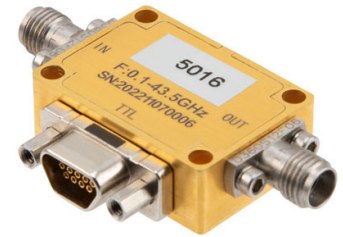


100 MHz to 40 GHz Absorptive Digital Step Attenuator, 15.5 dB, 5 Bits, 0.5 dB Step Size, Field Replaceable 2.92mm



PE70A5016

Features

- Absorptive Programmable Voltage Controlled Attenuator
- 100 MHz to 40 GHz
- Attenuation Range 0 to 16.5 dB typ
- 0.5 dB Step Size
- 5 Bits
- Digital TTL Logic Control
- Insertion Loss 7 dB typ
- Attenuation Flatness +/- 0.8 dB typ
- Input P0.1 dB Compression Power +27 dBm typ
- Input IP3 40 dBm typ
- Max RF input Power (CW) +27 dBm
- Switching Speed 100 nsec
- Dual DC Supply +5V/-5V @ 10mA/10mA
- 50 Ohm Design
- Field Replaceable 2.92mm Female RF Connectors
- Micro-D9 Female connector for DC Bias and Command 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 Positive Control Line Per Bit

Applications

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

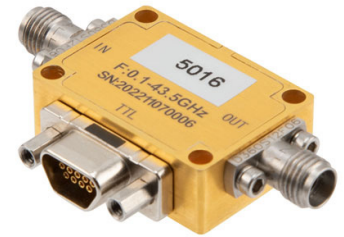
Description

The PE70A5016 is an Absorptive 5 Bit Digitally Controlled Programmable Attenuator that operates across a wide frequency band from 100 MHz to 40 GHz. The 50 Ohm design supports TTL control logic and has an attenuation range that covers 0 to 15.5 dB in 0.5 dB steps. Attenuation steps are 0.5, 1, 2, 4, and 8 dB. Insertion loss is 6 dB typical with a maximum RF input power of +27 dBm. Additional typical performance includes attenuation flatness of +/- 0.8 dB, Input P0.1dB compression power of +27 dBm, input IP3 of 40 dBm, and switching speed of 100 nsec. The unit requires a dual bias supply of +5V/-5V with DC current of 10mA/10 mA max. The low profile pin package is aluminum with Gold plating and supports field replaceable 2.92mm RF connectors and a Micro-D9 female connector for DC Bias and Command Control functions. 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.

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

Description	Min	Typ	Max	Unit
Frequency Range	0.1		40	GHz
Impedance		50		Ohms
Attenuation Range		16.5		
Insertion Loss		7	9	dB
VSWR		1.9:1	3:1	
Input at 0.1 dB Compression Point		+27		dB
Input IP3			+40	dBm
Survival Power Average -40 to +85 deg C				
DC Voltage		+5		Vdc
TTL Low for Thru Path		0 to 0.8V		Vdc
TTL High for Attenuation		2-5V		Vdc
Step Size		0.5		dB
Switching Speed		100		ns

100 MHz to 40 GHz Absorptive Digital Step Attenuator,
15.5 dB, 5 Bits, 0.5 dB Step Size, Field Replaceable 2.92mm



PE70A5016

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

Description	Min	Typ	Max	Unit
RF Input Power			27	dBm
Control Bits		5		Bits
Bias Current		10		mA
IL Temperature Coefficient		0.03		dB/deg C

*Referenced to Insertion Loss

Absolute Maximum Rating

Parameter	Rating
Biasing	+5V / -5V $\pm$ 10%
RF Input power	+27dBm

Mechanical Specifications

Size

Length	1.1 in [27.94 mm]
Width	0.37 in [9.4 mm]
Height	0.79 in [20.07 mm]
Weight	0.05 lbs [22.68 g]
Connector 1	Field Replaceable 2.92mm Female
Connector 2	Field Replaceable 2.92mm Female

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

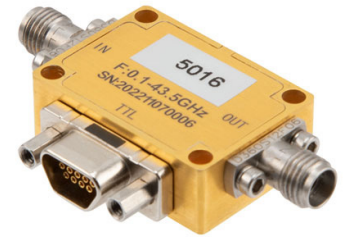
Compliance Certifications (see [product page](#) for current document)

