HMC-C079

v00.0110

ULTRA LOW PHASE NOISE AMPLIFIER MODULE, 3 - 8 GHz

Features

Ultra Low Phase Noise: -162 dBc/Hz @ 1 kHz

Noise Figure: 6 dB

Gain: 11 dB

Psat: +21 dBm

50 Ohm Matched Input/Output

Single Supply Voltage: +7V @ 110mA

Hermetically Sealed Module

Field Replaceable SMA Connectors

-55 °C to +85 °C Operating Temperature

Typical Applications

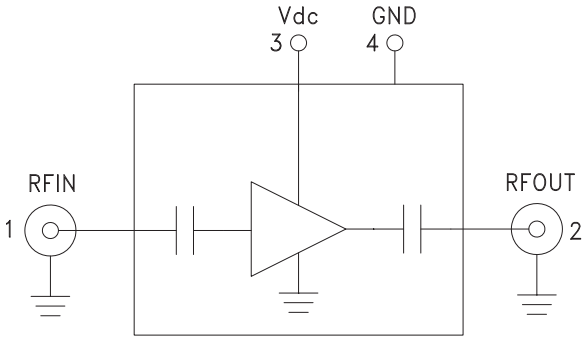
The HMC-C079 is ideal for:

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

General Description

The HMC-C079 is a GaAs HBT Ultra Low Noise Amplifier in a miniature, hermetic module designed to operate between 3 and 8 GHz. This high dynamic range amplifier module provides 11 dB of gain, 6 dB noise figure and up to +21 dBm of output power with a single supply of +7V. The ultra low phase noise contribution of -162 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		3 - 8		GHz
Vdc Range	6.5	7	8	V
Gain	9	11		dB
Gain Variation Over Temperature		0.01		dB/ °C
Noise Figure		6		dB
Input Return Loss		18		dB
Output Return Loss		20		dB
Output Power for 1 dB Compression (P1dB)	11	14		dBm
Saturated Output Power (Psat)		21		dBm
Output Third Order Intercept (IP3)		25		dBm
Phase Noise @ 100 Hz, Psat, 6 GHz		-148		dBc/Hz
Phase Noise @ 1 kHz, Psat, 6 GHz		-162		dBc/Hz
Phase Noise @ 10 kHz, Psat, 6 GHz		-168		dBc/Hz
Supply Current (Quiescent)		110	150	mA
Supply Current (Under RF Drive)			250	mA

For price, delivery, and to place orders: Analog Devices, Inc., One Technology Way, P.O. Box 9106, Norwood, MA 02062-9106
Phone: 781-329-4700 • Order online at www.analog.com
Application Support: Phone: 1-800-ANALOG-D

HMC-C079* PRODUCT PAGE QUICK LINKS

Last Content Update: 02/23/2017

COMPARABLE PARTS

View a parametric search of comparable parts.

DOCUMENTATION

Data Sheet

- HMC-C079 Data Sheet

DESIGN RESOURCES

- HMC-C079 Material Declaration
- PCN-PDN Information
- Quality And Reliability
- Symbols and Footprints

DISCUSSIONS

View all HMC-C079 EngineerZone Discussions.

SAMPLE AND BUY

Visit the product page to see pricing options.

TECHNICAL SUPPORT

Submit a technical question or find your regional support number.

DOCUMENT FEEDBACK

Submit feedback for this data sheet.

