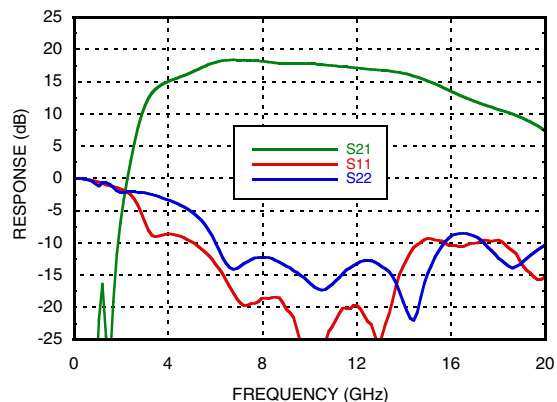
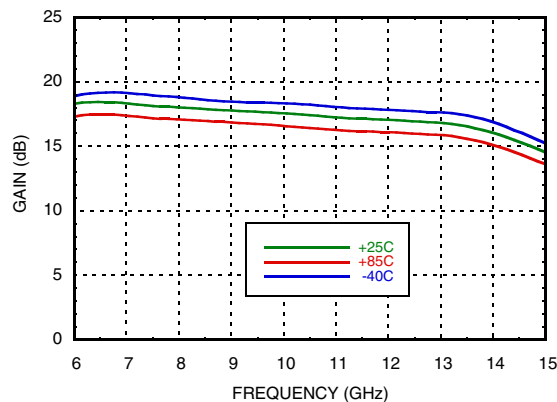


