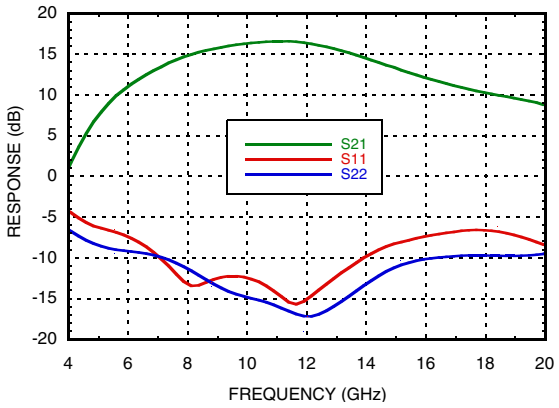
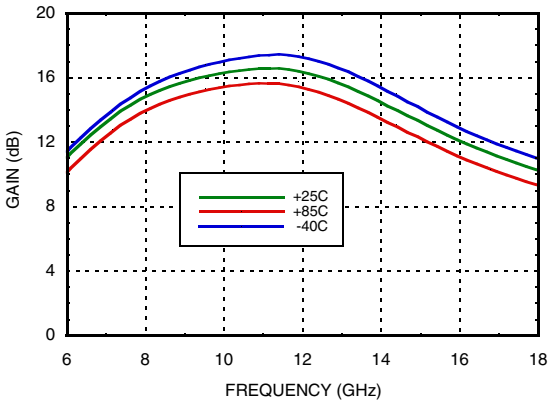
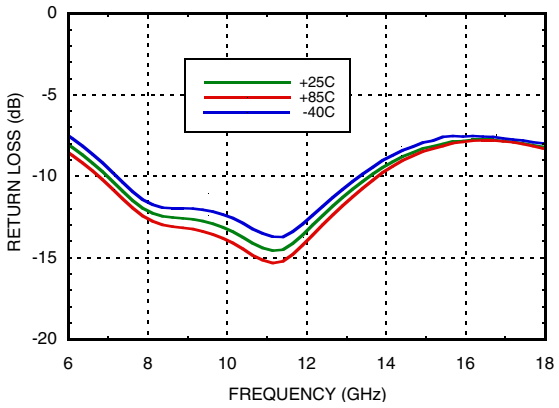
Broadband Gain & Return Loss



