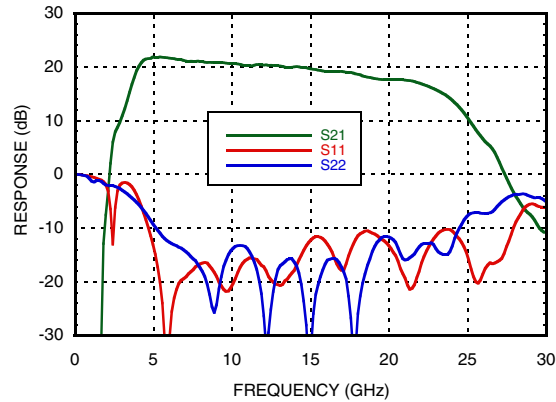
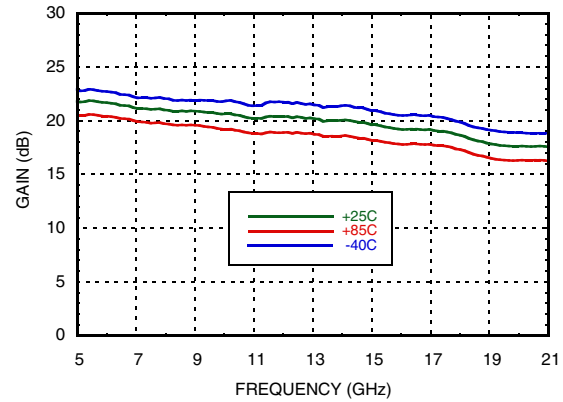