Plotted and Other Data

Notes:

- Values at 25 °C, sea level

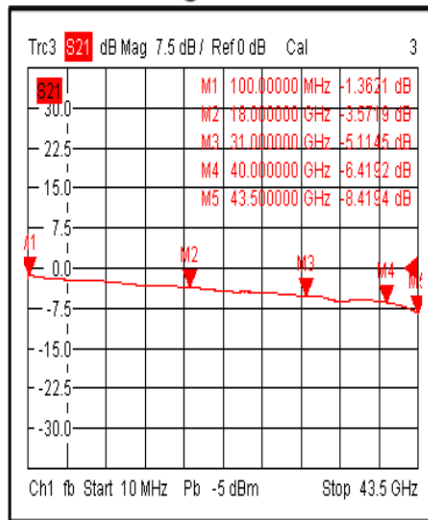
100 MHz to 40 GHz Absorptive Digital Step Attenuator,
15.5 dB, 5 Bits, 0.5 dB Step Size, Field Replaceable 2.92mm



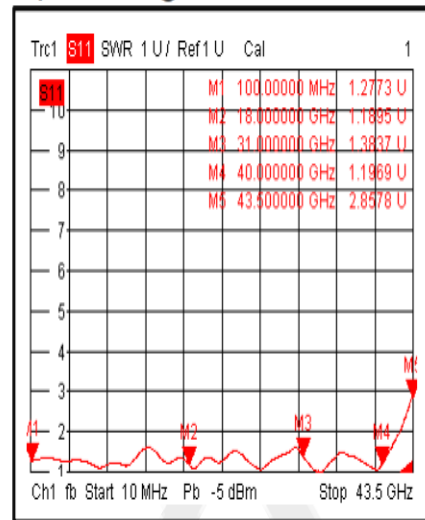
PE70A5016

Typical Performance Data

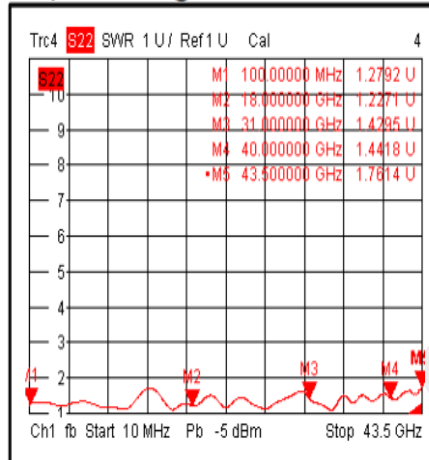
Insertion Loss @+25°C



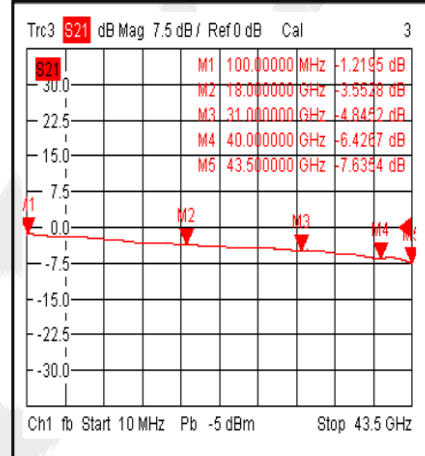
Input VSWR @+25°C



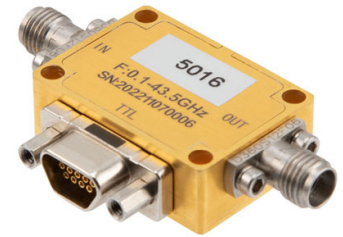
Output VSWR @+25°C



Insertion Loss @-40°C

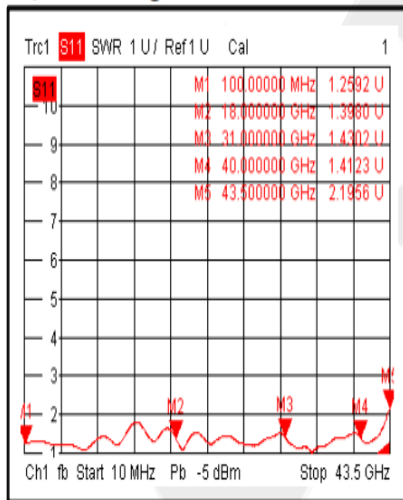


