



SP4T 0.05 dB Low Insertion Loss Repeatability  
 Relay Latching Switch, Terminated, DC to 40 GHz,  
 5W, 24V, Indicators, Self Cut Off, 2.92mm

## Electromechanical Relay Switches Technical Data Sheet

PE71S6334

### Features

- DC to 40 GHz SP4T Switch
- Guaranteed Low Insertion loss Repeatability: 0.05 dB max over 2 Million Lifecycles
- Insertion Loss: 0.9 dB max
- Isolation: up to 60 dB min
- +24 Vdc Nominal Voltage
- Hot Switching: 1W CW max
- Latching Self Cutoff Actuator
- Position Indicators
- Guaranteed to meet MIL-STD-202 Environmental Conditions
- 2.92mm connectors
- HE10 receptacle with ribbon cable and HE10 connector
- -25°C to +75°C Operating Temperature
- 5 Million Lifecycles Minimum

### Applications

- Electronic Warfare
- Electronic Countermeasures
- Microwave Radio
- VSAT
- Radar
- Space Systems
- Test Instrumentation
- Research and Development
- Signal Monitoring Devices

### Description

The PE71S6334 is a single pole six throw (SP4T) terminated electromechanical switch that operates across a wide frequency range from DC to 40 GHz and has guaranteed insertion loss repeatability of 0.05 dB max over a life span of 5 million switching cycles in a Break Before Make condition. Maximum Insertion loss is 0.9 dB and Isolation is rated up to 60 dB minimum. The model also supports a hot switching limit of up to 1W CW maximum. The Latching Self Cut-Off actuator design includes indicators, a +24 Vdc operating voltage, and operates over a temperature range of -25°C to +75°C. The rugged and compact package assembly supports 2.92mm connectors and an HE10 receptacle, ribbon cable, and HE10 connector for command control capability. And for highly reliable operation, the model is guaranteed to meet MIL-STD-202 environmental test conditions that include temperature cycle, vibration, and shock.

### Electrical Specifications

Switch Type	SP4T, Terminated
Actuator Type	Latching
Switching Sequence	Break Before Make
Actuator Options	Indicators, Self Cut Off, Reset
Polarity	Positive Common

Description	Minimum	Typical	Maximum	Units
Frequency Range	DC		40	GHz
Impedance		50		Ohms
Operating Voltage	20	24	32	Volts
Actuating Current @ 24 Volts		200		mA
Insertion Loss			0.5	dB
Insertion Loss Repeatability			0.05	dB
Coil Resistance		120		Ohms
Third Order Intermodulation		-120		dBc
Input Power (CW)			5	Watts

Click the following link (or enter part number in "SEARCH" on website) to obtain additional part information including price, inventory and certifications: [SP4T 0.05 dB Low Insertion Loss Repeatability Relay Latching Switch, Terminated, DC to 40 GHz, 5W, 24V, Indicators, Self Cut Off, 2.92mm PE71S6334](#)



SP4T 0.05 dB Low Insertion Loss Repeatability  
 Relay Latching Switch, Terminated, DC to 40 GHz,  
 5W, 24V, Indicators, Self Cut Off, 2.92mm

## Electromechanical Relay Switches Technical Data

PE71S6334

Switching Time	15	ms Max
----------------	----	--------

### Performance by Frequency

Description	F1	F2	F3	F4	F5	Units
Frequency Range	DC to 6	6 to 12.4	12.4 to 18	18 to 26.5	26.5 to 40	GHz
VSWR, Max	1.2:1	1.35:1	1.45:1	1.7:1	1.9:1	
Insertion Loss, Max	0.39	0.486	0.57	0.7	0.9	dB
Isolation, Min	100	90	80	70	60	dB

Electrical Specification Notes:  
 Insertion Loss Repeatability at 25° is 0.05 dB

### Mechanical Specifications

#### Size

Length	1.25 in [31.75 mm]
Width/Diameter	1.25 in [31.75 mm]
Height	0.5 in [12.7 mm]
Weight	0.534 lbs [242.22 g]
Body Material and Plating	Aluminum, Nickel
Package Type	Connectorized
Operating Life	5,000,000 Cycles

#### Connectors

RF Connector Type	2.92mm Female
RF Connector Contact Material and Plating	Beryllium Copper, Gold
RF Connector Body Material and Plating	Passivated Stainless Steel
Control Connector	HE 10

