PASTERNACK®
THE ENGINEER'S RF SOURCE

Voltage Variable PIN Diode Attenuator, 0 to 30 dB, DC to 20 GHz, Rated to 18 dBm, SMA, Solder Pin Control

TECHNICAL DATA SHEET PE70A1017

The PE70A10017 is a 30 dB Pin Diode Voltage Variable Attenuator with an operating frequency range from 0 GHz to 20 GHz. The RF Input/Output Connectors are SMA Female. The attenuator uses a dual +/- 5 VDC supply. The control is thru a voltage control that is used to select the attenuation state and a single 0 to -3 VDC bias that allows the operation at frequencies down to DC. The drop-in package is hermetically sealed with field replaceable SMA connectors and has an operating temperature range of -40°C to +85°C. And for added confidence, this rugged package assembly is designed to meet MIL-STD-883 test conditions for Hermeticity and Temperature Cycle.

Features

- Voltage Variable control of 30 dB Attenuator
- 0 GHz to 20 GHz frequency range
- 30 dB Attenuation Range
- Insertion Loss 3.6 dB Typ
- SMA Female Field Replaceable Connectors

Applications

- Electronic Warfare
- Electronic Countermeasures
- Microwave Radio
- VSAT
- Radar
- Fiber Optic
- Space Systems
- Test Instrumentation
- Telecom Infrastructure

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

Description	Minimum	Typical	Maximum	Units
Frequency Range	DC		20	GHz
Mean Attenuation Range	0		30	dB
Power Rating			18	dBm

Click the following link (or enter part number in "SEARCH" on website) to obtain additional part information including price, inventory and certifications: Voltage Variable PIN Diode Attenuator, 0 to 30 dB, DC to 20 GHz, Rated to 18 dBm, SMA, Solder Pin Control PE70A1017

Pasternack Enterprises, Inc. • P.O. Box 16759, Irvine, CA 92623
Phone: (866) 727-8376 or (949) 261-1920 • **Fax:** (949) 261-7451
Sales@Pasternack.com • Techsupport@Pasternack.com

PASTERNACK®
THE ENGINEER'S RF SOURCE

Voltage Variable PIN Diode Attenuator, 0 to 30 dB, DC to 20 GHz, Rated to 18 dBm, SMA, Solder Pin Control

TECHNICAL DATA SHEET PE70A1017

Performance by Frequency

Description		Frequency (GHz)	Min.	Typ.	Max.	Units
Insertion Loss (VCTL = 0V)		DC - 5 5 - 10 10 - 14 14 - 20		1.5 1.9 2.4 4		dB
Attenuation Range (VCTL = -2.9V)		DC - 5 5 - 10 10 - 14 14 - 20	25 27 25 21	32 33 30 26		dB
Return Loss at RF1		DC - 14 DC - 20		15 8		dB
Input Power for 0.25 dB Compression	Min Attenuation Attenuation > 5 dB	0.5 - 8.0		+7 -4		dBm
Input Third Order Intercept Point (Two-Tone Input Power = +10 dBm Each Tone)	Min Attenuation Attenuation > 10 dB	0.5 - 16		+22 +25		dBm
Switching Characteristics						
tRISE, tFALL (10/90% RF)				111, 83		ns
tON, tOFF (50% CTL to 10/90% RF)				125, 103		
Supply Voltage +Vdc				5		V
Supply Voltage -Vdc				-5		V
Supply Current at +5 Vdc				4	7	mA
Supply Current at -5 Vdc				-10.5	-14	mA
Control Voltage	Minimum Attenuation Maximum Attenuation			0 -2.9		V

Click the following link (or enter part number in "SEARCH" on website) to obtain additional part information including price, inventory and certifications: Voltage Variable PIN Diode Attenuator, 0 to 30 dB, DC to 20 GHz, Rated to 18 dBm, SMA, Solder Pin Control PE70A1017

Pasternack Enterprises, Inc. • P.O. Box 16759, Irvine, CA 92623
Phone: (866) 727-8376 or (949) 261-1920 • **Fax:** (949) 261-7451
Sales@Pasternack.com • Techsupport@Pasternack.com

