

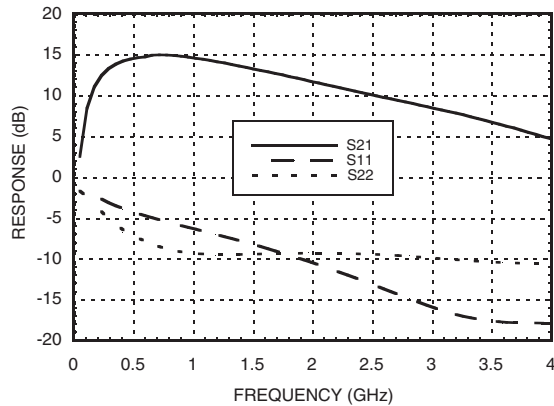


**SMT PHEMT LOW NOISE
AMPLIFIER, 0.3 - 3.0 GHz**

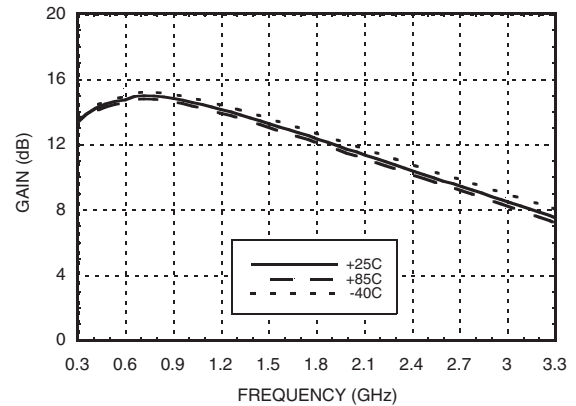
8

LOW NOISE AMPLIFIERS - SMT

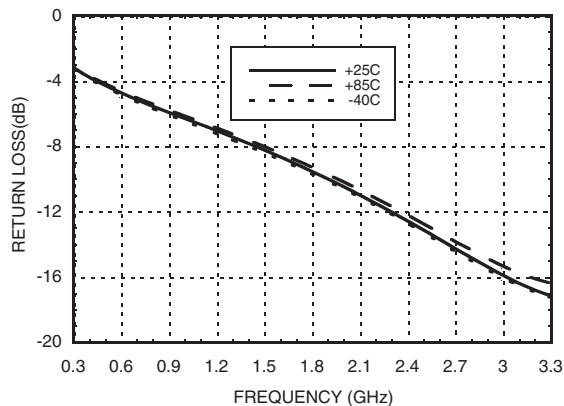
Broadband Gain & Return Loss



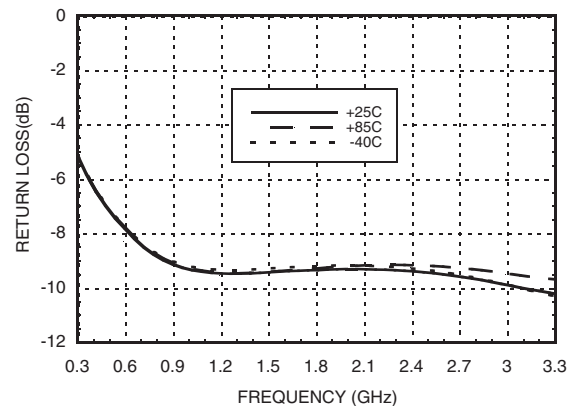
Gain vs. Temperature



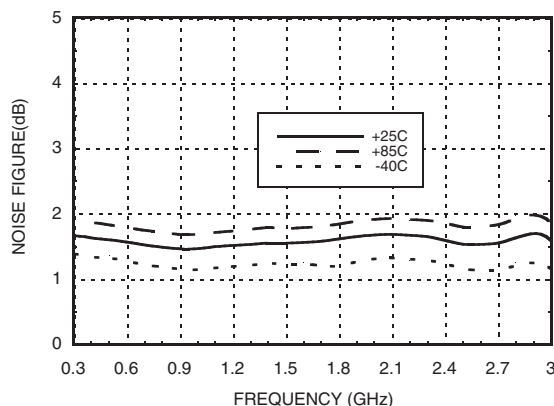
Input Return Loss vs. Temperature



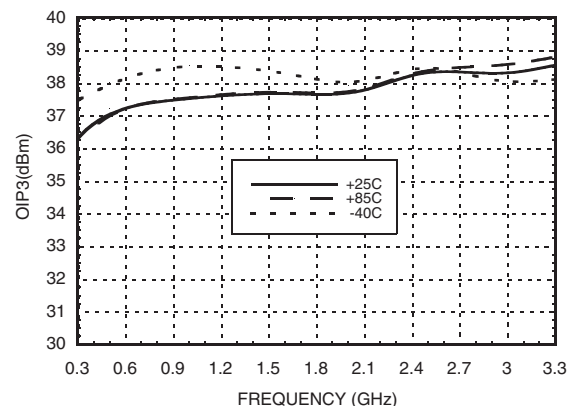
Output Return Loss vs. Temperature



Noise Figure vs. Temperature



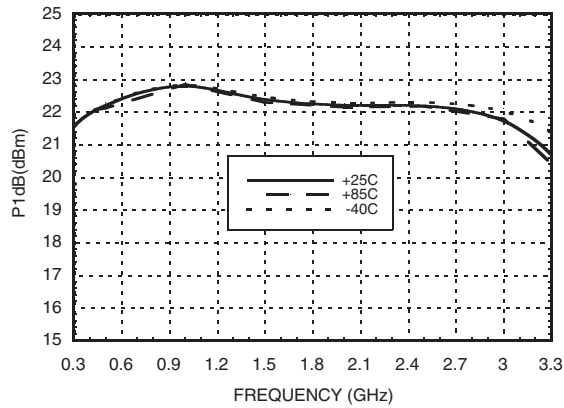