**GaAs SMT pHEMT LOW NOISE
AMPLIFIER, 7 - 14 GHz**

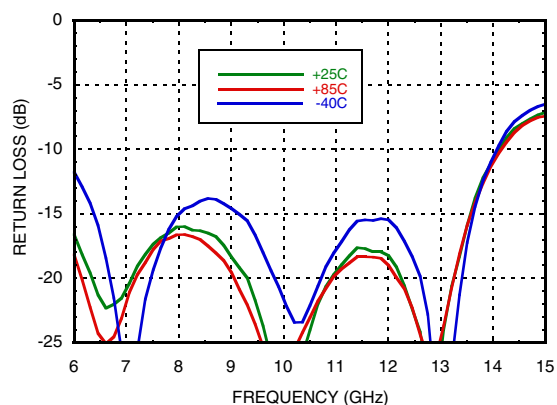
Broadband Gain & Return Loss



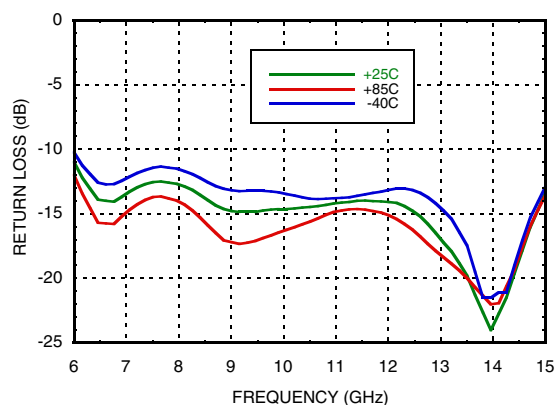
Gain vs. Temperature



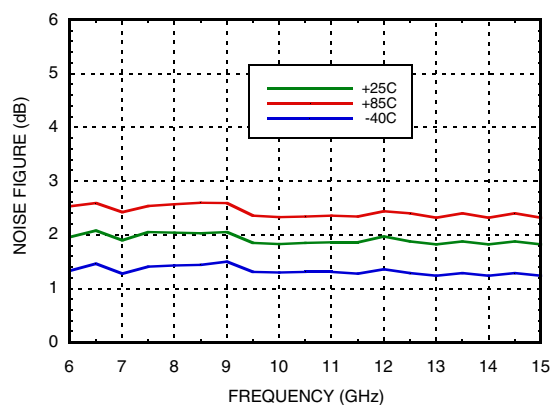
Input Return Loss vs. Temperature



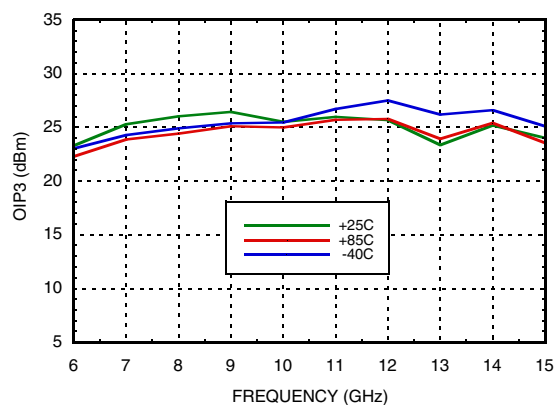
Output Return Loss vs. Temperature



Noise Figure vs. Temperature

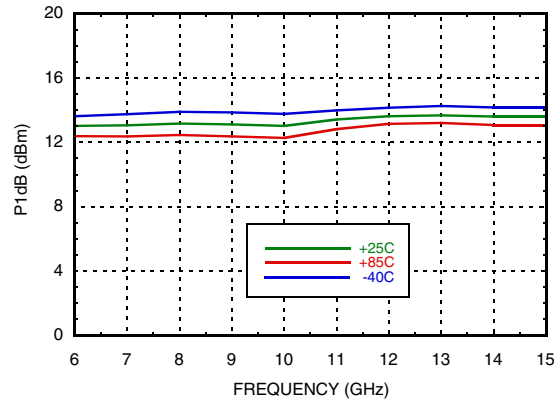


Output IP3 vs. Temperature

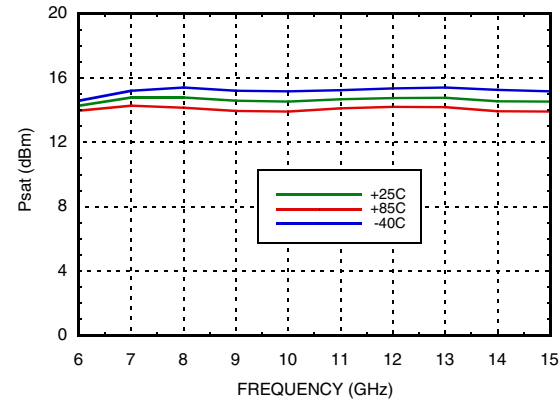


**GaAs SMT pHEMT LOW NOISE
AMPLIFIER, 7 - 14 GHz**

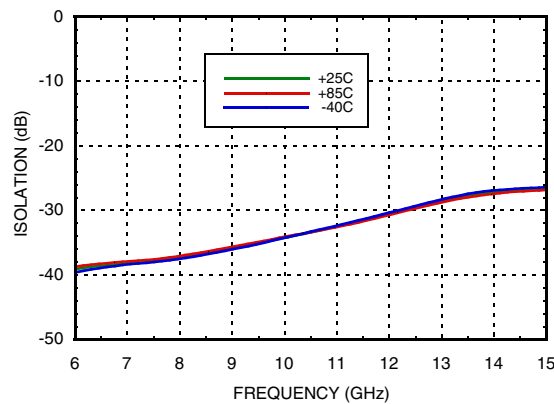
P1dB vs. Temperature



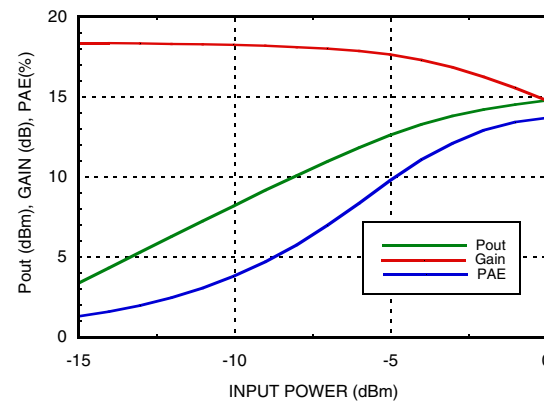
Psat vs. Temperature



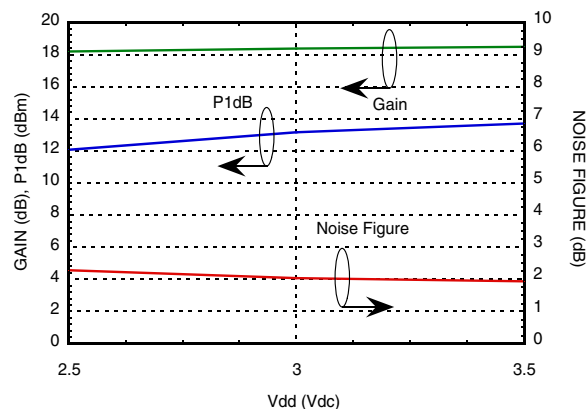
Reverse Isolation vs. Temperature



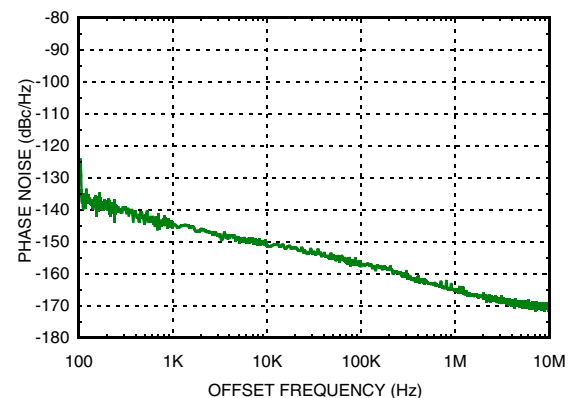
Power Compression @ 8 GHz



**Gain, Power & Noise Figure
vs. Supply Voltage @ 8 GHz**

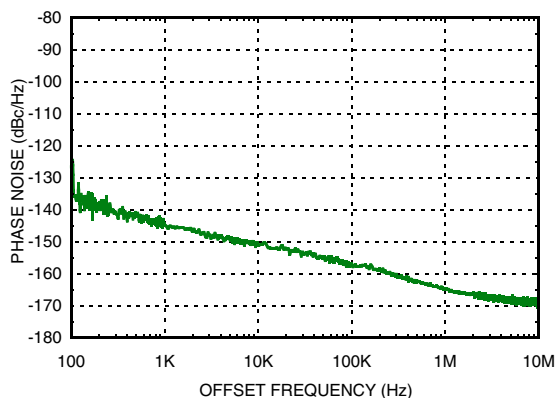


**Additive Phase Noise Vs Offset Frequency,
RF Frequency = 11 GHz,
RF Input Power = 2.5 dBm (Psat)**



**GaAs SMT pHEMT LOW NOISE
AMPLIFIER, 7 - 14 GHz**

**Additive Phase Noise Vs Offset Frequency,
RF Frequency = 11 GHz,
RF Input Power = -4 dBm (P1dB)**



Notes:

GaAs SMT pHEMT LOW NOISE AMPLIFIER, 7 - 14 GHz

Absolute Maximum Ratings

Drain Bias Voltage (Vdd1, Vdd2)	+3.5 Vdc
RF Input Power (RFIN) (Vdd = +3.0 Vdc)	+20 dBm
Channel Temperature	175 °C
Continuous P _{diss} (T= 85 °C) (derate 12.9 mW/°C above 85 °C)	1.16 W
Thermal Resistance (channel to ground paddle)	77.5 °C/W
Storage Temperature	-65 to +150 °C
Operating Temperature	-40 to +85 °C
ESD Sensitivity (HBM)	Class 1A

Typical Supply Current vs. Vdd

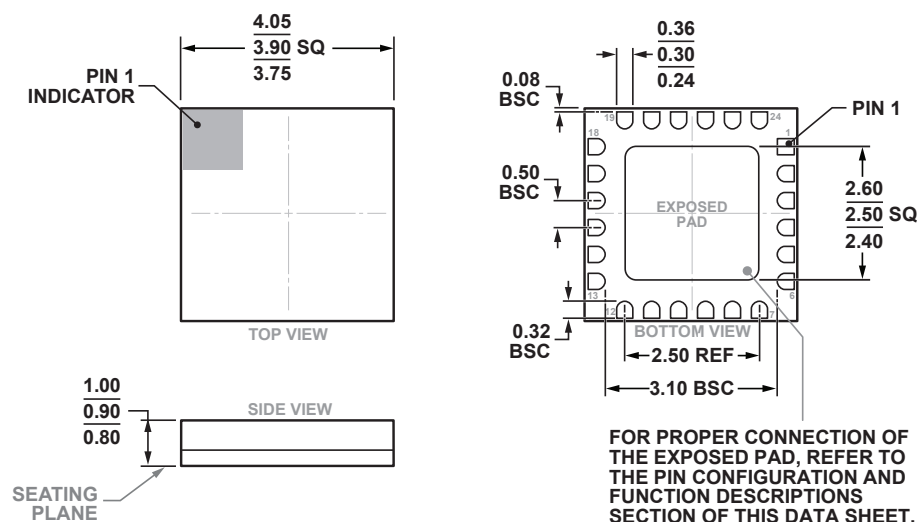
Vdd (V)	I _{dd} (mA)
2.5	49
3.0	51
3.5	53

Note: Amplifier will operate over full voltage ranges shown above.



ELECTROSTATIC SENSITIVE DEVICE
OBSERVE HANDLING PRECAUTIONS

Outline Drawing



24-Terminal Ceramic Leadless Chip Carrier [LCC]
(E-24-1)
Dimensions shown in millimeters.

Package Information


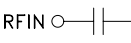
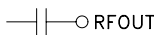
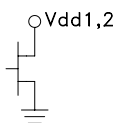
Part Number	Package Body Material	Lead Finish	MSL Rating	Package Marking [2]
HMC564LC4	Alumina, White	Gold over Nickel	MSL3 [1]	H564 XXXX
HMC564LC4TR	Alumina, White	Gold over Nickel	MSL3 [1]	H564 XXXX
HMC564LC4TR-R5	Alumina, White	Gold over Nickel	MSL3 [1]	H564 XXXX

[1] Max peak reflow temperature of 260 °C

[2] 4-Digit lot number XXXX

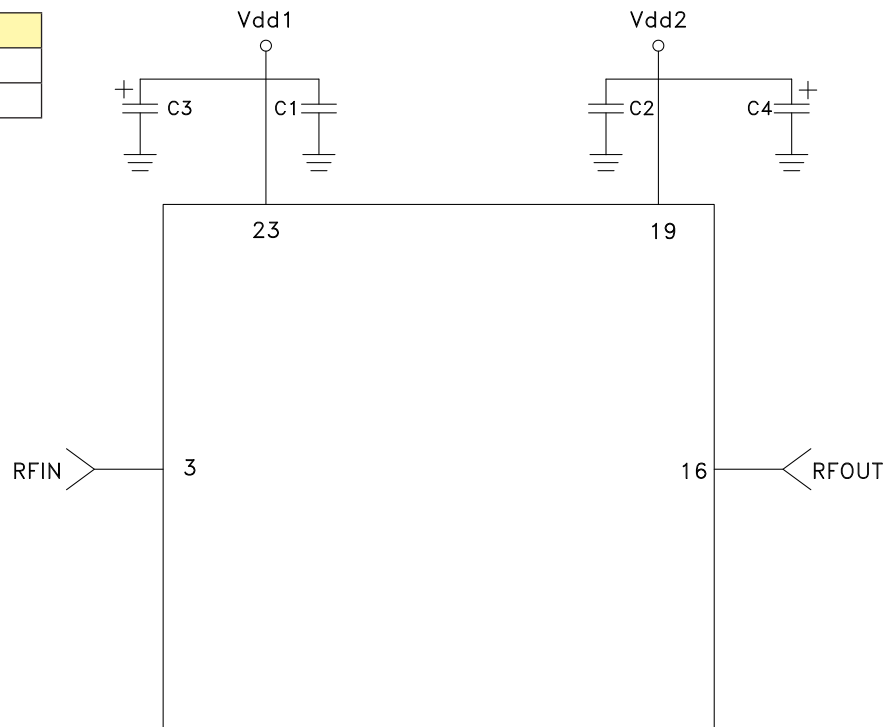
For price, delivery, and to place orders: Analog Devices, Inc., One Technology Way, P.O. Box 9106, Norwood, MA 02062-9106
Phone: 781-329-4700 • Order online at www.analog.com
Application Support: Phone: 1-800-ANALOG-D

