MPS-080817P-82
806 to 849 MHz Low Noise Receiver Amplifier

**Features**
- Very Low Noise 1.1 dB Typ.
- High +44 dBm Typ. IP3
- 14.5 dB Typical Gain
- 7.5 Volt Bias
- 26% High Power Added Efficiency

The MPS-080817P-82 is a low noise, high dynamic range amplifier designed for ultralinear receiver applications in the 806 to 849 MHz frequency range. The circuit is matched to 50 ohm and employs a single stage GaAs FET with internal matching to provide exceptional noise figure, 1.1 dB combined with extremely high IP3, +44 dBm. Typical applications are cellular base station receivers, Tower mounted LNA's, smart antenna systems, picocell repeaters and receiver multi-couplers.

**Specifications**

- **Electrical at 25°C, Vdd= 7.5 V, Zo= 50 Ω**

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Parameter</th>
<th>Min.</th>
<th>Typical</th>
<th>Max</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freq</td>
<td>Frequency Range</td>
<td>806</td>
<td>849</td>
<td>MHz</td>
<td></td>
</tr>
<tr>
<td>SSG</td>
<td>Small Signal Gain</td>
<td>13</td>
<td>14.5</td>
<td>dB</td>
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<tr>
<td>P1dB</td>
<td>P out at 1 dB Compression</td>
<td>+28.0</td>
<td>+44.0</td>
<td>dBm</td>
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<tr>
<td>IP3</td>
<td>Third-order Intercept</td>
<td>+42</td>
<td>+44.0</td>
<td>dBm</td>
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<tr>
<td>NF</td>
<td>Noise Figure</td>
<td>1.1</td>
<td>1.5</td>
<td>dB</td>
<td></td>
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<tr>
<td>VSWR</td>
<td>Input VSWR</td>
<td>2.0:1</td>
<td>2.5:1</td>
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<tr>
<td>ΔGOF</td>
<td>Gain Variation over Freq.</td>
<td>+/−0.2</td>
<td>+/−0.5</td>
<td>dB</td>
<td></td>
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<tr>
<td>ΔGOT</td>
<td>Gain Variation over Temp.</td>
<td>-0.015</td>
<td>dB/°C</td>
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<tr>
<td>Idd</td>
<td>DC Current</td>
<td>330</td>
<td>400</td>
<td>mA</td>
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<tr>
<td>PAE</td>
<td>Power Added Efficiency</td>
<td>26</td>
<td></td>
<td>%</td>
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</tr>
</tbody>
</table>

**Gain vs. Frequency**

- **Absolute Maximum Ratings**
  - Maximum Bias Voltage: 8.0 V
  - Maximum Continuous RF Input Power: 480 mW
  - Maximum Peak Input Power: 720 mW
  - Maximum Case Operating Temperature: +85°C
  - Maximum Storage Temperature: -65°C to +150°C
Return Loss vs. Frequency

**INPUT**

Return Loss (dB)

-30  -25  -20  -15  -10  -5  0

810  820  830  840  850  860
Frequency (MHz)

**OUTPUT**

Return Loss (dB)

-30  -25  -20  -15  -10  -5  0

810  820  830  840  850  860
Frequency (MHz)

Outline Diagrams

Application Circuit

- C1  100 pF  Chip Capacitor
- C2  .22 µF  Capacitor
- L1  160 nH  Printer or Wound Coil
- CR1 8.0 V  Zener Diode
- 50 Ω Microstrip Line

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