### Environmental Specifications

#### Temperature

Operating Range	-25 to +75 deg C
Storage Range	-55 to +85 deg C
Humidity	MIL-STD-202, Method 106E, Condition E, 65°C, 95% RH, 10 days
Shock	MIL-STD-202, method 213B, Condition G, 50g, 6 ms, 1/2 Sine, Operating
Vibration	MIL-STD-202, Method 204D, Condition D, 10-2000 Hz, 10g, Operating
Altitude	MIL-STD-202-Method 105C, Condition B, 50,000 feet (15,240 meters)

Click the following link (or enter part number in "SEARCH" on website) to obtain additional part information including price, inventory and certifications: [SP4T 0.05 dB Low Insertion Loss Repeatability Relay Latching Switch, Terminated, DC to 40 GHz, 5W, 24V, Indicators, Self Cut Off, 2.92mm PE71S6334](#)



SP4T 0.05 dB Low Insertion Loss Repeatability  
Relay Latching Switch, Terminated, DC to 40 GHz,  
5W, 24V, Indicators, Self Cut Off, 2.92mm

## Electromechanical Relay Switches Technical Data

PE71S6334

Temperature Cycling

MIL-STD-202, Method 107D, Condition A, -55oC to +85oC, 10 cycles

EMI/RFI

MIL-STD-1344, Method 3008, or IEC 61726, 55 dB at 20 GHz

Magnetic Field  
ESD Sensitivity

< 5x10-5 gauss at 1 meter  
ESD Sensitive Material, Transport material in Approved ESD bags. Handle only in ESD Workstation.

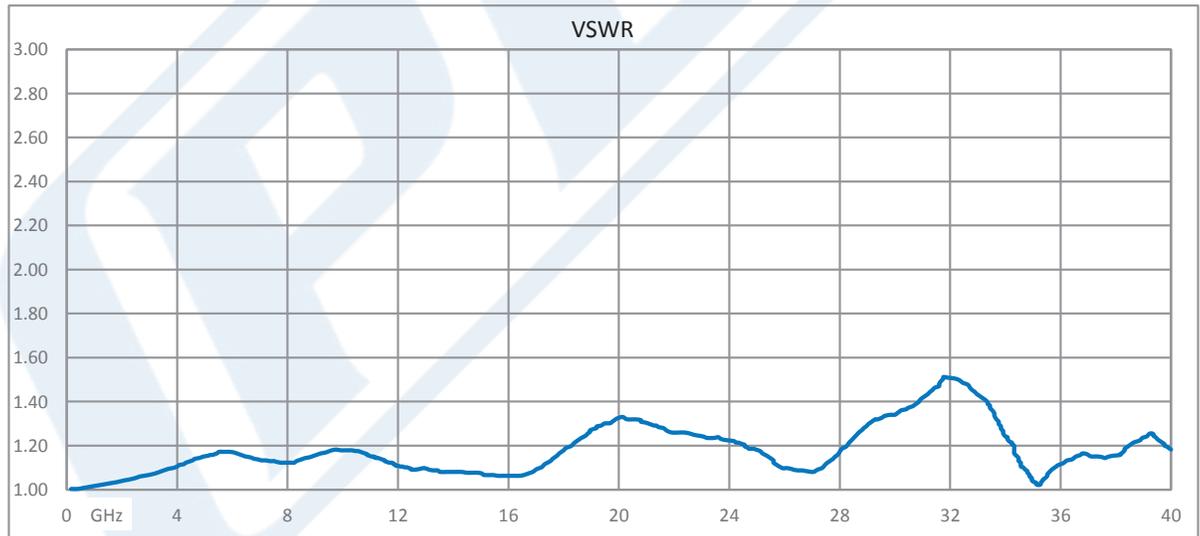


**Compliance Certifications** (see [product page](#) for current document)

### Plotted and Other Data

Notes:

