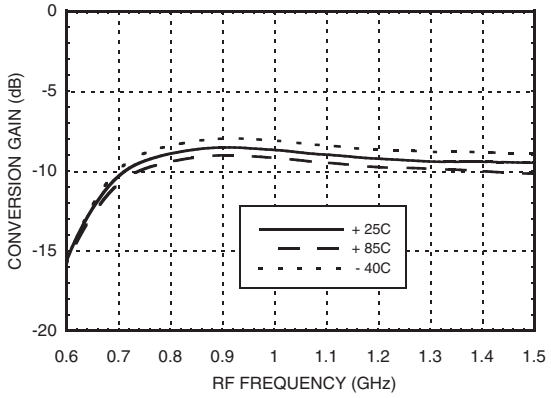
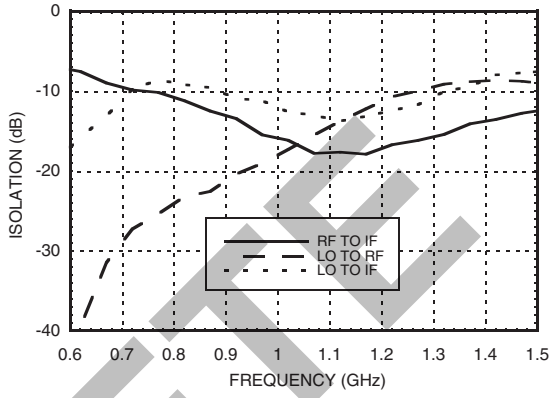
RoHS✓ EARTH FRIENDLY

