Linear Amplifier
2400 to 2700 MHz

- IP3: 45 dBm
- $P_{1dB}$: 28.5 dBm
- Gain: 13 dB

Model #: MPS-253011-02

Features

- Leadless Chip Carrier
- +45 dBm IP3
- +28.5 dBm $P_{1dB}$
- 13 dB Gain
- Single Positive Bias
- Interchangeable with MPS-253011-82 both electrically and mechanically
- Systems applications for this device are: MMDS, ISM, and WLL

Description

The MPS-253011-02 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 (+45 dBm). The device is self-contained with all matching and bias circuitry included. Typical applications for this device include output stages for North American and European 2.4 GHz ISM band and MMDS 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.

Absolute Maximum Ratings

- Bias Voltage: 8.0V
- Continuous RF Input Power: 950 mW
- Peak Input Power: 1400 mW
- Case Operating Temperature: +85°C
- Storage Temperature: -65°C to +125°C
## Specifications

**MPS-253011-02**

### Electrical at 25°C, Vdd= 7.5 V, Zo= 50 Ω

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Parameter</th>
<th>Min.</th>
<th>Typ.</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>12.0</td>
<td>13.0</td>
<td>dB</td>
<td></td>
</tr>
<tr>
<td>P_{1d}B</td>
<td>P out at 1 dB Compression</td>
<td>+28.5</td>
<td>dBm</td>
<td></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 / Output</td>
<td>2.0:1 / 2.0:1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>∆GOF</td>
<td>Gain Variation over Freq.</td>
<td>±0.25</td>
<td>±0.5</td>
<td>dB</td>
<td></td>
</tr>
<tr>
<td>∆GOT</td>
<td>Gain Variation over Temp.</td>
<td>-0.012</td>
<td>dB/°C</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Idd</td>
<td>DC Current</td>
<td>380</td>
<td>450</td>
<td>mA</td>
<td></td>
</tr>
</tbody>
</table>

*Two tone tests at P out = +13 dBm/tone, centered at 2400 MHz with 20 MHz separation

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### Output Power at P_{1d}B

@ +25°C

![Output Power vs. Frequency](image)

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### IP3** vs. Frequency

@ +25°C

![IP3 vs. Frequency](image)

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### Gain vs. Frequency

Over Temperature

![Gain vs. Frequency](image)

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### Return Loss vs. Frequency

@ +25°C

![Return Loss vs. Frequency](image)

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### Application Circuit

Packaging is interchangeable with MPS-253011-82

![Application Circuit](image)

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### MPS-253011-02 Outline Drawing

![Outline Drawing](image)

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### All dimensions are in inches

<table>
<thead>
<tr>
<th>Pin Designation (Top View)</th>
<th>Pin 1 (DOT Top Left)</th>
<th>Pin 2</th>
<th>Pin 3</th>
<th>Pin 4</th>
<th>Pin 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>GND</td>
<td>GND</td>
<td>RF In/Vg</td>
<td>GND</td>
<td>GND</td>
<td>GND</td>
</tr>
<tr>
<td>Pin 10</td>
<td>Pin 6</td>
<td>Pin 7</td>
<td>Pin 8</td>
<td>Pin 9</td>
<td>Pin 10</td>
</tr>
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