



## 4 GHz to 30 GHz Absorptive Voltage Variable Attenuator, 30 dB, Field Replaceable 2.92mm

### TECHNICAL DATA SHEET

**PE70A2005**

The PE70A2005 is an Absorptive Analog Voltage Variable Attenuator module that operates across a wide frequency range from 4 GHz to 30 GHz and supports a single voltage control of -5V to 0V with 5 mA of DC Current. The 50 ohm circuit design uses series-shunt reflective topology and offers an attenuation range from 0 to 30 dB typ across the full frequency band. Impressive typical performance includes 4 dB insertion loss, a P0.1 dB compression point of +25 dBm, input IP3 of 28 dBm, and a maximum RF input power level of +30 dBm. The low profile miniature pin package is aluminum with gold plating and supports field replaceable 2.92mm 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
- 4 GHz to 30 GHz
- Attenuation Range 0 to 30 dB typ
- Insertion Loss 4 dB typ
- P0.1 dB Compression Power +25 dBm typ
- Input IP3 28 dBm typ
- Max RF Input Power +30 dBm
- Switching Speed 500 usec typ
- Control Voltage -5V to 0V
- 50 Ohm Circuit Design uses Series-Shunt Topology
- Field Replaceable 2.92mm 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                   | 4       |         | 30      | GHz      |
| Attenuation Range                 |         | 30      |         | dB       |
| Insertion Loss                    |         | 4       | 5       | dB       |
| VSWR                              |         | 1.8:1   | 2.2:1   |          |
| RF Input Power                    |         | +30     | 30      | dBm      |
| Input at 0.1 dB Compression Point |         | +25     |         | dBm      |
| Switching Speed                   |         |         | 500     | us       |
| Control Voltage                   |         | -5 to 0 |         | Volts    |
| DC Current                        |         | 5       |         | mA       |
| Impedance                         |         | 50      |         | Ohms     |
| Input IP3                         |         | 28      |         | 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: [4 GHz to 30 GHz Absorptive Voltage Variable Attenuator, 30 dB, Field Replaceable 2.92mm PE70A2005](#)



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**Absolute Maximum Rating**

| Parameter       | Rating    |
|-----------------|-----------|
| Control Voltage | -5V ~ +1V |
| RF Input power  | +30dBm    |

**Mechanical Specifications**

**Size**

|                   |                                 |
|-------------------|---------------------------------|
| Length            | 0.71 in [18.03 mm]              |
| Width             | 0.37 in [9.4 mm]                |
| Height            | 0.67 in [17.02 mm]              |
| Weight            | 0.05 lbs [22.68 g]              |
| Input Connector   | Field Replaceable 2.92mm Female |
| Output Connector  | Field Replaceable 2.92mm 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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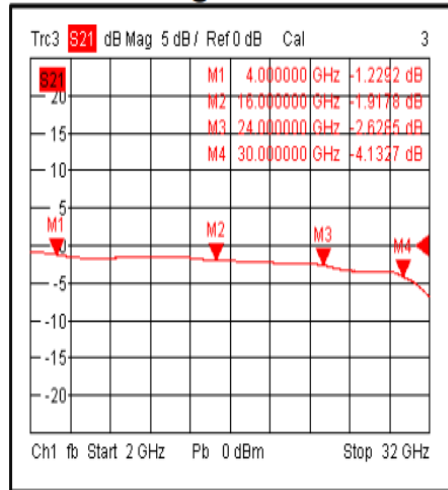
4 GHz to 30 GHz Absorptive Voltage Variable Attenuator, 30 dB, Field Replaceable 2.92mm

