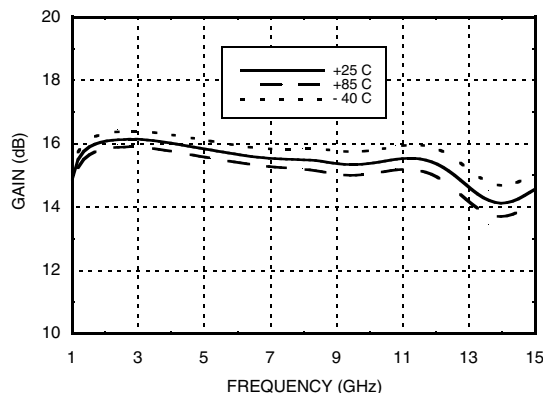
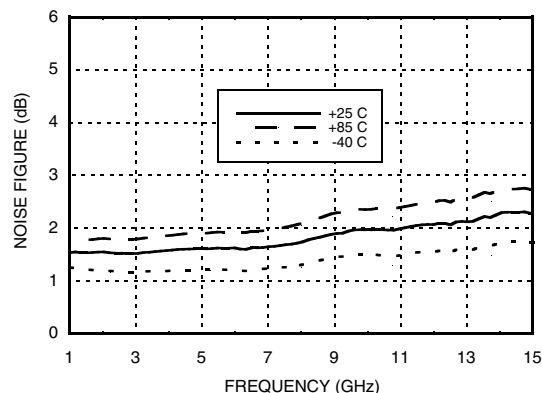
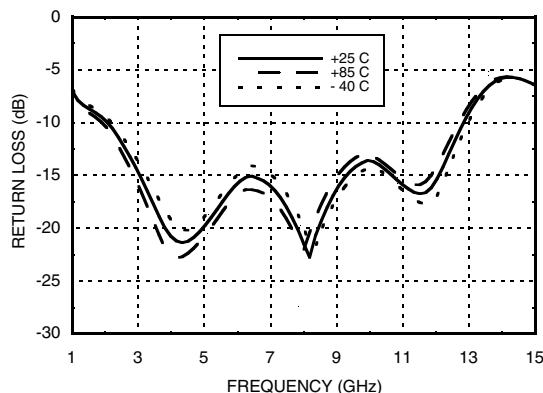
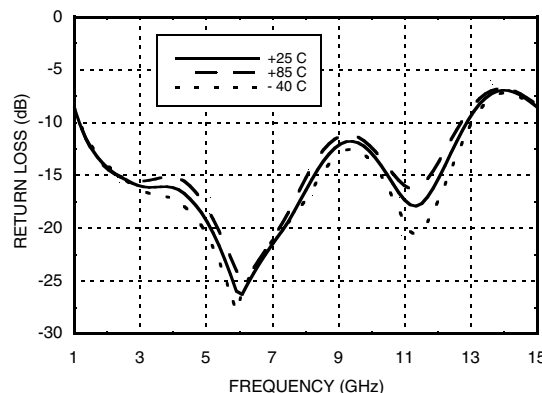
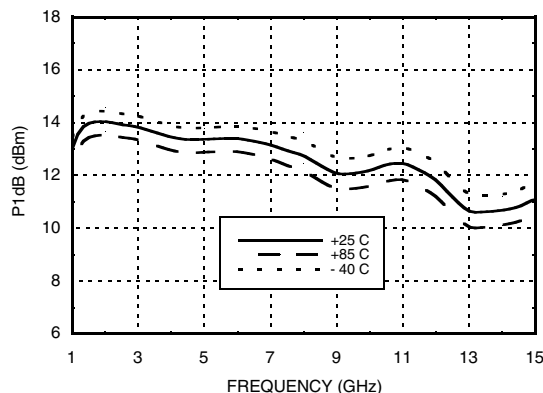
