



# Frequency Divider, Divide by 10 Prescaler Module, 500 MHz to 18 GHz, Field Replaceable SMA

## Frequency Dividers Technical Data Sheet

PE88D1000

### Features

- Divide by 10 Prescaler
- Extremely Wide Frequency Band
- GaAs HBT MMIC Technology
- Low Phase Noise -155 dBc/Hz @ 100 kHz offset
- Output Power -1 dBm
- Low Reverse Leakage Levels up to 85 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
- Phase Locked Loop Applications
- Point to Point Microwave Radio
- VSAT
- Fiber Optic
- Radar
- Space Systems
- Test Instrumentation
- Telecom Infrastructure

### Description

The PE88D1000 is a low noise Divide-by-10 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 -155 dBc/Hz at 100 kHz offset. Additional typical performance includes an output power level of -1 dBm and excellent reverse leakage up to 85 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 hermetically sealed with field replaceable SMA connectors. 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 = 152 mA)

Description	Minimum	Typical	Maximum	Units
Input Frequency (Sine Wave)	0.5		18	GHz
Impedance		50		Ohms
Input Power (CW)	-20			dBm
Output Power	-4	-1		dBm
Reverse Leakage		70		dB
Operating DC Voltage 1		5		V
Operating DC Current 1		152		mA

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 10 Prescaler Module, 500 MHz to 18 GHz, Field Replaceable SMA PE88D1000](#)



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### Performance by Frequency

Description	Conditions	Min.	Typ.	Max.	Units
Maximum Input Frequency		17	18		GHz
Minimum Input Frequency	Sine Wave Input			0.5	GHz
Input Power Range	Fin = 2 To 4 GHz	-15	-10	+10	dBm
	Fin = 4 To 14 GHz	-20	-15	+10	dBm
Output Power	Fin = 14 To 17 GHz	-20	-15	+5	dBm
	Fin = 0.5 To 17 GHz	-4	-1		dBm
Reverse Leakage	Fin = 0.5 To 9 GHz		85		dB
Reverse Leakage	Fin = 9 To 17 GHz		70		dB
SSB Phase Noise (100 KHz Offset)	Pin = 0 dBm, Fin = 4.8 GHz		-155		dBc/Hz
Output Transition Time	Pin = 0 dBm, Fout = 882 MHz		100		ps
Supply Current (I <sub>dc</sub> )			152		mA

### 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	0.02 lbs [9.07 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

Temperature Cycling	MIL-STD-883, Method 101C, Cond B
Hermetic Seal	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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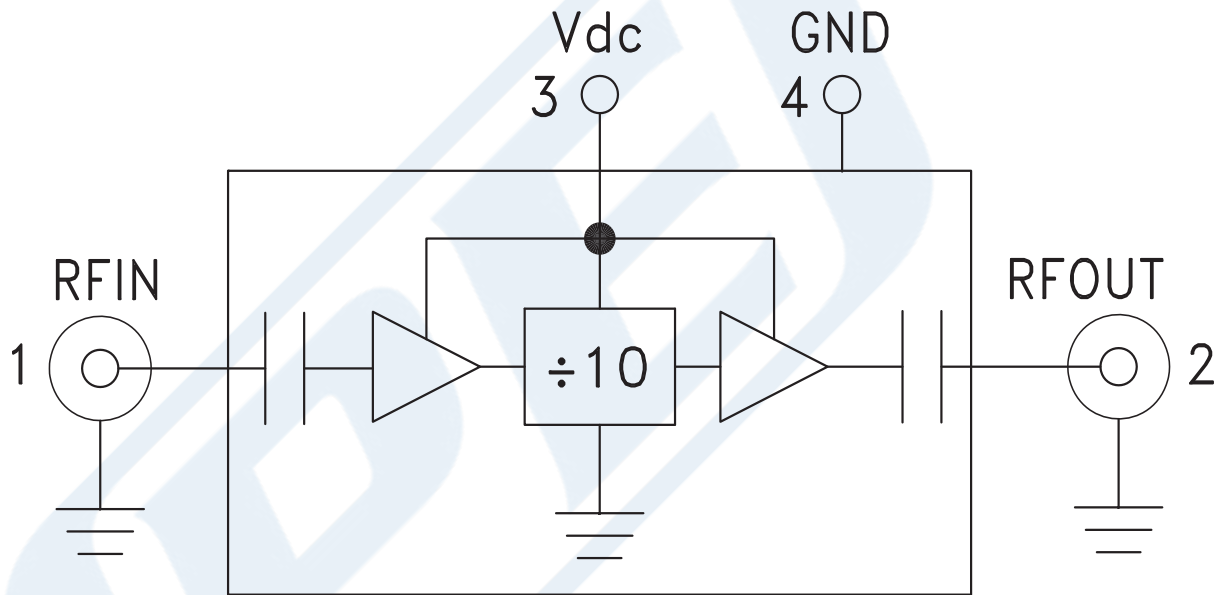
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PE88D1000