Output IP3 vs. Temperature



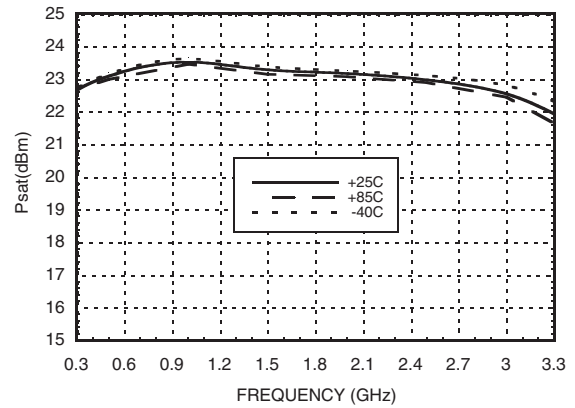


**SMT PHEMT LOW NOISE
AMPLIFIER, 0.3 - 3.0 GHz**

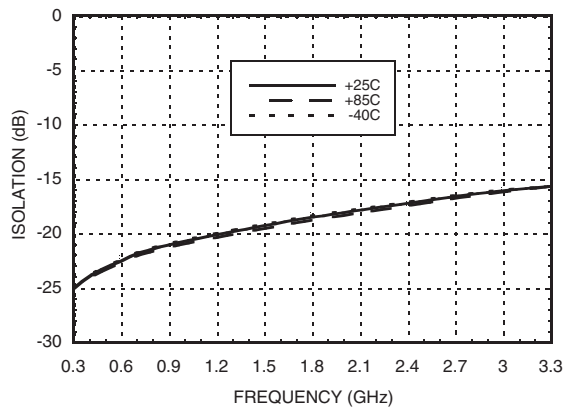
P1dB vs. Temperature



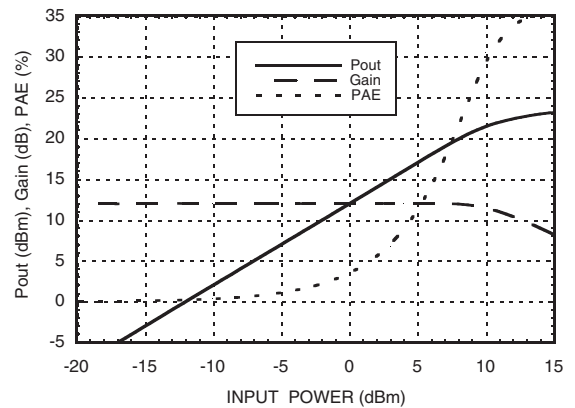
Psat vs. Temperature



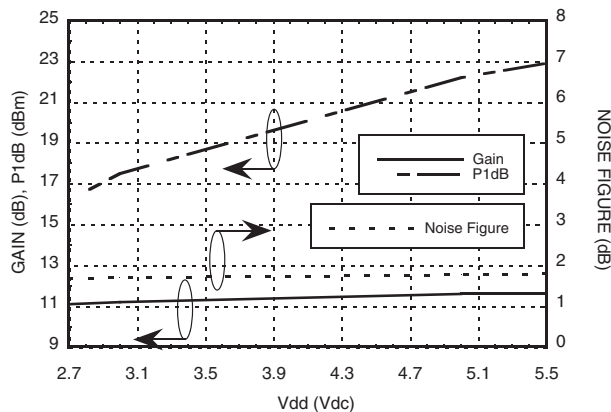
Reverse Isolation vs. Temperature



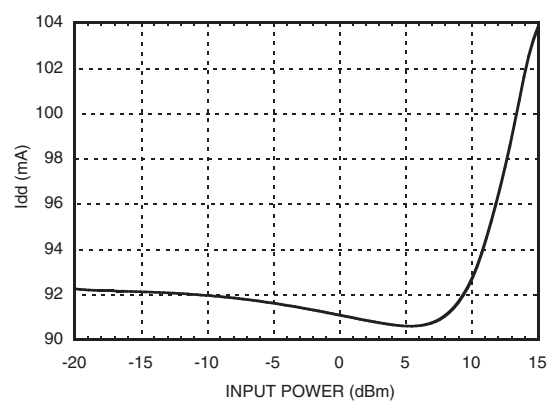
Power Compression @ 2 GHz



**Gain, Noise Figure & Power vs.
Supply Voltage @ 2 GHz**



Current vs. Power @ 2 GHz





SMT PHEMT LOW NOISE AMPLIFIER, 0.3 - 3.0 GHz