**GaAs SMT PHEMT LOW NOISE  
AMPLIFIER, 6 - 20 GHz**

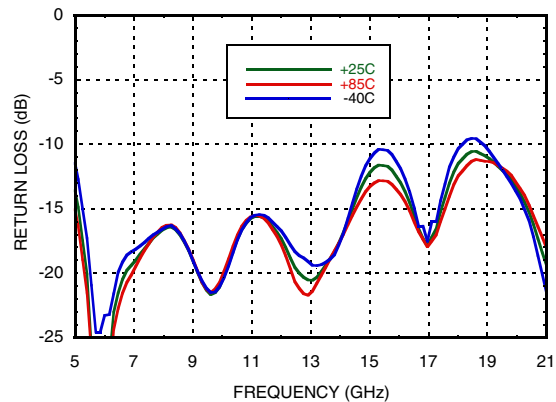
**Broadband Gain & Return Loss**



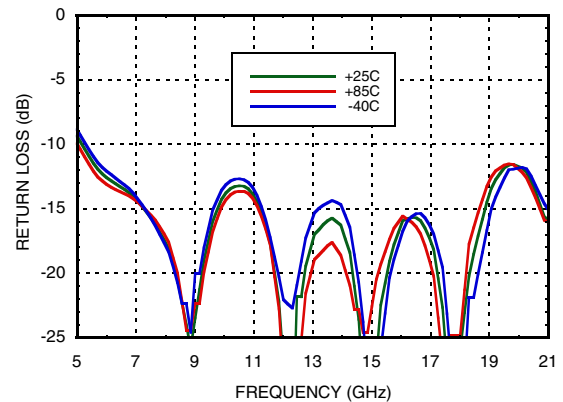
**Gain vs. Temperature**



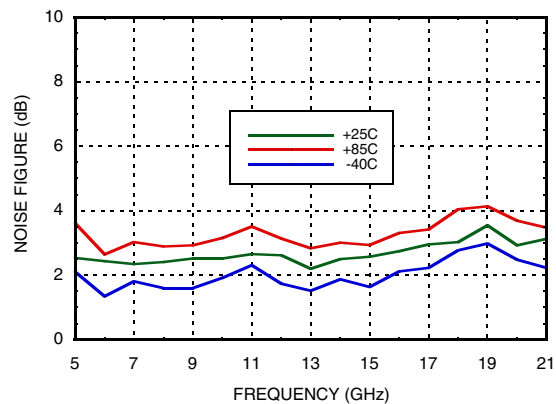
**Input Return Loss vs. Temperature**



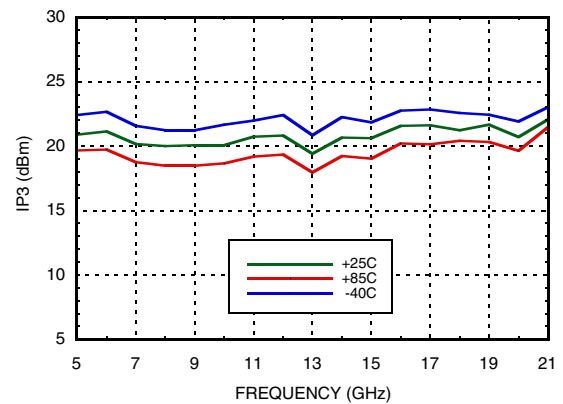
**Output Return Loss vs. Temperature**



**Noise Figure vs. Temperature**

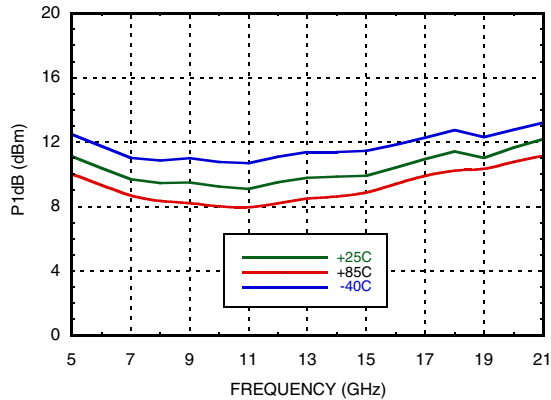


**Output IP3 vs. Temperature**

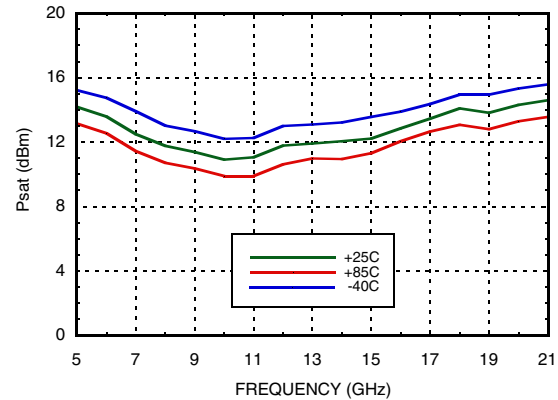


**GaAs SMT PHEMT LOW NOISE  
AMPLIFIER, 6 - 20 GHz**

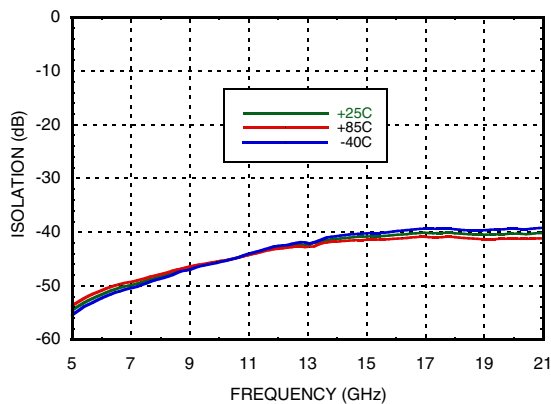
**P1dB vs. Temperature**



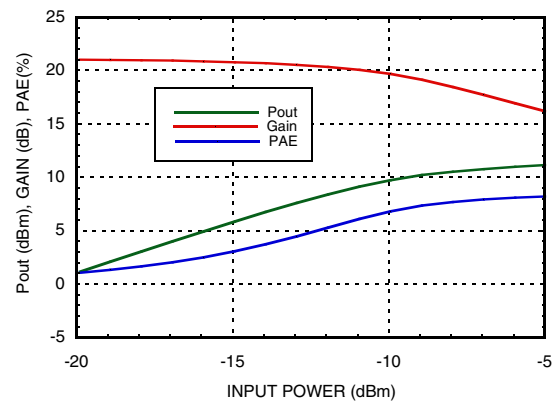
**Psat vs. Temperature**



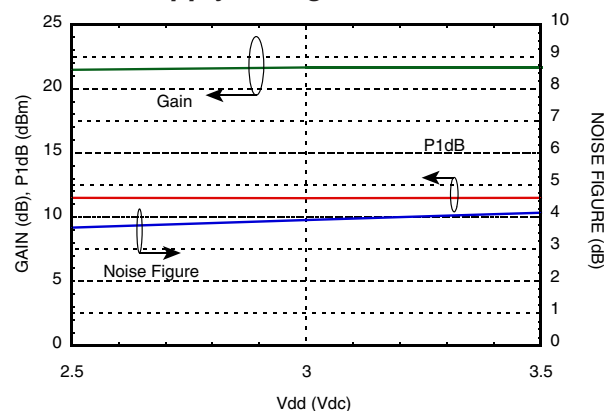
**Reverse Isolation vs. Temperature**



**Power Compression @ 12 GHz**



**Gain, Noise Figure & Power vs.  
Supply Voltage @ 12 GHz**



## GaAs SMT PHEMT LOW NOISE AMPLIFIER, 6 - 20 GHz

### Absolute Maximum Ratings

Drain Bias Voltage (Vdd1, Vdd2, Vdd3)	+3.5 Vdc
RF Input Power (RFIN)(Vdd = +3.0 Vdc)	10 dBm
Channel Temperature	175 °C
Continuous Pdiss (T= 85 °C) (derate 8.5 mW/°C above 85 °C)	0.753 W
Thermal Resistance (channel to ground paddle)	119.5 °C/W
Storage Temperature	-65 to +150 °C
Operating Temperature	-40 to +85 °C
ESD Sensitivity (HBM)	Class 1A