RoHS✓ EARTH FRIENDLY

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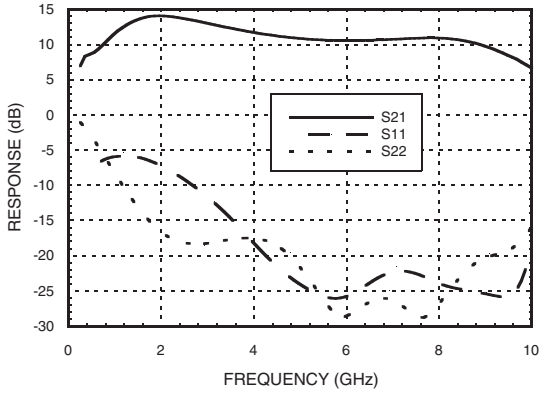
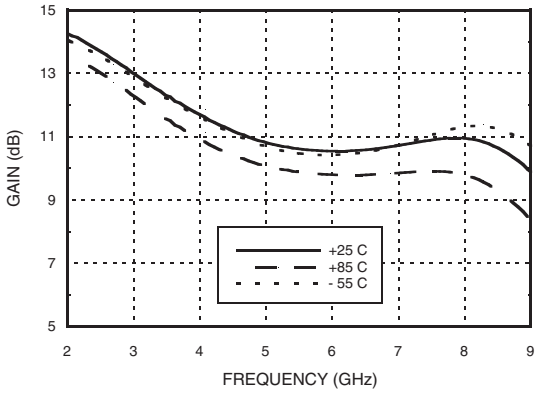
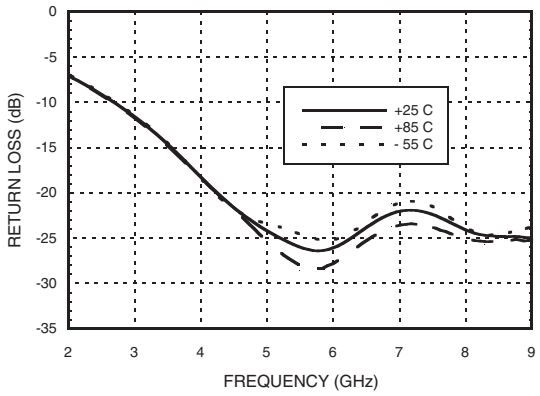
Broadband, Gain & Return Loss