### Typical Performance Data



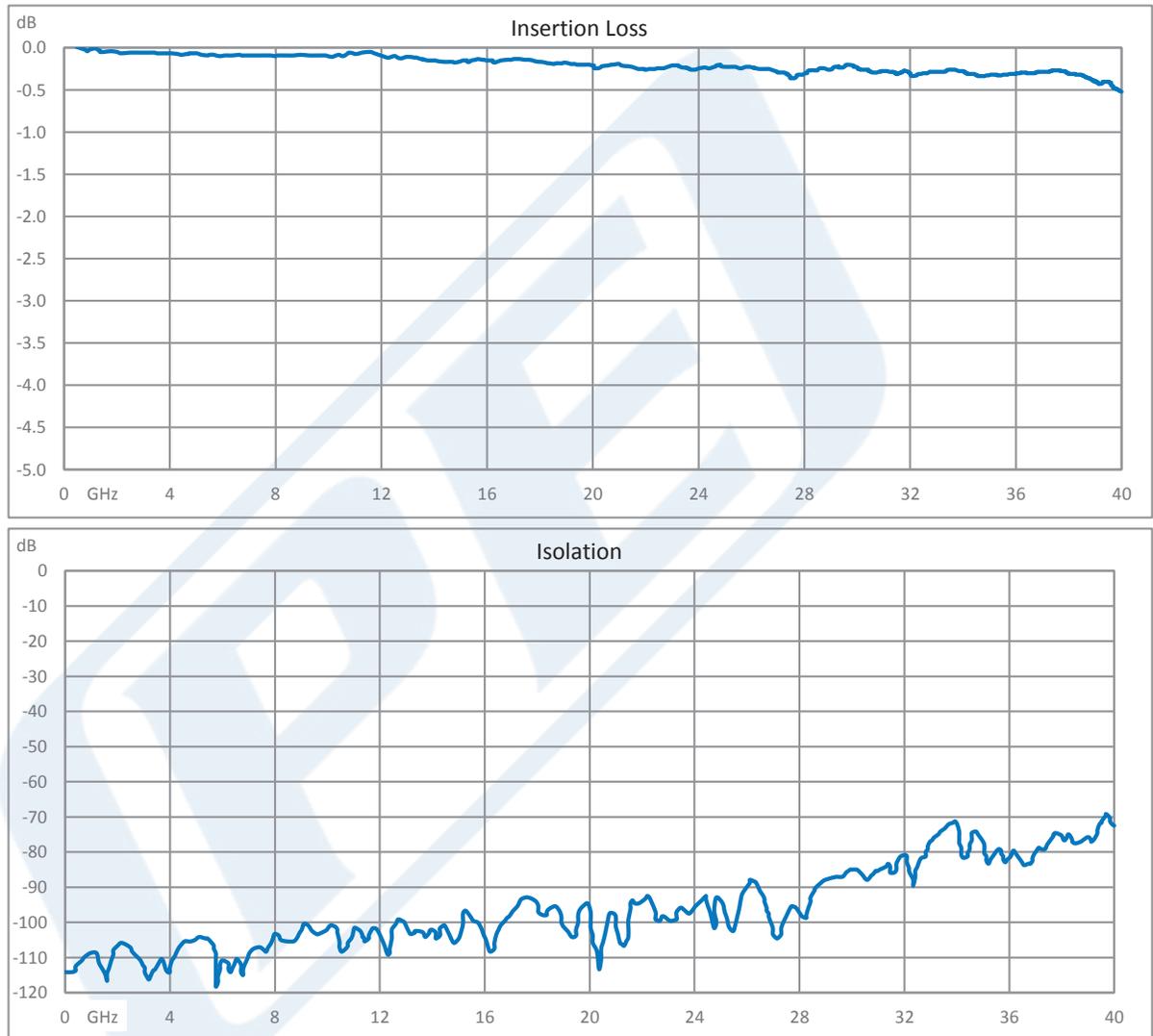
Click the following link (or enter part number in "SEARCH" on website) to obtain additional part information including price, inventory and certifications: [SP4T 0.05 dB Low Insertion Loss Repeatability Relay Latching Switch, Terminated, DC to 40 GHz, 5W, 24V, Indicators, Self Cut Off, 2.92mm PE71S6334](#)



SP4T 0.05 dB Low Insertion Loss Repeatability  
Relay Latching Switch, Terminated, DC to 40 GHz,  
5W, 24V, Indicators, Self Cut Off, 2.92mm

## Electromechanical Relay Switches Technical Data

PE71S6334



Click the following link (or enter part number in "SEARCH" on website) to obtain additional part information including price, inventory and certifications: [SP4T 0.05 dB Low Insertion Loss Repeatability Relay Latching Switch, Terminated, DC to 40 GHz, 5W, 24V, Indicators, Self Cut Off, 2.92mm PE71S6334](#)



