



20 GHz to 50 GHz Absorptive Voltage Variable Attenuator, 40 dB, Field Replaceable 2.4mm

TECHNICAL DATA SHEET

PE70A2004

The PE70A2004 is an Absorptive Analog Voltage Variable Attenuator module that operates across a wide frequency range from 20 GHz to 50 GHz and supports a single voltage control of -5V to 0V with 30 mA of DC Current. The 50 ohm circuit design uses series-shunt reflective topology and offers an attenuation range from 0 to 40 dB typ across the full frequency band. Impressive typical performance includes 4 dB insertion loss, a P0.1 dB compression point of +24 dBm, input IP3 of 32 dBm, and a maximum RF input power level of +24 dBm. The low profile miniature pin package is aluminum with gold plating and supports field replaceable 2.4mm RF connectors and solder pins for DC control. With the connectors removed, the package can be drop mounted onto a PWB. The module has an operational temperature range from -40°C to +85°C and is guaranteed to meet a series of environmental test conditions for Altitude, Vibration, Humidity, and Shock.

Features

- Absorptive Voltage Controlled Attenuator
- 20 GHz to 50 GHz
- Attenuation Range 0 to 40 dB typ
- Insertion Loss 4 dB typ
- P0.1 dB Compression Power +24 dBm typ
- Input IP3 32 dBm typ
- Max RF Input Power +24 dBm
- Control Voltage -5V to 0V
- 50 Ohm Circuit Design uses Series Topology
- Field Replaceable 2.4mm Female RF Connectors
- Solder Pins for DC Control
- Operational Temperature Range -40°C to +85°C
- Rugged and Compact Aluminum Gold Plated Package Design
- Guaranteed Environmental Test Conditions Altitude, Vibration, Humidity, Shock
- Single Control Operation

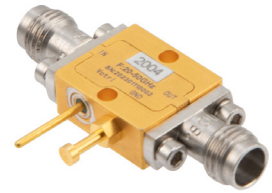
Applications

- Test & Measurement
- Military and Commercial Communications
- Military Electronic Systems
- Research & Development

Electrical Specifications (Values at +25°C, sea level)

Description	Minimum	Typical	Maximum	Units
Frequency Range	20		50	GHz
Attenuation Range		40		dB
Insertion Loss		4	5	dB
VSWR		1.7:1	2:1	
RF Input Power		+24	24	dBm
Input at 0.1 dB Compression Point		+24		dBm
Control Voltage		-5 to 0		Volts
DC Current		30		mA
Impedance		50		Ohms
Input IP3		32		dBm
IL Temperature Coefficient		0.05		dB/deg C

Click the following link (or enter part number in "SEARCH" on website) to obtain additional part information including price, inventory and certifications: [20 GHz to 50 GHz Absorptive Voltage Variable Attenuator, 40 dB, Field Replaceable 2.4mm PE70A2004](#)



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Absolute Maximum Rating

Parameter	Rating
Control Voltage	-5-0V
RF Input power	+30dBm

Mechanical Specifications

Size

Length	0.59 in [14.99 mm]
Width	0.24 in [6.1 mm]
Height	0.51 in [12.95 mm]
Weight	0.05 lbs [22.68 g]
Input Connector	Field Replaceable 2.4mm Female
Output Connector	Field Replaceable 2.4mm Female
Power and Control	Solder Pin

Environmental Specifications

Temperature

Operating Range	-40 to +85 deg C
Storage Range	-50 to +105 deg C
Humidity	100% RH at 35°C, 95% RH at 40°C
Shock	20G for 11 msec half sine wave, 3 axis both directions
Vibration	25g RMS (15 degrees 2KHz) endurance, 1 hour per axis
Altitude	30,000 Feet

Compliance Certifications (see [product page](#) for current document)

Plotted and Other Data

Notes:

- Values at +25 °C, sea level

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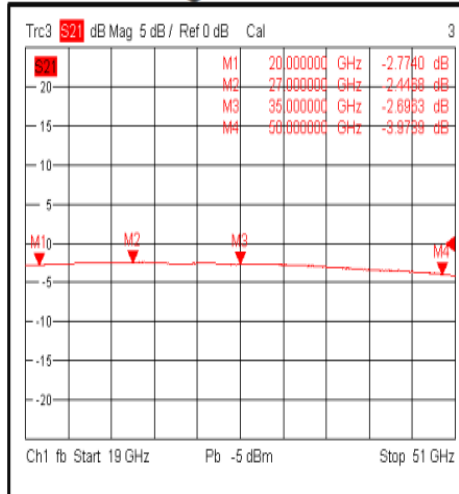
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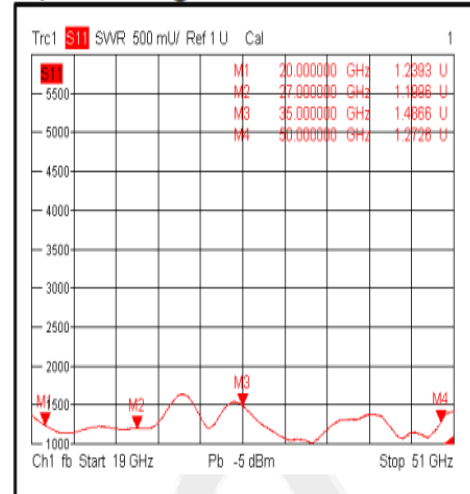
PE70A2004

Performance Data

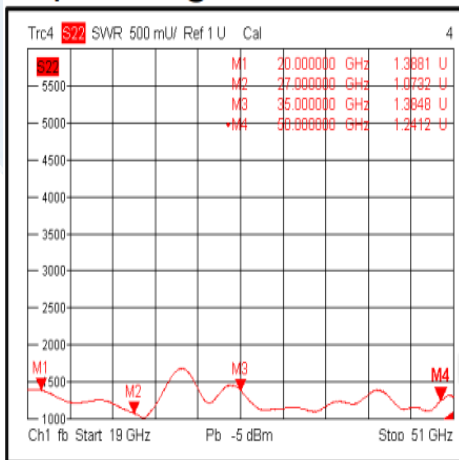
Insertion Loss @+25°C



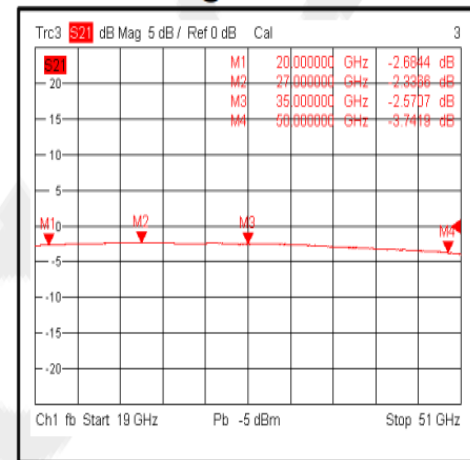
Input VSWR @+25°C



Output VSWR @+25°C



Insertion Loss @-40°C



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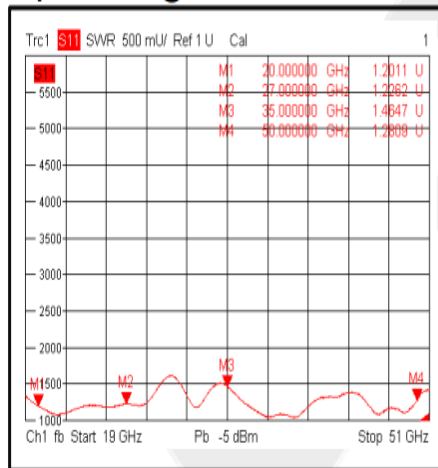