HIGH IP3 GaAs MMIC MIXER with INTEGRATED LO AMPLIFIER, 0.7 - 1.5 GHz

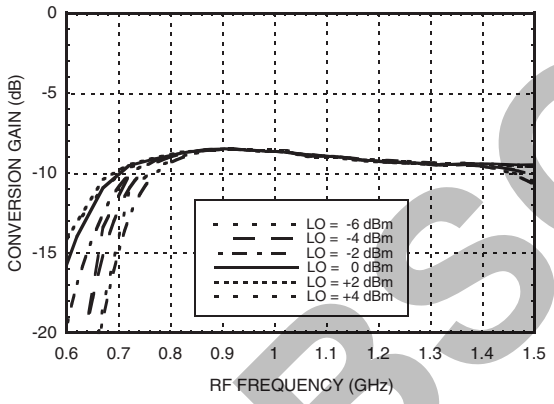
Conversion Gain vs. Temperature



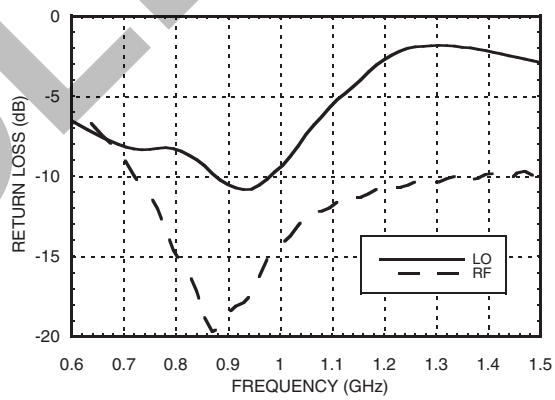
Isolation



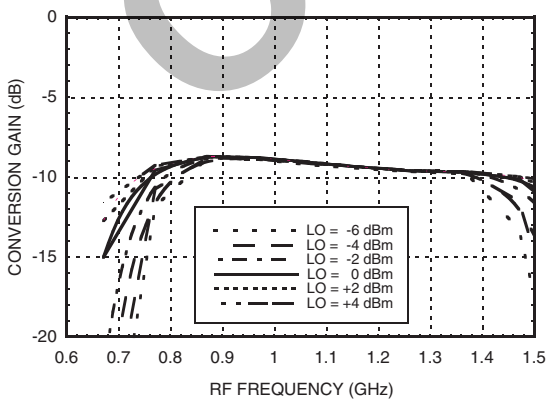
Conversion Gain vs. LO Drive



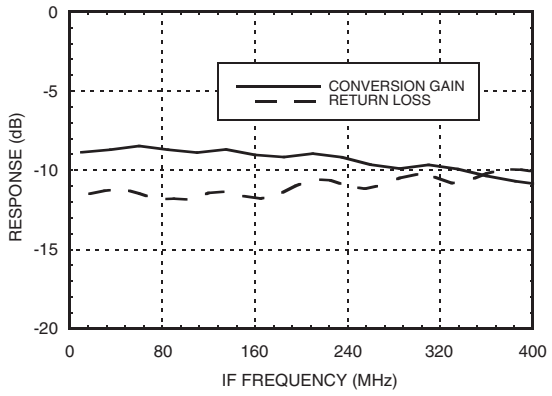
Return Loss



Upconverter Performance Conversion Gain



IF Bandwidth



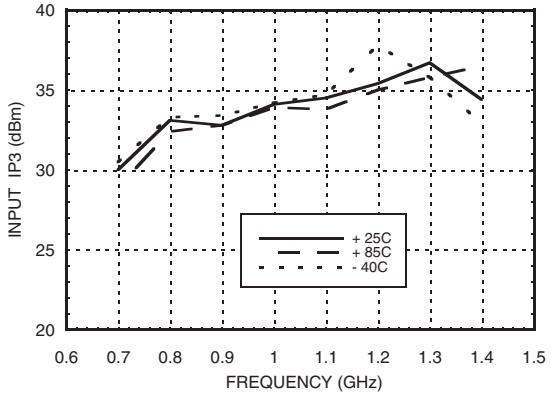
*Unless otherwise noted, all measurements performed as a downconverter, with low side LO & IF = 70 MHz.