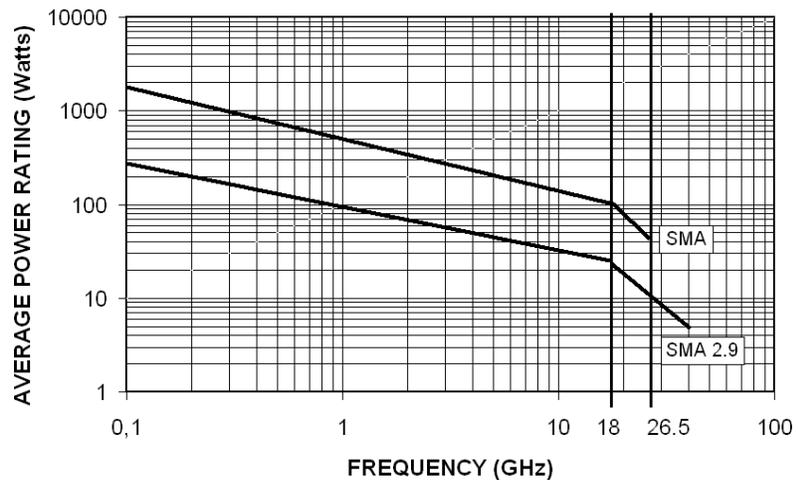
SP4T 0.05 dB Low Insertion Loss Repeatability  
Relay Latching Switch, Terminated, DC to 40 GHz,  
5W, 24V, Indicators, Self Cut Off, 2.92mm

Electromechanical Relay Switches Technical Data

PE71S6334

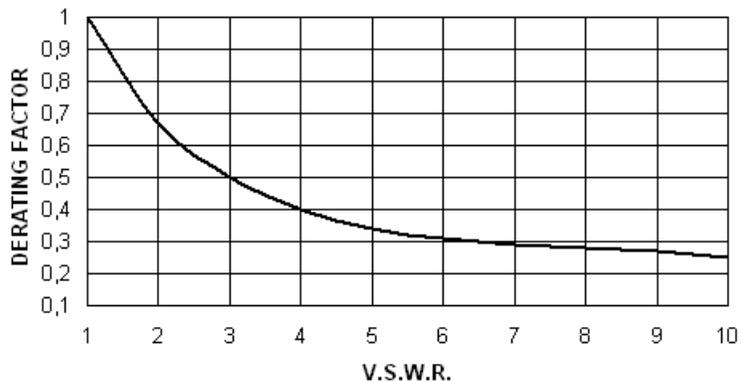
POWER RATING CHART

This graph is based on the following conditions :  
- Ambient temperature : + 25°C  
- Sea level  
- V.S.W.R. : 1 and cold switching



DERATING FACTOR VERSUS V.S.W.R.

The average power input must be reduced for load V.S.W.R. above 1.



Click the following link (or enter part number in "SEARCH" on website) to obtain additional part information including price, inventory and certifications: [SP4T 0.05 dB Low Insertion Loss Repeatability Relay Latching Switch, Terminated, DC to 40 GHz, 5W, 24V, Indicators, Self Cut Off, 2.92mm PE71S6334](#)



SP4T 0.05 dB Low Insertion Loss Repeatability  
Relay Latching Switch, Terminated, DC to 40 GHz,  
5W, 24V, Indicators, Self Cut Off, 2.92mm

## Electromechanical Relay Switches Technical Data

PE71S6334

SP4T 0.05 dB Low Insertion Loss Repeatability Relay Latching Switch, Terminated, DC to 40 GHz, 5W, 24V, Indicators, Self Cut Off, 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.

