The MPS-0909A9-82 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 LNA's, smart antenna systems and receiver multi-couplers.

**Features**

- Very Low Noise 1.1 dB Typ.
- High +36 dBm Typ. IP3
- 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></td>
<td>960</td>
<td>MHz</td>
</tr>
<tr>
<td>SSG</td>
<td>Small Signal Gain</td>
<td>14</td>
<td>16</td>
<td></td>
<td>dB</td>
</tr>
<tr>
<td>P1dB</td>
<td>P out at 1 dB Compression</td>
<td>+22.0</td>
<td></td>
<td>+36.0</td>
<td>dBm</td>
</tr>
<tr>
<td>IP3</td>
<td>Third-order Intercept</td>
<td>+33</td>
<td></td>
<td></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></td>
<td>dB</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>+/-0.5</td>
<td></td>
<td>dB</td>
</tr>
<tr>
<td>ΔGOT</td>
<td>Gain Variation over Temp.</td>
<td>-.015</td>
<td></td>
<td></td>
<td>dB/°C</td>
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<tr>
<td>Idd</td>
<td>DC Current</td>
<td>180</td>
<td>250</td>
<td></td>
<td>mA</td>
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<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
**MPS-0909A9-82**

925 to 960 MHz Low Noise Receiver Amplifier

**Application Circuit**

```
RF IN       C1       CR1       L1       C1       RF OUT
         |           |           |           |           |
         |           |           |           |           |
         |           |           |           |           |
         |           |           |           |           |
```

- **C1**: 100 pF Chip Capacitor
- **C2**: .22 µF Capacitor
- **L1**: 160 nH Printer or Wound Coil
- **CR1**: 7.0 V Zener Diode
- **50 Ω Microstrip Line**

**Outline Diagrams**

**Return Loss vs. Frequency**

- **INPUT**
- **OUTPUT**

**Return Loss vs. Frequency**

- 925 MHz: -20 dB
- 941 MHz: -20 dB
- 947 MHz: -20 dB
- 953 MHz: -20 dB
- 959 MHz: -20 dB
- 965 MHz: -20 dB

**Pin Connection**

- Pin 1: N/C
- Pin 2: N/C
- Pin 3: RF Input
- Pin 4: N/C
- Pin 5: N/C
- Pin 6: N/C
- Pin 7: N/C
- Pin 8: RF Output, Vdd
- Pin 9: N/C
- Pin 10: N/C

**Case**: Ground

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