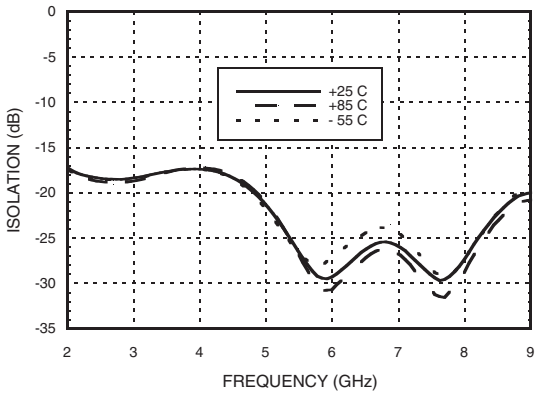
Gain vs. Temperature



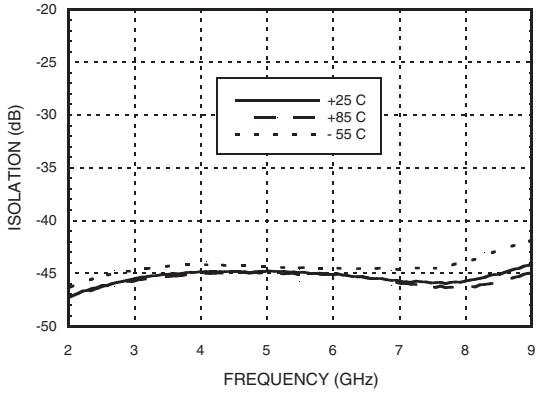
Input Return Loss vs. Temperature



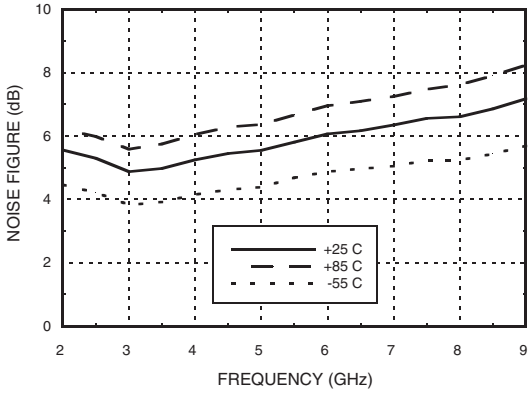
Output Return Loss vs. Temperature



Reverse Isolation vs. Temperature



Noise Figure vs. Temperature



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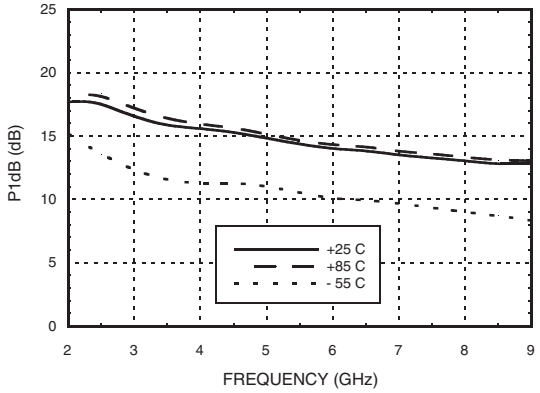
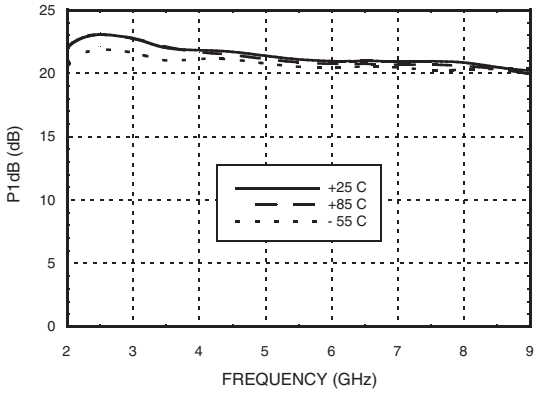
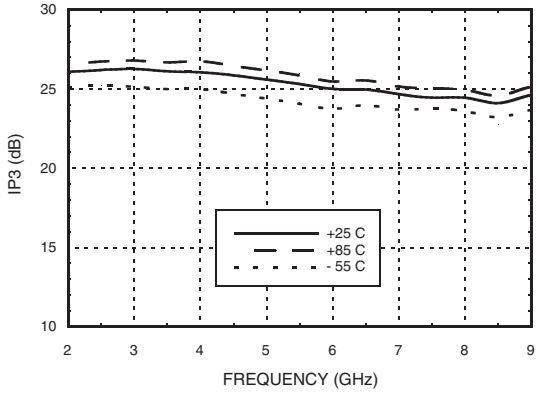
Output P1dB vs. Temperature



