HMC-C046

v02.0711

GaAs MMIC I/Q MIXER MODULE 20 - 31 GHz

Features

Wide IF Bandwidth: DC - 4.5 GHz

Image Rejection: 24 dB

LO to RF Isolation: 42 dB

High Input IP3: 22.5 dBm

Hermetically Sealed Module

Field Replaceable SMA Connectors

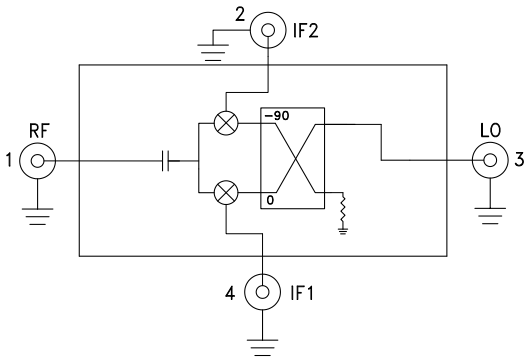
-55 to +85 °C Operating Temperature

Typical Applications

The HMC-C046 is ideal for:

- Point-to-Point Radios
- Point-to-Multi-Point Radios & VSAT
- Test Equipment & Sensors
- Military End-Use

Functional Diagram



General Description

The HMC-C046 is a passive I/Q MMIC mixer housed in a miniature hermetic module which can be used as either an Image Reject Mixer (IRM) or a Single Sideband Upconverter. The module utilizes two standard Hittite double balanced mixer cells and a 90 degree hybrid fabricated on a GaAs MESFET process. A low frequency quadrature hybrid was used to produce a 100 MHz Upper Side Band (USB) IF output. This MMIC based module is a more reliable and consistent alternative to hybrid style I/Q Mixers and Single Sideband Converter assemblies. 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.

Electrical Specifications, T_A = +25° C, IF= 100 MHz, LO = +17 dBm*

Parameter	Min.	Typ.	Max.	Units
Frequency Range, RF/LO		20 - 31		GHz
Frequency Range, IF		DC - 4.5		GHz
Conversion Loss (As IRM)		10	15	dB
Image Rejection	17	24		dB
1 dB Compression (Input)		17		dBm
LO to RF Isolation	29	42		dB
LO to IF Isolation	15	30		dB
IP3 (Input)		22.5		dBm
Amplitude Balance		0.3		dB
Phase Balance		4		Deg

** Unless otherwise noted, all measurements performed as downconverter.*

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

RoHS✓ EARTH FRIENDLY

Data taken As IRM With External IF 90° Hybrid

Conversion Gain vs. Temperature

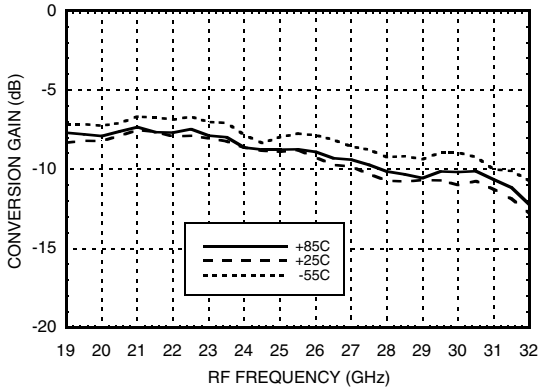
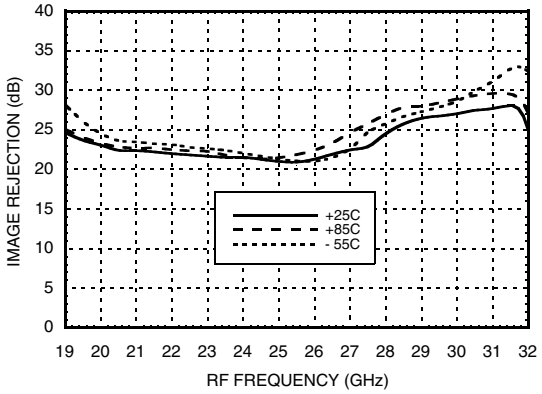
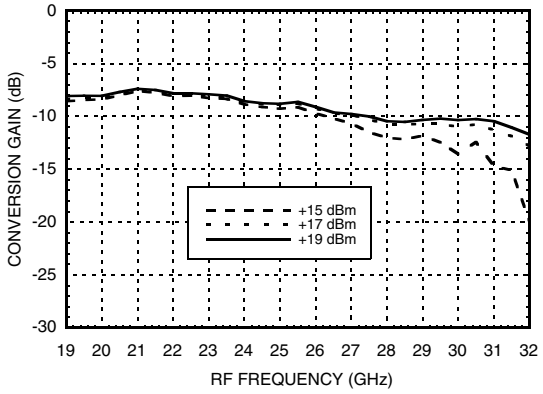


