The MPS-080817N-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, 0.8 dB combined with extremely high IP3, +36 dBm. Typical applications are cellular base station receivers, Tower mounted LNA’s, smart antenna systems, picocell repeaters and receiver multi-couplers.

### Features
- Very Low Noise 0.8 dB Typ.
- 7.5 Volt Bias
- High +36 dBm Typ. IP3
- 26% High Power Added Efficiency
- 13.5 dB Typical Gain

### 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>12</td>
<td>13.5</td>
<td>dB</td>
<td></td>
</tr>
<tr>
<td>P1dB</td>
<td>P out at 1 dB Compression</td>
<td>+23.0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IP3</td>
<td>Third-order Intercept</td>
<td>+33</td>
<td>+36.0</td>
<td>dBm</td>
<td></td>
</tr>
<tr>
<td>NF</td>
<td>Noise Figure</td>
<td>0.8</td>
<td>1.0</td>
<td>dB</td>
<td></td>
</tr>
<tr>
<td>VSWR</td>
<td>Input VSWR</td>
<td>2.0:1</td>
<td>2.5:1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ΔGOF</td>
<td>Gain Variation over Freq.</td>
<td>+/-0.2</td>
<td>+/-.5</td>
<td>dB</td>
<td></td>
</tr>
<tr>
<td>ΔGOT</td>
<td>Gain Variation over Temp.</td>
<td>-0.015</td>
<td></td>
<td>dB/°C</td>
<td></td>
</tr>
<tr>
<td>tdd</td>
<td>DC Current</td>
<td>180</td>
<td>250</td>
<td>mA</td>
<td></td>
</tr>
<tr>
<td>PAE</td>
<td>Power Added Efficiency</td>
<td>26</td>
<td></td>
<td>%</td>
<td></td>
</tr>
</tbody>
</table>

### Noise Figure vs. Frequency

#### Absolute Maximum Ratings

- Maximum Bias Voltage: 8.0 V
- Maximum Continuous RF Input Power: 950 mW
- Maximum Peak Input Power: 1400 mW
- Maximum Case Operating Temperature: +85°C
- Maximum Storage Temperature: -65°C to +150°C
MPS-080817N-82
806 to 849 MHz Low Noise Receiver Amplifier

Return Loss vs. Frequency

Input

Return Loss (dB)

Frequency (MHz)

Return Loss vs. Frequency

Output

Return Loss (dB)

Frequency (MHz)

Outline Diagrams

Pin | Connection
--- | ---
1  | NC
2  | NC
3  | RF Input
4  | NC
5  | NC
6  | NC
7  | NC
8  | RF Output, Vdd
9  | NC
10 | NC
Case | Ground

Application Circuit

C1 100 pF  Chip Capacitor
C2 0.22 pF  Capacitor
L1 160 nH  Printer or Wound Coil
CR1 8.0 V  Zener Diode

50 Ω Microstrip Line

All rights reserved. MicroWave Technology, Inc. All specifications subject to change without notice.