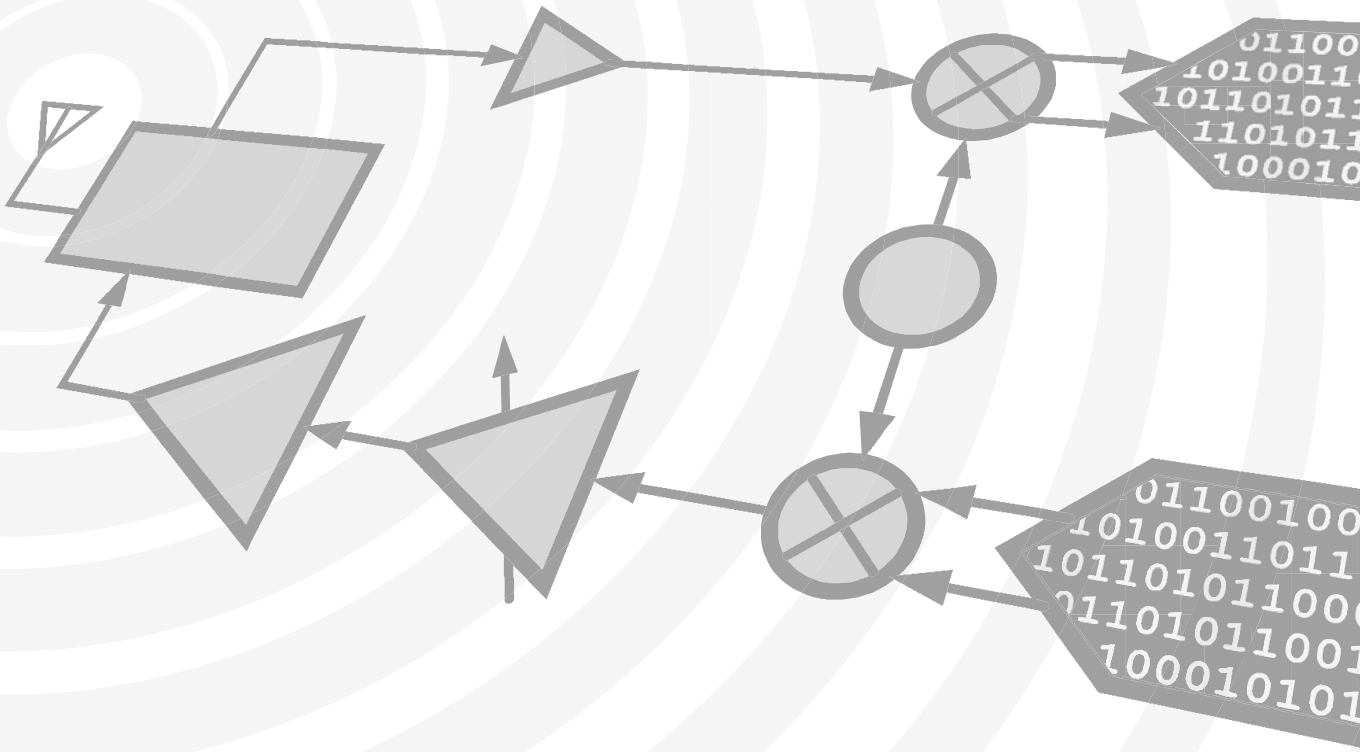
ANALOG DEVICES

Hittite MICROWAVE PRODUCTS FROM ANALOG DEVICES

Analog Devices Welcomes Hittite Microwave Corporation

NO CONTENT ON THE ATTACHED DOCUMENT HAS CHANGED



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v00.1109

HMC-C076

ULTRA LOW PHASE NOISE AMPLIFIER MODULE, 7 - 11 GHz

Features

Ultra Low Phase Noise: -170 dBc/Hz @ 1 kHz

Noise Figure: 6 dB

Gain: 9 dB

Psat: +25 dBm

50 Ohm Matched Input/Output

Single Supply Voltage: +7V @ 300mA

Hermetically Sealed Module

Field Replaceable SMA Connectors

-55 °C to +85 °C Operating Temperature

Typical Applications

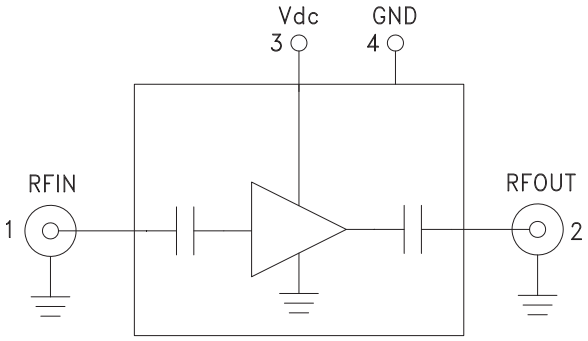
The HMC-C076 is ideal for:

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

General Description

The HMC-C076 is a GaAs HBT Ultra Low Noise Amplifier in a miniature, hermetic module designed to operate between 7 and 11 GHz. This high dynamic range amplifier module provides 9 dB of gain, 6 dB noise figure and up to +25 dBm of output power with a single supply of +7V. The ultra low