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

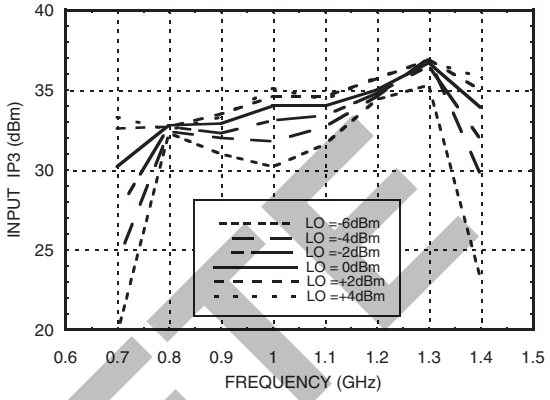
RoHS✓ EARTH FRIENDLY

HIGH IP3 GaAs MMIC MIXER with INTEGRATED LO AMPLIFIER, 0.7 - 1.5 GHz

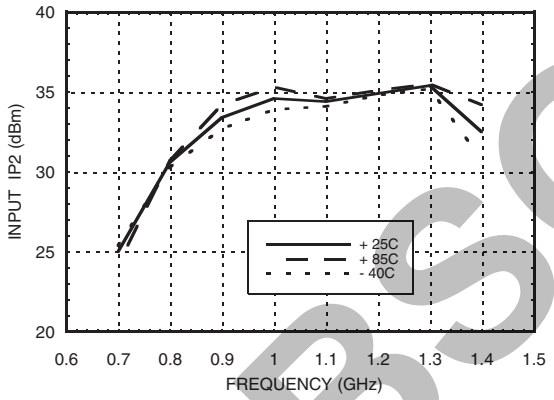
Input IP3 vs. Temperature



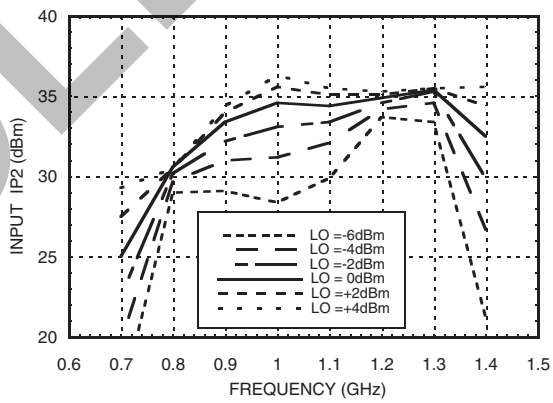
Input IP3 vs. LO Drive



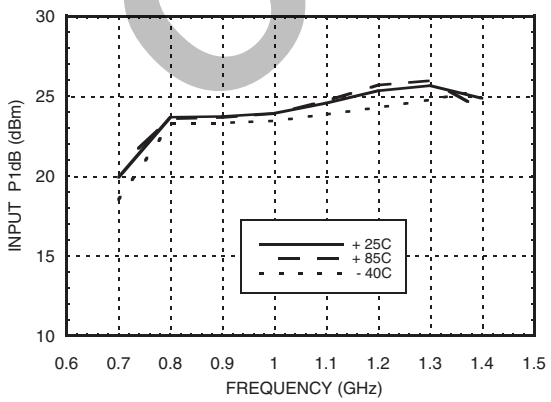
Input IP2 vs. Temperature



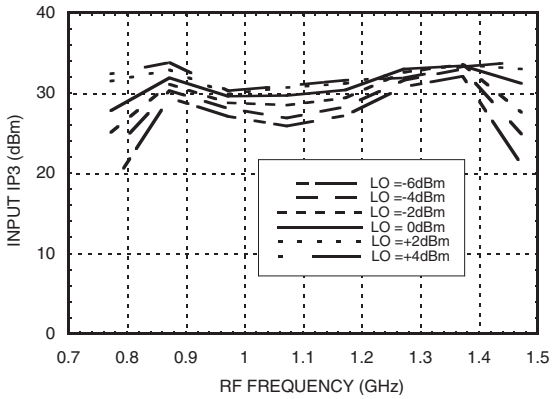
Input IP2 vs. LO Drive



Input P1dB vs. Temperature



Upconverter 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

HIGH IP3 GaAs MMIC MIXER with INTEGRATED LO AMPLIFIER, 0.7 - 1.5 GHz

MxN Spurious Outputs

	nLO				
mRF	0	1	2	3	4
0	xx	-9	24	3	16
1	4	0	30	15	28
2	66	71	50	61	61
3	83	95	103	89	95
4	106	105	103	108	108

RF Freq = 0.87 GHz @ -10 dBm
LO Freq = 0.8 GHz @ 0 dBm
All values in dBc Relative to the IF power level.

Harmonics of LO

	nLO Spur at RF Port			
LO Freq GHz	1	2	3	4
0.7	21	23	24	25
0.8	15	23	18	43
0.9	12	26	23	39
1	9	22	33	32
1.1	6	22	42	27
1.2	3	21	25	26