**TECHNICAL DATA SHEET**

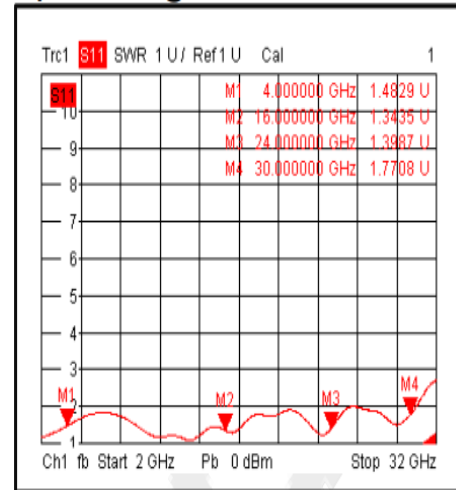
**PE70A2005**

Performance Data

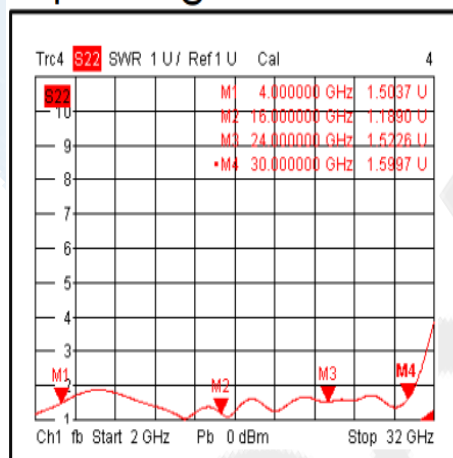
Insertion Loss @+25°C



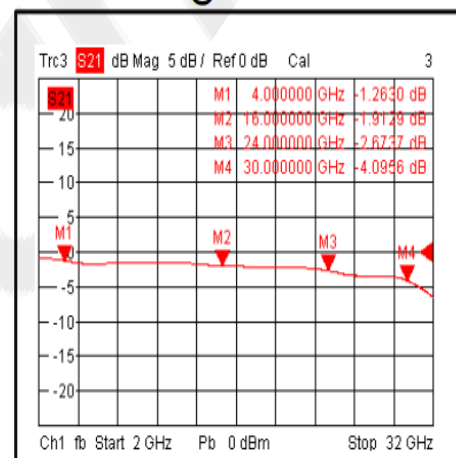
Input VSWR @+25°C



Output VSWR @+25°C



Insertion Loss @-40°C



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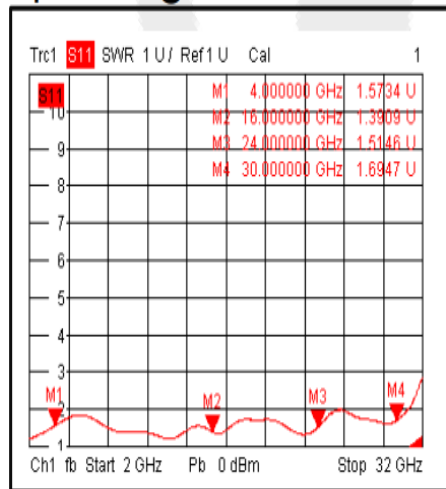


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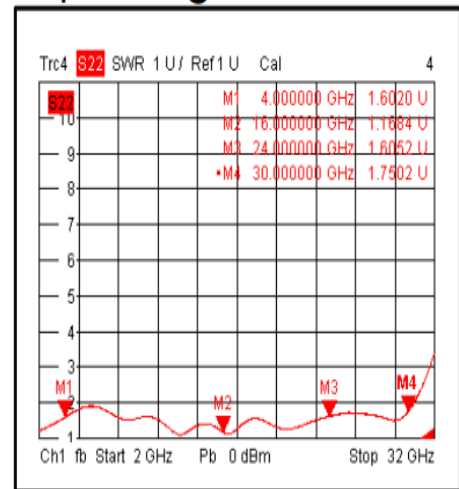
**TECHNICAL DATA SHEET**