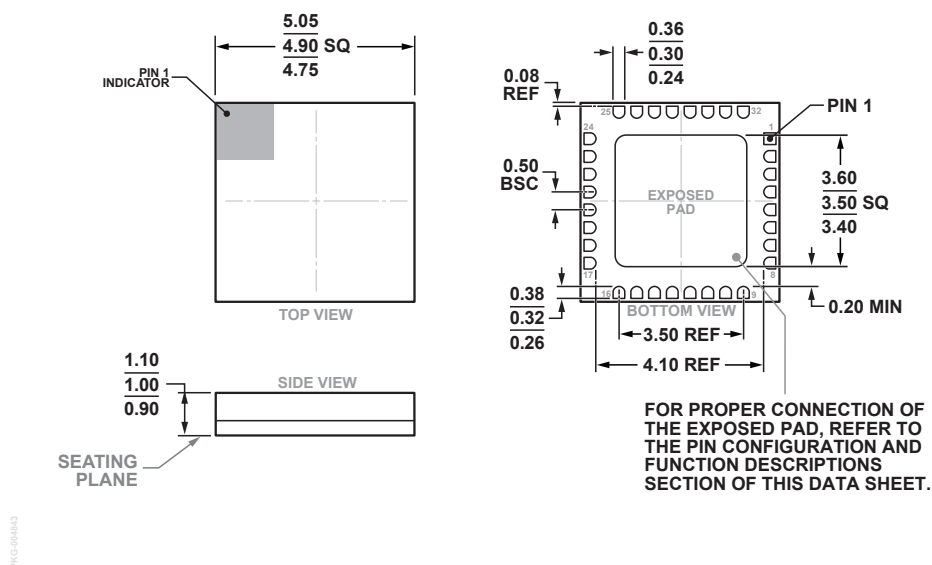
### Typical Supply Current vs. Vdd

Vdd (V)	Idd (mA)
+2.5	51
+3.0	53
+3.5	56



ELECTROSTATIC SENSITIVE DEVICE  
OBSERVE HANDLING PRECAUTIONS

### Outline Drawing



32-Terminal Ceramic Leadless Chip Carrier [LCC]  
(E-32-1)

Dimensions shown in millimeters.

### ORDERING GUIDE


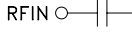
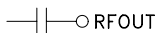
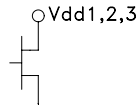
Part Number	Package Material	Lead Finish	MSL Rating <sup>[1]</sup>	Package Marking <sup>[2]</sup>
HMC565LC5	Alumina, White	Gold over Nickel	MSL3	H565 XXXX
HMC565LC5TR	Alumina, White	Gold over Nickel	MSL3	H565 XXXX
HMC565LC5TR-R5	Alumina, White	Gold over Nickel	MSL3	H565 XXXX

[1] Max peak reflow temperature of 260 °C

[2] 4-Digit lot number XXXX

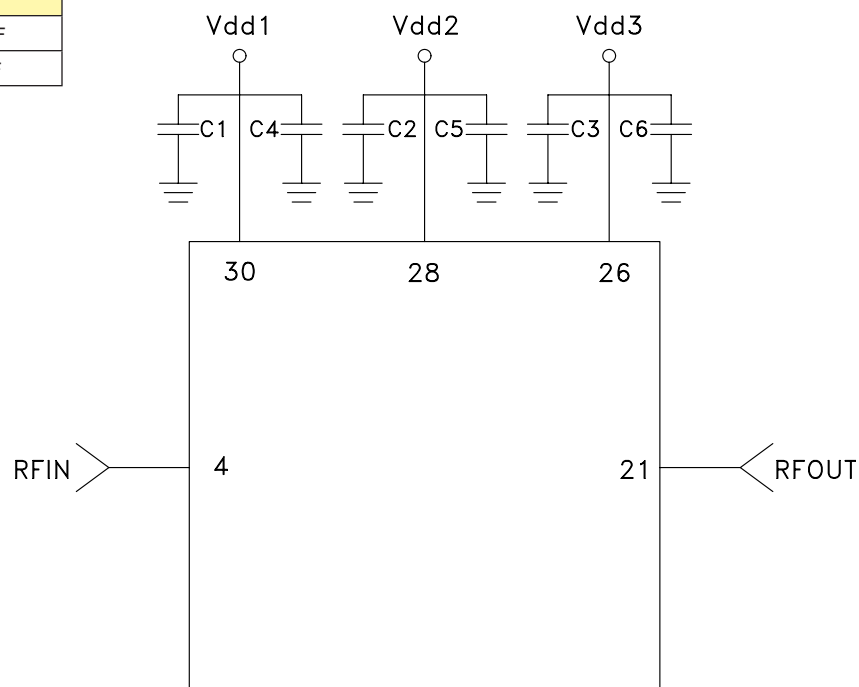
For price, delivery, and to place orders: Analog Devices, Inc., One Technology Way, P.O. Box 9106, Norwood, MA 02062-9106  
Phone: 781-329-4700 • Order online at [www.analog.com](http://www.analog.com)  
Application Support: Phone: 1-800-ANALOG-D