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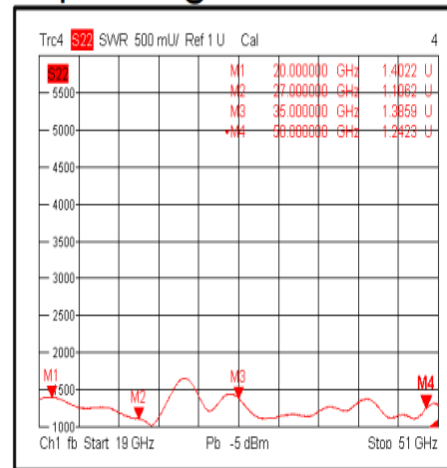
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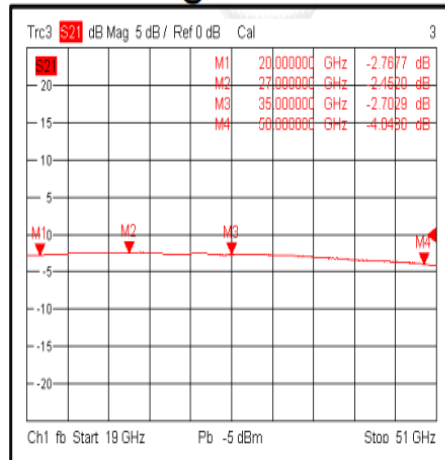
Input VSWR @-40°C



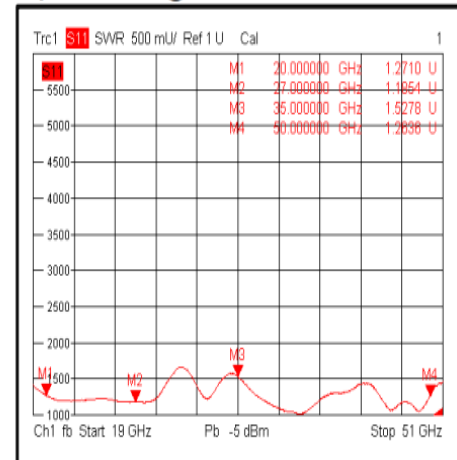
Output VSWR @-40°C



Insertion Loss @+85°C



Input VSWR @+85°C



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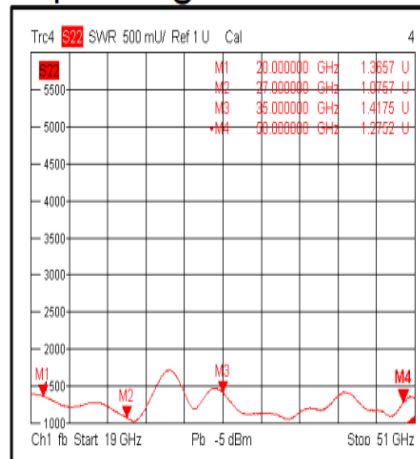


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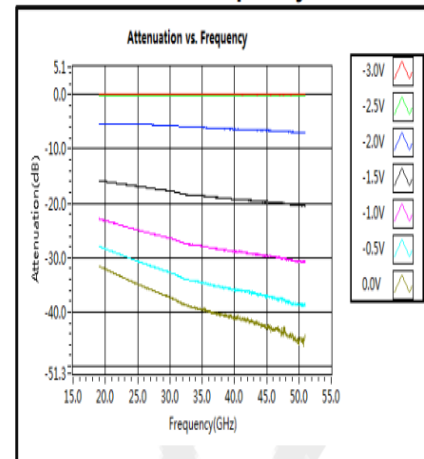
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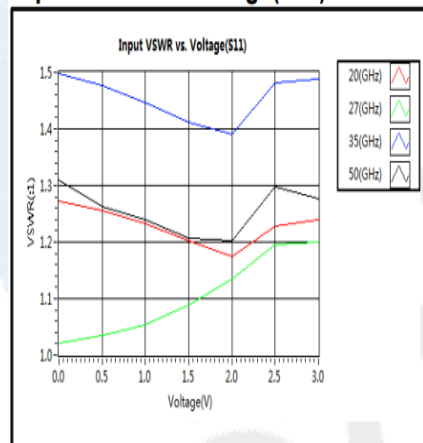
Output VSWR @+85°C