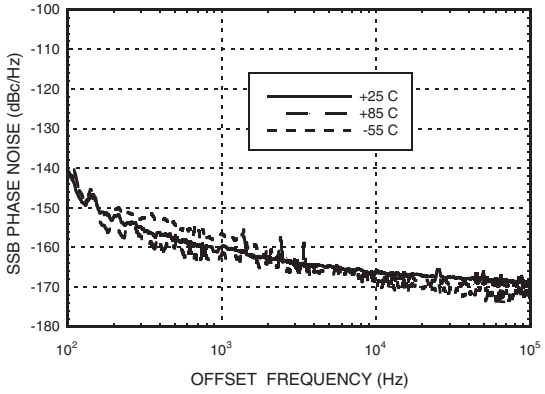
Output Psat vs. Temperature



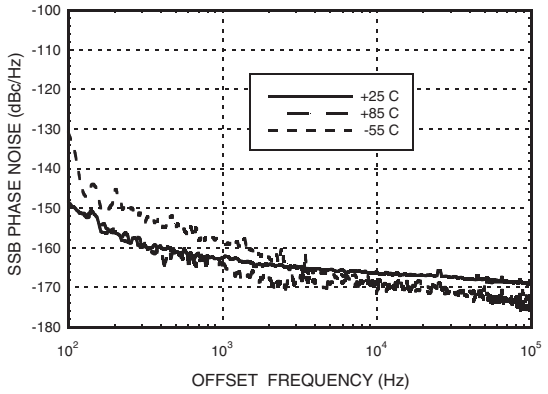
Output IP3 vs. Temperature



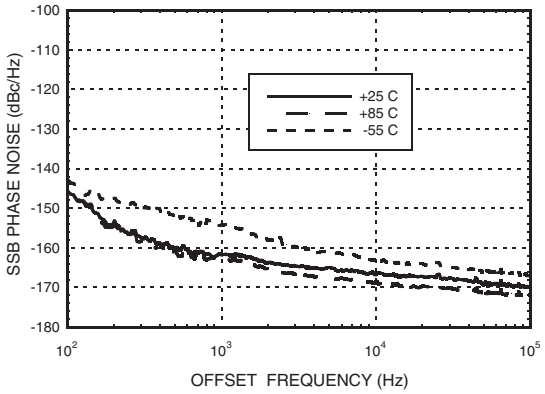
Phase Noise at Pout = 10 dBm @ 3.5 GHz



Phase Noise at Pout = P1dB @ 3.5 GHz



Phase Noise at Pout = Psat @ 3.5 GHz



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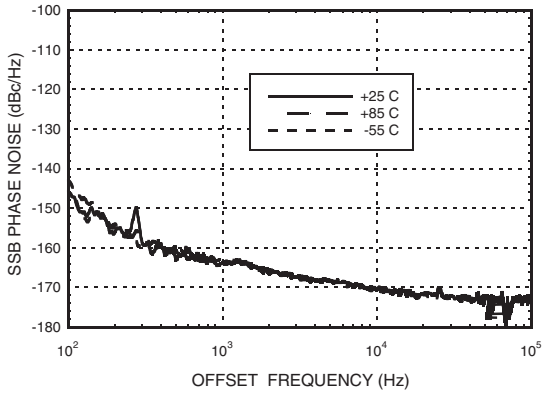
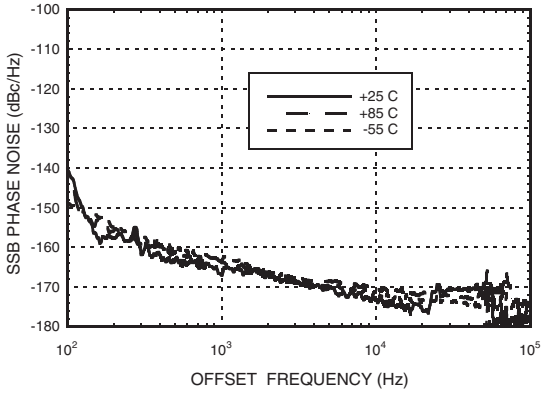
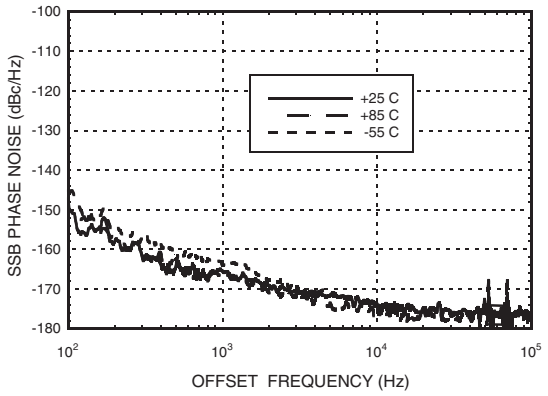
Phase Noise at Pout = 10 dBm @ 5.12 GHz