phase noise contribution of -170 dBc/Hz at 1 kHz offset, enables superior modulation accuracy within transceiver architectures. The wideband distributed amplifier I/O's are internally matched to 50 Ohms and DC blocked for robust performance. The module features removable SMA connectors which can be detached to allow direct connection of the I/O pins to a microstrip or coplanar circuit.

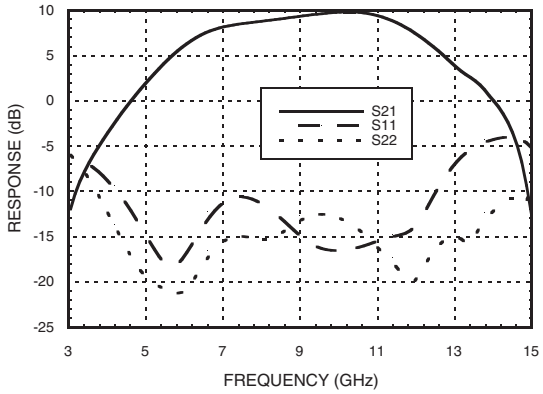
Functional Diagram



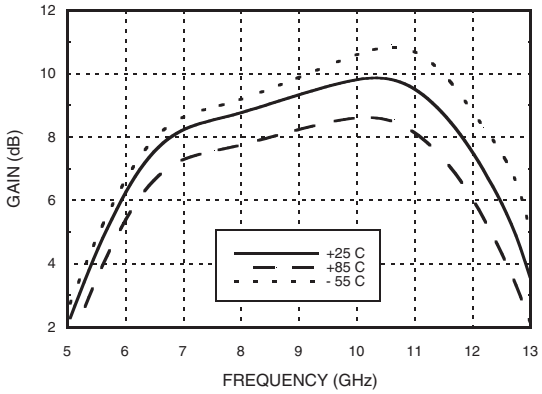
Electrical Specifications, T_A = +25° C, Vdc = +7V

Parameter	Min.	Typ.	Max.	Units
Frequency Range		7 - 11		GHz
Vdc Range	6	7	8	V
Gain	5	9		dB
Gain Variation Over Temperature		0.02		dB/ °C
Noise Figure		6		dB
Input Return Loss		12		dB
Output Return Loss		15		dB
Output Power for 1 dB Compression (P1dB)	20	22		dBm
Saturated Output Power (Psat)		25		dBm
Output Third Order Intercept (IP3)		33		dBm
Phase Noise @ 100 Hz, Psat, 9 GHz		-160		dBc/Hz
Phase Noise @ 1 kHz, Psat, 9 GHz		-170		dBc/Hz
Phase Noise @ 10 kHz, Psat, 9 GHz		-180		dBc/Hz
Supply Current		300	360	mA