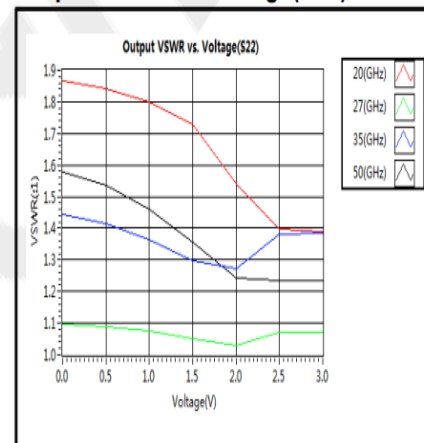
Attenuation vs. Frequency



Input VSWR vs. Voltage(S11)



Output VSWR vs. Voltage(S22)



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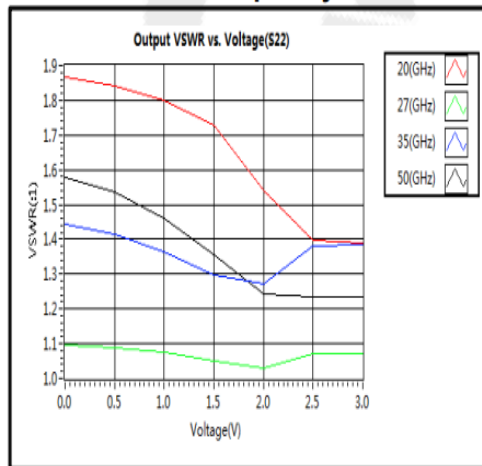


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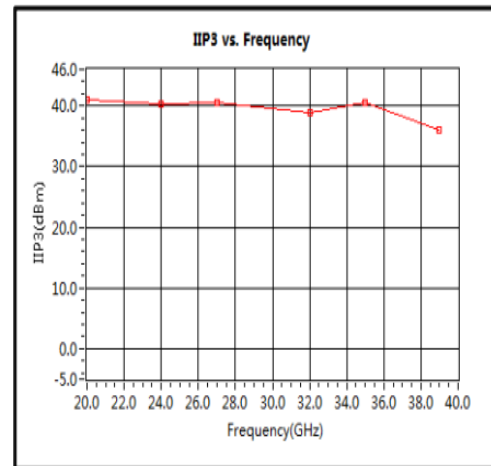
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Phase Shift vs. Frequency



IIP3



20 GHz to 50 GHz Absorptive Voltage Variable Attenuator, 40 dB, Field Replaceable 2.4mm from Pasternack Enterprises has same day shipment for domestic and International orders. Our RF, microwave and millimeter wave products maintain a 99.4% 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: [20 GHz to 50 GHz Absorptive Voltage Variable Attenuator, 40 dB, Field Replaceable 2.4mm PE70A2004](https://www.pasternack.com/40db-voltage-variable-24-dbm-attenuator-pin-diode-50-ghz-2.4mm-pe70a2004-p.aspx)