100 MHz to 40 GHz Absorptive Digital Step Attenuator,
15.5 dB, 5 Bits, 0.5 dB Step Size, Field Replaceable 2.92mm

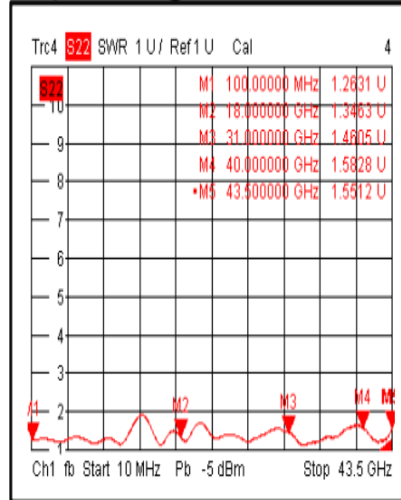


PE70A5016

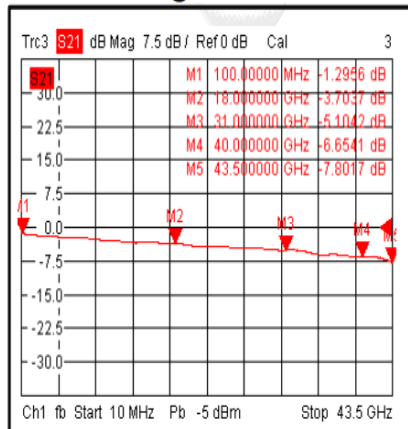
Input VSWR @-40°C



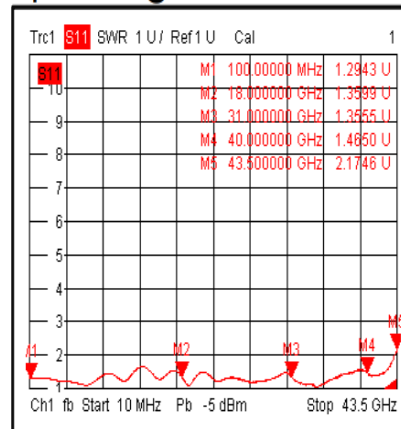
Output VSWR @-40°C



Insertion Loss @+85°C



Input VSWR @+85°C

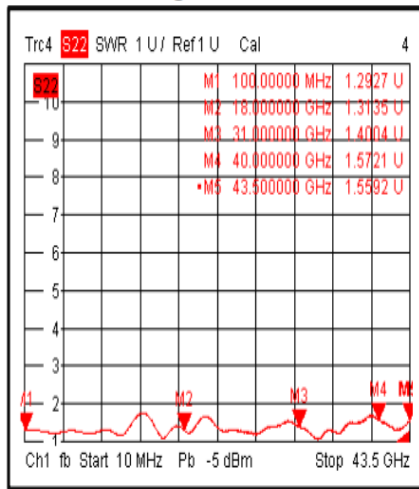


100 MHz to 40 GHz Absorptive Digital Step Attenuator,
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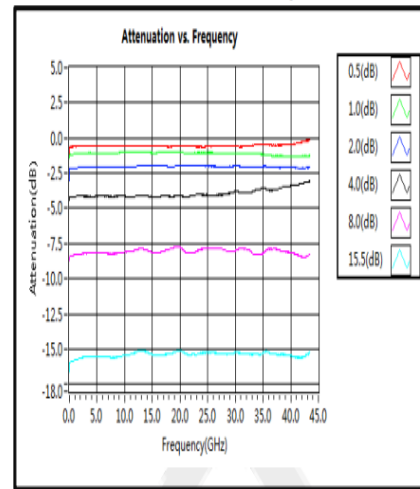