PASTERNACK®
THE ENGINEER'S RF SOURCE

Voltage Variable PIN Diode Attenuator, 0 to 30 dB, DC to 20 GHz, Rated to 18 dBm, SMA, Solder Pin Control

TECHNICAL DATA SHEET PE70A1017

Absolute Maximum Rating

Parameter	Rating	Units
Control Voltage	+1 to -5	Vdc
Bias Voltage	+16V / -16V	Vdc
RF Input Power (0.5 - 20 GHz)	+18	dBm
Operating Temperature (base-plate)	-55 to +85	°C
Storage Temperature	-65 to +150	°C

ESD Sensitive Material, Transport material in Approved ESD bags. Handle only in approved ESD Workstation.

Mechanical Specifications

Size

Length	1.087 in [27.61 mm]
Width	0.85 in [21.59 mm]
Height	0.23 in [5.84 mm]
Weight	0.086 lbs [39.01 g]
Input Connector	Field Replaceable SMA Female
Output Connector	SMA Female
Power and Control	Solder Pin

Environmental Specifications

Temperature

Operating Range	-55 to +85 deg C
Storage Range	-65 to +150 deg C
Temperature Cycle	MIL-STD-883, Method 101C, Cond B
Hermetic Seal	ESD Sensitive Material, Transport material in Approved ESD bags. Handle only in ESD Workstation.
ESD Sensitive	Gross Leak MIL-STD-883 Method 1014C1/Fine Leak MIL-STD-883, Method 1014A2, 5 x 10-8 atm cc

Compliance Certifications (see product page for current document)

Plotted and Other Data

Notes:

- Values at +25 °C, sea level
- ESD Sensitive Material, Transport material in Approved ESD bags. Handle only in approved ESD Workstation.

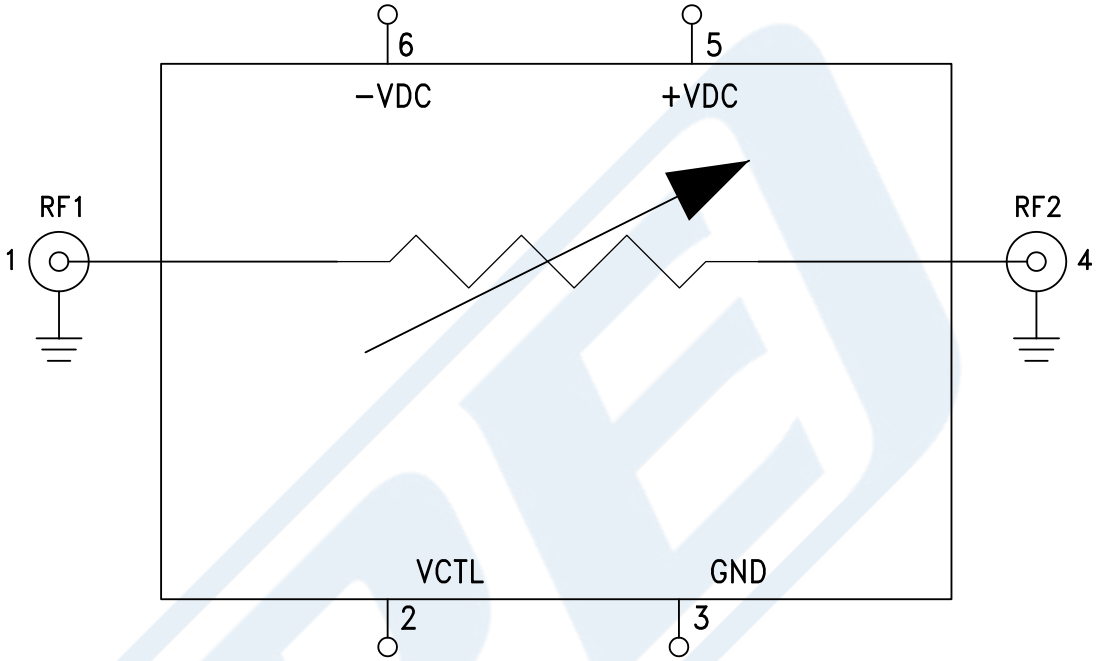
Click the following link (or enter part number in "SEARCH" on website) to obtain additional part information including price, inventory and certifications: Voltage Variable PIN Diode Attenuator, 0 to 30 dB, DC to 20 GHz, Rated to 18 dBm, SMA, Solder Pin Control PE70A1017