Absolute Maximum Ratings

| | |
|--|----------------|
| Drain Bias Voltage (Vdd) | +7.0 Vdc |
| RF Input Power (RFIN)(Vdd = +5.0 Vdc) | 15 dBm |
| Channel Temperature | 150 °C |
| Continuous P _{diss} (T = 85 °C) (derate 7.5 mW/°C above 85 °C) | 0.488 W |
| Thermal Resistance (channel to lead) | 133 °C/W |
| Storage Temperature | -65 to +150 °C |
| Operating Temperature | -40 to +85 °C |

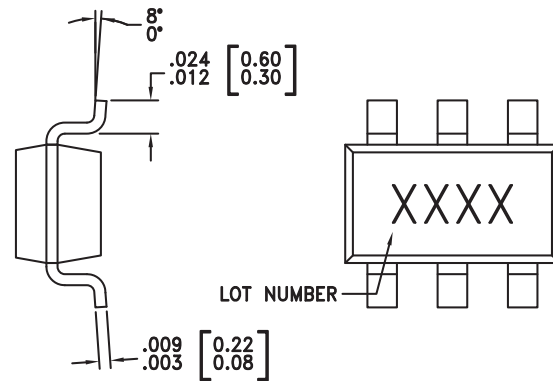
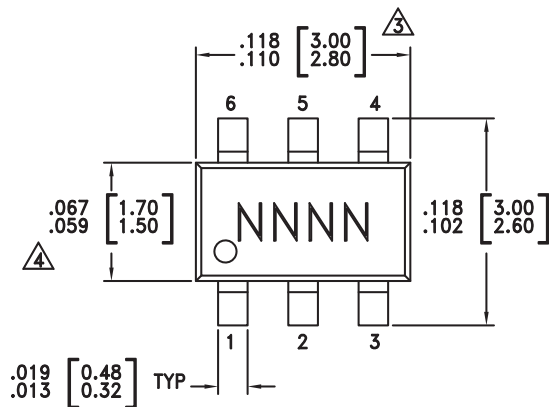
Typical Supply Current vs. Vdd