PE70A5016

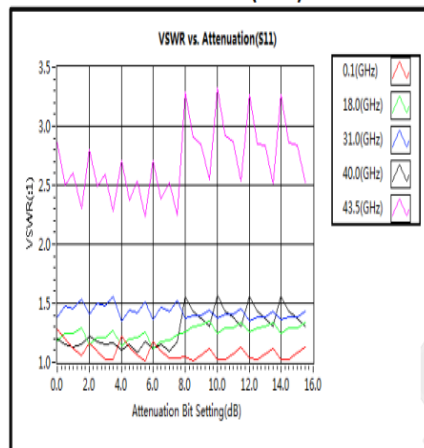
Output VSWR @+85°C



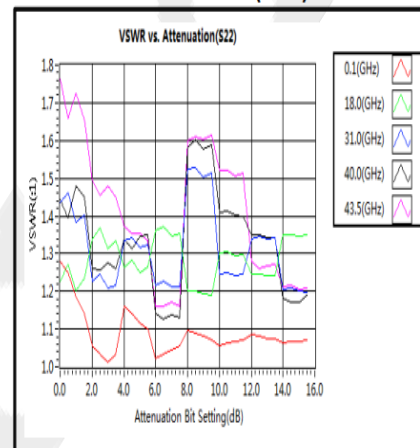
Attenuation vs. Frequency



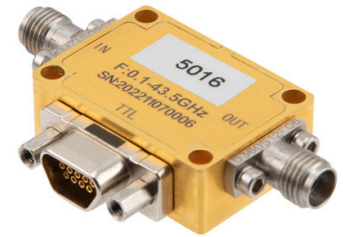
VSWR vs. Attenuation(S11)



VSWR vs. Attenuation(S22)

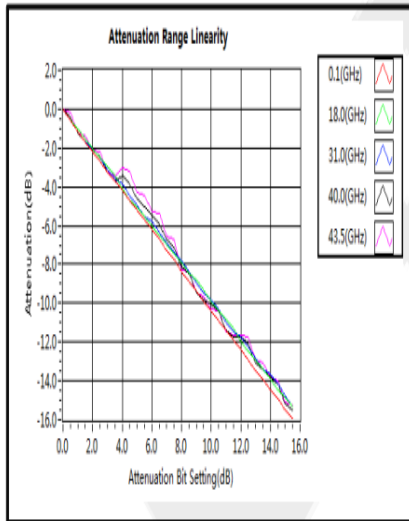


100 MHz to 40 GHz Absorptive Digital Step Attenuator,
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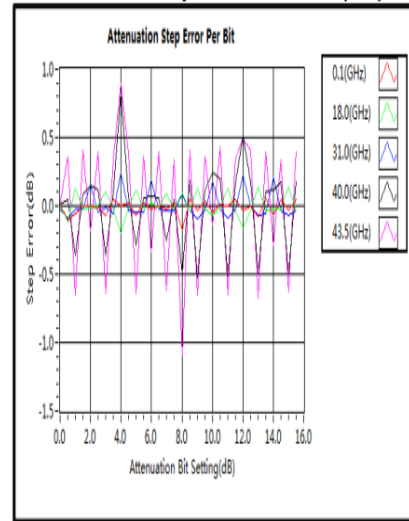


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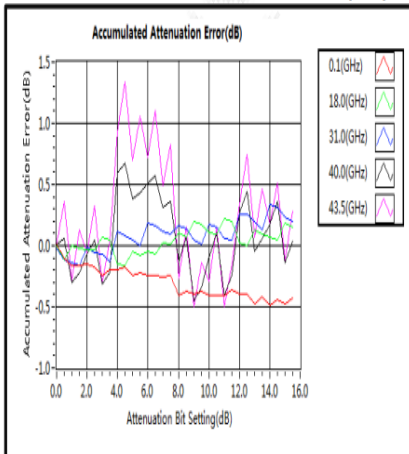
Attenuation Range Linearity



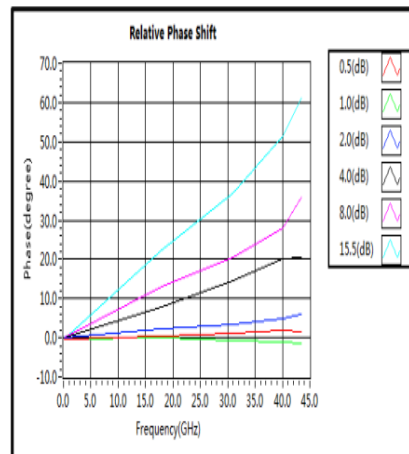
Attenuation Step Error Per Bit (dB)



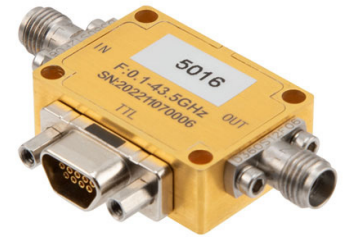
Accumulated Attenuation Error (dB)