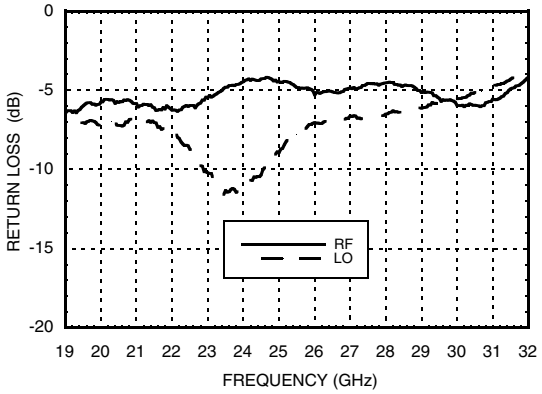
Image Rejection vs. Temperature



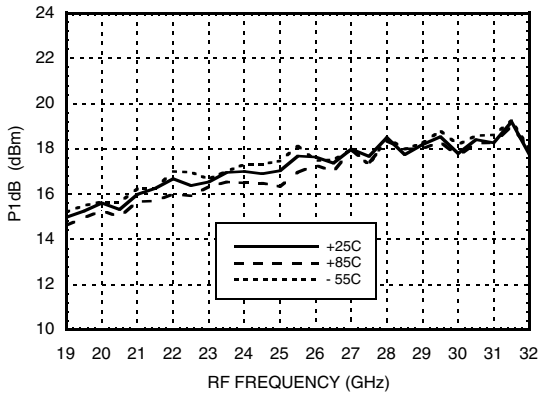
Conversion Gain vs. LO Drive



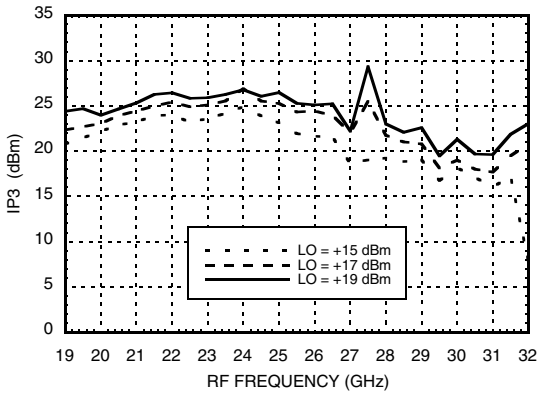
Return Loss



Input P1dB vs. Temperature



Input IP3 vs. LO Drive

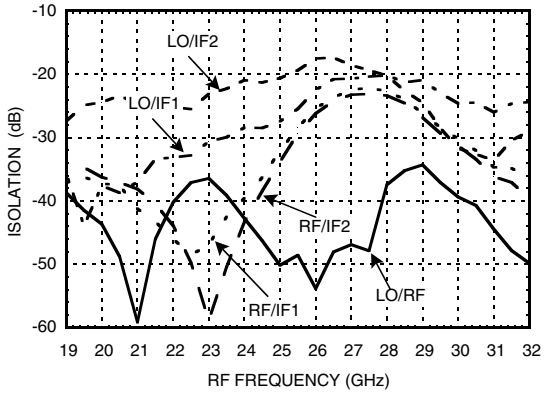


For price, delivery, and to place orders: Analog Devices, Inc., One Technology Way, P.O. Box 9106, Norwood, MA 02062-9106
Phone: 781-329-4700 • Order online at www.analog.com
Application Support: Phone: 1-800-ANALOG-D

