The MPS-0909A9-85 is a low noise, high dynamic range amplifier designed for PDC receiver applications. 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, +36 dBm. Typical applications are cellular base station receivers, Tower mounted LNAs, smart antenna systems and receiver multi-couplers.

**Features**
- Very Low Noise 1.1 dB Typ.
- 6.0 Volt Bias
- High +36 dBm Typ. IP3
- 26% High Power Added Efficiency
- 16 dB Typical Gain

**Specifications**

**Electrical at 25°C, Vdd= 6.0 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>
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<tbody>
<tr>
<td>Freq</td>
<td>Frequency Range</td>
<td>925</td>
<td>960</td>
<td>MHz</td>
<td></td>
</tr>
<tr>
<td>SSG</td>
<td>Small Signal Gain</td>
<td>14</td>
<td>16</td>
<td>dB</td>
<td></td>
</tr>
<tr>
<td>P1dB</td>
<td>P out at 1 dB Compression</td>
<td>+22.0</td>
<td>+36.0</td>
<td>dBm</td>
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<tr>
<td>IP3</td>
<td>Third-order Intercept</td>
<td>+33</td>
<td></td>
<td>dBm</td>
<td></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>
</tr>
<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>
</tr>
<tr>
<td>ΔGOT</td>
<td>Gain Variation over Temp.</td>
<td>-0.015</td>
<td>dB/°C</td>
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<td></td>
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<tr>
<td>Idd</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>

**Absolute Maximum Ratings**

- Maximum Bias Voltage: 7.0 V
- Maximum Continuous RF Input Power: 240 mW
- Maximum Peak Input Power: 360 mW
- Maximum Case Operating Temperature: +85°C
- Maximum Storage Temperature: -65°C to +150°C
925 to 960 MHz Low Noise Receiver Amplifier

MPS-0909A9-85

925 to 960 MHz Low Noise Receiver Amplifier

Return Loss vs. Frequency

Return Loss (dB)

Frequency (MHz)

925 941 947 953 959 965

Return Loss vs. Frequency

Return Loss (dB)

Frequency (MHz)

925 941 947 953 959 965

Outline Diagrams

Application Circuit

C1 100 pF
C2 22 µF
L1 160 nH
CR1 8.0 V

Chap Capacitor
Capacitor
Printer or Wound Coil
Zener Diode
50 Ω Microstrip Line