Pasternack Enterprises, Inc. • P.O. Box 16759, Irvine, CA 92623
Phone: (866) 727-8376 or (949) 261-1920 • **Fax:** (949) 261-7451
Sales@Pasternack.com • Techsupport@Pasternack.com

Voltage Variable PIN Diode Attenuator, 0 to 30 dB, DC to 20 GHz, Rated to 18 dBm, SMA, Solder Pin Control

TECHNICAL DATA SHEET PE70A1017

Functional Block Diagram



Click the following link (or enter part number in “SEARCH” on website) to obtain additional part information including price, inventory and certifications: Voltage Variable PIN Diode Attenuator, 0 to 30 dB, DC to 20 GHz, Rated to 18 dBm, SMA, Solder Pin Control PE70A1017

Pasternack Enterprises, Inc. • P.O. Box 16759, Irvine, CA 92623
Phone: (866) 727-8376 or (949) 261-1920 • **Fax:** (949) 261-7451
Sales@Pasternack.com • Techsupport@Pasternack.com

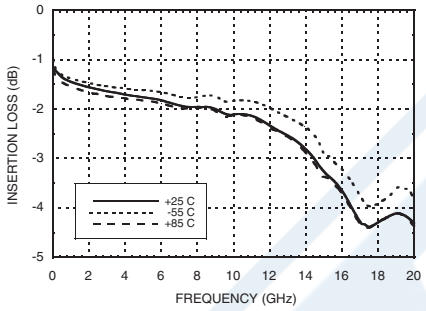
PASTERNACK®
THE ENGINEER'S RF SOURCE

Voltage Variable PIN Diode Attenuator, 0 to 30 dB, DC to 20 GHz, Rated to 18 dBm, SMA, Solder Pin Control

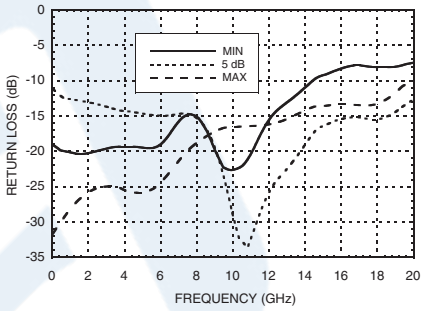
TECHNICAL DATA SHEET PE70A1017

Performance Data

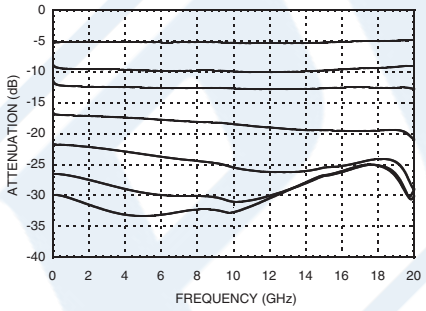
Insertion Loss vs. Frequency Over Temperature



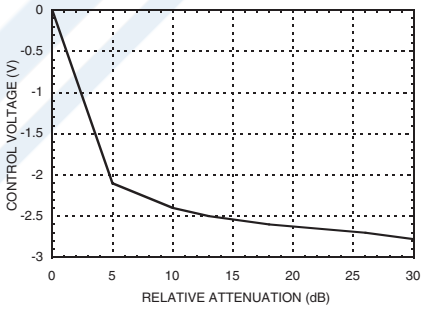
Return Loss RF1 vs. Frequency Over Attenuation