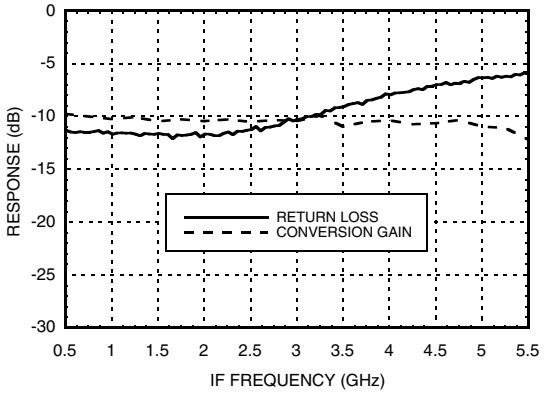
RoHS✓ EARTH FRIENDLY

IF1 & IF2 Port Characteristics

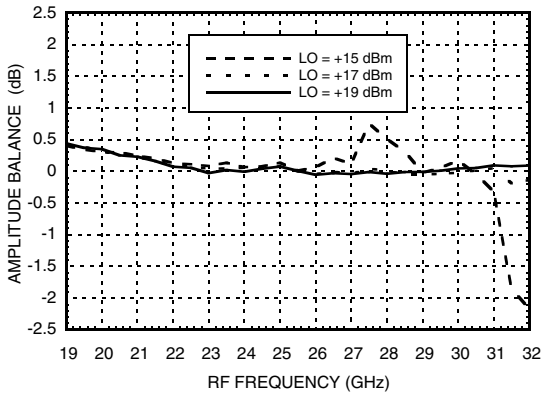
Isolation, LO=+10dBm



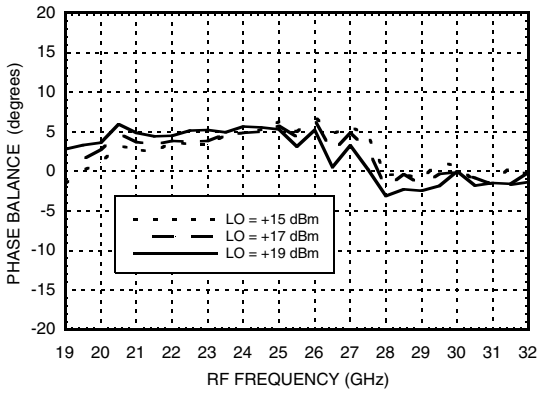
IF Bandwidth*



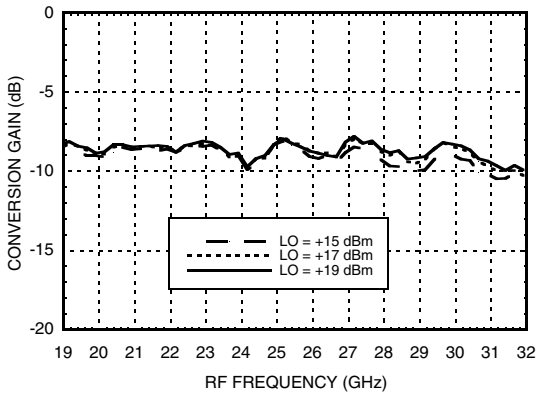
Amplitude Balance vs. LO Drive



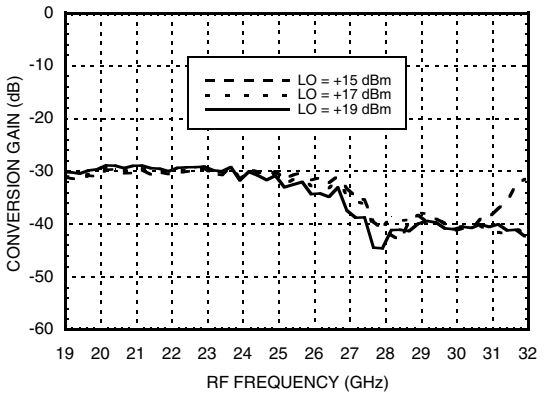
Phase Balance vs. LO Drive



Upconverter Performance Conversion Gain vs. LO Drive



Upconverter Performance Sideband Rejection vs. LO Drive