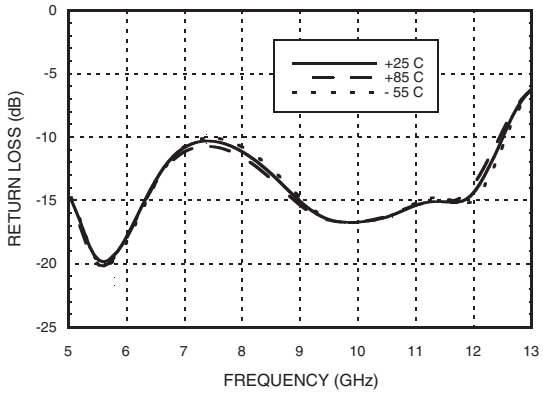
Broadband, Gain & Return Loss



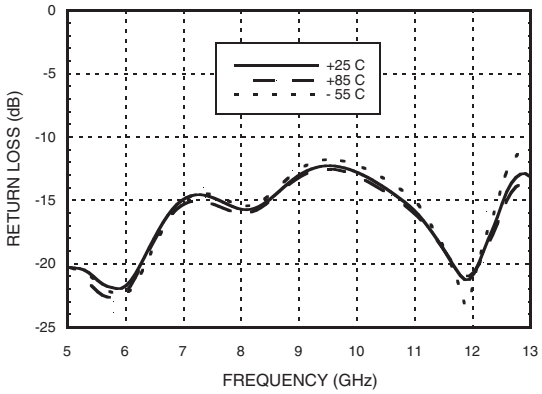
Gain vs. Temperature



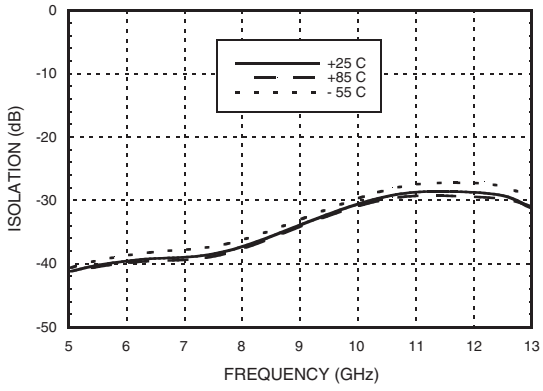
Input Return Loss vs. Temperature



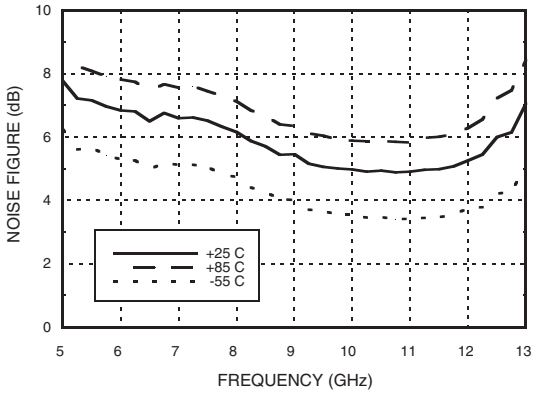
Output Return Loss vs. Temperature



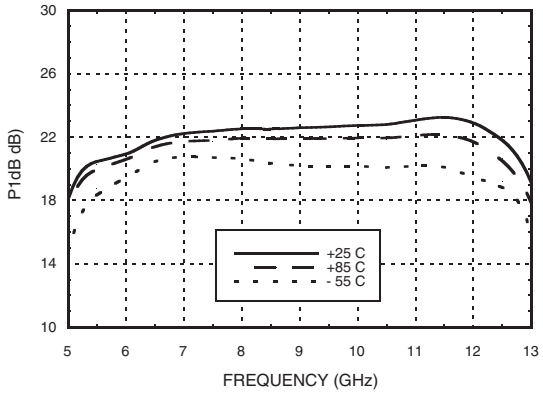
Reverse Isolation vs. Temperature



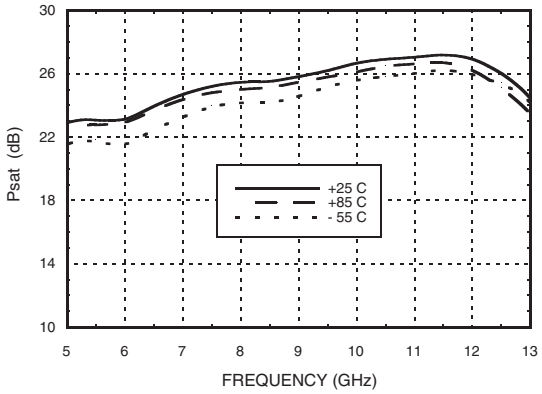
Noise Figure vs. Temperature



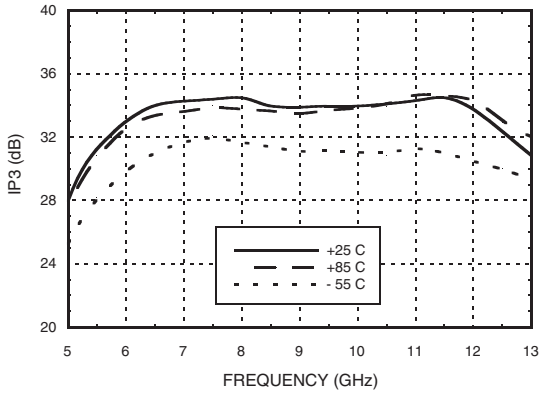