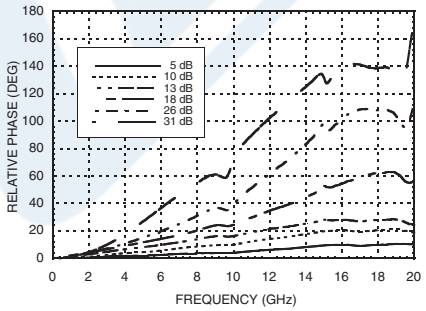
Relative Attenuation vs. Frequency



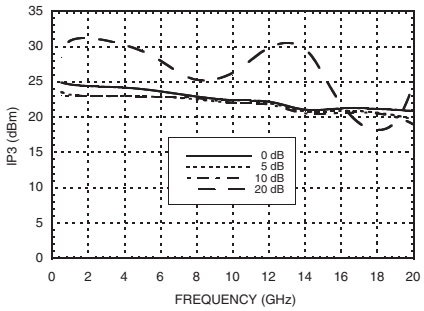
Relative Attenuation vs. Control Voltage @ 10 GHz



Relative Phase vs. Frequency



Input IP3 vs. Frequency Over Attenuation



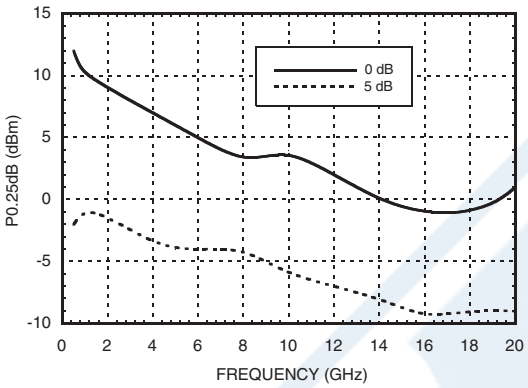
Click the following link (or enter part number in "SEARCH" on website) to obtain additional part information including price, inventory and certifications: Voltage Variable PIN Diode Attenuator, 0 to 30 dB, DC to 20 GHz, Rated to 18 dBm, SMA, Solder Pin Control PE70A1017

Pasternack Enterprises, Inc. • P.O. Box 16759, Irvine, CA 92623
Phone: (866) 727-8376 or (949) 261-1920 • **Fax:** (949) 261-7451
Sales@Pasternack.com • Techsupport@Pasternack.com

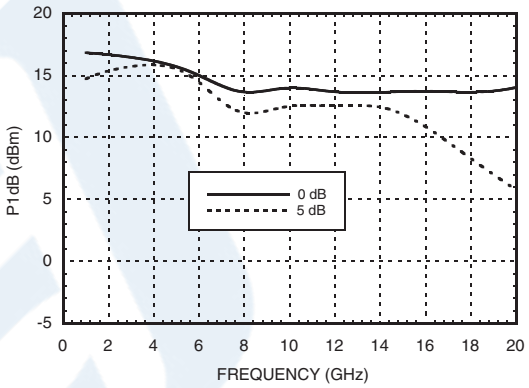
Voltage Variable PIN Diode Attenuator, 0 to 30 dB, DC to 20 GHz, Rated to 18 dBm, SMA, Solder Pin Control

TECHNICAL DATA SHEET PE70A1017

0.25 dB Compression vs. Frequency Over Attenuation



1 dB Compression vs. Frequency Over Attenuation



Voltage Variable PIN Diode Attenuator, 0 to 30 dB, DC to 20 GHz, Rated to 18 dBm, SMA, Solder Pin Control 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.

