The PE88X2001 is a low noise X2 Active Broadband Frequency Multiplier Module that covers a wide output frequency bandwidth from 24 GHz to 33 GHz. The design utilizes advanced GaAs HBT MMIC semiconductor technology that produces low additive SSB phase noise performance with a typical level of -132 dBc/Hz at 100 kHz offset. Additional typical performance includes an output power level of +17 dBm with an input signal of +3 dBm. Input/output ports are matched for 50 ohms and are DC blocked. The design requires a single +5V DC supply. The compact drop-in package is RoHS compliant and hermetically sealed with field replaceable 2.92mm connectors. And for added confidence, this rugged package assembly is designed to meet MIL-STD-883 test conditions for Hermeticity and Temperature Cycle.

### Electrical Specifications (TA= 25°C, VDC1 = 5 Vdc)

<table>
<thead>
<tr>
<th>Description</th>
<th>Minimum</th>
<th>Typical</th>
<th>Maximum</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Input Frequency Range</td>
<td>12</td>
<td>16.5</td>
<td></td>
<td>GHz</td>
</tr>
<tr>
<td>Output Frequency Range</td>
<td>24</td>
<td>33</td>
<td></td>
<td>GHz</td>
</tr>
<tr>
<td>Impedance</td>
<td>50</td>
<td></td>
<td></td>
<td>Ohms</td>
</tr>
<tr>
<td>Output Power</td>
<td>+14</td>
<td>+17</td>
<td></td>
<td>dBm</td>
</tr>
<tr>
<td>Operating DC Voltage 1</td>
<td></td>
<td>5</td>
<td></td>
<td>V</td>
</tr>
</tbody>
</table>

Click the following link (or enter part number in "SEARCH" on website) to obtain additional part information including price, inventory and certifications: 2x Frequency Multiplier Module, 24 GHz to 33 GHz Output Frequency, +14 dBm Output Power, Field Replaceable 2.92mm PE88X2001
Performance by Frequency

<table>
<thead>
<tr>
<th>Description</th>
<th>Min.</th>
<th>Typ.</th>
<th>Max.</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency Range, Input</td>
<td>12 - 16.5</td>
<td></td>
<td></td>
<td>GHz</td>
</tr>
<tr>
<td>Frequency Range, Output</td>
<td>24 - 33</td>
<td></td>
<td></td>
<td>GHz</td>
</tr>
<tr>
<td>Output Power</td>
<td>+14</td>
<td>+17</td>
<td></td>
<td>dBm</td>
</tr>
<tr>
<td>Fo Isolation (With Respect To Output Level)</td>
<td>20</td>
<td></td>
<td></td>
<td>dBc</td>
</tr>
<tr>
<td>3Fo Isolation (With Respect To Output Level)</td>
<td>30</td>
<td></td>
<td></td>
<td>dBc</td>
</tr>
<tr>
<td>Input Return Loss</td>
<td>13</td>
<td></td>
<td></td>
<td>dB</td>
</tr>
<tr>
<td>Output Return Loss</td>
<td>20</td>
<td></td>
<td></td>
<td>dB</td>
</tr>
<tr>
<td>SSB Phase Noise (100 KHz Offset)</td>
<td>-132</td>
<td></td>
<td></td>
<td>dBc/Hz</td>
</tr>
<tr>
<td>Supply Current</td>
<td>81</td>
<td></td>
<td></td>
<td>mA</td>
</tr>
</tbody>
</table>

Mechanical Specifications

- **Size**
  - Length: 1.086 in [27.58 mm]
  - Width: 0.85 in [21.59 mm]
  - Height: 0.28 in [7.11 mm]
  - Weight: 0.09 lbs [40.82 g]
- Input Connector: Field Replaceable 2.92mm Female
- Output Connector: Field Replaceable 2.92mm Female

Environmental Specifications

- **Temperature**
  - Operating Range: -55 to +85 deg C
  - Storage Range: -65 to +150 deg C
- ESD Sensitivity: ESD Sensitive Material, Transport material in Approved ESD bags. Handle only in ESD Workstation.

Compliance Certifications (visit www.Pasternack.com for current document)
- RoHS Compliant

Plotted and Other Data

Click the following link (or enter part number in "SEARCH" on website) to obtain additional part information including price, inventory and certifications: 2x Frequency Multiplier Module, 24 GHz to 33 GHz Output Frequency, +14 dBm Output Power, Field Replaceable 2.92mm PE88X2001
2x Frequency Multiplier Module, 24 GHz to 33 GHz Output Frequency, +14 dBm Output Power, Field Replaceable 2.92mm

Frequency Multipliers Technical Data Sheet

Click the following link (or enter part number in “SEARCH” on website) to obtain additional part information including price, inventory and certifications: 2x Frequency Multiplier Module, 24 GHz to 33 GHz Output Frequency, +14 dBm Output Power, Field Replaceable 2.92mm PE88X2001
Typical Performance Data

Output Power vs. Temperature @ 3 dBm Drive Level

Output Power vs. Drive Level

Output Power vs. Supply Voltage @ 3 dBm Drive Level

Isolation @ 3 dBm Drive Level

Output Power vs. Input Power

Click the following link (or enter part number in “SEARCH” on website) to obtain additional part information including price, inventory and certifications: 2x Frequency Multiplier Module, 24 GHz to 33 GHz Output Frequency, +14 dBm Output Power, Field Replaceable 2.92mm PE88X2001
2x Frequency Multiplier Module, 24 GHz to 33 GHz Output Frequency, +14 dBm Output Power, Field Replaceable 2.92mm

Frequency Multipliers Technical Data Sheet

**Input Return Loss vs. Temperature @ 0 dBm Drive Level**

```
-20 -15 -10 -5 0 5 0
-22 23 24 25 26 27 28 29 30 31 32 33 34 35
```

**Output Return Loss vs. Temperature @ 0 dBm Drive Level**

```
-30 -25 -20 -15 -10 -5 0 5 0
22 23 24 25 26 27 28 29 30 31 32 33 34 35
```

2x Frequency Multiplier Module, 24 GHz to 33 GHz Output Frequency, +14 dBm Output Power, Field Replaceable 2.92mm from Pasternack Enterprises has same day shipment for domestic and International orders. Our RF, microwave and millimeter wave products maintain a 99% availability and are part of the broadest selection in the industry.

Click the following link (or enter part number in “SEARCH” on website) to obtain additional part information including price, inventory and certifications: 2x Frequency Multiplier Module, 24 GHz to 33 GHz Output Frequency, +14 dBm Output Power, Field Replaceable 2.92mm PE88X2001


The information contained in this document is accurate to the best of our knowledge and representative of the part described herein. It may be necessary to make modifications to the part and/or the documentation of the part, in order to implement improvements. Pasternack reserves the right to make such changes as required. Unless otherwise stated, all specifications are nominal. Pasternack does not make any representation or warranty regarding the suitability of the part described herein for any particular purpose, and Pasternack does not assume any liability arising out of the use of any part or documentation.
PE88X2001 CAD Drawing
2x Frequency Multiplier Module, 24 GHz to 33 GHz Output Frequency,
+14 dBm Output Power, Field Replaceable 2.92mm