GSP7427-00
InGaP HBT Medium Power Amplifier

Product Features

- 0.1 to 6GHz Frequency Range
- +26 dBm P-1dB at 2GHz
- +45 dBm OIP3 at 2GHz
- 16 dB Gain at 2GHz
- 4.5 dB Noise Figure

Product Description

The GSP7427-00 is an unmatched General Purpose Medium Power Amplifier that covers the 100MHz to 6GHz frequency range with 16 dB nominal matched gain at 2GHz. It also has superior Third Order Intermodulation Distortion characteristics.

The GSP7427-00 is an amplifier fabricated with high reliability InGaP/GaAs Heterojunction Bipolar Transistor (HBT) process. It requires external, bandwidth optimized matching for operation. The amplifier is ideal for wireless Base Station predriver and wide dynamic range LNA 2nd and 3rd stages. It is in bare die format.

This amplifier can be used for current and next generation equipment wireless applications to 6GHz.

Specifications (1)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Units</th>
<th>Min</th>
<th>Typ</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bandwidth</td>
<td>MHz</td>
<td>100</td>
<td></td>
<td>6000</td>
</tr>
<tr>
<td>Test Frequency (2)</td>
<td>MHz</td>
<td></td>
<td>2140</td>
<td></td>
</tr>
<tr>
<td>Gain (2)</td>
<td>dB</td>
<td></td>
<td>15</td>
<td>16</td>
</tr>
<tr>
<td>Pout @ -1dB GCP</td>
<td>dBm</td>
<td></td>
<td>+25</td>
<td>+26</td>
</tr>
<tr>
<td>Input Return Loss (2)</td>
<td>dB</td>
<td></td>
<td>15</td>
<td></td>
</tr>
<tr>
<td>Output Return Loss (2)</td>
<td>dB</td>
<td></td>
<td></td>
<td>7</td>
</tr>
<tr>
<td>OIP3 (2)</td>
<td>dBm</td>
<td></td>
<td>+40</td>
<td>45</td>
</tr>
<tr>
<td>Noise Figure (2)</td>
<td>dB</td>
<td></td>
<td>4.5</td>
<td></td>
</tr>
<tr>
<td>Operating Current</td>
<td>mA</td>
<td></td>
<td>130</td>
<td></td>
</tr>
</tbody>
</table>

1. Test conditions unless otherwise specified: 25°C, Supply Voltage = +7.00V
2. Measured in evaluation circuit tuned for 2110MHz – 2170MHz

Applications

- Mobile infrastructure
- ISM
- WLAN
- RFID
- WiMAX/WiBRO

Figure 1.

Operation at 2110MHz to 2170MHz
Gain vs Frequency

![Gain vs Frequency Graph]
### Absolute Maximum Ratings

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Case Temperature, Operating</td>
<td>-40 to +85 °C</td>
</tr>
<tr>
<td>Storage Temperature</td>
<td>-55 to +150 °C</td>
</tr>
<tr>
<td>Device Current</td>
<td>150mA</td>
</tr>
<tr>
<td>RF Input Power, continuous</td>
<td>+20 dBm</td>
</tr>
<tr>
<td>Junction Temperature</td>
<td>250 °C</td>
</tr>
</tbody>
</table>

Operation of this device above any of these parameters will cause permanent damage.

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**Parameter**

- **Case Temperature, Operating**: -40 to +85 °C
- **Storage Temperature**: -55 to +150 °C
- **Device Current**: 150mA
- **RF Input Power, continuous**: +20 dBm
- **Junction Temperature**: 250 °C

Operation of this device above any of these parameters will cause permanent damage.
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Operation at 3300MHz to 3800MHz
Gain vs Frequency

Operation at 3300MHz to 3800MHz
Return Loss vs Frequency

Operation at 3300MHz to 3800MHz
Output Power vs Frequency

Operation at 3300MHz to 3800MHz
OIP3 vs Frequency

Application Circuit, 3300MHz - 3800MHz

Test Board, 3300MHz to 3800MHz
S-PARAMETER REFERENCE PLANES

S-Parameter Test Circuit
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