Hittite MICROWAVE CORPORATION v00.1007

RoHS✓ EARTH FRIENDLY

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

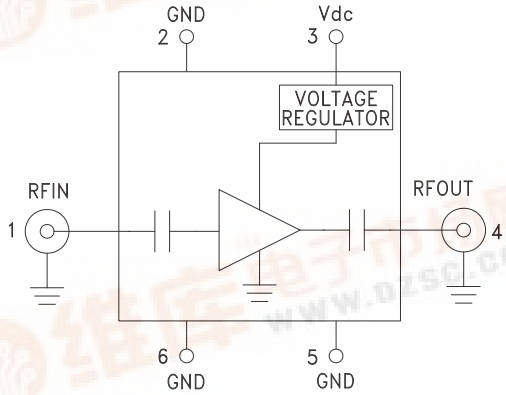
50 Ohm Matched & DC Blocked RF I/Os

Hermetically Sealed Module

Field Replaceable SMA Connectors

-55 to +85˚C Operating Temperature

Functional Diagram



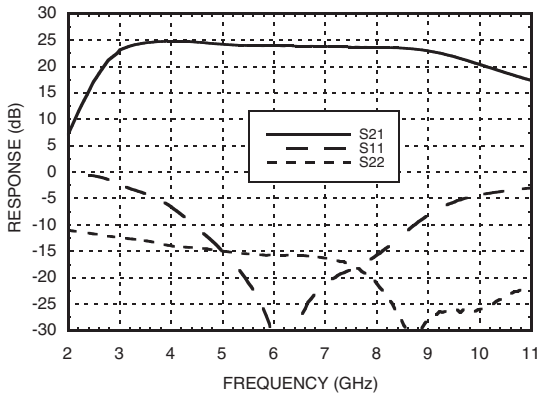
General Description

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.

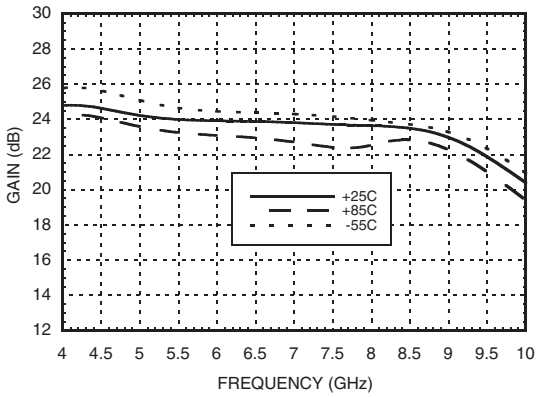
Electrical Specifications, T_A = +25° C, Vdc = +12V