| Vdd (V) | I _{dd} (mA) |
|---------|----------------------|
| 2.7 | 89 |
| 3.0 | 89 |
| 5.0 | 90 |
| 5.5 | 90 |



ELECTROSTATIC SENSITIVE DEVICE
OBSERVE HANDLING PRECAUTIONS

Outline Drawing



NOTES:

1. LEADFRAME MATERIAL: COPPER ALLOY
2. DIMENSIONS ARE IN INCHES [MILLIMETERS]
3. DIMENSION DOES NOT INCLUDE MOLDFLASH OF 0.15mm PER SIDE.
4. DIMENSION DOES NOT INCLUDE MOLDFLASH OF 0.25mm PER SIDE.
5. ALL GROUND LEADS MUST BE SOLDERED TO PCB RF GROUND.

Package Information

| Part Number | Package Body Material | Lead Finish | MSL Rating | Package Marking ^[3] |
|-------------|--|---------------|---------------------|--------------------------------|
| HMC374 | Low Stress Injection Molded Plastic | Sn/Pb Solder | MSL1 ^[1] | H374 XXXX |
| HMC374E | RoHS-compliant Low Stress Injection Molded Plastic | 100% matte Sn | MSL1 ^[2] | 374E XXXX |

[1] Max peak reflow temperature of 235 °C


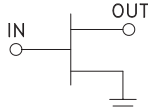
[2] Max peak reflow temperature of 260 °C

[3] 4-Digit lot number XXXX

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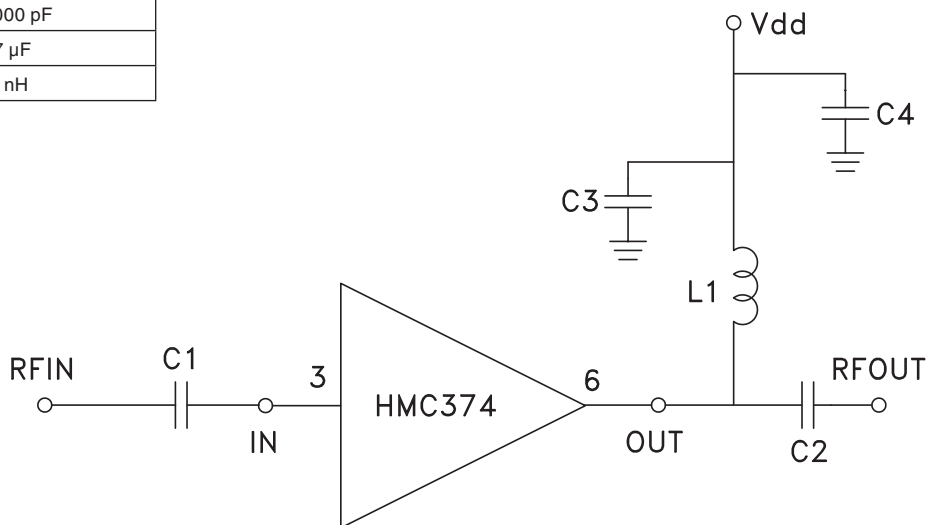
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**SMT PHEMT LOW NOISE
AMPLIFIER, 0.3 - 3.0 GHz**
Pin Descriptions

| Pin Number | Function | Description | Interface Schematic |
|------------|----------|---|---|
| 1,4 | N/C | These pins may be connected to RF/DC ground. Performance will not be affected. | |
| 2, 5 | GND | These pins must be connected to RF/DC ground. |  |
| 3 | IN | This pin is DC coupled. An off-chip DC blocking capacitor is required. |  |
| 6 | OUT | RF output and DC Bias for the output stage. See application circuit for off-chip components. | |