**PE70A2005**

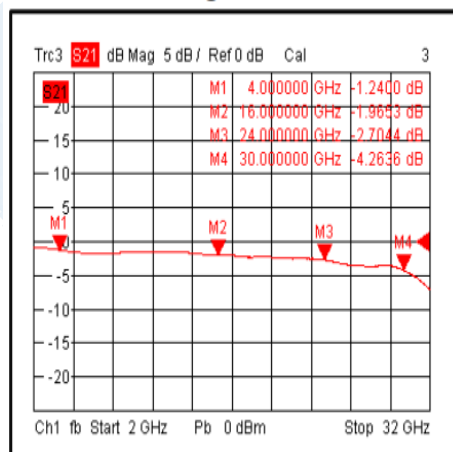
**Input VSWR @-40°C**



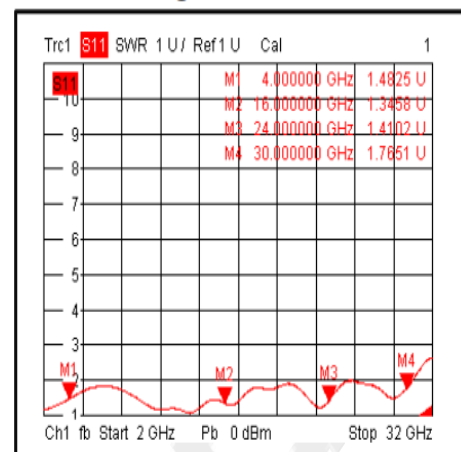
**Output VSWR @-40°C**



**Insertion Loss @+85°C**



**Input VSWR @+85°C**



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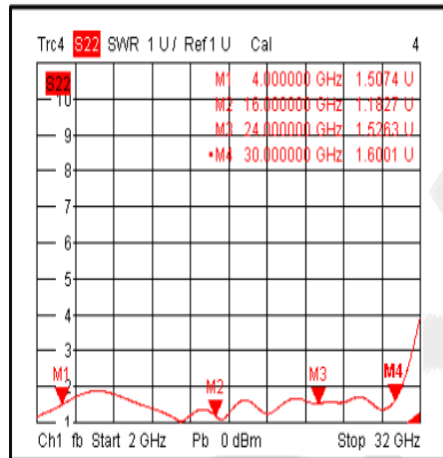


4 GHz to 30 GHz Absorptive Voltage Variable Attenuator, 30 dB, Field Replaceable 2.92mm

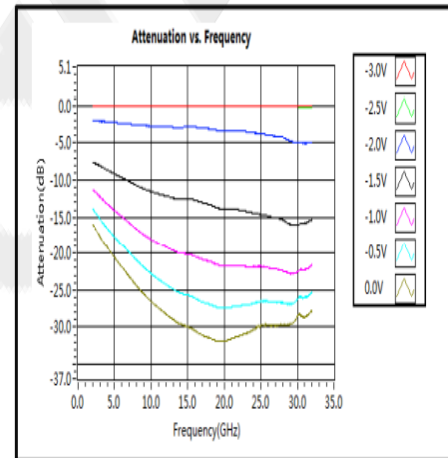
**TECHNICAL DATA SHEET**

**PE70A2005**

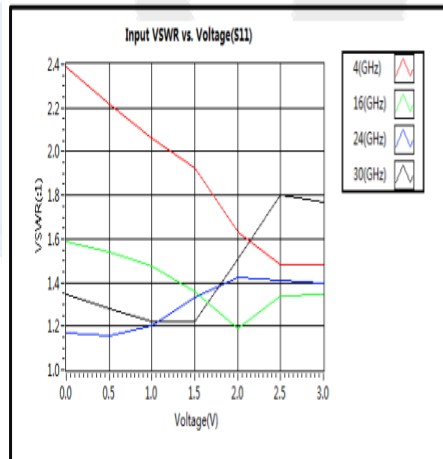
**Output VSWR @+85°C**



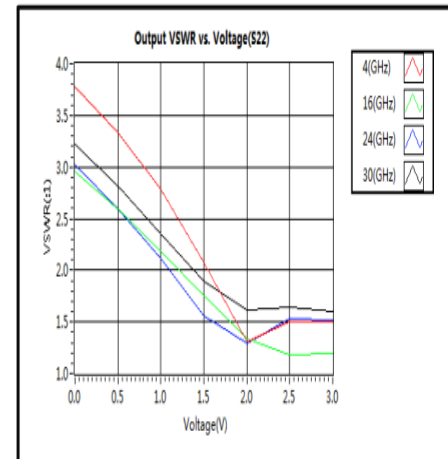
**Attenuation vs. Frequency**



**VSWR vs. Voltage (S11)**



**VSWR vs. Voltage (S22)**



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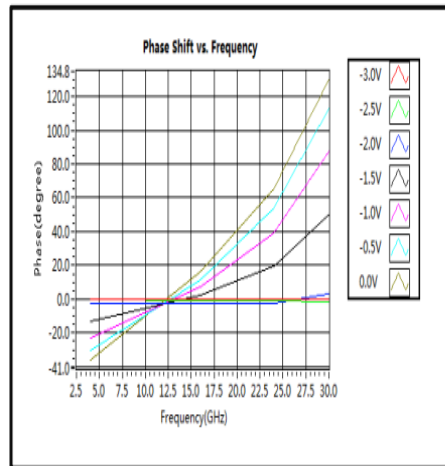