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

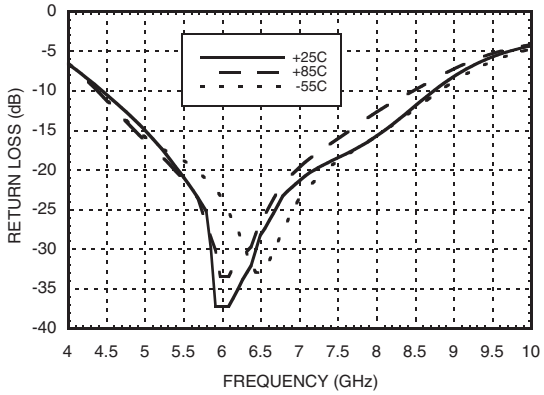
Broadband Gain & Return Loss



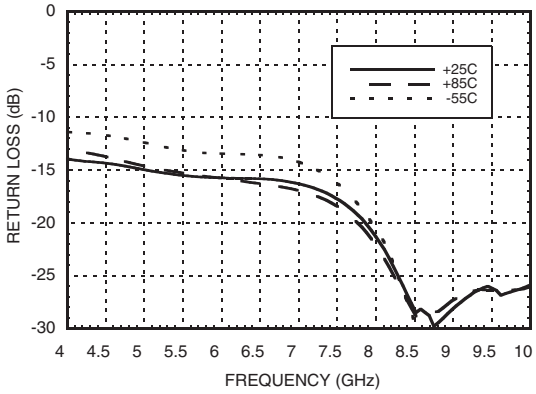
Gain vs. Temperature



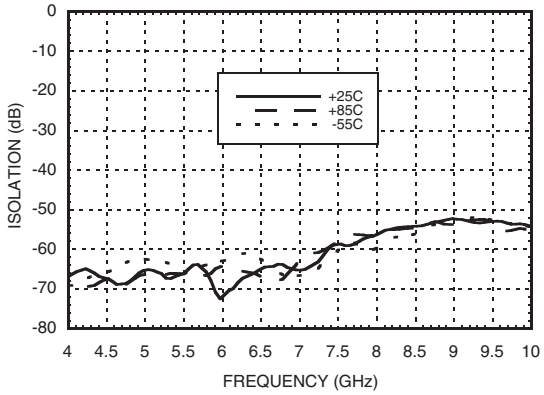
Input Return Loss vs. Temperature



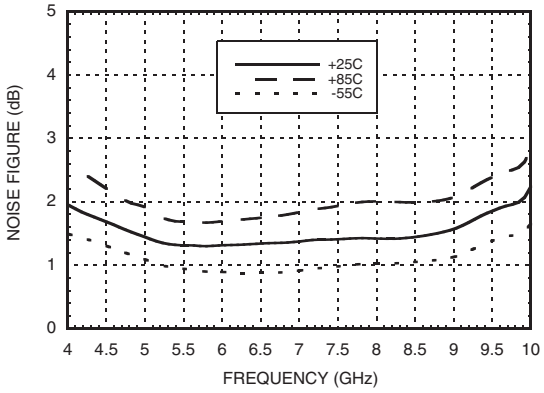
Output Return Loss vs. Temperature



Reverse Isolation vs. Temperature



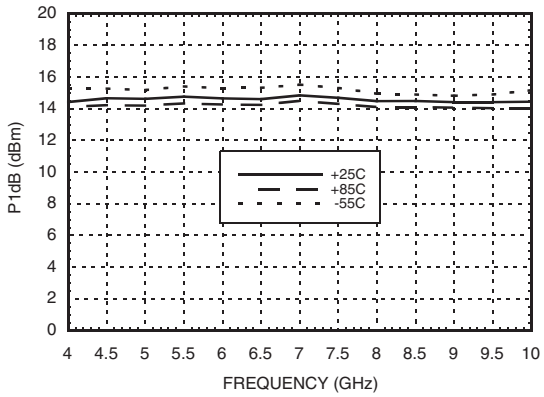
Noise Figure vs. Temperature



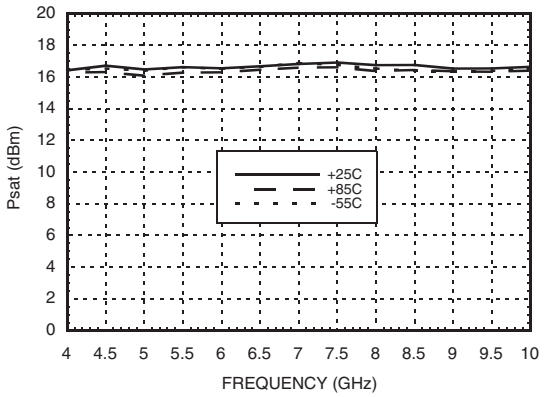
HMC-C048

LOW NOISE AMPLIFIER MODULE, 5 - 9 GHz

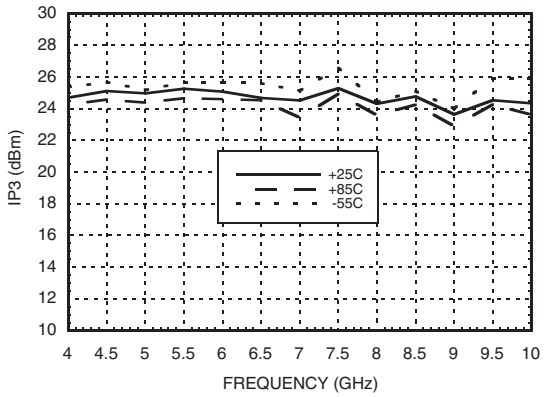
Output P1dB vs. Temperature



Psat vs. Temperature



Output IP3 vs. Temperature

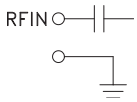
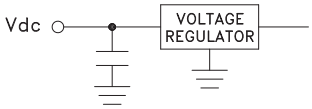
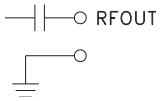