**GaAs SMT pHEMT LOW NOISE
AMPLIFIER, 7 - 14 GHz**
Pin Descriptions

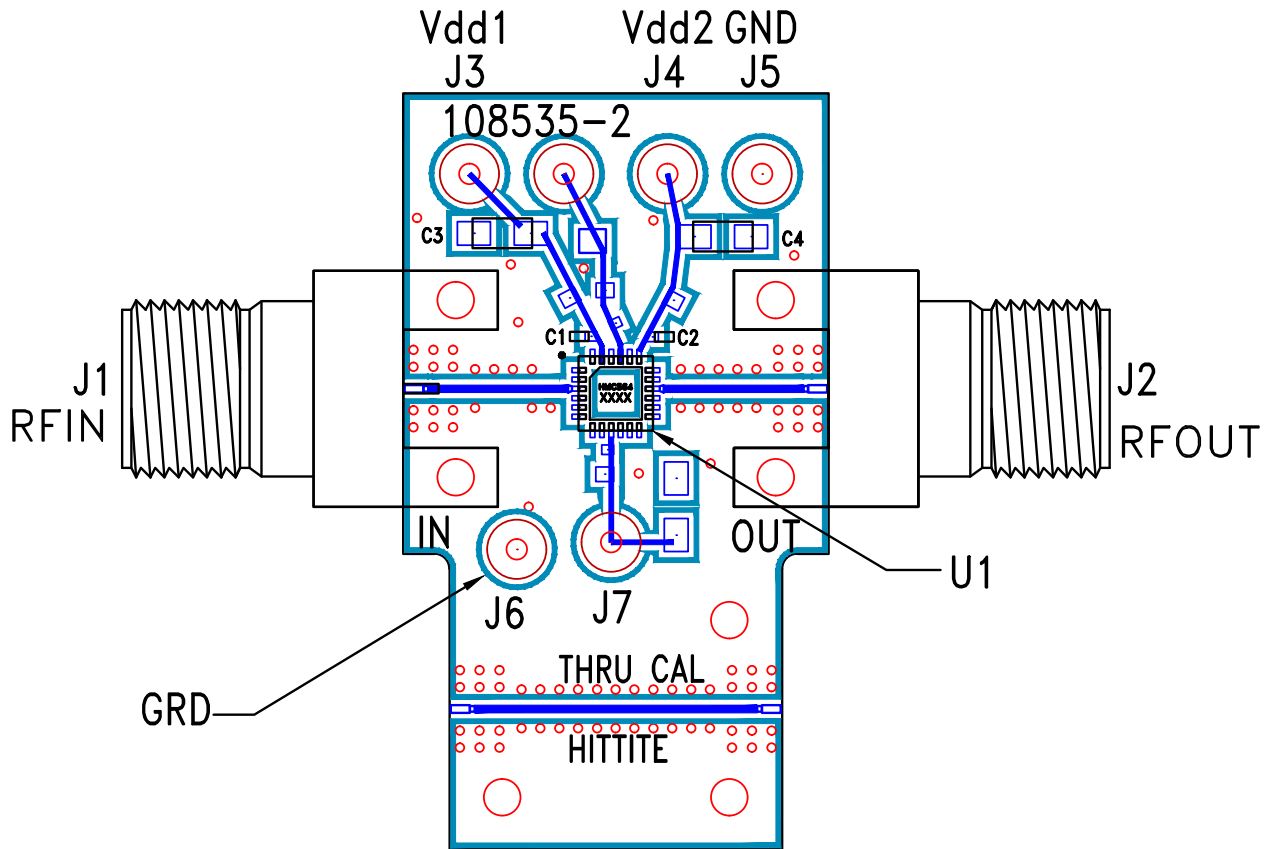
Pin Number	Function	Description	Interface Schematic
1, 5 -14, 18, 20, 21, 22, 24	N/C	No connection required. These pins may be connected to RF/DC ground without affecting performance.	
2, 4, 15, 17	GND	These pins and package bottom must be connected to RF/DC ground.	
3	RFIN	This pin is AC coupled and matched to 50 Ohms.	
16	RFOUT	This pin is AC coupled and matched to 50 Ohms.	
19, 23	Vdd1, Vdd2	Power Supply Voltage for the amplifier. External bypass capacitors of 100 pF, and 2.2 μF are required.	

Application Circuit

Component	Value
C1, C2	100 pF
C3, C4	2.2 μF



Evaluation PCB



List of Material for Evaluation PCB 116156-HMC564LC4 ^[1]

Item	Description
J1, J2	PCB Mount K Connectorbvv
J3 - J7	DC Pin
C1 - C2	100 pF capacitor, 0402 Pkg..
C3 - C4	2.2μF Capacitor, Tantalum
U1	HMC564LC4 Amplifier
PCB ^[2]	108535 Evaluation PCB

[1] Reference this number when ordering complete evaluation PCB

[2] Circuit Board Material: Rogers 4350.

The circuit board used in this 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 board should be mounted to an appropriate heat sink. The evaluation circuit board shown is available from Analog Devices upon request.