**GaAs SMT PHEMT LOW NOISE  
AMPLIFIER, 6 - 20 GHz**
**Pin Descriptions**

Pin Number	Function	Description	Interface Schematic
1, 2, 6 - 19, 23 - 25, 27, 29, 31, 32	N/C	This pin may be connected to RF/DC ground. Performance will not be affected.	
3, 5, 20, 22	GND	These pins and package bottom must be connected to RF/DC ground.	
4	RFIN	This pin is AC coupled and matched to 50 Ohms.	
21	RFOUT	This pin is AC coupled and matched to 50 Ohms.	
30, 28, 26	Vdd1, 2, 3	Power Supply Voltage for the amplifier. External bypass capacitors of 100 pF and 2.2 μF are required.	

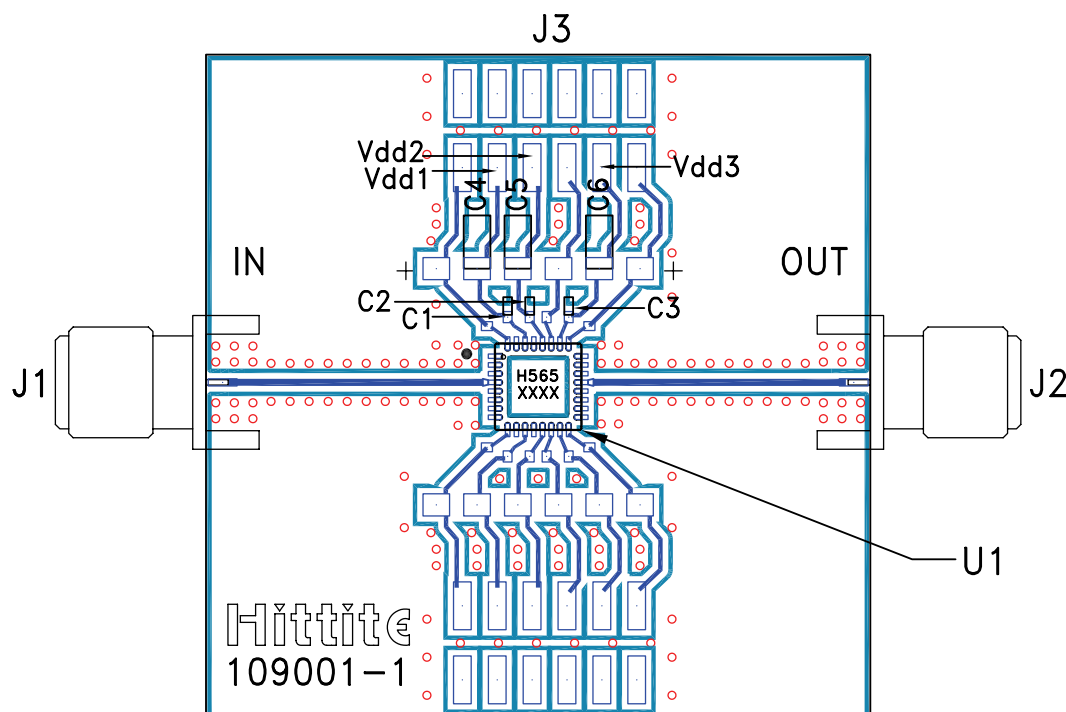
**Application Circuit**

Component	Value
C1, C2, C3	100 pF
C4, C5, C6	2.2 μF



**GaAs SMT PHEMT LOW NOISE  
AMPLIFIER, 6 - 20 GHz**

**Evaluation PCB**



**List of Materials for Evaluation PCB 110431 [1]**

Item	Description
J1 - J2	PCB Mount K Connector
J3	2 mm DC Header
C1 - C3	100 pF Capacitor, 0402 Pkg.
C4 - C6	2.2 $\mu$ F Capacitor, Tantalum
U1	HMC565LC5 Amplifier
PCB [2]	109001 Evaluation PCB

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