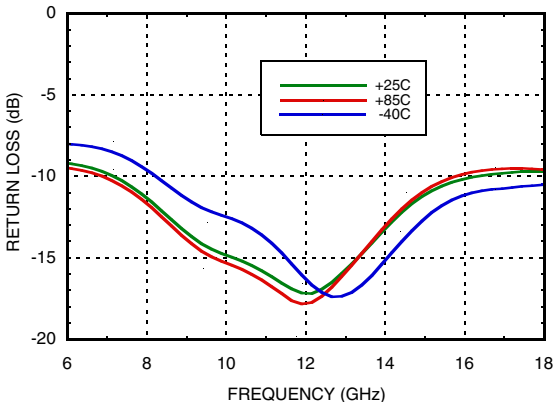
Gain vs. Temperature



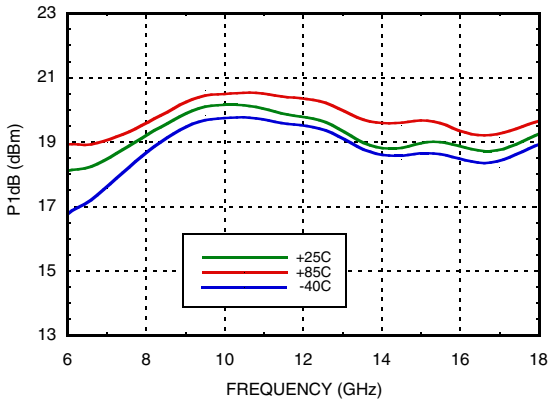
Input Return Loss vs. Temperature



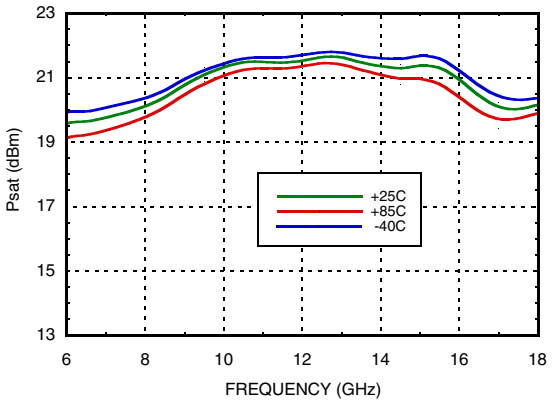
Output Return Loss vs. Temperature



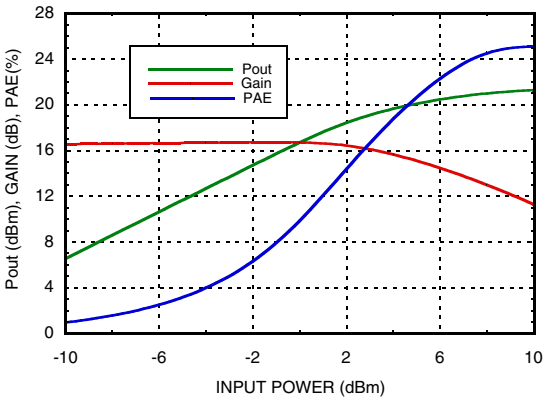
P1dB vs. Temperature



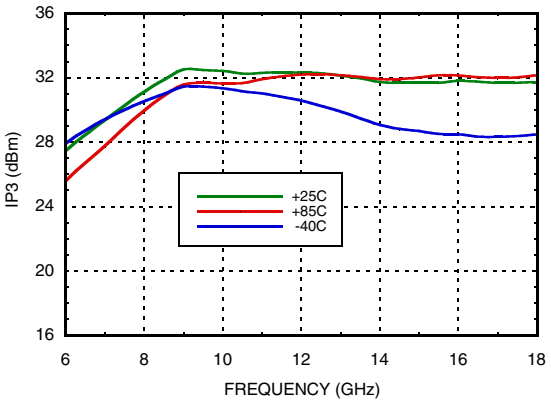
Psat vs. Temperature



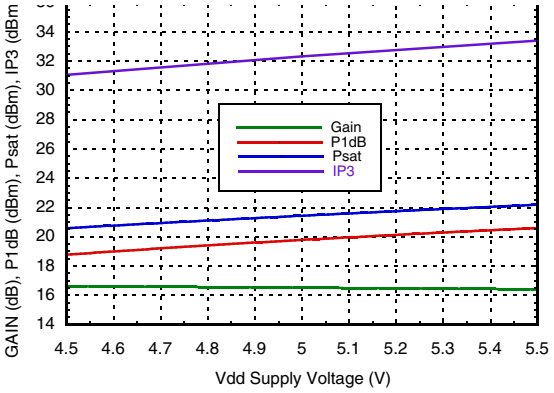
Power Compression @ 12 GHz



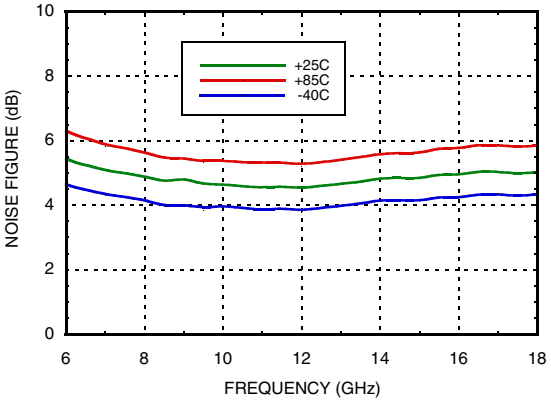
Output IP3 vs. Temperature



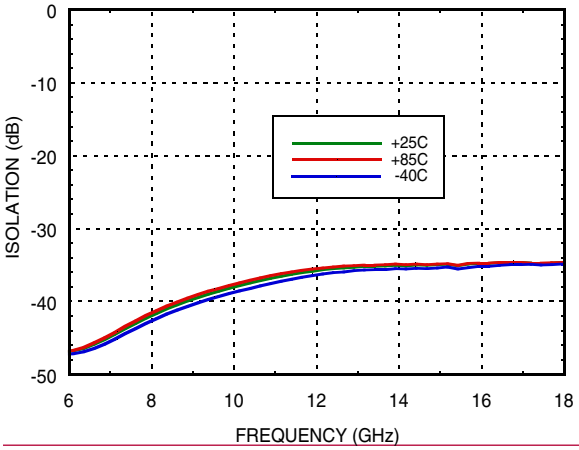
Gain, Power & Output IP3 vs. Supply Voltage @ 12 GHz



