The MPS-090917P-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, +44 dBm. Typical applications are cellular base station receivers, tower mounted LNAs, smart antenna systems, picocell repeaters and receiver multi-couplers.

**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

**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>
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<tbody>
<tr>
<td>Freq</td>
<td>Frequency Range</td>
<td>925</td>
<td>14.5</td>
<td>960 MHz</td>
<td>dB</td>
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<tr>
<td>SSG</td>
<td>Small Signal Gain</td>
<td>13</td>
<td>+28.0</td>
<td>+44.0 dBm</td>
<td>dBm</td>
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<tr>
<td>P1dB</td>
<td>P out at 1 dB Compression</td>
<td>+42</td>
<td>+44.0 dBm</td>
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<td>dBm</td>
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<tr>
<td>IP3</td>
<td>Third-order Intercept</td>
<td></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 dB</td>
<td></td>
<td>dB</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 dB</td>
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<tr>
<td>ΔGOT</td>
<td>Gain Variation over Temp.</td>
<td>+/−0.15</td>
<td>-0.15 dB/°C</td>
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<tr>
<td>Idd</td>
<td>DC Current</td>
<td>330</td>
<td>400 mA</td>
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<td>mA</td>
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<tr>
<td>PAE</td>
<td>Power Added Efficiency</td>
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<td></td>
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<td>%</td>
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</table>

**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
**Application Circuit**

```
RF IN

C2

CR1

L1

RF OUT
```

- **C1**: 100 pF
- **C2**: 2.2 μF
- **L1**: 160 nH
- **CR1**: 8.0 V
- **Chip Capacitor**: Capacitor
- **Printer or Wound Coil**: Zener Diode
- **50 Ω**: Microstrip Line

**Outline Diagrams**

**Return Loss vs. Frequency**

- **INPUT**
  - Frequency (MHz): 910, 920, 930, 940, 950, 960
  - Return Loss (dB): -5, -10, -15, -20, -25, -30

- **OUTPUT**
  - Frequency (MHz): 910, 920, 930, 940, 950, 960
  - Return Loss (dB): -5, -10, -15, -20, -25, -30