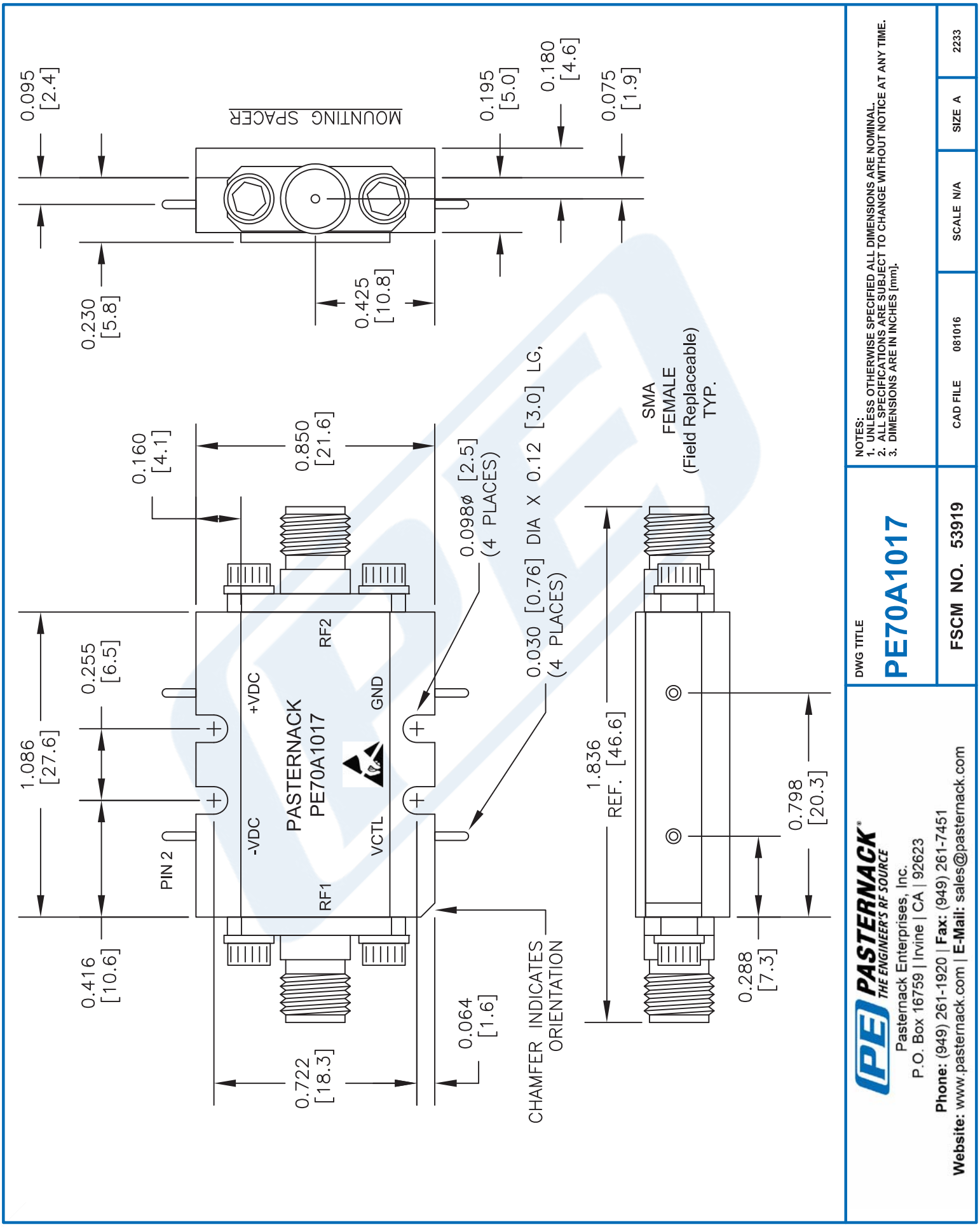
Click the following link (or enter part number in “SEARCH” on website) to obtain additional part information including price, inventory and certifications: Voltage Variable PIN Diode Attenuator, 0 to 30 dB, DC to 20 GHz, Rated to 18 dBm, SMA, Solder Pin Control PE70A1017

URL: https://www.pasternack.com/30db-voltage-variable-18-watts-attenuator-pin-diode-20-ghz-sma-pe70a1017-p.aspx

Pasternack Enterprises, Inc. • P.O. Box 16759, Irvine, CA 92623
Phone: (866) 727-8376 or (949) 261-1920 • **Fax:** (949) 261-7451
Sales@Pasternack.com • Techsupport@Pasternack.com

PE70A1017 CAD Drawing

Voltage Variable PIN Diode Attenuator, 0 to 30 dB, DC to 20 GHz, Rated to 18 dBm, SMA, Solder Pin Control



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].

CAD FILE	081016	SCALE N/A	SIZE A	2233

DWG TITLE: **PE70A1017**

FSCM NO. 53919

PASTERNACK® 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