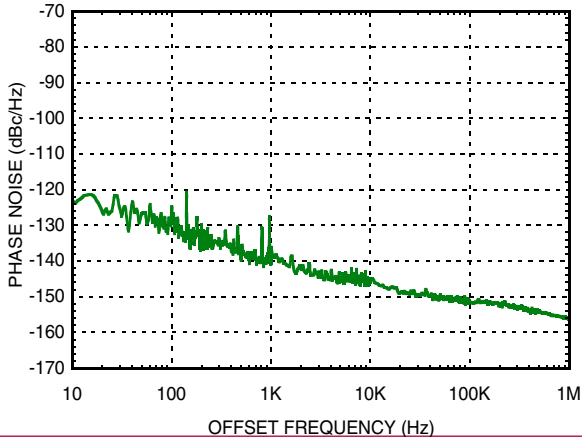
Noise Figure vs. Temperature



Reverse Isolation vs. Temperature



Additive Phase Noise Vs Offset Frequency, RF Frequency = 8 GHz, RF Input Power = 5 dBm (P1dB)



GaAs PHEMT MMIC MEDIUM POWER AMPLIFIER, 7 - 15.5 GHz

Absolute Maximum Ratings

Drain Bias Voltage (Vdd)	+6 Vdc
RF Input Power (RFIN)(Vdd = +5Vdc)	+15 dBm
Channel Temperature	175 °C
Continuous Pdiss (T = 85 °C) (derate 8.4 mW/°C above 85 °C)	0.76 W
Thermal Resistance (channel to ground paddle)	118.8 °C/W
Storage Temperature	-65 to +150 °C
Operating Temperature	-40 to +85 °C

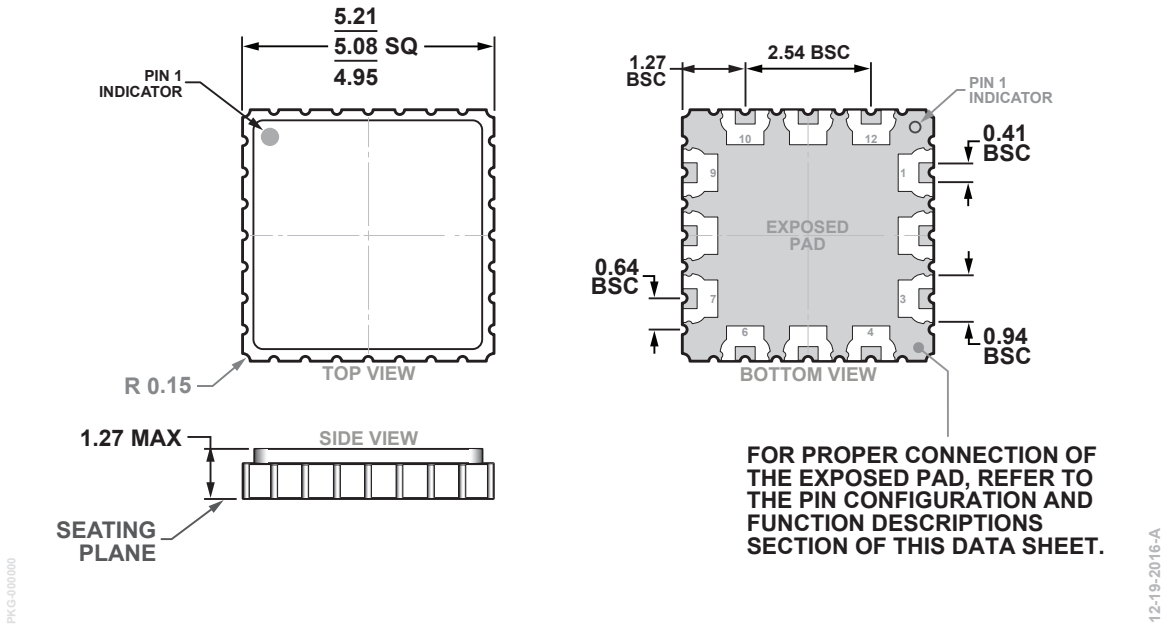
Typical Supply Current vs. Vdd

Vdd (V)	Idd (mA)
+5.5	92
+5.0	90
+4.5	88

Note: Amplifier will operate over full voltage range shown above

ELECTROSTATIC SENSITIVE DEVICE
OBSERVE HANDLING PRECAUTIONS

Outline Drawing



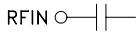
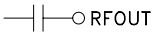
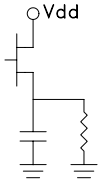
12-Terminal Ceramic Leadless Chip Carrier [LCC]
(E-12-3)
Dimensions shown in millimeters.