Application Circuit

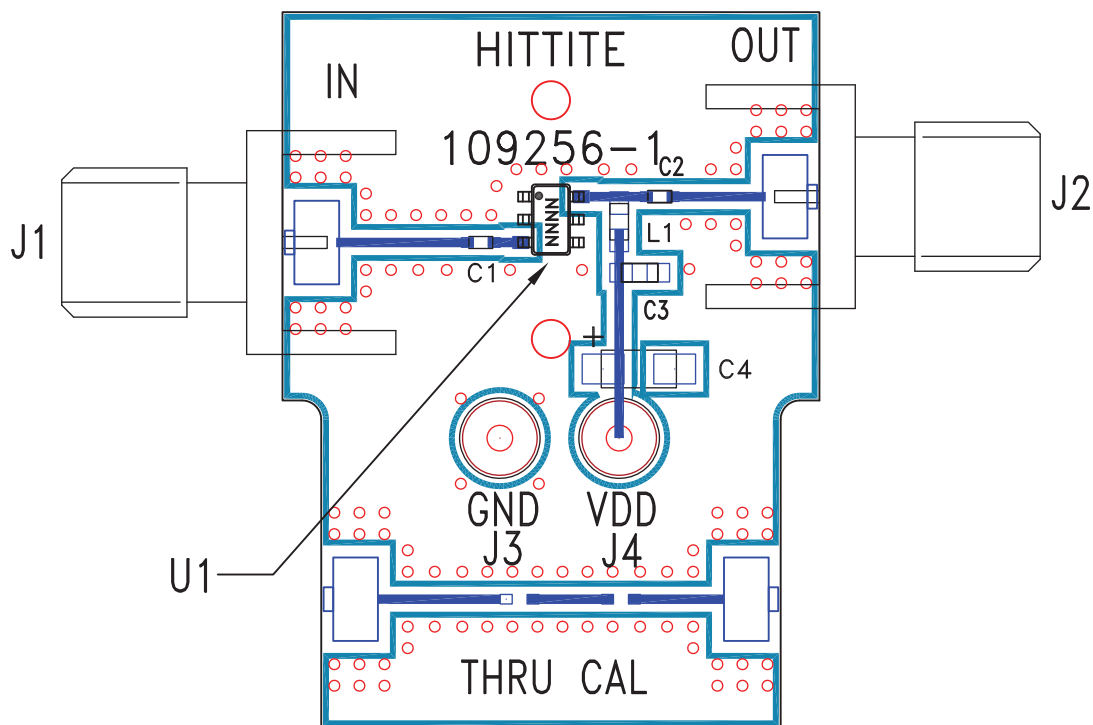
| Recommended Component Values | |
|------------------------------|-------------|
| C1, C2 | 150 pF |
| C3 | 1,000 pF |
| C4 | 4.7 μ F |
| L1 | 27 nH |





**SMT PHEMT LOW NOISE
AMPLIFIER, 0.3 - 3.0 GHz**

Evaluation PCB



List of Materials for Evaluation PCB 109258 [1]

| Item | Description |
|---------|------------------------------|
| J1, J2 | PCB Mount SMA Connector |
| J3, J4 | DC Pin |
| C1, C2 | 150 pF Capacitor, 0402 Pkg. |
| C3 | 1000 pF Capacitor, 0603 Pkg. |
| C4 | 4.7 Capacitor, Tantalum |
| L1 | 27 nH Inductor, 0603 Pkg. |
| U1 | HMC374 / HMC374E Amplifier |
| PCB [2] | 109256 Evaluation PCB |

[1] Reference this number when ordering complete evaluation PCB

[2] Circuit Board Material: Roger 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 should be connected directly to the ground plane similar to that shown above. 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.