Output P1dB vs. Temperature



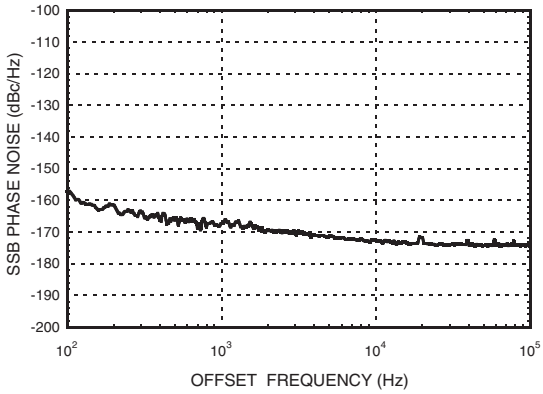
Output Psat vs. Temperature



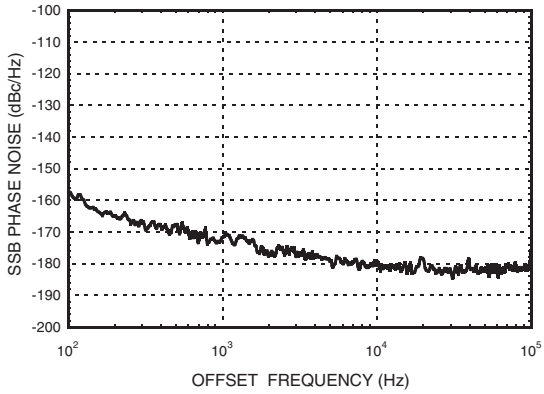
Output IP3 vs. Temperature



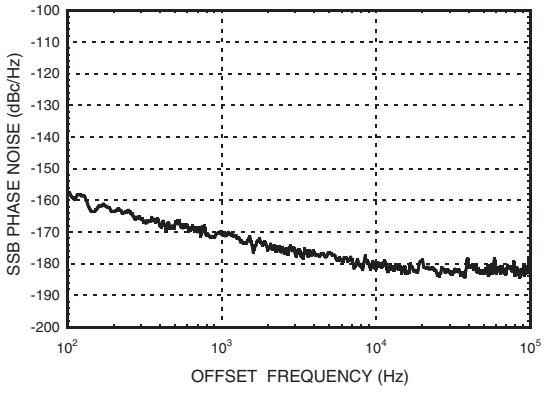
Phase Noise at Pout = 10 dBm @ 9 GHz



Phase Noise at Pout = P1dB @ 9 GHz



Phase Noise at Pout = Psat @ 9 GHz

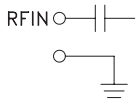
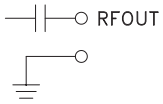
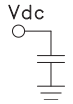