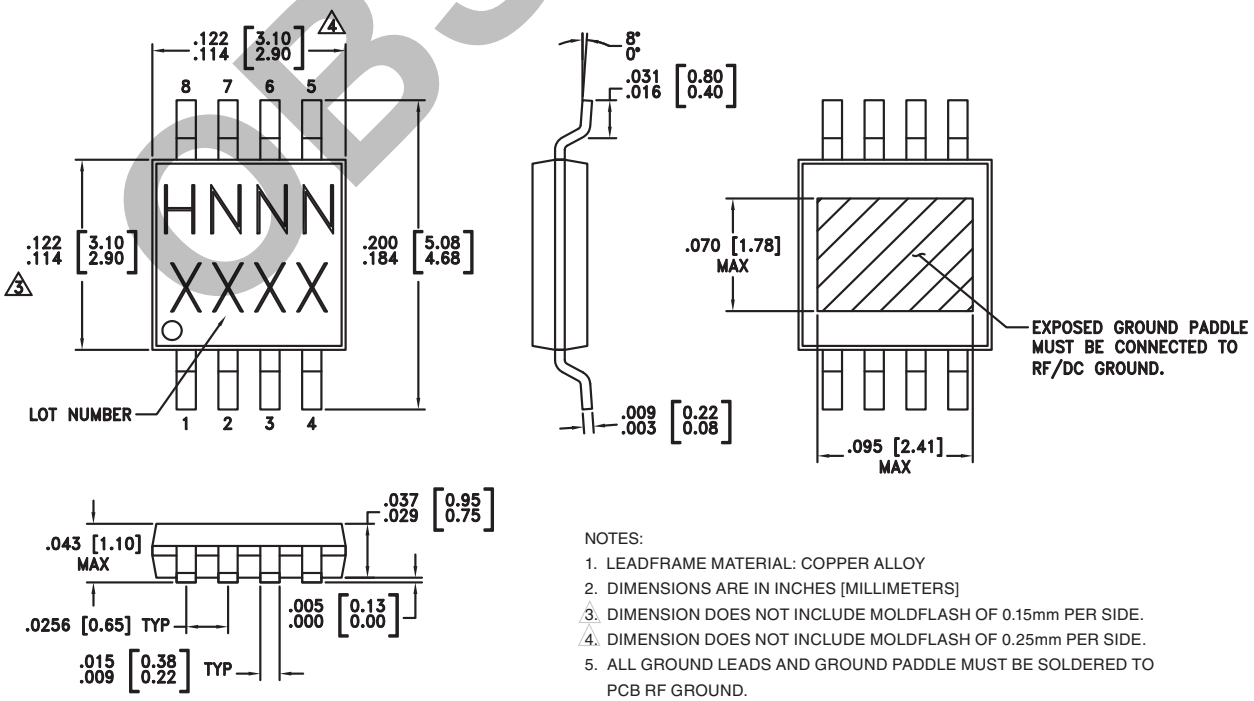
LO power = 0 dBm
All values in dBc below input LO level measured at RF port.

Absolute Maximum Ratings

RF/IF Input	+27 dBm
LO Drive	+10 dBm
Bias Supply (Vdd)	+7 Vdc
Channel Temperature	150 °C
Continuous Pdiss (T = 85°C) (Derate 8.95 mW/°C above 85°C)	0.58 W
Thermal Resistance (R_{TH}) (Channel to ground paddle)	111.7 °C/W
Storage Temperature	-65 to +150 °C
Operating Temperature	-40 to +85 °C
IF DC Current	±40 mA
ESD Sensitivity (HBM)	Class 1B

ELECTROSTATIC SENSITIVE DEVICE
OBSERVE HANDLING PRECAUTIONS

Outline Drawing



NOTES:

1. LEADFRAME MATERIAL: COPPER ALLOY
2. DIMENSIONS ARE IN INCHES [MILLIMETERS]
3. DIMENSION DOES NOT INCLUDE MOLDFLASH OF 0.15mm PER SIDE.
4. DIMENSION DOES NOT INCLUDE MOLDFLASH OF 0.25mm PER SIDE.
5. ALL GROUND LEADS AND GROUND PADDLE MUST BE SOLDERED TO PCB RF GROUND.

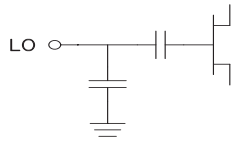
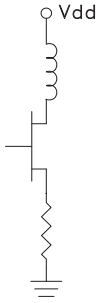
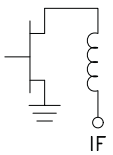
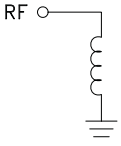
For price, delivery, and to place orders: Analog Devices, Inc., One Technology Way, P.O. Box 9106, Norwood, MA 02062-9106
Phone: 781-329-4700 • Order online at www.analog.com
Application Support: Phone: 1-800-ANALOG-D

Package Information

Part Number	Package Body Material	Lead Finish	MSL Rating	Package Marking [3]
HMC483MS8G	Low Stress Injection Molded Plastic	Sn/Pb Solder	MSL1 [1]	H483 XXXX
HMC483MS8GE	RoHS-compliant Low Stress Injection Molded Plastic	100% matte Sn	MSL1 [2]	H483 XXXX