Relative Phase Shift

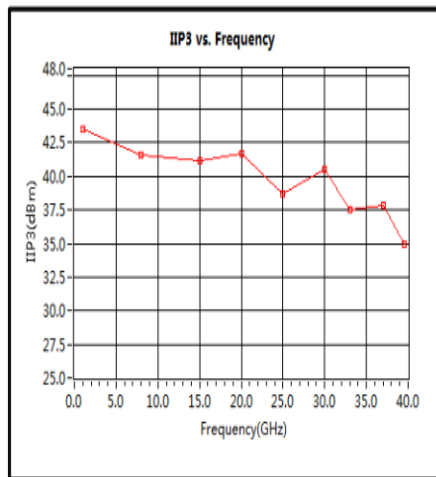


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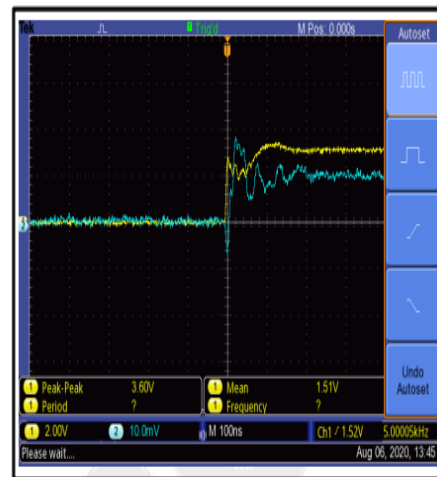


PE70A5016

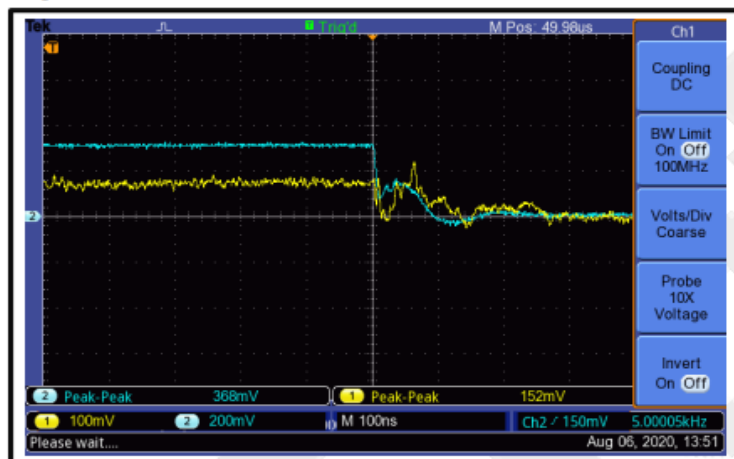
IIP3



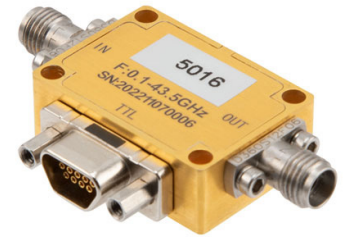
Speed



Speed



100 MHz to 40 GHz Absorptive Digital Step Attenuator,
15.5 dB, 5 Bits, 0.5 dB Step Size, Field Replaceable 2.92mm



PE70A5016

100 MHz to 40 GHz Absorptive Digital Step Attenuator, 15.5 dB, 5 Bits, 0.5 dB Step Size, 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 99.4% 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: [100 MHz to 40 GHz Absorptive Digital Step Attenuator, 15.5 dB, 5 Bits, 0.5 dB Step Size, Field Replaceable 2.92mm PE70A5016](#)

URL: <https://www.pasternack.com/bench-top-15.5db-ttl-controlled-2.92mm-female-2.92mm-female-27-dbm-attenuator-pe70a5016-p.aspx>

The information contained within 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 Enterprises reserves the right to make such changes as required. Unless otherwise stated, all specifications are nominal. Pasternack Enterprises does not make any representation or warranty regarding the suitability of the part described herein for any particular purpose, and Pasternack Enterprises does not assume liability arising out of the use of any part or document.

PE70A5016 CAD Drawing
100 MHz to 40 GHz Absorptive Digital Step Attenuator, 15.5 dB,
5 Bits, 0.5 dB Step Size, Field Replaceable 2.92mm