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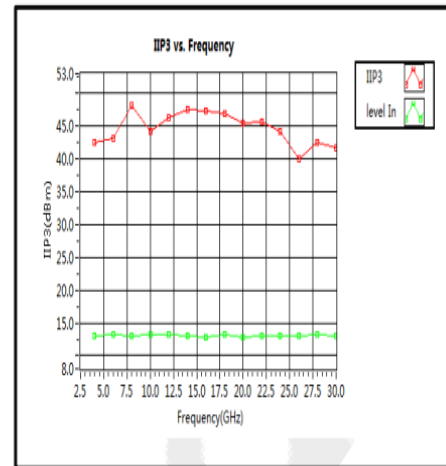
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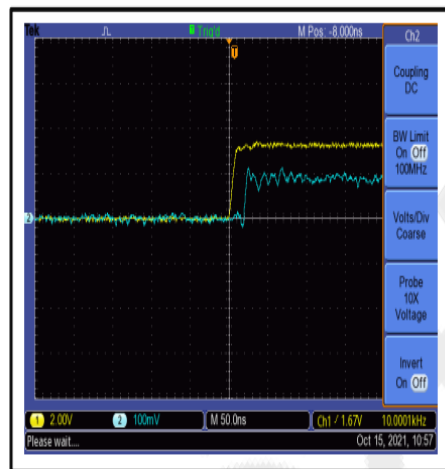
**Phase Shift vs. Frequency**



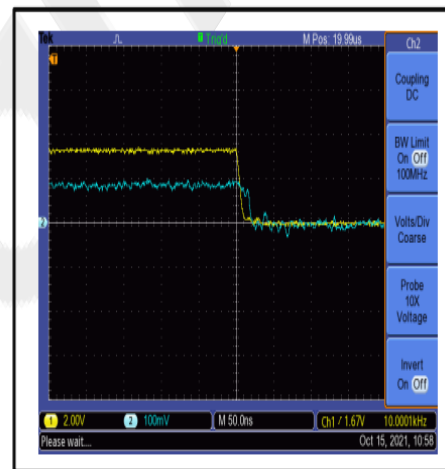
**IIP3**



**Speed**



**Speed**



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4 GHz to 30 GHz Absorptive Voltage Variable Attenuator, 30 dB, 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.