**Compliance Certifications** (visit [www.Pasternack.com](http://www.Pasternack.com) for current document)  
RoHS Compliant

**Plotted and Other Data**  
Notes:

**Functional Block Diagram**



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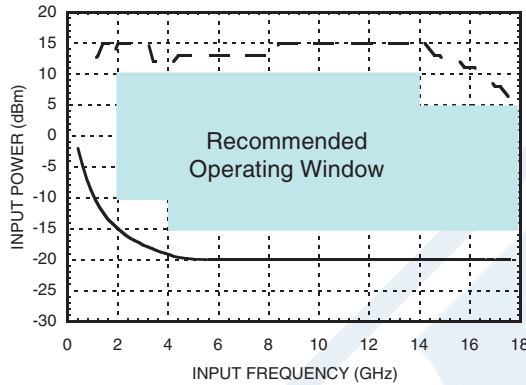
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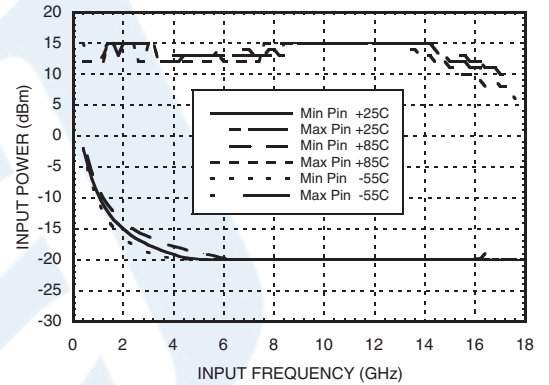
PE88D1000

Typical Performance Data

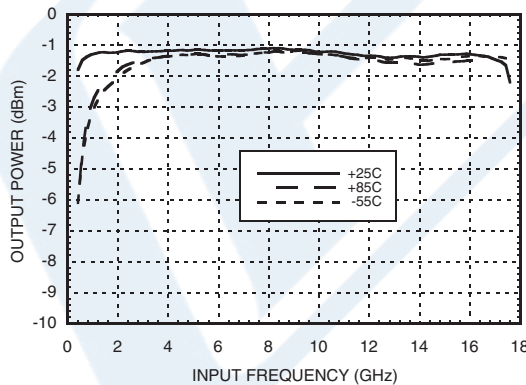
Input Sensitivity Window, T= 25 °C



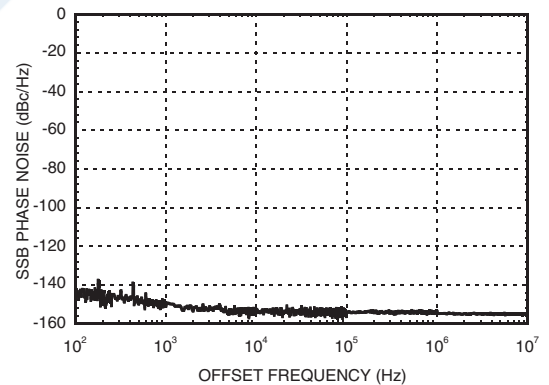
Input Sensitivity vs. Temperature



Output Power vs. Temperature



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



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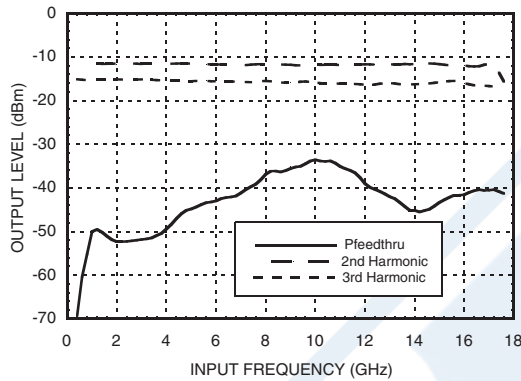


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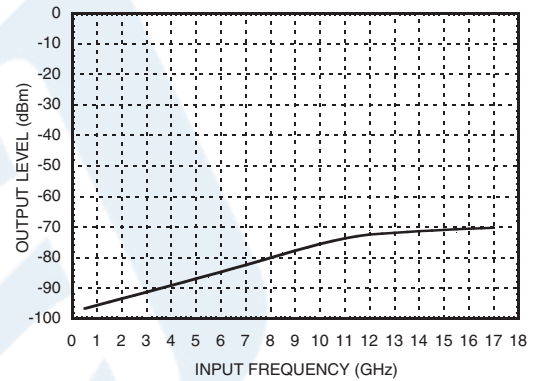
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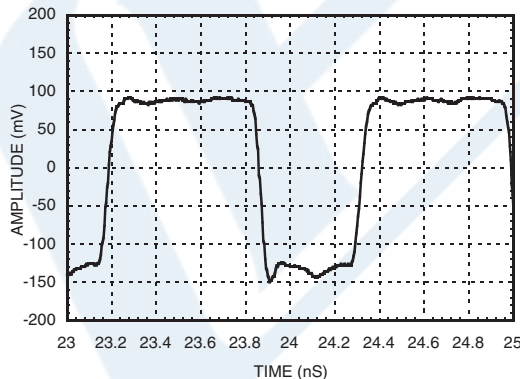
**Output Harmonic Content,**  
*Pin= 0 dBm, T= 25 °C*



