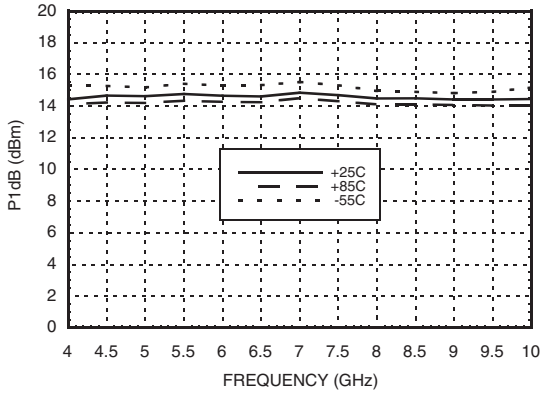
Reverse Isolation vs. Temperature



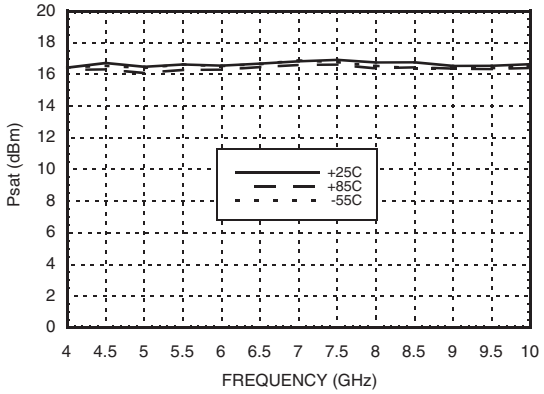
Noise Figure vs. Temperature



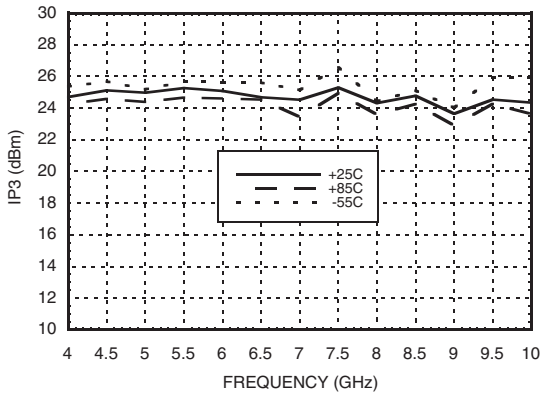
Output P1dB vs. Temperature



Psat vs. Temperature



Output IP3 vs. Temperature

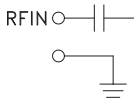
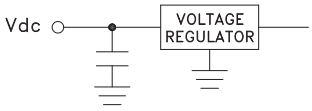
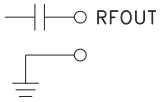


Absolute Maximum Ratings

Bias Supply Voltage (Vdc)	+16 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.	

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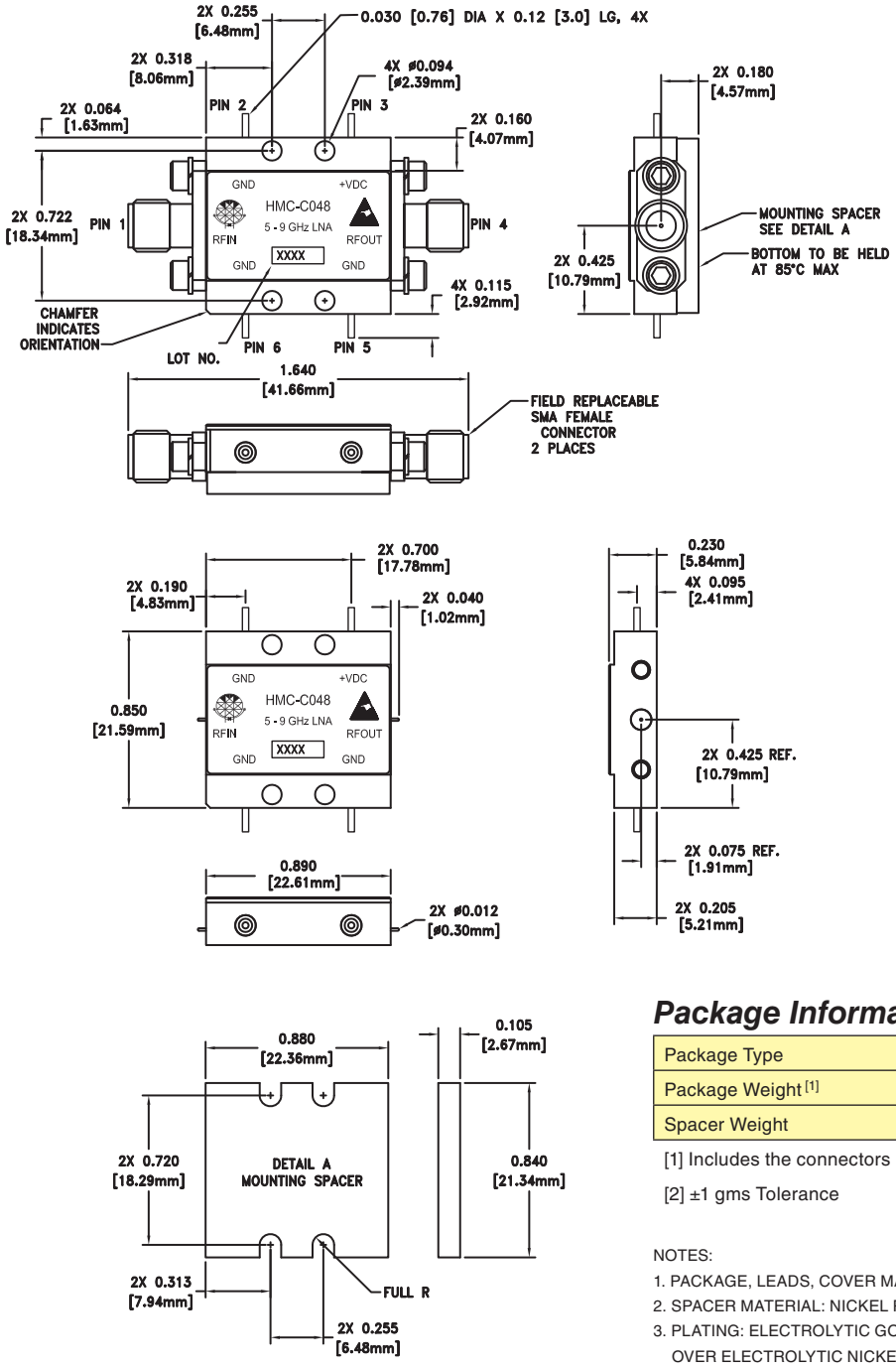
Outline Drawing



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. 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.

Notes: