Typical Characteristics
On
PE2-25-218-20-12-SFF

PMI Model PE2-25-218-20-12-SFF is a 2.0 to 18.0GHz Low Noise Amplifier which provides 25dB of Gain with a OP1dB of +20dBm Minimum and a Noise Figure of 4.5dB. This amplifier operates on +12 to +15VDC and draws less than 350mA.

August 28, 2014
Designed By: Kevin Mason
Tested By: Kevin Mason
Reported by: Kevin Mason
Product Feature Drawing

Description:
PMI Model Number: PE2-25-218-20-12-SFF is a 2 to 18 GHz low noise amplifier. This amplifier is supplied in our standard PE2 housing that can be used as a SMI connectorized or a surface mount component.

This model provides the following performance. Data is available upon request.

Specifications:
- Frequency Range: 2 to 18 GHz
- Gain: 25dB Min.
- Gain Flatness: +/- 1.5dB Max.
- Noise Figure: 4.5dB Typ. 5.5dB Max.
- OP1dB: +20dBm Min.
- VSWR: Input/Output: 2.01 Max.
- DC Voltage Supply: +12 to +15VDC
- DC Current Draw: 360mA Max.
- Connectors In/Out: SMA Female

Features:
- Internal Voltage Regulation
- Unconditional Stability

Available Options:
- Various Package types
- Various Connector types
- Temperature Compensation
- Gain and Phase Matching

MIL-STD-983 Screening Available

Environmental Ratings:
- Temperature: -60°C to +85°C (Operating)
  -40°C to +125°C (Storage)
- Humidity: MIL-STD-202F, METHOD 1038 COND B.
- Shock: MIL-STD-202F, METHOD 1038 COND B.
- Altitude: MIL-STD-202F, METHOD 1038 COND B.
- Temperature Cycle: MIL-STD-202F, METHOD 1038 COND A

Note: The above specifications are subject to change or revision.
### Summary Test Data

<table>
<thead>
<tr>
<th>TEST. ITEM NO</th>
<th>PARAMETERS</th>
<th>SPECIFIED VALUE</th>
<th>TEST RESULTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Frequency Range:</td>
<td>2 GHz – 18 GHz</td>
<td>2 GHz – 18 GHz</td>
</tr>
<tr>
<td>2</td>
<td>Gain:</td>
<td>+25dB Min.</td>
<td>26.83dB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>See Plot</td>
</tr>
<tr>
<td>3</td>
<td>Gain Flatness:</td>
<td>±1.5dB Max.</td>
<td>± 1.17dB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>See Plot</td>
</tr>
<tr>
<td>4</td>
<td>Noise Figure:</td>
<td>4.5dB Typ.</td>
<td>2 GHz  4.23dB</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5.5dB Max.</td>
<td>8 GHz  2.31dB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>12 GHz  2.57dB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>18 GHz  3.82dB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>See Plot</td>
</tr>
<tr>
<td>5</td>
<td>Pout @ 1dB Compression:</td>
<td>+20dBm Min.</td>
<td>&gt;=20dBm</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>See Plot</td>
</tr>
<tr>
<td>6</td>
<td>VSWR:</td>
<td>2.0:1 Max</td>
<td>Input 1.58:1</td>
</tr>
<tr>
<td></td>
<td>(Input/Output)</td>
<td></td>
<td>Output 1.65:1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>See Plot</td>
</tr>
<tr>
<td>7</td>
<td>DC Supply:</td>
<td>+12 TO +15VDC @ 350mA Max.</td>
<td>331mA</td>
</tr>
</tbody>
</table>

[Click here to download S-Parameters]
Gain & Return Loss @ +85°C
### Gain & Return Loss @ -54°C

<table>
<thead>
<tr>
<th>File</th>
<th>Trace/Chan</th>
<th>Response</th>
<th>Marker/Analysis</th>
<th>Stimulus</th>
<th>Utility</th>
<th>Help</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tr 1</td>
<td>S11 LogM 5.000dB/ 9.54dB</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tr 2</td>
<td>S21 LogM 3.000dB/ 25.0dB</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tr 3</td>
<td>S22 LogM 5.000dB/ -9.54dB</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Gain: 2.000 GHz, 2.04 dB
- Return: 5.500 GHz, 25.47 dB
- Return: 17.025 GHz, -1.05 dB

![Graph showing Gain & Return Loss](image)

---

East Coast Facility: 7311-F Grove Road Frederock, MD 21704  
West Coast Facility: 4921 Robert J. Mathews Pkwy, Suite 1, El Dorado Hills, CA  
Phone: 301-662-5019  
Fax: (301) 662-1731  
Email: sales@pmi-rf.com  
Web: www.pmi-rf.com  
ISO9001:2008 Certified
Noise Figure Plot @ +25°C

![Graph of Noise Figure Plot](image)
Noise Figure Plot @ +85°C
Noise Figure Plot @ -54°C
OIP3 @ 2 GHz

\[
\text{OIP3} = \text{Pout} + \text{dBc}/2
\]

\[
+24.94\text{dBm} = 0 + (49.89/2)
\]
OIP3 = Pout + dBC/2
+28.35dBm = 0 + (56.70/2)
**OIP3 @ 10 GHz**

![OIP3 Measurement](image)

\[
\text{OIP3} = \text{Pout} + \text{dBc}/2
\]

\[+28.36\text{dBm} = 0 + (56.72/2)\]
OIP3 @ 14 GHz

OIP3 = Pout + dBc/2
+30.73dBm = 0 + (61.46/2)
OIP3 = Pout + dBc/2

+28.11dBm = 0 + (56.22/2)
Plot of Input Power versus Output Power

<table>
<thead>
<tr>
<th>Frequency (GHz)</th>
<th>Input Power (dBm)</th>
<th>Op1dB (dBm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.0</td>
<td>-4</td>
<td>23.17</td>
</tr>
<tr>
<td>10.0</td>
<td>-4</td>
<td>23.07</td>
</tr>
<tr>
<td>18.0</td>
<td>-3</td>
<td>21.76</td>
</tr>
</tbody>
</table>