The MPS-1718A9-82 is a low noise, high dynamic range amplifier designed for DCS-1800 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 DCS-1800 base station receivers and tower mounted LNA's.

### Features
- Very Low Noise 1.1 dB Typ.
- 6.0 Volt Bias
- High +36 dBm Typ. IP3
- 26% High Power Added Efficiency
- 15.5 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>1710</td>
<td></td>
<td>1785</td>
<td>MHz</td>
</tr>
<tr>
<td>SSG</td>
<td>Small Signal Gain</td>
<td>14</td>
<td>15.5</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>
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<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>
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<tr>
<td>VSWR</td>
<td>Input VSWR</td>
<td>2.0:1</td>
<td></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></td>
<td>+/-0.5</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>100</td>
<td>150</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>
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</table>

### Gain vs. Frequency

<table>
<thead>
<tr>
<th>Frequency (MHz)</th>
<th>1700</th>
<th>1720</th>
<th>1740</th>
<th>1760</th>
<th>1780</th>
<th>1800</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gain (dB)</td>
<td>15.5</td>
<td>14.5</td>
<td>13.5</td>
<td>12.5</td>
<td>11.5</td>
<td>10.5</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-1718A9-82
1710 to 1785 MHz Low Noise Receiver Amplifier

Return Loss vs. Frequency

Return Loss vs. Frequency

Outline Diagrams

Application Circuit

Return Loss (dB)

Frequency (MHz)

Return Loss (dB)

Frequency (MHz)

Application Circuit

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

Case | Ground
---|---

C1 | 100 pF  
C2 | 0.22 µF  
L1 | 160 nH  
CR1 | 7.0 V

Zener Diode  
50 µm Microstrip Line

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