THE DATASHEET OF

HMC158

www.win-source.net 0086-755-83957316

ANALOG DEVICES

HMC158

v06.0711

GaAs MMIC PASSIVE FREQUENCY DOUBLER CHIP, 1.3 - 4.0 GHz INPUT

Typical Applications

The HMC158 is suitable for:

- Wireless Local Loop
- LMDS, VSAT, and Point-to-Point Radios
- UNII & HiperLAN
- Test Equipment

Features

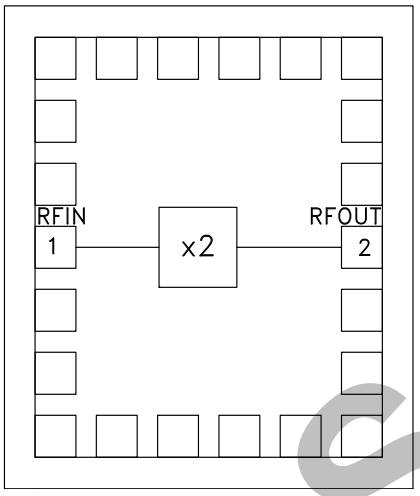
Conversion Loss: 15 dB

Fo, 3Fo, 4Fo Isolation: 40 dB

Input Drive Level: 10 to 20 dBm

Die Size: 1.0 x 1.15 x 0.18 mm

Functional Diagram



General Description

The HMC158 is a miniature frequency doubler in a MMIC die. Suppression of undesired fundamental and higher order harmonics is 40 dB typical with respect to input signal level. The doubler uses the same diode/balun technology used in Hittite MMIC mixers, features small size and requires no DC bias.

OBSOLETE

Electrical Specifications, T_A = +25° C, As a Function of Drive Level

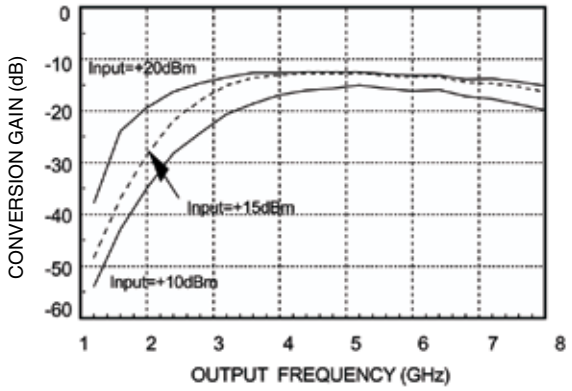
	Input = +10 dBm			Input = +15 dBm			Input = +20 dBm			
Parameter	Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.	Units
Frequency Range, Input	1.7 - 4.0			1.7 - 3.5			1.3 - 4.0			GHz
Frequency Range, Output	3.4 - 8.0			3.4 - 7.0			2.6 - 8.0			GHz
Conversion Loss		18	22		15	18		15	18	dB
FO Isolation (with respect to input level)				37	45					dB
3FO Isolation (with respect to input level)				40	50					dB
4FO Isolation (with respect to input level)				32	40					dB

Information furnished by Analog Devices is believed to be accurate and reliable. However, no responsibility is assumed by Analog Devices for its use, nor for any infringements of patents or other rights of third parties that may result from its use. Specifications subject to change without notice. No license is granted by implication or otherwise under any patent or patent rights of Analog Devices. Trademarks and registered trademarks are the property of their respective owners.

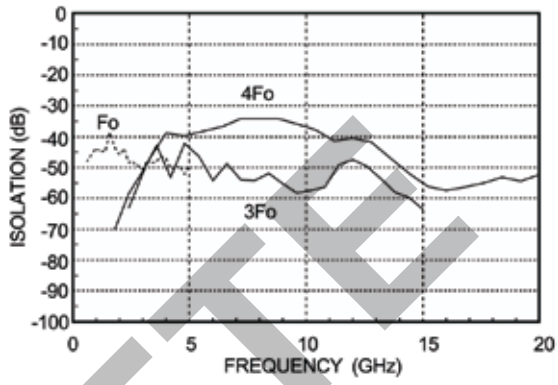
For price, delivery, and to place orders: Analog Devices, Inc., One Technology Way, P.O. Box 9106, Norwood, MA 02062-9106
Phone: 781-329-4700 • Order online at www.analog.com
Application Support: Phone: 1-800-ANALOG-D

GaAs MMIC PASSIVE FREQUENCY DOUBLER CHIP, 1.3 - 4.0 GHz INPUT

Conversion Gain vs. Drive Level

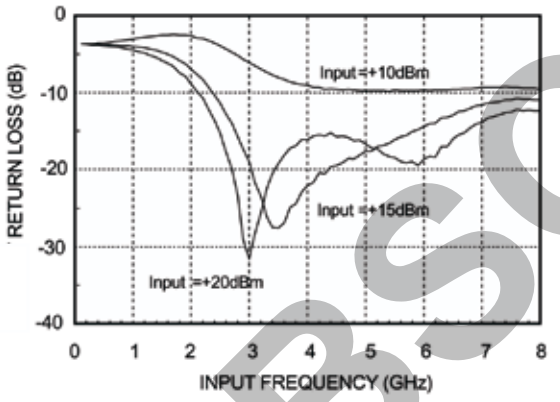


Isolation @ +15 dBm Drive Level*

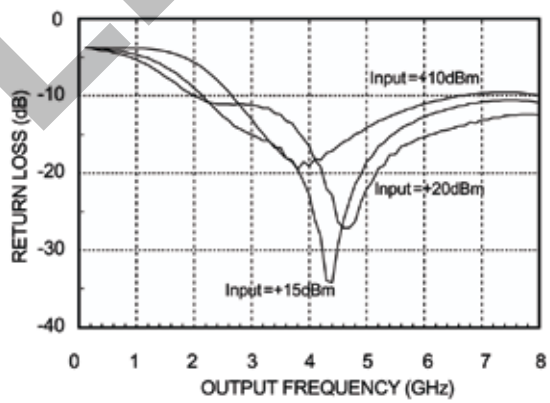


*With respect to input level

Input Return Loss vs. Drive Level



Output Return Loss vs. Drive Level



OBSOLETE

Absolute Maximum Ratings

Input Drive	+27 dBm
Storage Temperature	-65 to +150 °C
Operating Temperature	-55 to +85 °C
ESD Sensitivity (HBM)	Class 1A

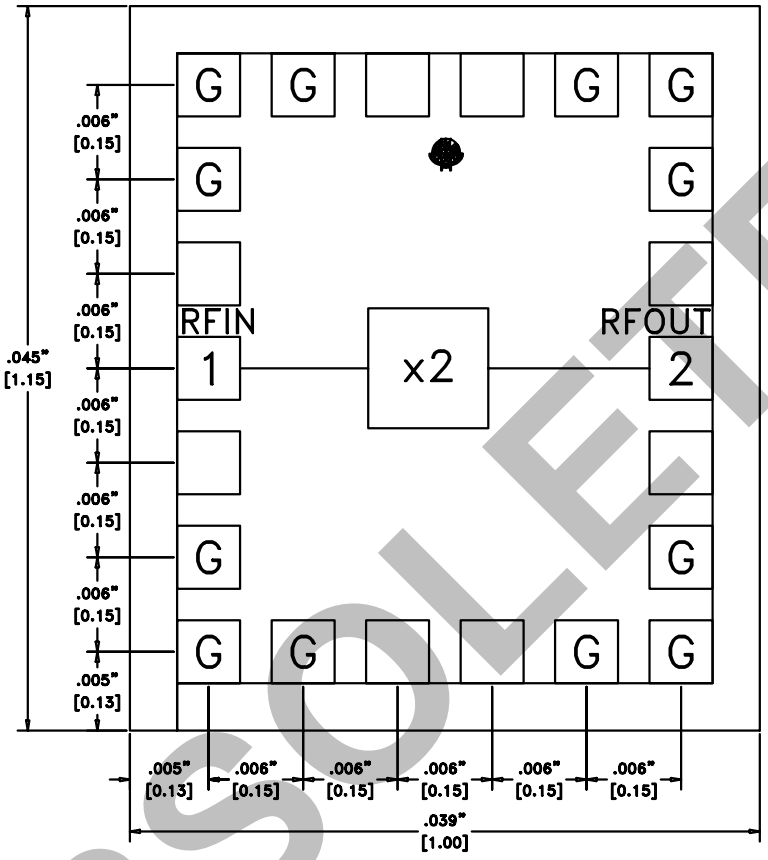
ELECTROSTATIC SENSITIVE DEVICE
OBSERVE HANDLING PRECAUTIONS

Information furnished by Analog Devices is believed to be accurate and reliable. However, no responsibility is assumed by Analog Devices for its use, nor for any infringements of patents or other rights of third parties that may result from its use. Specifications subject to change without notice. No license is granted by implication or otherwise under any patent or patent rights of Analog Devices. Trademarks and registered trademarks are the property of their respective owners.

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

GaAs MMIC PASSIVE FREQUENCY DOUBLER CHIP, 1.3 - 4.0 GHz INPUT

Outline Drawing



OBSOLETE

Die Packaging Information [1]

Standard	Alternate [2]
WP-2 (Waffle Pack)	[2]

[1] Refer to the "Packaging Information" section for die packaging dimensions.
[2] Reference this suffix only when ordering alternate die packaging.

NOTES:
1. THREE PADS ON EACH CORNER MUST BE BONDED TO GROUND (12 TOTAL).
2. ALL DIMENSIONS IN INCHES [MILLIMETERS]
3. ALL TOLERANCES ARE 0.001 [0.025]
4. DIE THICKNESS IS 0.007 [0.178]
5. BOND PADS ARE 0.004 [0.100] SQUARE
6. EQUALLY SPACED AT 0.006 [0.150] CENTERS
7. BACKSIDE METALLIZATION: NONE
8. BOND PAD METALLIZATION: GOLD

Pad Description

Pad Number	Function	Description	Interface Schematic
1	RFIN	Pad is DC coupled and matched to 50 ohms.	RFIN
2	RFOUT	Pad is DC coupled and matched to 50 ohms.	RFOUT
Die Bottom	GND	DC / RF Ground	GND

Information furnished by Analog Devices is believed to be accurate and reliable. However, no responsibility is assumed by Analog Devices for its use, nor for any infringements of patents or other rights of third parties that may result from its use. Specifications subject to change without notice. No license is granted by implication or otherwise under any patent or patent rights of Analog Devices. Trademarks and registered trademarks are the property of their respective owners.

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

Handling Precautions

Follow these precautions to avoid permanent damage.

Storage: All bare die are placed in either Waffle or Gel based ESD protective containers, and then sealed in an ESD protective bag for shipment. Once the sealed ESD protective bag has been opened, all die should be stored in a dry nitrogen environment.

Cleanliness: Handle the chips in a clean environment. DO NOT attempt to clean the chip using liquid cleaning systems.

Static Sensitivity: Follow ESD precautions to protect against ESD strikes.

Transients: Suppress instrument and bias supply transients while bias is applied. Use shielded signal and bias cables to minimize inductive pick-up.

General Handling: Handle the chip along the edges with a vacuum collet or with a sharp pair of bent tweezers. The surface of the chip may have fragile air bridges and should not be touched with vacuum collet, tweezers, or fingers.

Mounting

Epoxy Die Attach:
Apply a minimum amount of epoxy to the mounting surface so that a thin epoxy fillet is observed around the perimeter of the chip once it is placed into position.

Cure epoxy per the manufacturer's schedule.

Wire Bonding

Ball or wedge bond with 1.0 diameter pure gold wire. Thermosonic wirebonding with a nominal stage temperature of 150 °C and a ball bonding force of 40 to 50 grams or wedge bonding force of 18 to 22 grams is recommended. Use the minimum level of ultrasonic energy to achieve reliable wirebonds. Wirebonds should be started on the chip and terminated on the package. RF bonds should be as short as possible.

OBSOLETE

Information furnished by Analog Devices is believed to be accurate and reliable. However, no responsibility is assumed by Analog Devices for its use, nor for any infringements of patents or other rights of third parties that may result from its use. Specifications subject to change without notice. No license is granted by implication or otherwise under any patent or patent rights of Analog Devices. Trademarks and registered trademarks are the property of their respective owners.

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

Looking for pricing, stock, or lifecycle information?

Click below to explore more details on WIN SOURCE:

- View HMC158 on WIN SOURCE
- Analog Devices Inc. Information

Optimize Your Supply Chain with WIN SOURCE Solutions

- Global Sourcing Solution
- Obsolete Management
- Cost Control Management
- Shortage Management
- Alternative Solution
- Excess Inventory Management