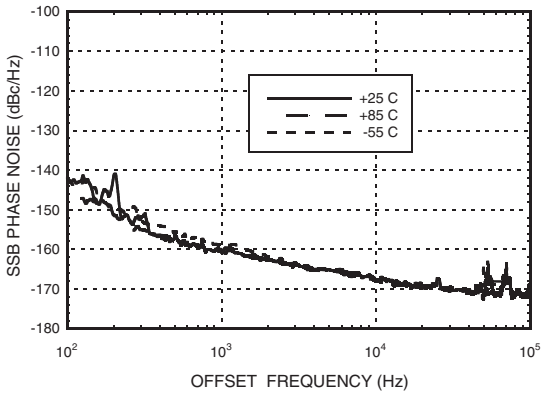
Phase Noise at Pout = P1dB @ 5.12 GHz



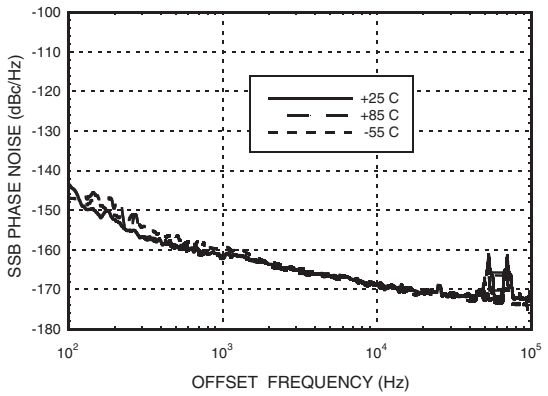
Phase Noise at Pout = Psat @ 5.12 GHz



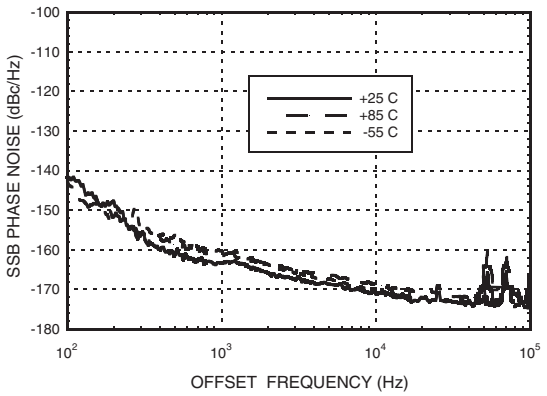
Phase Noise at Pout = 10 dBm @ 7 GHz



Phase Noise at Pout = P1dB @ 7 GHz



Phase Noise at Pout = Psat @ 7 GHz



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ANALOG DEVICES

HMC-C079

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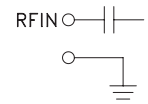
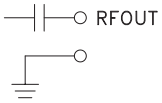
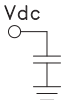
RoHS✓ EARTH FRIENDLY

Absolute Maximum Ratings

Bias Supply Voltage (V)	+8V
RF Input Power (RFIN)	+15 dBm
Continuous Pdiss (T = 85 °C)	1.2W
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.	

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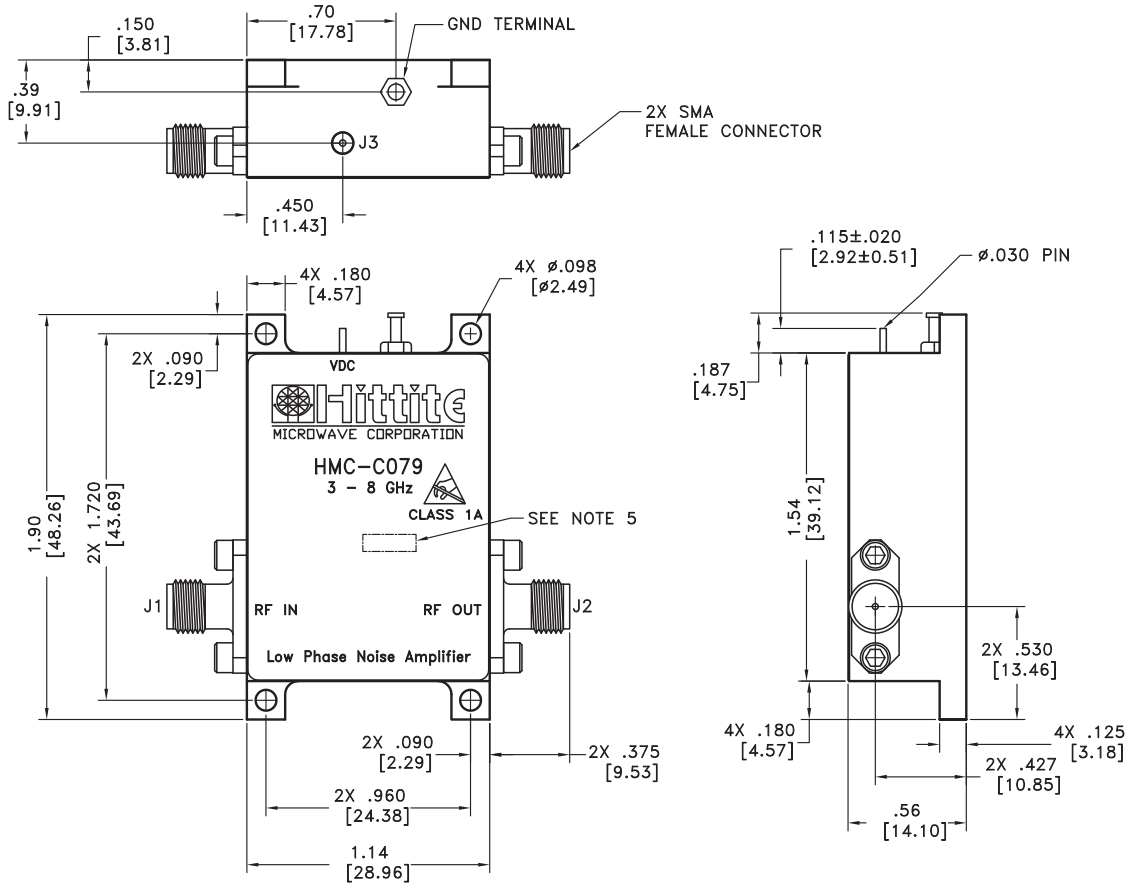
Outline Drawing



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.

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