** Conversion gain data taken with external IF 90° hybrid*

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

Absolute Maximum Ratings

RF / IF Input	13 dBm
LO Drive	27 dBm
Storage Temperature	-65 to +150 °C
Operating Temperature	-55 to +85 °C

MxN Spurious Outputs

	nLO				
mRF	0	1	2	3	4
0	xx	-13	27	xx	xx
1	18	0	35	52	xx
2	76	74	87	74	82
3	xx	83	87	77	87
4	xx	xx	82	87	87

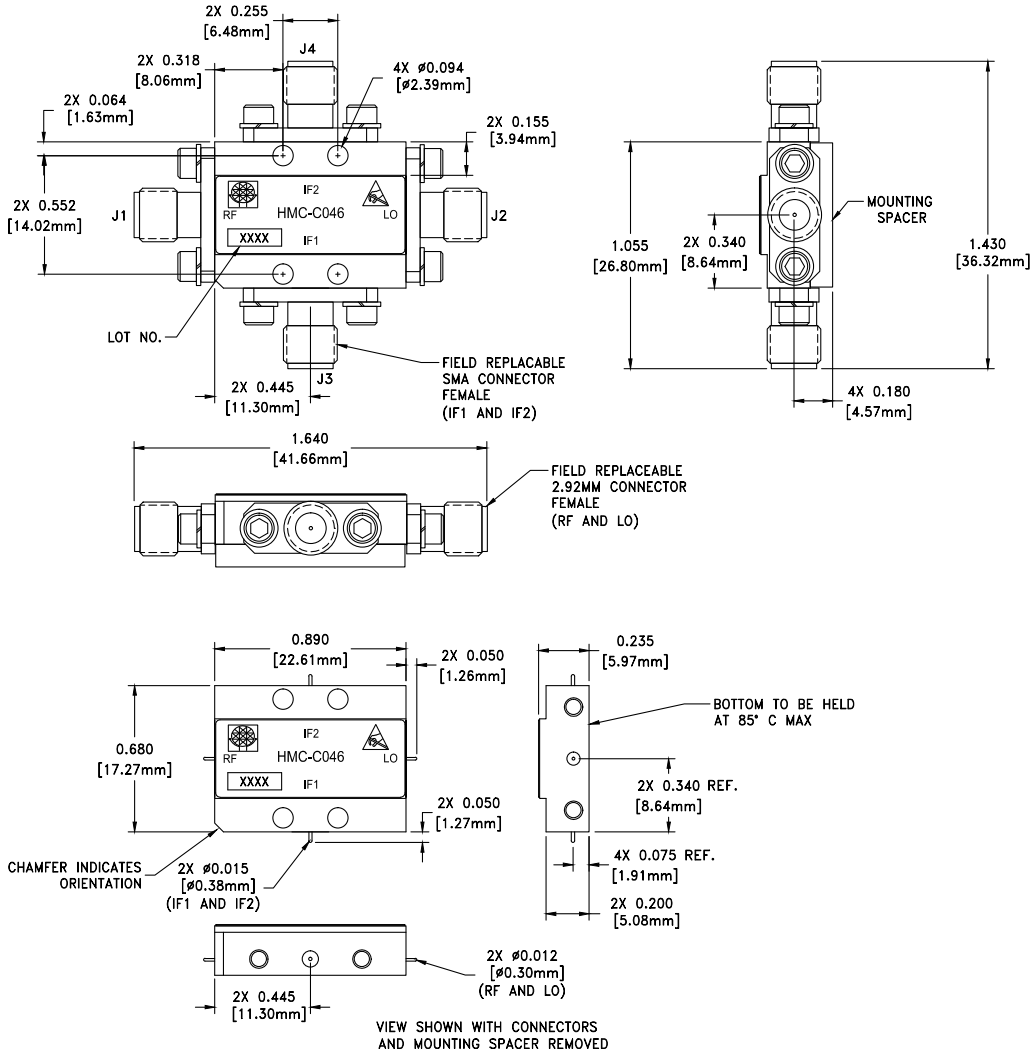
RF = 24.5 GHz @ -10 dBm
LO = 24.4 GHz @ +17 dBm
Data taken without IF 90° hybrid
All values in dBc with reference to output power at IF= 100 MHz