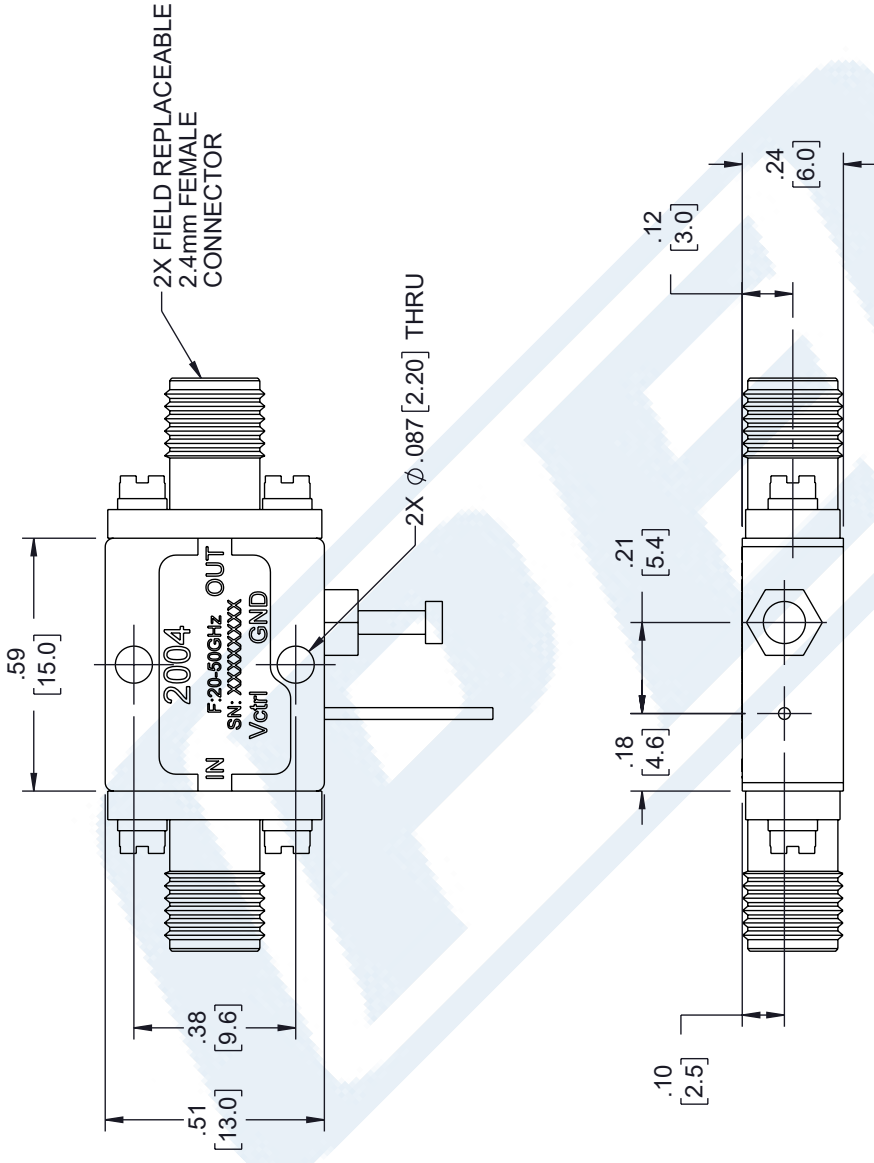
URL: <https://www.pasternack.com/40db-voltage-variable-24-dbm-attenuator-pin-diode-50-ghz-2.4mm-pe70a2004-p.aspx>

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PE70A2004 CAD Drawing

20 GHz to 50 GHz Absorptive Voltage Variable Attenuator,
40 dB, Field Replaceable 2.4mm

ZONE	REV.	DESCRIPTION	DATE	CHANGED BY	APPROVED BY
	A	INITIAL RELEASE	02/02/2023	HBAKKE	TGALLA



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Website: www.Pasternack.com
Phone: 1.866.727.8376 | 1.949.261.1920

DESCRIPTION
Absorptive Voltage Variable PIN Diode Attenuator, 20 GHz to 50 GHz, 40 dB, 2.4mm, Solder Pin Control

SCALE: NONE SHEET: 1 OF 1

INTERPRET ALL DIMENSIONS AND TOLERANCES PER ASME Y14.5

UNLESS OTHERWISE SPECIFIED LEADING DIMENSIONS ARE INCHES DIMENSIONS IN [] ARE MILLIMETERS

TOLERANCES:
 X = ±.2 [5] FRACTIONS ±.102
 .XX = ±.02 [.5] ANGLES ± 1°
 .XXX = ±.005 [.13] CABLE LENGTH TOLERANCES:
 >12 [305] = ±.1 [25] / -0
 >60 [1524] = ±.2 [5] / -0
 >120 [3048] = ±.4 [102] / -0
 >300 [7620] = ±.6 [152] / -0
 >300 [7620] = ±.5% / -0

ALL DIMENSIONS ARE FOR REFERENCE ONLY AND SUBJECT TO CHANGE WITHOUT NOTICE.

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SIZE: A CAGE CODE: HBAKKE DRAWN BY: HBAKKE ITEM NO.: PE70A2004 REV: A