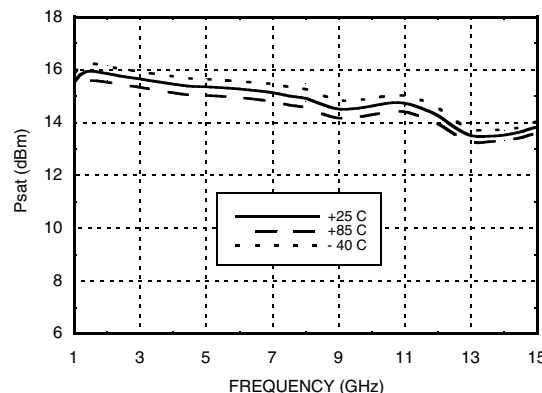
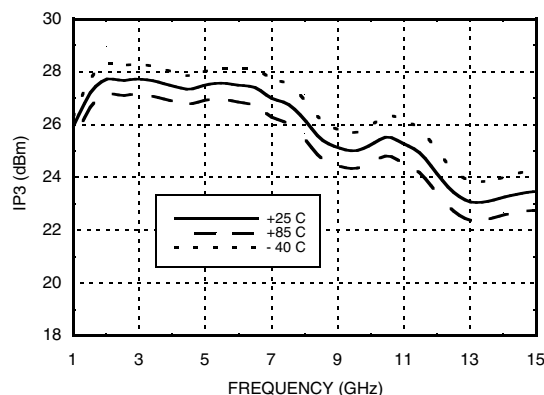
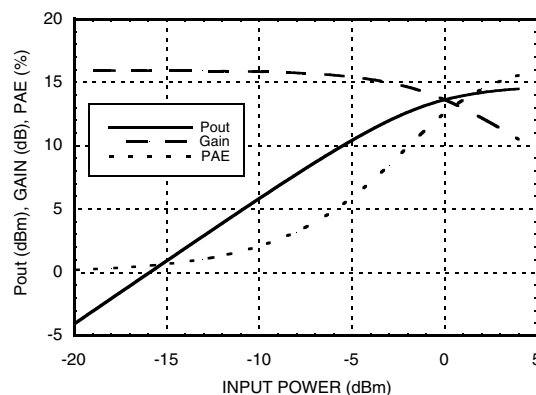
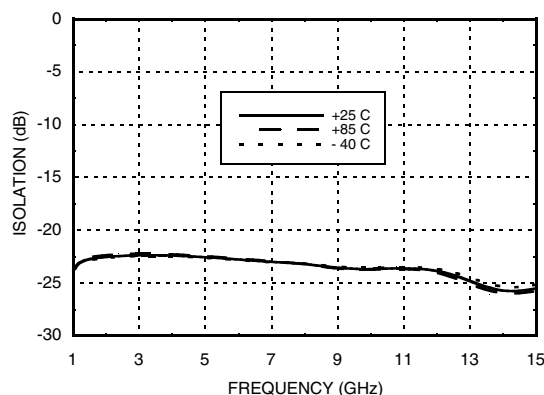
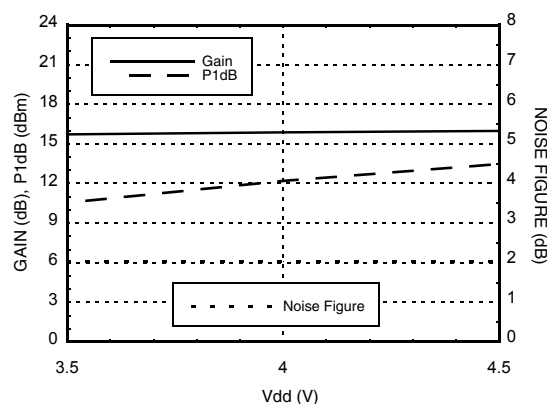



**GaAs HEMT MMIC LOW NOISE  
AMPLIFIER, 2 - 12 GHz**
**Gain vs. Temperature**

**Noise Figure vs. Temperature**

**Output Return Loss vs. Temperature**

**Input Return Loss vs. Temperature**

**Output P1dB vs. Temperature**

**Output Psat vs. Temperature**




## GaAs HEMT MMIC LOW NOISE AMPLIFIER, 2 - 12 GHz

**Output IP3 vs. Temperature**

**Power Compression @ 12 GHz**

**Reverse Isolation vs. Temperature**

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




## GaAs HEMT MMIC LOW NOISE AMPLIFIER, 2 - 12 GHz

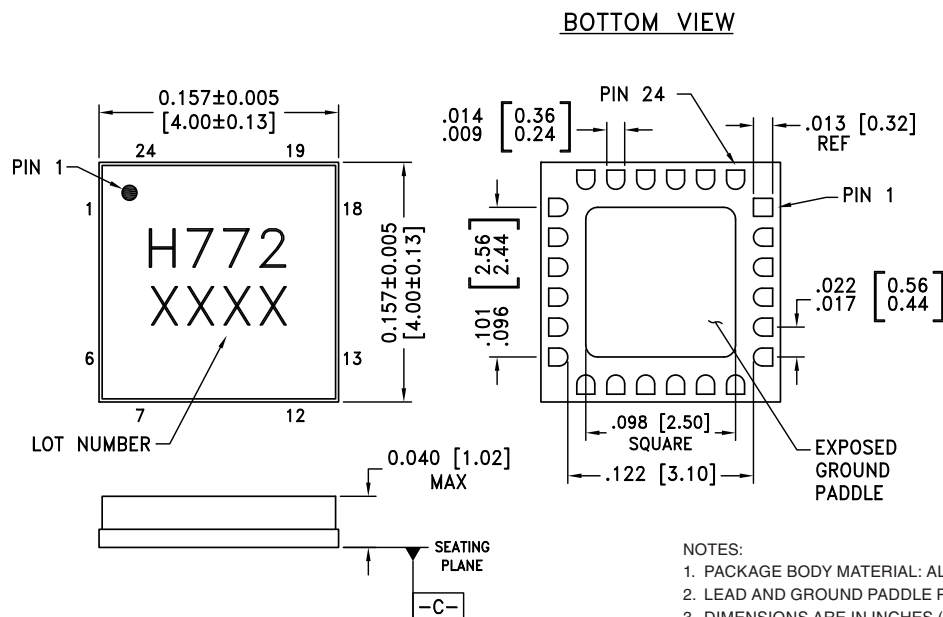
### Absolute Maximum Ratings

|  |                |
|--|----------------|
| Drain Bias Voltage   | +5V            |
| Drain Bias Current   | 60 mA          |
| RF Input Power   | 5 dBm          |
| Gate Bias Voltage  | -1 to 0.3 V    |
| Continuous P <sub>diss</sub> (T = 85 °C)<br>(derate 5.8 mW/°C above 85 °C) | 0.55 W         |
| Thermal Resistance<br>(Channel to ground paddle)                           | 172 °C/W       |
| Channel Temperature  | 180 °C         |
| Storage Temperature  | -65 to +150 °C |
| Operating Temperature  | -40 to +85 °C  |



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.

### Package Information

| Part Number | Package Body Material | Lead Finish      | MSL Rating          | Package Marking <sup>[2]</sup> |
|-------------|-----------------------|------------------|---------------------|--------------------------------|
| HMC772LC4   | Alumina, White        | Gold over Nickel | MSL3 <sup>[1]</sup> | H772<br>XXXX                   |

[1] Max peak reflow temperature of 260 °C

[2] 4-Digit lot number XXXX


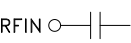
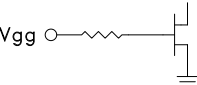
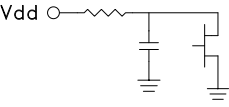
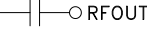
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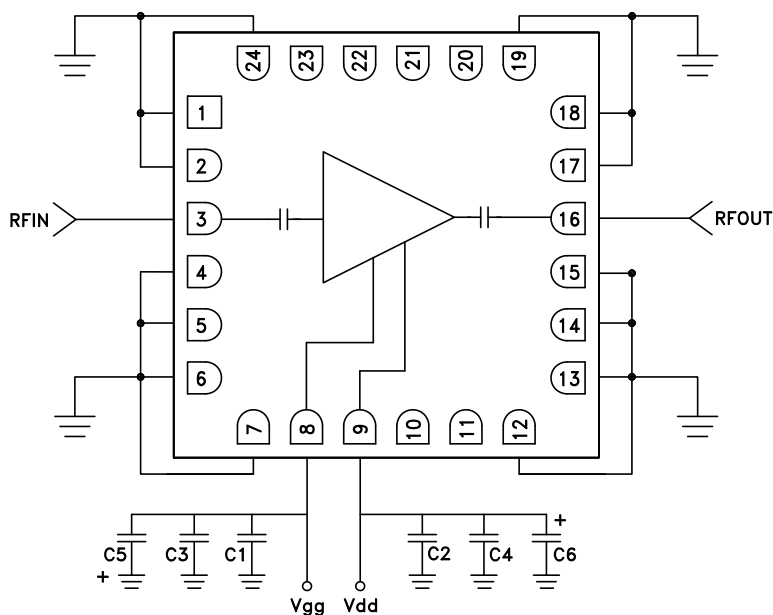


## GaAs HEMT MMIC LOW NOISE AMPLIFIER, 2 - 12 GHz

### Pin Descriptions

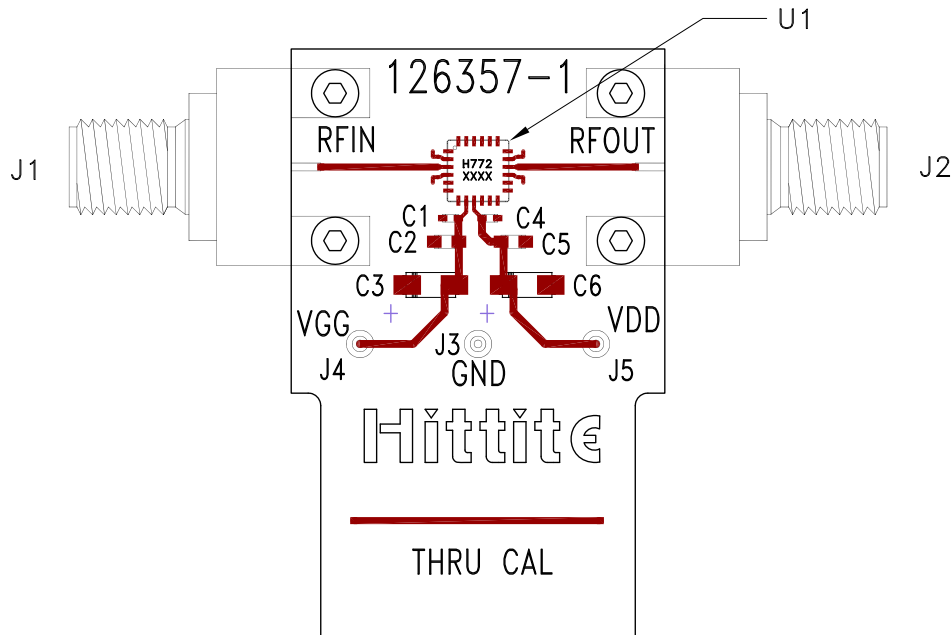
| Pin Number                        | Function | Description  | Interface Schematic   |
|-----------------------------------|----------|--|---|
| 1, 2, 4 - 7, 12 - 15, 17 - 19, 24 | GND      | These pins and ground paddle must be connected to RF/DC ground.  |  |
| 3                                 | RFIN     | This pin is AC coupled and matched to 50 Ohms.   |  |
| 8                                 | Vgg      | Gate control for amplifier. Please follow "MMIC Amplifier Biasing Procedure" application note. See application circuit for required external components. |  |
| 9                                 | Vdd      | Power Supply Voltage for the amplifier. See application circuit for required external components.  |  |
| 10, 11, 20 - 23                   | N/C      | The pins are not connected internally; however, all data shown herein was measured with these pins connected to RF/DC ground externally.                 |   |
| 16                                | RFOUT    | This pin is AC coupled and matched to 50 Ohms.   |  |

### Application Circuit



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**GaAs HEMT MMIC LOW NOISE  
AMPLIFIER, 2 - 12 GHz**
**Evaluation PCB**

**List of Materials for Evaluation PCB 126359 <sup>[1]</sup>**

| Item               | Description                     |
|--------------------|---------------------------------|
| J1, J2             | PCB Mount 2.92mm K-Connector    |
| J3 - J5            | DC Pin                          |
| C1, C4             | 100 pF Capacitor, 0402 Pkg.     |
| C2, C5             | 1000 pF Capacitor, 0603 Pkg.    |
| C3, C6             | 4.7 $\mu$ F Capacitor, Tantalum |
| U1                 | HMC772LC4 Amplifier             |
| PCB <sup>[2]</sup> | 126357 Evaluation PCB           |

[1] Reference this number when ordering complete evaluation PCB

[2] Circuit Board Material: Rogers 4350 or Arlon 25FR

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.