Absolute Maximum Ratings

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

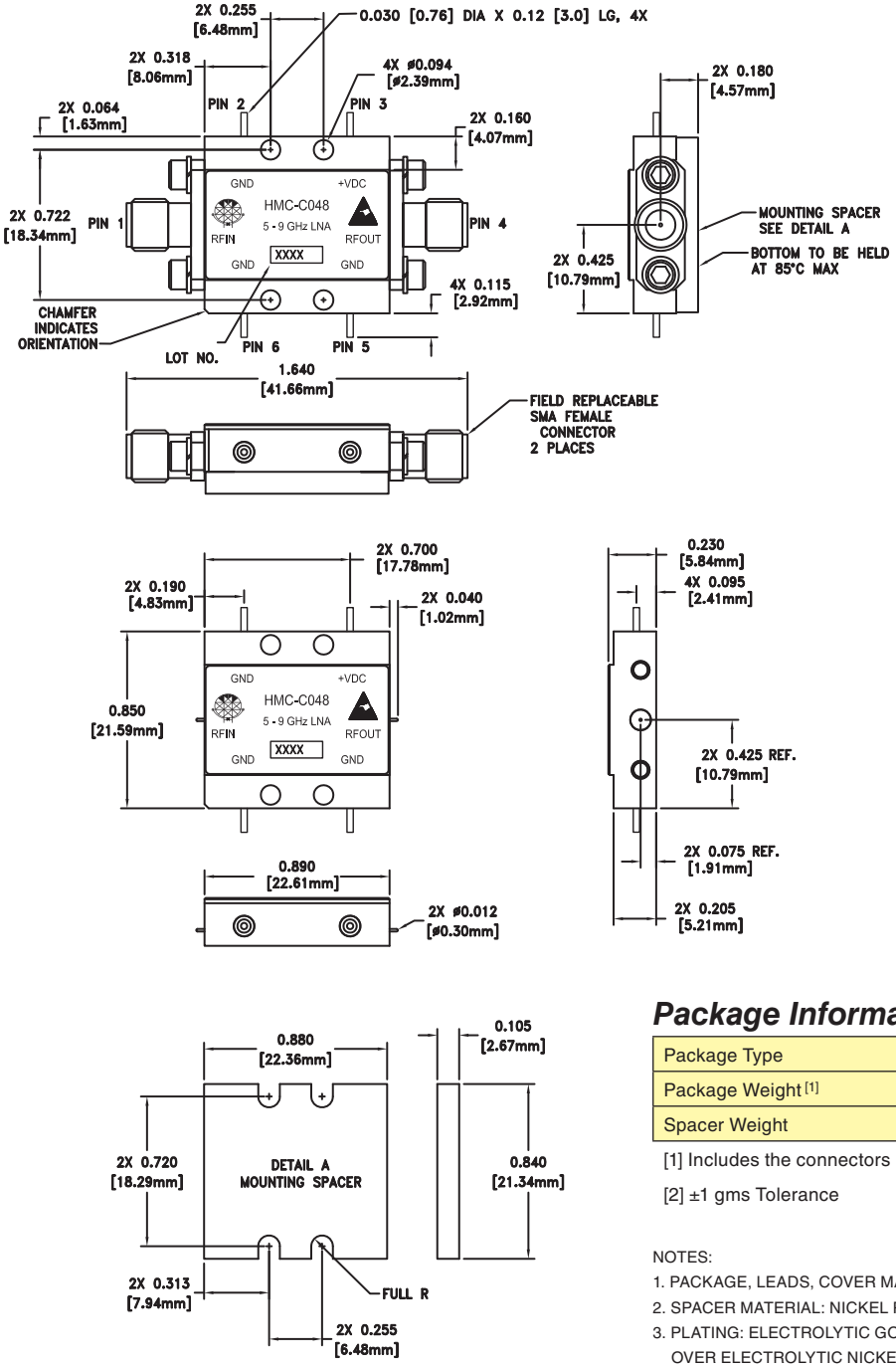
Pin Descriptions

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.	

HMC-C048

LOW NOISE AMPLIFIER MODULE, 5 - 9 GHz

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: