**HMC-C016**

**WIDEBAND LNA MODULE, 7 - 17 GHz**

**Features**
- Noise Figure: 2 dB @ 16 GHz
- Gain: 22 dB
- P1dB Output Power: +14 dBm @ 16 GHz
- 50 Ohm Matched Input/Output
- Regulated Supply
- Hermetically Sealed Module
- Field Replaceable SMA Connectors
- -55 to +85°C Operating Temperature

**Typical Applications**
The HMC-C016 Wideband LNA is ideal for:
- Telecom Infrastructure
- Microwave Radio & VSAT
- Military & Space
- Test Instrumentation
- Fiber Optics

**Functional Diagram**

![Functional Diagram of HMC-C016 Wideband LNA Module](image)

**Electrical Specifications, $T_A = +25^\circ C$, $Vs= +8V$ to $+16V$**

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>Frequency Range</td>
<td>7 - 9</td>
<td></td>
<td>9 - 13</td>
<td>13 - 17</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>GHz</td>
</tr>
<tr>
<td>Gain</td>
<td>17.5</td>
<td>20.5</td>
<td>19</td>
<td>22</td>
<td>18</td>
<td>21</td>
<td></td>
<td></td>
<td></td>
<td>dB</td>
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<tr>
<td>Gain Variation Over Temperature</td>
<td>0.02</td>
<td>0.025</td>
<td>0.02</td>
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<td>0.02</td>
<td>0.025</td>
<td></td>
<td></td>
<td></td>
<td>dB/°C</td>
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<tr>
<td>Noise Figure</td>
<td>3</td>
<td>4.5</td>
<td>2.5</td>
<td>3</td>
<td>2</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td>dB</td>
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<tr>
<td>Input Return Loss</td>
<td>8</td>
<td>10</td>
<td>10</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td>dB</td>
</tr>
<tr>
<td>Output Return Loss</td>
<td>20</td>
<td>25</td>
<td>15</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>dB</td>
</tr>
<tr>
<td>Output Power for 1 dB Compression (P1dB)</td>
<td>8</td>
<td>12</td>
<td>11</td>
<td>14</td>
<td>11</td>
<td>14</td>
<td></td>
<td></td>
<td></td>
<td>dBm</td>
</tr>
<tr>
<td>Saturated Output Power (Psat)</td>
<td>17</td>
<td>18</td>
<td>18</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>dBm</td>
</tr>
<tr>
<td>Output Third Order Intercept (IP3)</td>
<td>24</td>
<td>25</td>
<td>25</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>dBm</td>
</tr>
<tr>
<td>Supply Current</td>
<td>93</td>
<td>93</td>
<td>93</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>mA</td>
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Application Support: Phone: 1-800-ANALOG-D
HMC-C016

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Gain & Return Loss

Gain vs. Temperature

Input Return Loss vs. Temperature

Output Return Loss vs. Temperature

Reverse Isolation vs. Temperature

Noise Figure vs. Temperature

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**HMC-C016**

**WIDEBAND LNA MODULE, 7 - 17 GHz**

**P1dB vs. Temperature**

**Psat vs. Temperature**

**Output IP3 vs. Temperature**

**Power Compression @ 12 GHz**

### Absolute Maximum Ratings

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Conditions</th>
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</thead>
<tbody>
<tr>
<td>Bias Supply Voltage (Vs)</td>
<td>-0.3 Vdc to +25 Vdc</td>
</tr>
<tr>
<td>RF Input Power (RFIN)</td>
<td>+10 dBm</td>
</tr>
<tr>
<td>Storage Temperature</td>
<td>-65 to +150 °C</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>-55 to +85 °C</td>
</tr>
</tbody>
</table>

**Electrostatic Sensitive Device**

**Observe Handling Precautions**

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### Pin Descriptions

<table>
<thead>
<tr>
<th>Pin Number</th>
<th>Function</th>
<th>Description</th>
<th>Interface Schematic</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>RFIN &amp; RF Ground</td>
<td>RF input connector, SMA female, field replaceable. This pin is AC coupled and matched to 50 Ohms.</td>
<td>![RFIN Diagram]</td>
</tr>
<tr>
<td>2</td>
<td>Vs</td>
<td>Power supply voltage for the amplifier.</td>
<td>![Vs Diagram]</td>
</tr>
<tr>
<td>3</td>
<td>RFOUT &amp; RF Ground</td>
<td>RF output connector, SMA female, field replaceable. This pin is AC coupled and matched to 50 Ohms.</td>
<td>![RFOUT Diagram]</td>
</tr>
<tr>
<td>4</td>
<td>GND</td>
<td>Power supply ground.</td>
<td>![GND Diagram]</td>
</tr>
</tbody>
</table>
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### Outline Drawing

- **Pin 2:** +V BIAS SUPPLY 0.03 [0.76] DIA X 0.12 LG.
- **Pin 3:** 0.42 [10.62]
- **Pin 4:** 0.18 [4.57]
- **Pin 1:** 0.59 [14.99]

### Notes:
1. PACKAGE, LEADS, COVER MATERIAL: KOVAR™
2. SPACER MATERIAL: ALUMINUM
3. PLATING: ELECTROLYTIC GOLD 50 MICROINCHES MIN., OVER ELECTROLYTIC NICKEL 75 MICROINCHES MIN.
4. ALL DIMENSIONS ARE IN INCHES [MILLIMETERS].
5. TOLERANCES ±.005 [0.13] UNLESS OTHERWISE SPECIFIED.
6. FIELD REPLACEABLE SMA CONNECTORS.
7. TO MOUNT MODULE TO SYSTEM PLATFORM REPLACE 0-80 HARDWARE WITH DESIRED MOUNTING SCREWS.

### Package Information

<table>
<thead>
<tr>
<th>Package Type</th>
<th>C-1</th>
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<tbody>
<tr>
<td>Spacer Weight</td>
<td>N/A</td>
</tr>
</tbody>
</table>

[1] Includes the connectors
[2] ±1 gms Tolerance

**NOTES:**
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