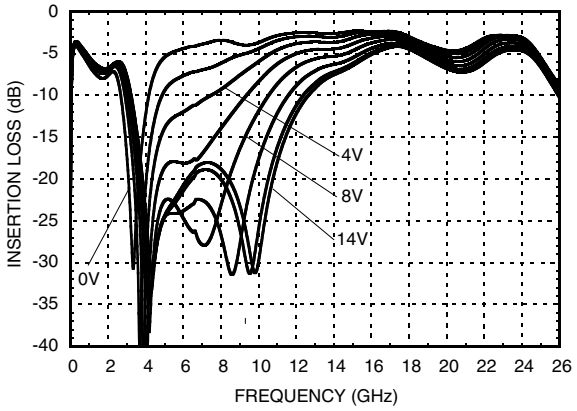
RoHS✓ EARTH FRIENDLY

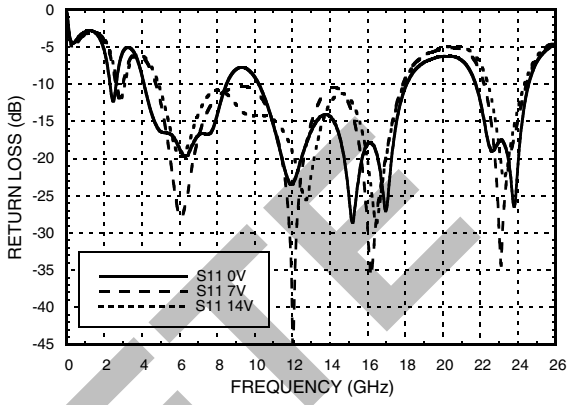
FILTER - TUNABLE, BAND REJECT SMT 3.6 - 12.2 GHz

Tuning Mode 4, Rejection Bandwidth Tuning (Vt1 = 0V, Vt2 = 0-14V)

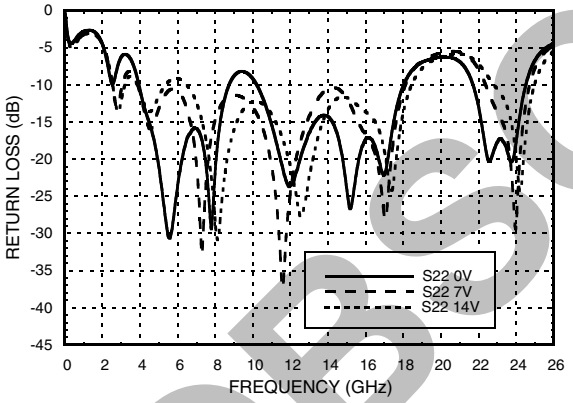
Broadband Insertion Loss vs. Vt



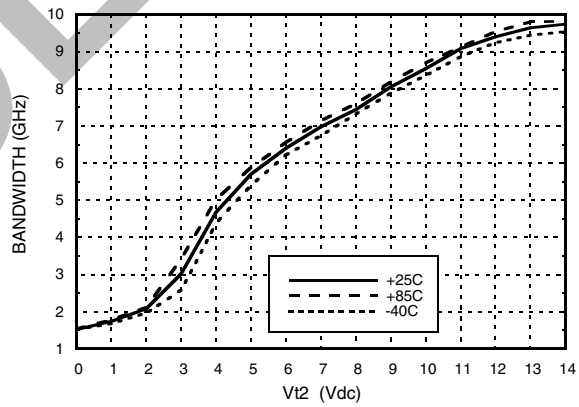
Broadband Return Loss (S11) vs. Vt



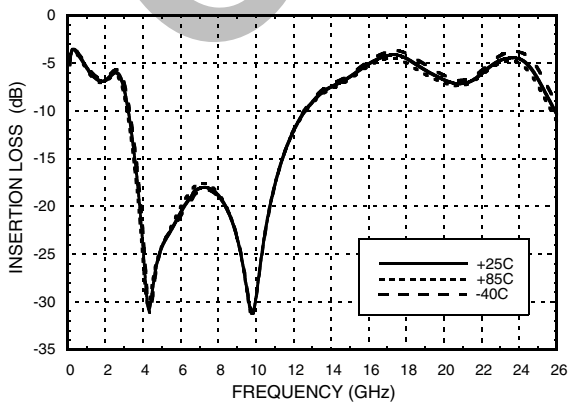
Broadband return Loss (S22) vs. Vt



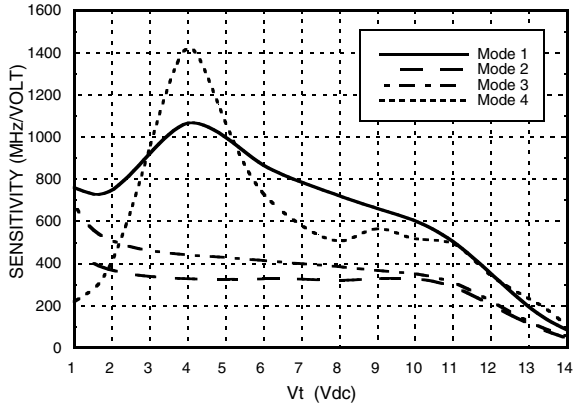
Rejection Bandwidth Vs. Temperature Insertion Loss = - 10 dB



Rejection Vs. Temperature, Vt2 = 14V



Tuning Sensitivity Vs. Vt

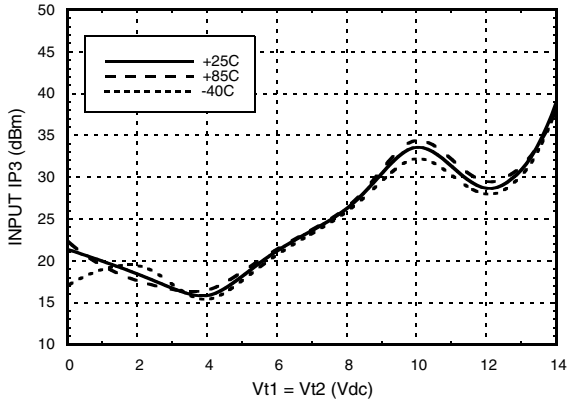


For price, delivery, and to place orders: Analog Devices, Inc., One Technology Way, P.O. Box 9106, Norwood, MA 02062-9106
Phone: 781-329-4700 • Order online at www.analog.com
Application Support: Phone: 1-800-ANALOG-D

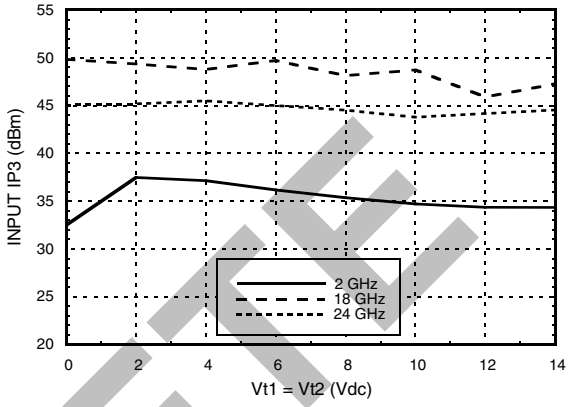
RoHS✓ EARTH FRIENDLY

FILTER - TUNABLE, BAND REJECT SMT 3.6 - 12.2 GHz

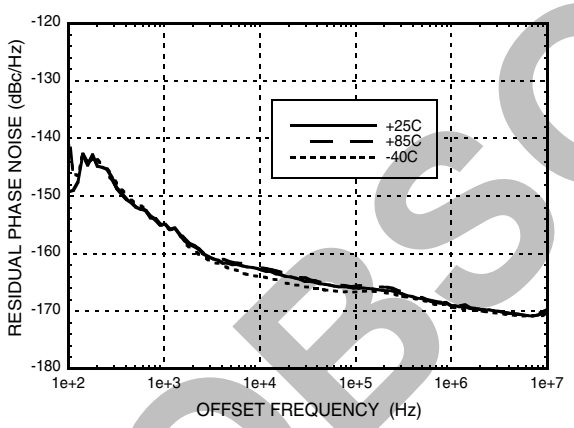
Rejection Band, Input IP3, Pin = +10 dBm



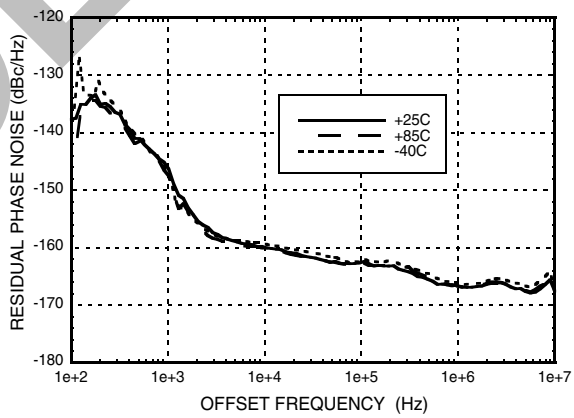
Passband, Input IP3 Pin = +10 dBm



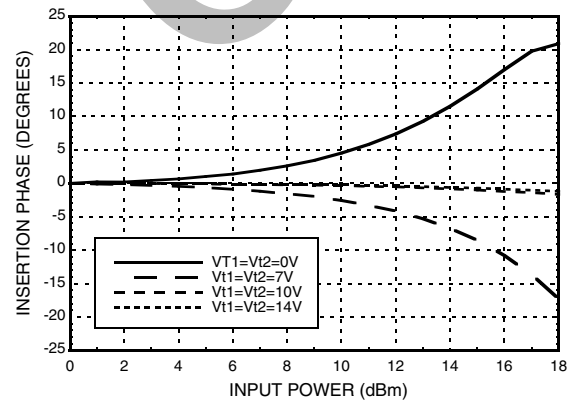
Passband, Residual Phase Noise @ 4 GHz, Vt1 = Vt2 = 14V



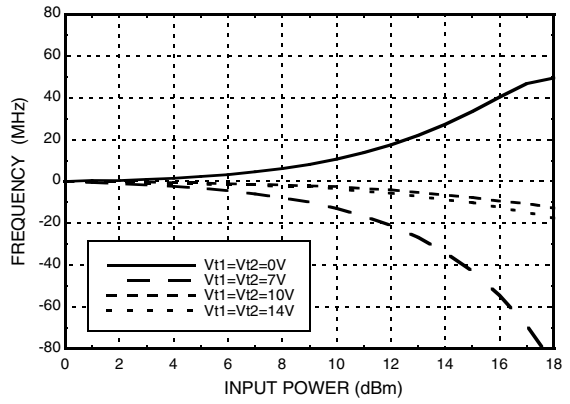
Passband, Residual Phase Noise @ 17 GHz, Vt1 = Vt2 = 0V



Rejection Band, Insertion Phase vs. Pin



Rejection Band, Fcenter vs. Pin



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

FILTER - TUNABLE, BAND REJECT SMT 3.6 - 12.2 GHz

Four Operation Modes And The Control Conditions

Mode	Vt1	Vt2	Description
I	0 -14V Vt1 = Vt2	0 -14V Vt1 = Vt2	Full band frequency tuning
II	0 - 14V	0 V	Low band frequency tuning, with narrower rejection bandwidth
III	14V	0 - 14V	High band frequency tuning, with narrower rejection bandwidth
IV	0 V	0 - 14V	Rejection bandwidth tuning

Reliability Information

Junction Temperature to Maintain 1 Million Hour MTTF	150 °C
Nominal Junction Temperature (T = 85 °C and Pin = 10 dBm)	86 °C
Thermal Resistance (Junction To Ground Paddle)	40° C/W
Operating Temperature	-40 to +85 °C

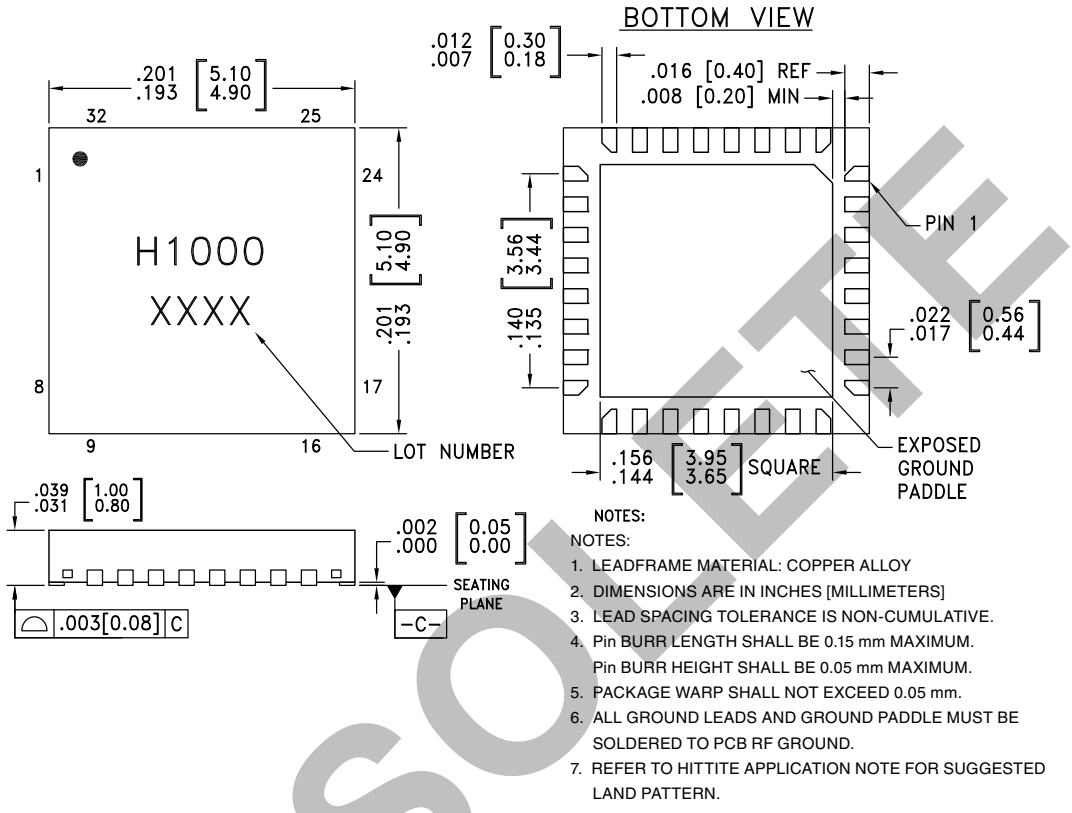
Absolute Maximum Ratings

Frequency Control Voltage (Vfctl)	-0.5 to +15V
RF Power Input	28.5 dBm
Storage Temperature	-65 to +150 °C
ESD Sensitivity (HBM)	Class 1 A

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

Outline Drawing



NOTES:

NOTES:

1. LEADFRAME MATERIAL: COPPER ALLOY
2. DIMENSIONS ARE IN INCHES [MILLIMETERS]
3. LEAD SPACING TOLERANCE IS NON-CUMULATIVE.
4. Pin BURR LENGTH SHALL BE 0.15 mm MAXIMUM. Pin BURR HEIGHT SHALL BE 0.05 mm MAXIMUM.
5. PACKAGE WARP SHALL NOT EXCEED 0.05 mm.
6. ALL GROUND LEADS AND GROUND PADDLE MUST BE SOLDERED TO PCB RF GROUND.
7. REFER TO HITTITE APPLICATION NOTE FOR SUGGESTED LAND PATTERN.

Package Information

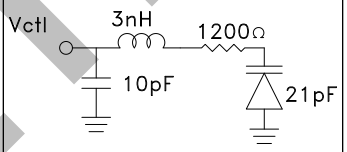
Part Number	Package Body Material	Lead Finish	MSL Rating	Package Marking [1]
HMC1000LP5E	RoHS-compliant Low Stress Injection Molded Plastic	100% matte Sn	MSL1 [2]	H1000 XXXX

[1] 4-Digit lot number XXXX

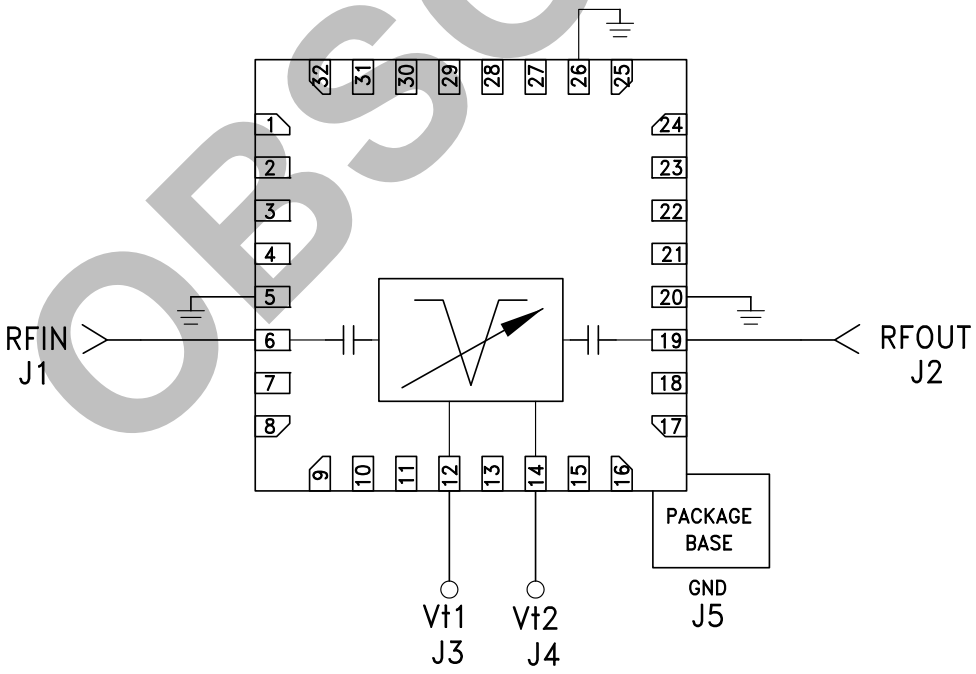
[2] Max peak reflow temperature of 260 °C

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

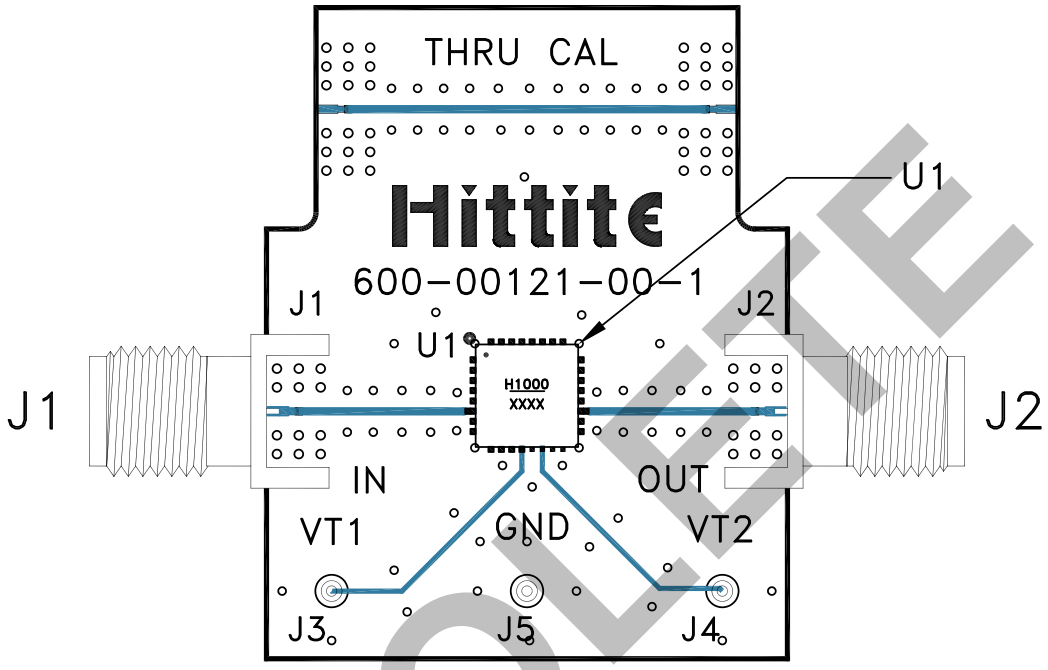
Pin Number	Function	Description	Interface Schematic
1-4, 7-11, 13, 15-18, 21-25, 27-32	N/C	The pins are not connected internally; however, all data shown herein was measured with these pins connected to RF/DC ground externally.	
5, 20, 26	GND	These pins and exposed paddle must be connected to RF/DC ground.	
6	RFIN	This pin is AC coupled and matched to 50 Ohms.	
12, 14	Vt1, Vt2	Center frequency control voltage.	
19	RFOUT	This pin is AC coupled and matched to 50 Ohms.	

Application Circuit



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 EVAL01-HMC1000LP5E [1]

Item	Description
J1, J2	Connector, 2.9 mm, Jack
J3, J4, J5	DC Pin
U1	HMC1000LP5E, Band Reject Filter-Tunable
PCB [2]	600-00121-00 Evaluation PCB

[1] Reference this number when ordering complete evaluation PCB

[2] Circuit Board Material: Arlon 25FR or Rogers 25FR

The circuit board used in the application should use RF circuit design techniques. Signal lines should have 50 Ohms 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