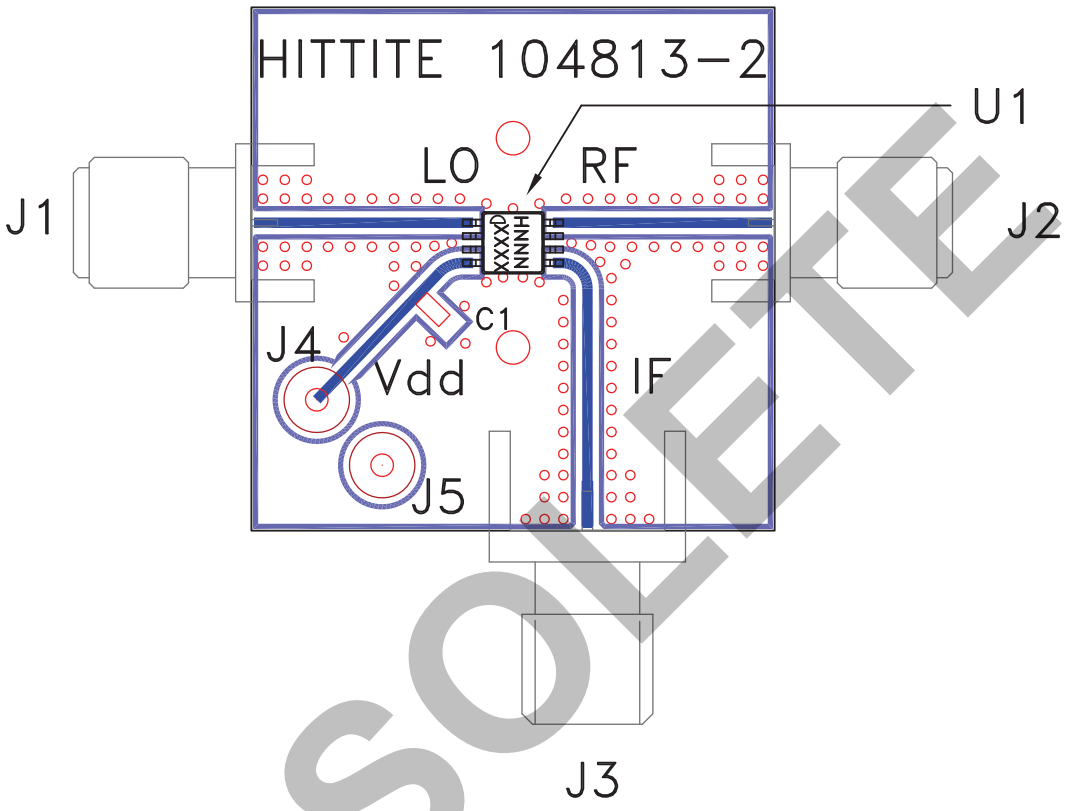
[1] Max peak reflow temperature of 235 °C
[2] Max peak reflow temperature of 260 °C
[3] 4-Digit lot number XXXX

Pin Descriptions

Pin Number	Function	Description	Interface Schematic
1	LO	This pin is AC coupled and matched to 50 Ohms.	
2	N/C	Not connected. This pin may be connected to RF/DC ground without affecting performance.	
3, 6, 7	GND	This pin and the ground paddle must be connected to RF ground.	
4	Vdd	Power supply for LO amplifier. An external RF bypass capacitor is required.	
5	IF	This pin is DC coupled. For applications not requiring operation to DC this port should be DC blocked externally using a series capacitor. Choose value of capacitor to pass IF frequency desired. For operation to DC, this pin must not sink/source more than 40 mA of current or failure may result.	
8	RF	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

Evaluation PCB



List of Materials for Evaluation PCB 105188 [1]

Item	Description
J1 - J3	PCB Mount SMA RF Connector
J4 - J5	DC Pin
C1	10,000 pF Chip Capacitor, 0603 Pkg.
U1	HMC483MS8G / HMC483MS8GE Mixer
PCB [2]	104813 Evaluation Board

[1] Reference this number when ordering complete evaluation PCB

[2] Circuit Board Material: Rogers 4350

The circuit board used in the application should use RF circuit design techniques. Signal lines should have 50 Ohm impedance while the package ground leads and exposed paddle should be connected directly to the ground plane similar to that shown. A sufficient number of via holes should be used to connect the top and bottom ground planes. The evaluation circuit board shown is available from Hittite upon request.

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