Absolute Maximum Ratings

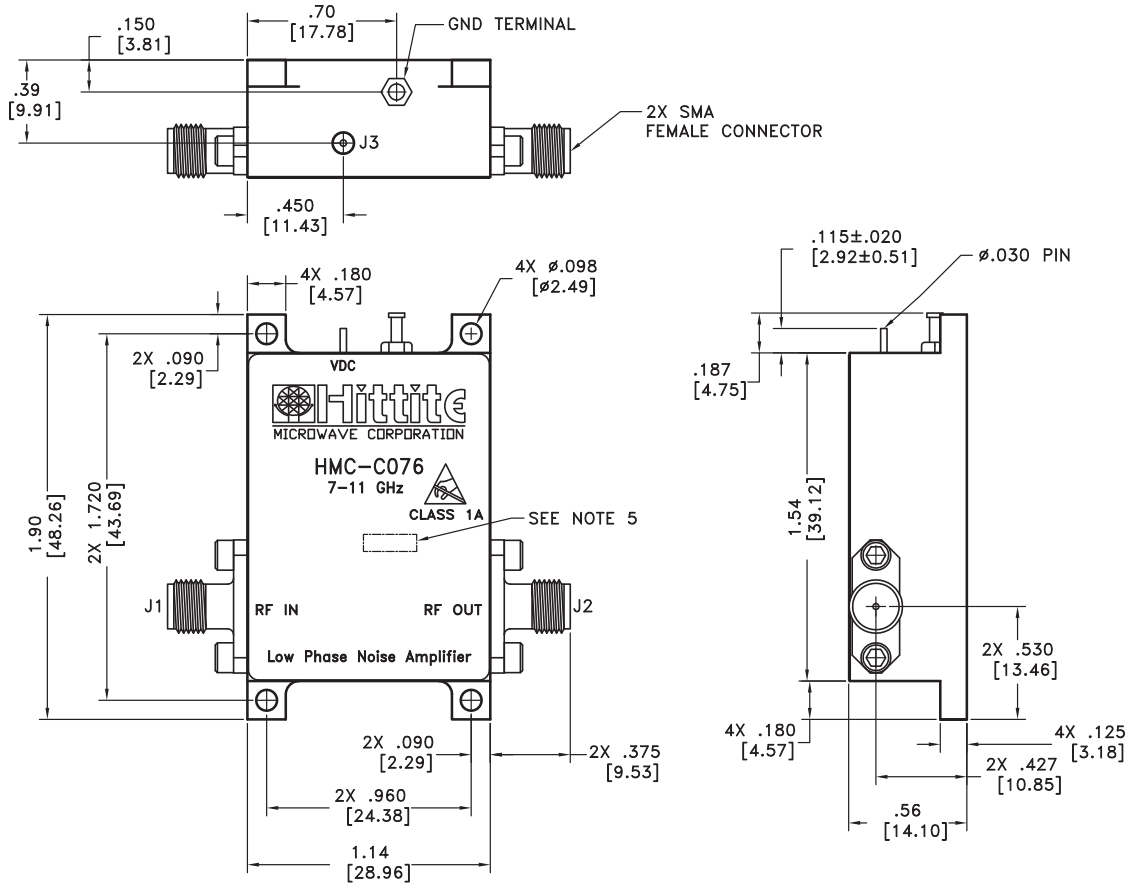
Bias Supply Voltage (V)	+8V
RF Input Power (RFIN)	+20 dBm
Continuous Pdiss (T = 85 °C)	2.88W
Storage Temperature	-65 to +150 °C
Operating Temperature	-55 to +85 °C
ESD Sensitivity (HBM)	Class 1A

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	RFOUT & RF Ground	RF output connector, coaxial female, field replaceable. This pin is AC coupled and matched to 50 Ohms.	
3	Vdc	Power supply voltage for the amplifier.	
4	GND	Power supply ground.	

Outline Drawing



Package Information

Package Type	C-16
Package Weight	107 gms [1]

[1] ±1 gms Tolerance

NOTES:

1. PACKAGE, LEADS, COVER MATERIAL: KOVAR™
2. FINISH: GOLD PLATE OVER NICKEL PLATE.
3. ALL DIMENSIONS ARE IN INCHES [MILLIMETERS].
4. TOLERANCES:
   - 4.1 .XX = ±.02
   - 4.2 .XXX = ±.010
5. MARK LOT NUMBER ON 0.080 X 0.250 LABEL WHERE SHOWN, WITH 0.030" MIN TEXT HEIGHT.

Notes: