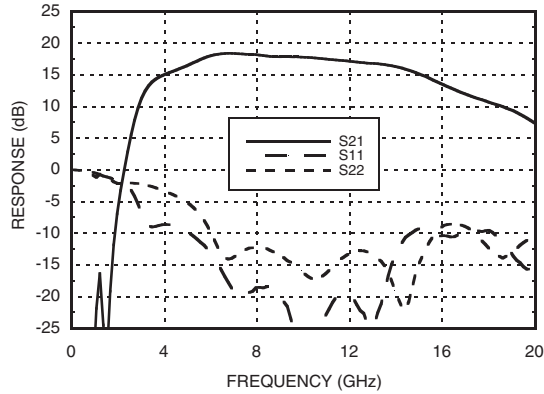


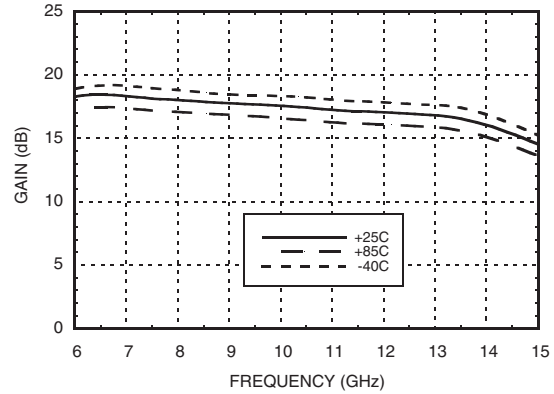


GaAs SMT PHEMT LOW NOISE AMPLIFIER, 7 - 14 GHz

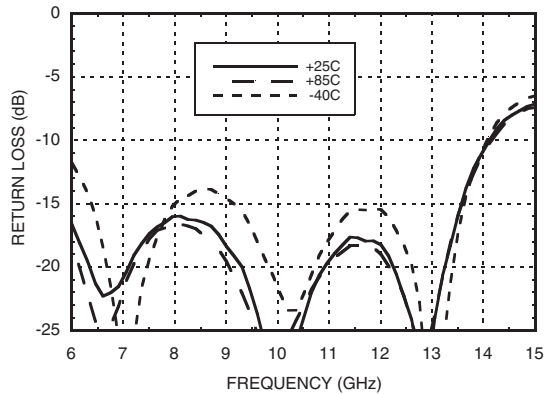
Broadband Gain & Return Loss



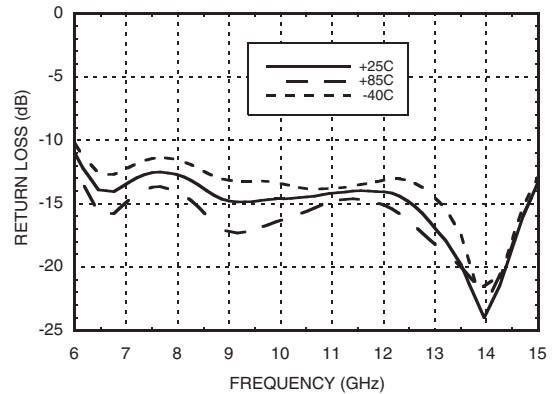
Gain vs. Temperature



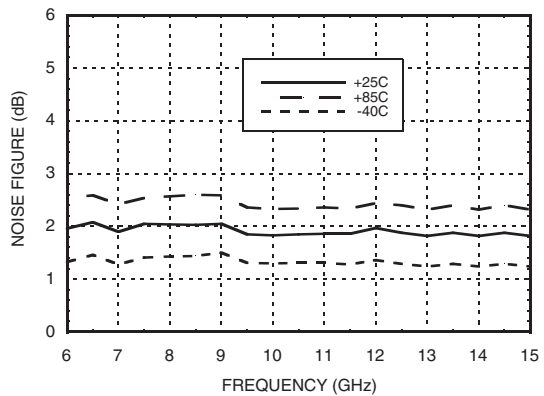
Input Return Loss vs. Temperature



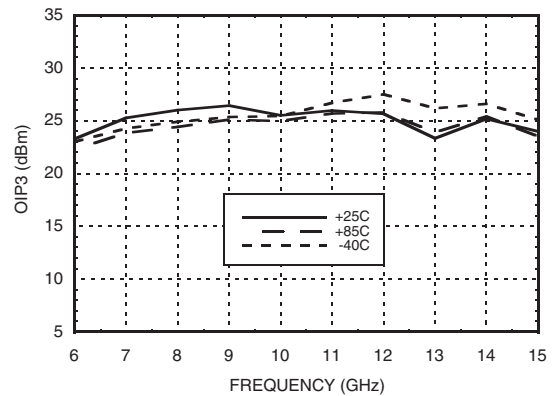
Output Return Loss vs. Temperature



Noise Figure vs. Temperature



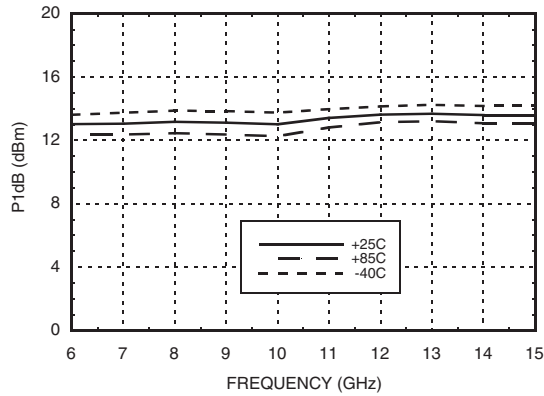
Output IP3 vs. Temperature



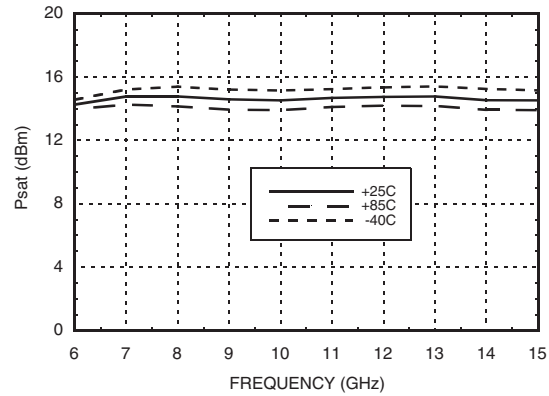


**GaAs SMT PHEMT LOW NOISE
AMPLIFIER, 7 - 14 GHz**

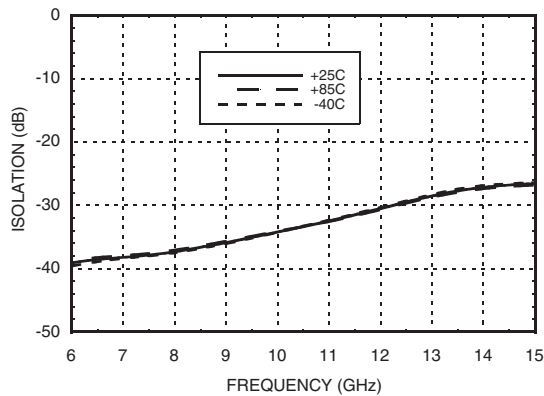
P1dB vs. Temperature



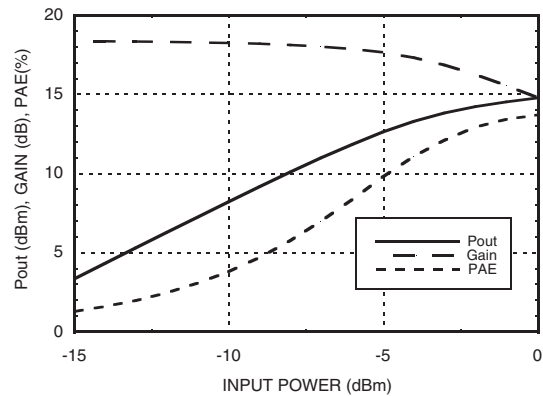
Psat vs. Temperature



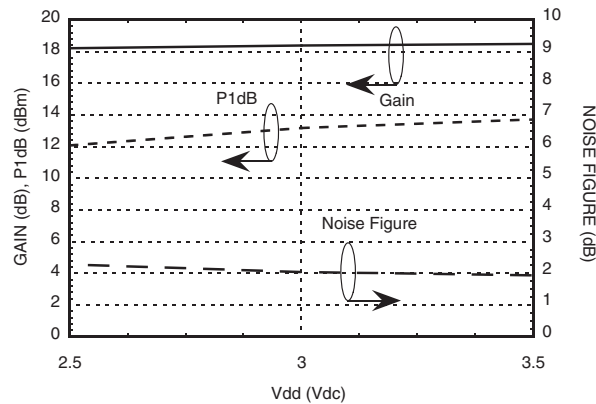
Reverse Isolation vs. Temperature



Power Compression @ 8 GHz



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



Absolute Maximum Ratings

Drain Bias Voltage (Vdd1, Vdd2)	+3.5 Vdc
RF Input Power (RFIN) (Vdd = +3.0 Vdc)	+5 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

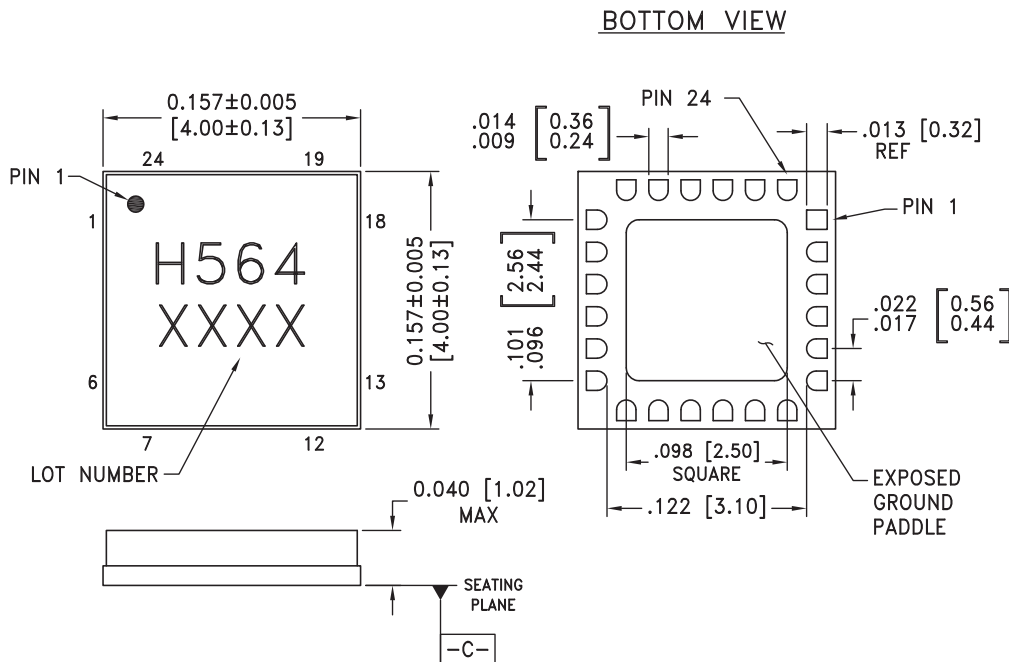
Vdd (Vdc)	I _{dd} (mA)
2.5	49
3.0	51
3.5	53

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



ELECTROSTATIC SENSITIVE DEVICE
OBSERVE HANDLING PRECAUTIONS

Outline Drawing



NOTES:

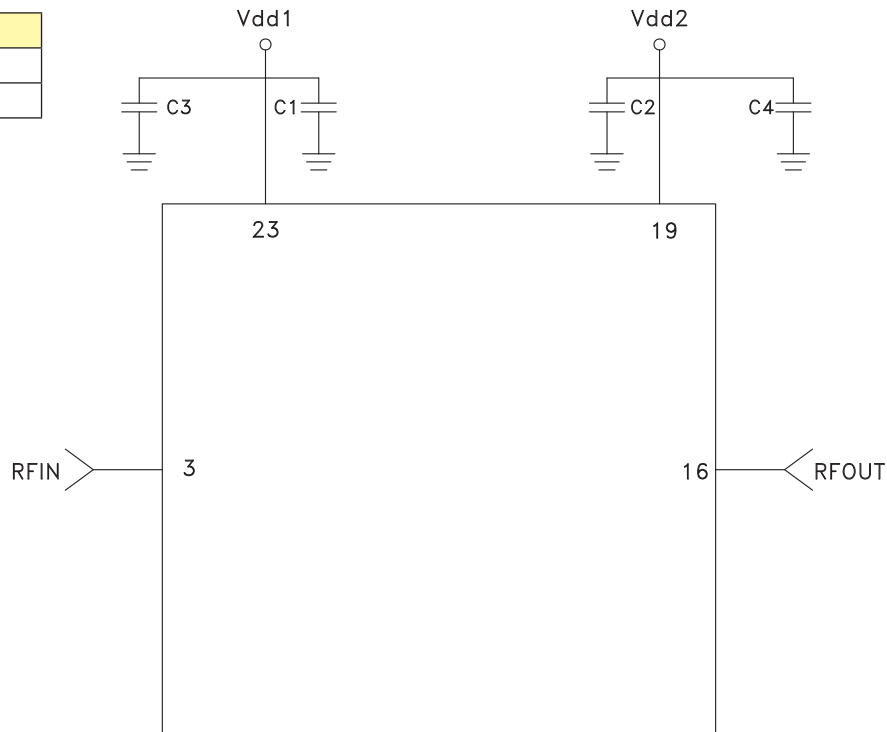
1. PACKAGE BODY MATERIAL: ALUMINA.
2. LEAD AND GROUND PADDLE PLATING: GOLD FLASH OVER NICKEL.
3. DIMENSIONS ARE IN INCHES (MILLIMETERS).
4. LEAD SPACING TOLERANCE IS NON-CUMULATIVE.
5. PACKAGE WARP SHALL NOT EXCEED 0.05MM DATUM $\square-C$
6. ALL GROUND LEADS AND GROUND PADDLE MUST BE SOLDERED TO PCB RF GROUND.