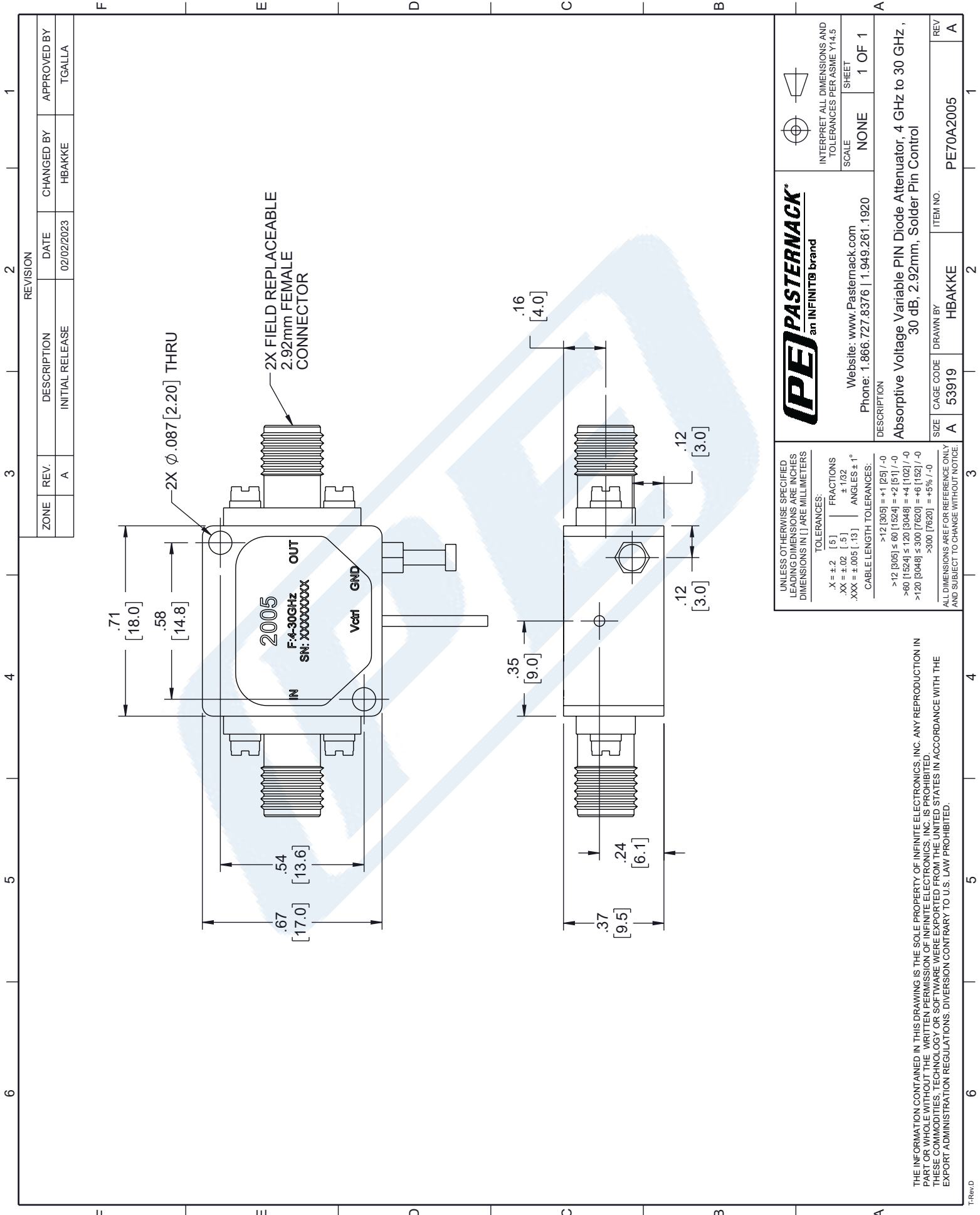
Click the following link (or enter part number in "SEARCH" on website) to obtain additional part information including price, inventory and certifications: [4 GHz to 30 GHz Absorptive Voltage Variable Attenuator, 30 dB, Field Replaceable 2.92mm PE70A2005](https://www.pasternack.com/30db-voltage-variable-30-dbm-attenuator-pin-diode-30-ghz-2.92mm-pe70a2005-p.aspx)

URL: <https://www.pasternack.com/30db-voltage-variable-30-dbm-attenuator-pin-diode-30-ghz-2.92mm-pe70a2005-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.

# PE70A2005 CAD Drawing

4 GHz to 30 GHz Absorptive Voltage Variable Attenuator,  
30 dB, Field Replaceable 2.92mm



| REVISION |      | DATE        | CHANGED BY      | APPROVED BY |
|----------|------|-------------|-----------------|-------------|
| ZONE     | REV. | DESCRIPTION | INITIAL RELEASE |             |
|          | A    |             |                 | TGALLA      |

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INTERPRET ALL DIMENSIONS AND TOLERANCES PER ASME Y14.5  
SCALE: NONE SHEET: 1 OF 1

DESCRIPTION  
Absorptive Voltage Variable PIN Diode Attenuator, 4 GHz to 30 GHz, 30 dB, 2.92mm, Solder Pin Control

SIZE: A CAGE CODE: HBAKKE DRAWN BY: HBAKKE ITEM NO.: PE70A2005 REV: A

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

TOLERANCES:  
 .X = ±.2 [5] FRACTIONS ±.1032  
 .XX = ±.02 [.5] ANGLES ± 1°  
 .XXX = ±.005 [.13] CABLE LENGTH TOLERANCES:  
 >12 [305] = +1 [25] / -0  
 >60 [1524] = +2 [51] / -0  
 >120 [3048] = +4 [102] / -0  
 >300 [7620] = +5% / -0

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

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