Features

- Divide by 2 Prescaler
- Wide Frequency Band
- GaAs HBT MMIC Technology
- Low Phase Noise -150 dBc/Hz @ 100 kHz offset
- Output Power -4 dBm
- Low Reverse Leakage Level 55 dB typical
- Single +5V Bias Voltage
- Integrated DC Blocking Capacitors
- Hermetically Sealed Module
- Mil Spec Compliant
- Field Replaceable SMA Connectors
- -55°C to +85°C Operating Temperature

Applications

- Electronic Warfare
- Electronic Countermeasures
- Point-To-Point Radio
- Point-To-Multipoint Radio
- VSAT Radios
- Fiber Optic
- Space Systems
- Test Instrumentation
- Telecom Infrastructure

Description

The PE88D2000 is a low noise Divide-by-2 Static Prescaler Module that covers a wide input frequency bandwidth from 0.5 GHz to 18 GHz. The design utilizes advanced GaAs HBT MMIC semiconductor technology that produces low additive SSB phase noise performance with a typical level of -150 dBc/Hz at 100 kHz offset. Additional typical performance includes an output power level of -4 dBm and reverse leakage up to 55 dB. 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 SMA 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, Vd1 = 5 V, Id1 = 75 mA)

<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 (Sine Wave)</td>
<td>0.5</td>
<td>18</td>
<td></td>
<td>GHz</td>
</tr>
<tr>
<td>Impedance</td>
<td>50</td>
<td></td>
<td></td>
<td>Ohms</td>
</tr>
<tr>
<td>Input Power (CW)</td>
<td>-20</td>
<td></td>
<td></td>
<td>dBm</td>
</tr>
<tr>
<td>Output Power</td>
<td>-7</td>
<td>-4</td>
<td></td>
<td>dBm</td>
</tr>
<tr>
<td>Reverse Leakage</td>
<td>55</td>
<td></td>
<td></td>
<td>dB</td>
</tr>
<tr>
<td>Operating DC Voltage 1</td>
<td>5</td>
<td></td>
<td></td>
<td>V</td>
</tr>
<tr>
<td>Operating DC Current 1</td>
<td>75</td>
<td></td>
<td></td>
<td>mA</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: Frequency Divider, Divide by 2 Prescaler Module, 500 MHz to 18 GHz, Field Replaceable SMA PE88D2000
Frequency Dividers Technical Data Sheet

**Performance by Frequency**

<table>
<thead>
<tr>
<th>Description</th>
<th>Conditions</th>
<th>Min.</th>
<th>Typ.</th>
<th>Max.</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum Input Frequency</td>
<td>18 GHz</td>
<td></td>
<td></td>
<td></td>
<td>GHz</td>
</tr>
<tr>
<td>Minimum Input Frequency</td>
<td>Sine Wave Input</td>
<td>0.5</td>
<td></td>
<td></td>
<td>GHz</td>
</tr>
<tr>
<td></td>
<td>Fin = 2 To 4 GHz</td>
<td>-15</td>
<td>-10</td>
<td>+10</td>
<td>dBm</td>
</tr>
<tr>
<td></td>
<td>Fin = 4 To 14 GHz</td>
<td>-20</td>
<td>-15</td>
<td>+10</td>
<td>dBm</td>
</tr>
<tr>
<td></td>
<td>Fin = 14 To 16 GHz</td>
<td>-20</td>
<td>-15</td>
<td>+5</td>
<td>dBm</td>
</tr>
<tr>
<td></td>
<td>Fin = 16 To 18 GHz</td>
<td>-15</td>
<td>-10</td>
<td>0</td>
<td>dBm</td>
</tr>
<tr>
<td>Input Power Range</td>
<td>Fin = 0.5 To 18 GHz</td>
<td>-7</td>
<td>-4</td>
<td></td>
<td>dBm</td>
</tr>
<tr>
<td>Reverse Leakage</td>
<td>Fin = 0.5 To 18 GHz</td>
<td>55</td>
<td></td>
<td></td>
<td>dB</td>
</tr>
<tr>
<td>SSB Phase Noise (100 KHz Offset)</td>
<td>Pin = 0 dBm, Fin = 4.8 GHz</td>
<td>-150</td>
<td></td>
<td></td>
<td>dBc/Hz</td>
</tr>
<tr>
<td>Output Transition Time</td>
<td>Pin = 0 dBm, Fout = 882 MHz</td>
<td>100</td>
<td></td>
<td></td>
<td>ps</td>
</tr>
<tr>
<td>Supply Current (Icc)</td>
<td></td>
<td>75</td>
<td></td>
<td></td>
<td>mA</td>
</tr>
</tbody>
</table>

**Mechanical Specifications**

- **Size**
  - Length: 0.64 in [16.26 mm]
  - Width: 0.59 in [14.99 mm]
  - Height: 0.29 in [7.37 mm]
  - Weight: 0.06 lbs [27.22 g]

- **Body Material and Plating**: Nickel, Gold
- **Input Connector**: Field Replaceable SMA Female
- **Output Connector**: Field Replaceable SMA Female
- **Power Supply Connector**: Solder Pin

**Environmental Specifications**

- **Temperature**
  - Operating Range: -55 to +85 deg C
  - Storage Range: -65 to +150 deg C

- **MIL-STD-883, Method 101C, Cond B**

- **Gross Leak MIL-STD-883 Method 1014C1/Fine Leak**
  - MIL-STD-883, Method 1014A2, 5 x 10^-8 atm cc

- **ESD Sensitivity**: ESD Class 1A Material, Transport in Approved ESD bags. Handle only in approved ESD Workstation.

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Frequency Divider, Divide by 2 Prescaler Module, 500 MHz to 18 GHz, Field Replaceable SMA

Frequency Dividers Technical Data Sheet

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

Plotted and Other Data
Notes:

Functional Block Diagram

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Typical Performance Data

**Input Sensitivity Window, T= 25 °C**

Input Sensitivity Window, T= 25 °C

Recommended Operating Window

**Input Sensitivity vs. Temperature**

Min Pin +25°C
Max Pin +25°C
Min Pin +85°C
Max Pin +85°C
Min Pin -55°C
Max Pin -55°C

**Output Power vs. Temperature**

Min Pin +25°C
Max Pin +25°C
Min Pin +85°C
Max Pin +85°C
Min Pin -55°C
Max Pin -55°C

SSB Phase Noise Performance, Pin= 0 dBm, T= 25 °C

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Pasternack Enterprises, Inc. • P.O. Box 16759, Irvine, CA 92623
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**Output Harmonic Content**, 
*Pin*= 0 dBm, *T*= 25 °C

**Output Voltage Waveform**, 
*Pin*= 0 dBm, *Fout*= 882 MHz, *T*= 25 °C

**Reverse Leakage**, *Pin*= 0 dBm, *T*= 25 °C

Frequency Divider, Divide by 2 Prescaler Module, 500 MHz to 18 GHz, Field Replaceable SMA 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.

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PE88D2000 REV 1.0
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PE88D2000


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PE88D2000 CAD Drawing
Frequency Divider, Divide by 2 Prescaler Module, 500 MHz to 18 GHz, Field Replaceable SMA

NOTE:
1. UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE NOMINAL.
2. ALL SPECIFIED DIMENSIONS IN MILLIMETERS.

#0-80 HARDWARE THRU-LOK bleibt
0.074 [1.88] DIA THRU-LOK bleibt
(REMOVE HARDWARE TO MOUNT ASSEMBLY)

Lot No.

- GND
- RF IN
- RF OUT
- +VDC

PE88D2000 REV 1.0

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