Package Information

Part Number	Package Body Material	Lead Finish	MSL Rating	Package Marking [2]
HMC441LH5	Ceramic and Kovar	Gold	MSL1 [1]	H441 XXXX

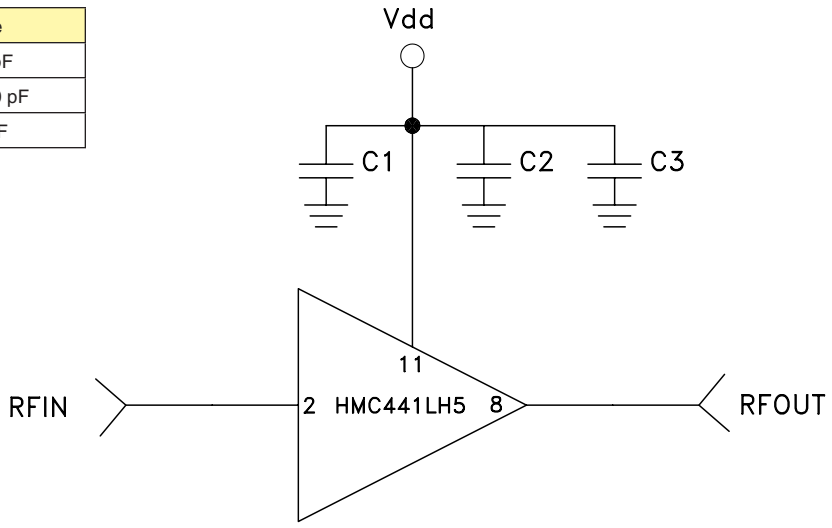
[1] Max peak reflow temperature of 250 °C
[2] 4-Digit lot number XXXX

Pin Descriptions

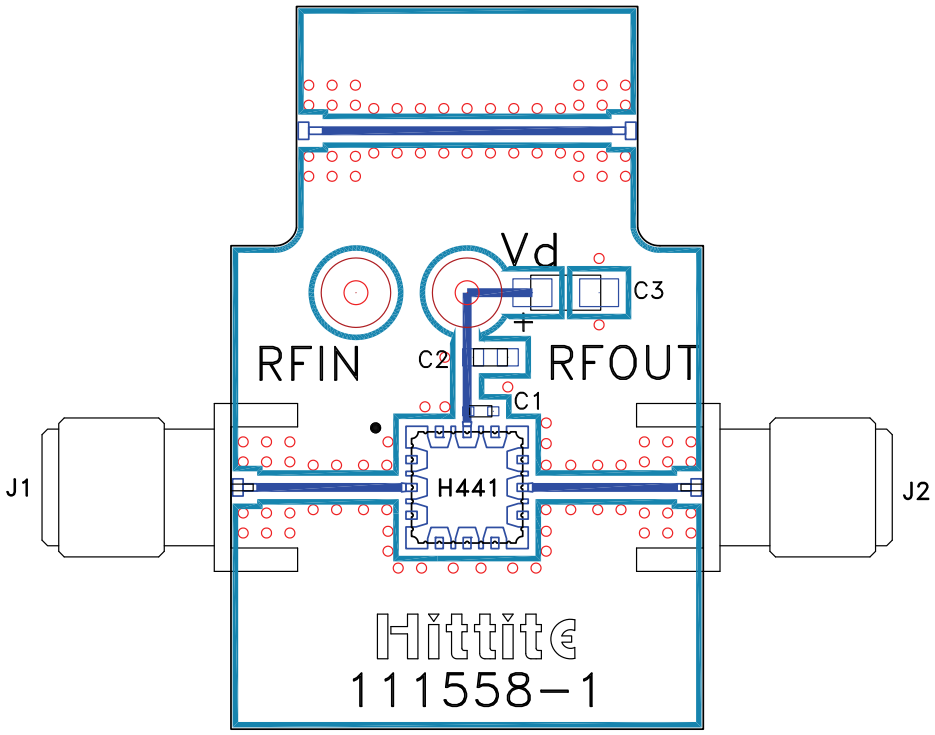
Pin Number	Function	Description	Interface Schematic
1, 3-7, 9, 10, 12	GND	These pins and package bottom must be connected to RF/DC ground.	
2	RFIN	This pin is AC coupled and matched to 50 Ohms.	
8	RFOUT	This pin is AC coupled and matched to 50 Ohms.	
11	Vdd	Power Supply Voltage for the amplifier. External bypass capacitors are recommended.	

Application Circuit

Component	Value
C1	100 pF
C2	1,000 pF
C3	4.7 µF



Evaluation PCB



List of Materials for Evaluation PCB 111560 [1]

Item	Description
J1 - J2	PCB Mount SMA RF Connector, SRI
U1	HMC441LH5
C1	100 pF Capacitor, 0402 Pkg.
C2	1,000 pF Capacitor, 0603 Pkg.
C3	4.7 µF Capacitor, Tantalum
PCB [2]	111558 Evaluation Board

[1] Reference this number when ordering complete evaluation PCB

[2] Circuit Board Material: Rogers 4350

The circuit board used in the final 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 circuit board shown is available from Analog Devices upon request.