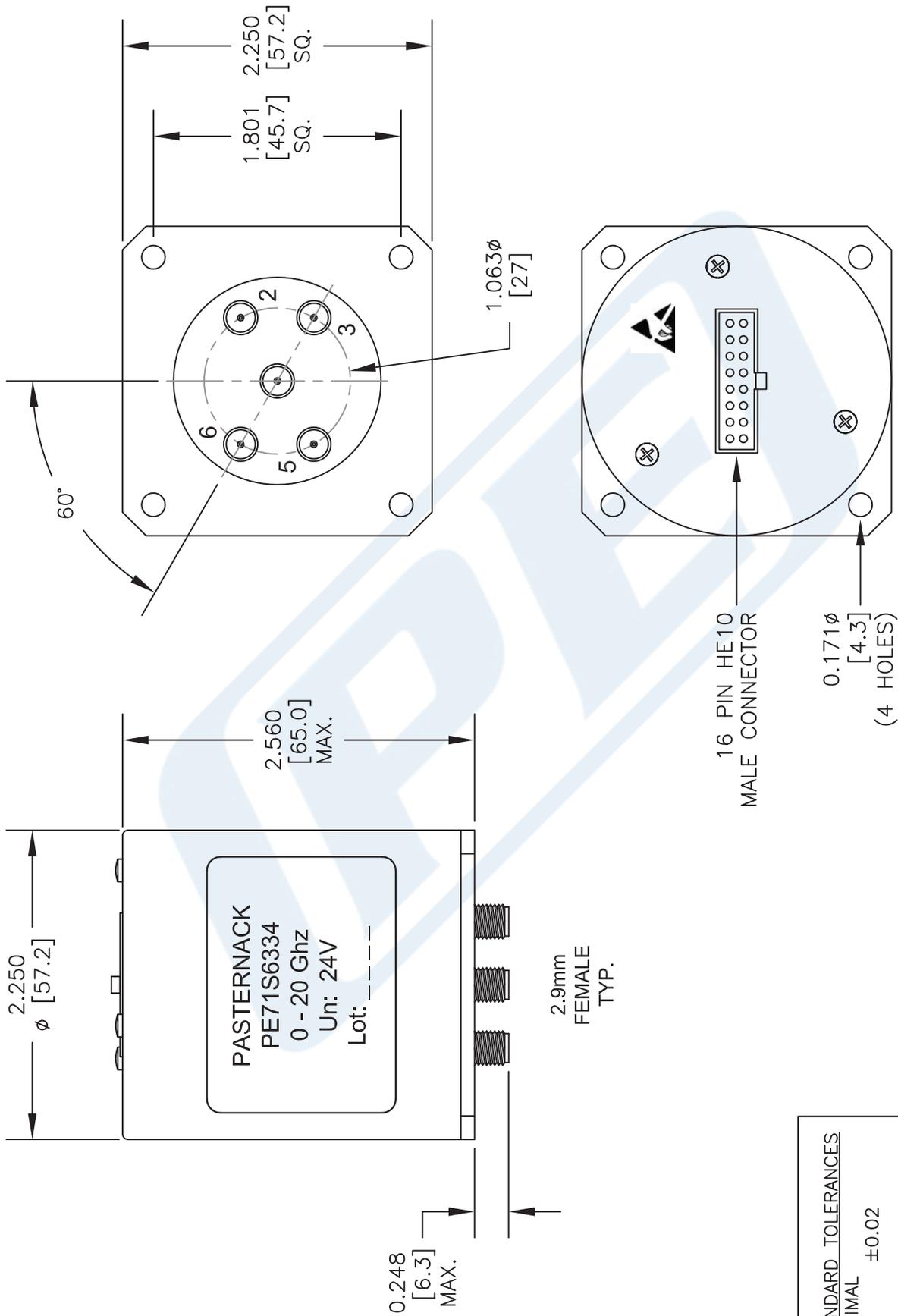
Click the following link (or enter part number in "SEARCH" on website) to obtain additional part information including price, inventory and certifications: [SP4T 0.05 dB Low Insertion Loss Repeatability Relay Latching Switch, Terminated, DC to 40 GHz, 5W, 24V, Indicators, Self Cut Off, 2.92mm PE71S6334](https://www.pasternack.com/2.92mm-sp4t-electromechanical-relay-latching-switch-indicators-self-cut-off-reset-pe71s6334-p.aspx)

URL: <https://www.pasternack.com/2.92mm-sp4t-electromechanical-relay-latching-switch-indicators-self-cut-off-reset-pe71s6334-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.

# PE71S6334 CAD Drawing

SP4T 0.05 dB Low Insertion Loss Repeatability Relay Latching Switch, Terminated, DC to 40 GHz, 5W, 24V, Indicators, Self Cut Off, 2.92mm



STANDARD TOLERANCES  
DECIMAL ±0.02

\*STANDARD TOLERANCES APPLY ONLY TO DIMENSIONS IN INCHES

DWG TITLE

**PE71S6334**

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].