ELECTROSTATIC SENSITIVE DEVICE
OBSERVE HANDLING PRECAUTIONS

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

RoHS✓ EARTH FRIENDLY

Outline Drawing



Package Information

Package Type	C-4B
Package Weight [1]	20 gms (Typ.)
Spacer Weight	2.6 gms (Typ.)

[1] Package weight includes the connectors

[2] ±1 gms Tolerance

NOTES:

1.O PACKAGE, LEADS, COVER MATERIAL: KOVAR™

2.0 FINISH: GOLD PLATE OVER NICKEL PLATE

3.0 MOUNTING SPACER: NICKEL PLATED ALUMINUM.

4.0 ALL DIMENSIONS ARE IN INCHES [MILLIMETERS].

5.0 TOLERANCES:

5.1 .XX = ±.02

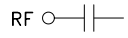
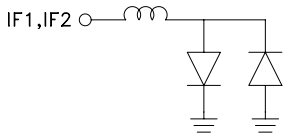
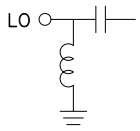
5.2 .XXX = ±.010

6.0 FIELD REPLACEABLE SMA CONNECTORS.
TENSOLITE 5602-5CCSF OR EQUIVALENT.

7.0 TO MOUNT MODULE TO SYSTEM PLATFORM REPLACE 0-80
HARDWARE WITH DESIRED MOUNTING SCREWS.

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

Pin Descriptions

Pin Number	Function	Description	Interface Schematic
1	RF	This pin is AC coupled and matched to 50 Ohms.	
2	IF2	This pin is DC coupled. For applications not requiring operation to DC, this port should be DC blocked externally using a series capacitor whose value has been chosen to pass the necessary IF frequency range. For operation to DC, this pin must not source/sink more than 3mA of current or part non-function and possible part failure will result.	
4	IF1		
3	LO	This pin is DC coupled and matched to 50 Ohms.	

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

X-ON Electronics

Largest Supplier of Electrical and Electronic Components

Click to view similar products for Sub-GHz Modules ***category:***

Click to view products by Analog Devices ***manufacturer:***

Other Similar products are found below :

HMC-C024 nRF24L01P-MODULE-SMA CMD-KEY2-418-CRE V640-A90 SM1231E868 HMC-C582 SM-MN-00-HF-RC HMC-C031 LoRa Node Kit(US) Sierra HL7588 4G KIT(US) WISE-4610-S672NA EC21AUFA-MINIPCIE EC21EUGA-MINIPCIE CS-EASYSWITCH-25 EC21JFB-MINIPCIE DL-RFM96-433M Ra-07H-V1.1 Ra-07 Ra-01SH Ra-01S-T Ra-01SH-T CMD-HHCP-418-MD CMD-HHLR-418-MD 2095000000200 XB9X-DMRS-031 20911051101 COM-13909 HMC-C033 COM-13910 WRL-14498 SX1276RF1KAS HMC-C011 HMC-C014 HMC-C050 HMC-C001 HMC-C006 HMC-C030 HMC-C021 HMC-C041 HMC-C042 HMC-C048 HMC-C051 HMC-C072 HMC-C088 702-W HUM-900-PRC ISP4520-EU-ST ZCTR-06 RXM-433-LR TXM-433-LC