2400 to 2700 MHz Linear Amplifier

The MPS253011 is a modular amplifier designed to meet the ultralinear transmitter output requirements of worldwide ISM band systems and wireless cable distribution. The amplifier exhibits an extremely high IP3 (+45dBm) relative to the DC power consumed (3 W). The device is self contained with all matching and bias circuitry included. Typical applications for this device include output stages and for North American and European 2.4 GHz ISM band systems. It is useful for direct sequence and/or frequency hopped spread spectrum systems where excellent output linearity is required. Typical systems include wireless LAN, industrial telemetry, and wireless cable links.

**Features**

- +45 dBm Typical IP3
- 14 dB Typical Gain
- 1W Typical Output Power
- Single Positive Bias
- Surface Mount Package or Half Flange Package

**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>2400</td>
<td>2700</td>
<td>MHz</td>
<td></td>
</tr>
<tr>
<td>SSG</td>
<td>Small Signal Gain</td>
<td>12</td>
<td>13</td>
<td>dB</td>
<td></td>
</tr>
<tr>
<td>P1dB</td>
<td>P out at 1 dB Compression</td>
<td>+30.0</td>
<td>+45.0</td>
<td>dBm</td>
<td></td>
</tr>
<tr>
<td>IP3</td>
<td>Third-order Intercept</td>
<td>+42.0</td>
<td>+45.0</td>
<td>dBm</td>
<td></td>
</tr>
<tr>
<td>VSWR</td>
<td>Input VSWR</td>
<td>1.5:1:2:2:1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ΔGOF</td>
<td>Gain Variation over Freq.</td>
<td>+/- 0.25</td>
<td>+/- 0.50</td>
<td>dB</td>
<td>dB/°C</td>
</tr>
<tr>
<td>ΔGOT</td>
<td>Gain Variation over Temp.</td>
<td>-0.01</td>
<td>420</td>
<td>mA</td>
<td></td>
</tr>
<tr>
<td>Ldd</td>
<td>DC Current</td>
<td>350</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **Absolute Maximum Ratings**

  - Maximum Bias Voltage: 8.0 V
  - Maximum Continuous RF Input Power: 950 mW
  - Maximum Peak Input Power: 1400mW
  - Maximum Case Operating Temperature: +85°C
  - Maximum Storage Temperature: -65°C to +150°C

---

www.mwtinc.com  
E-mail: info@mwtinc.com

4268 Solar Way · Fremont · California 94538 · Phone: (510) 651-6700 · Fax: (510) 651-2208
MPS-253011-85/86
2400 to 2700 MHz Linear Amplifier

Application Circuit

Return Loss vs. Frequency

Outline Diagrams

Package 85

Package 86 (HERMETIC)

Return Loss vs. Frequency

Return Loss (dB)

Frequency (MHz)

Return Loss (dB)

Frequency (MHz)

Return Loss vs. Frequency

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

Chip Capacitor
Capacitor
Printer or Wound Coil
Zener Diode

50 Ω Microstrip Line