Pin Descriptions

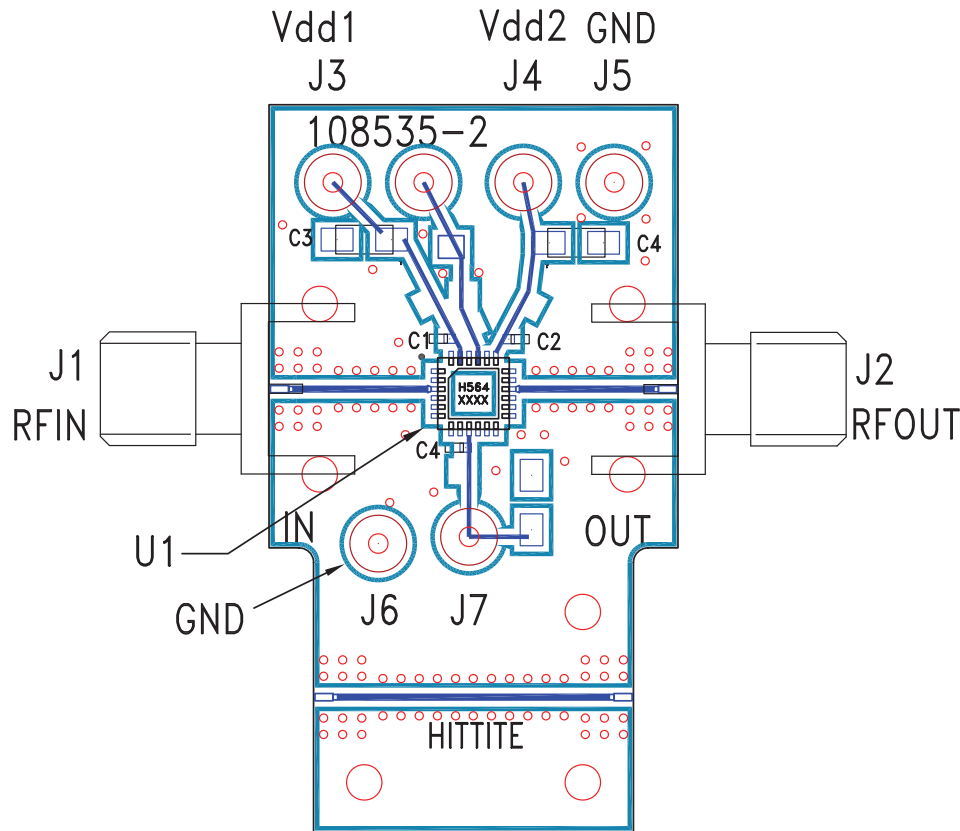
Pin Number	Function	Description	Interface Schematic
1, 5-8, 9 -14, 18, 20, 21, 22, 24	N/C	No connection required. These pins may be connected to RF/DC ground without affecting performance.	
2, 4, 15, 17	GND	Package bottom has an exposed metal paddle that must also be connected to RF/DC ground.	
3	RFIN	This pin is AC coupled and matched to 50 Ohms.	
16	RFOUT	This pin is AC coupled and matched to 50 Ohms.	
23, 19	Vdd1, Vdd2	Power Supply Voltage for the amplifier. External bypass capacitors of 100 pF, 1000pF, and 2.2 μF are required.	

Application Circuit

Component	Value
C1, C2	100 pF
C5, C6	2.2 μF



Evaluation PCB



List of Material for Evaluation PCB 116156 [1]

Item	Description
J1, J2	2.92 mm PC mount SMA
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 Hittite upon request.