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



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



Frequency Divider, Divide by 10 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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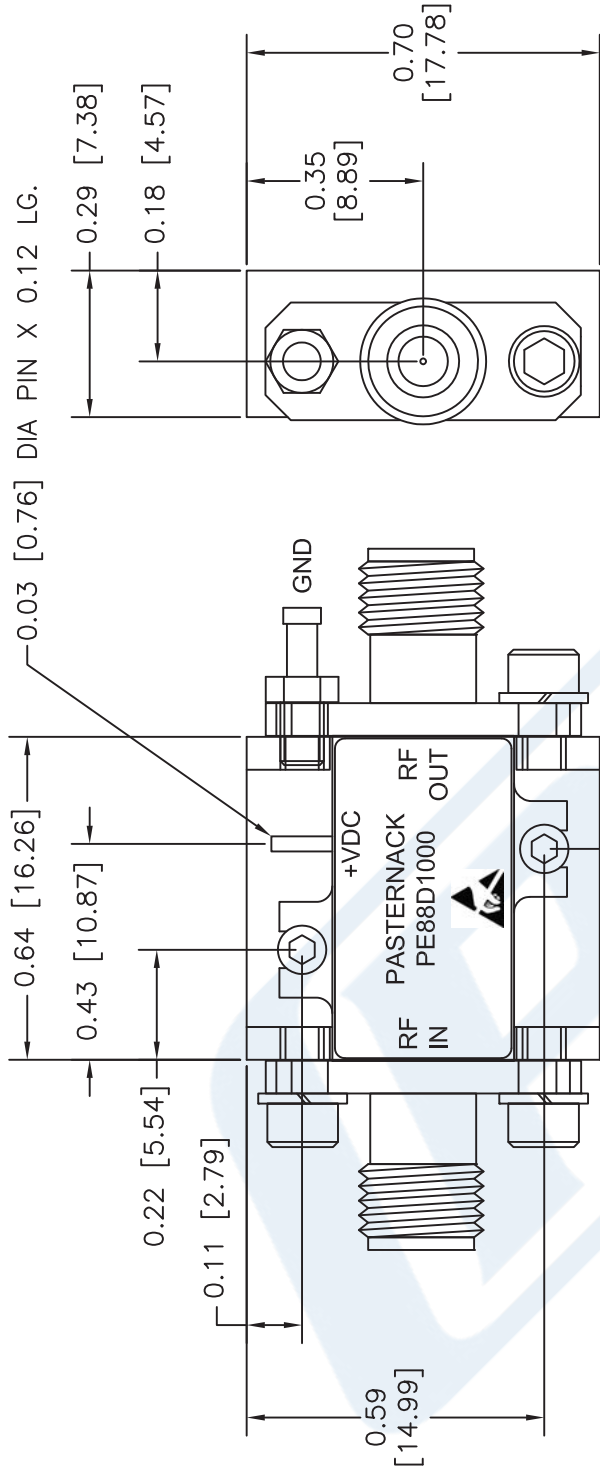
URL: <http://www.pasternack.com/frequency-divider-divide-10-prescaler-module-500-mhz-18-ghz-sma-pe88d1000-p.aspx>

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.



# PE88D1000 CAD Drawing

Frequency Divider, Divide by 10 Prescaler Module,  
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SMA  
FEMALE  
(Field Replaceable)  
TYP.

Lot No. \_\_\_\_\_  
#0-80 HARDWARE THRU  
0.074 [1.88] DIA THRU  
(REMOVE HARDWARE TO  
MOUNT ASSEMBLY)

NOTE:  
HEAT SINK REQUIRED FOR PROPER OPERATION,  
UNIT IS COOLED BY CONDUCTING TO HEAT SINK.

<p>NOTES: 1. UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE NOMINAL. 2. ALL SPECIFICATIONS ARE SUBJECT TO CHANGE WITHOUT NOTICE AT ANY TIME. 3. DIMENSIONS ARE IN INCHES [mm].</p>	<p>DWG TITLE <b>PE88D1000</b></p>	<p><b>PE PASTERNAK</b> THE ENGINEER'S RF SOURCE Pasternack Enterprises, Inc. P.O. Box 16759   Irvine   CA   92623 Phone: (949) 261-1920   Fax: (949) 261-7451 Website: www.pasternack.com   E-Mail: sales@pasternack.com</p>
<p>CAD FILE 050616</p>	<p>SCALE N/A</p>	<p>FSCM NO. 53919</p>
<p>SIZE A</p> <p>2233</p>		