**PE PASTERNAK**  
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

CAGE CODE 53919

CAD FILE 031717

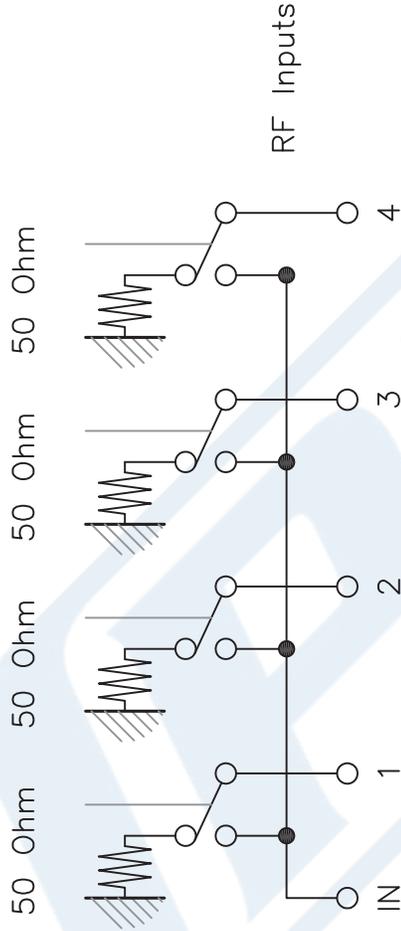
SCALE N/A

SIZE A

2233

# PE71S6334 CAD Drawing

SP4T 0.05 dB Low Insertion Loss Repeatability Relay Latching Switch, Terminated, DC to 40 GHz, 5W, 24V, Indicators, Self Cut Off, 2.92mm



## SINGLE POLE 4 THROW TERMINATED

STANDARD TOLERANCES  
DECIMAL  
±0.02

\*STANDARD TOLERANCES APPLY ONLY TO DIMENSIONS IN INCHES



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

DWG TITLE

**PE71S6334**

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].

CAGE CODE 53919

CAD FILE 031717

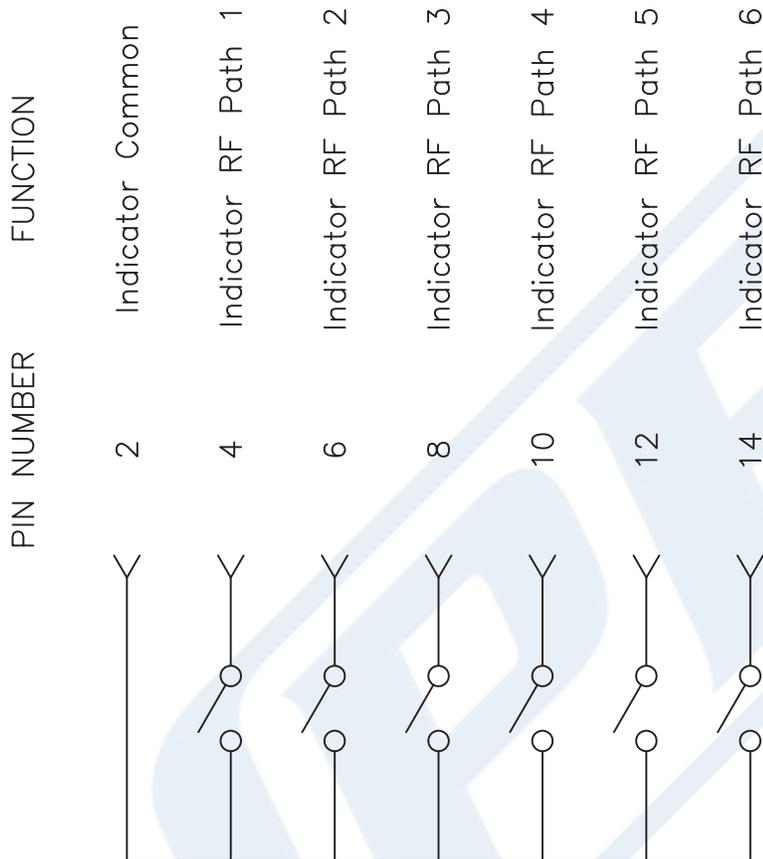
SCALE N/A

SIZE A

2233

# PE71S6334 CAD Drawing

SP4T 0.05 dB Low Insertion Loss Repeatability Relay Latching Switch,  
Terminated, DC to 40 GHz, 5W, 24V, Indicators, Self Cut Off, 2.92mm



### ELECTRONIC POSITION INDICATORS

Ways 1 and 4 are not connected

The electronic position indicators use photo-MOS transistors which are driven by the mechanical position of the RF paths moving elements. The circuitry consists of a common which can be connected to an output corresponding to selected RF path. If one or several RF paths are closed, the corresponding indicators are connected to the common. The photo-MOS transistors are configured for AC and/or DC operation. The electronic position indicators require the supply (20 to 32 VDC) to be connected to pin 1 and ground connected to pin 15.

**STANDARD TOLERANCES**  
DECIMAL  
±0.02

\*STANDARD TOLERANCES APPLY ONLY TO DIMENSIONS IN INCHES

**PE PASTERNAK®**  
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

DWG TITLE  
**PE71S6334**

CAGE CODE 53919

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 031717

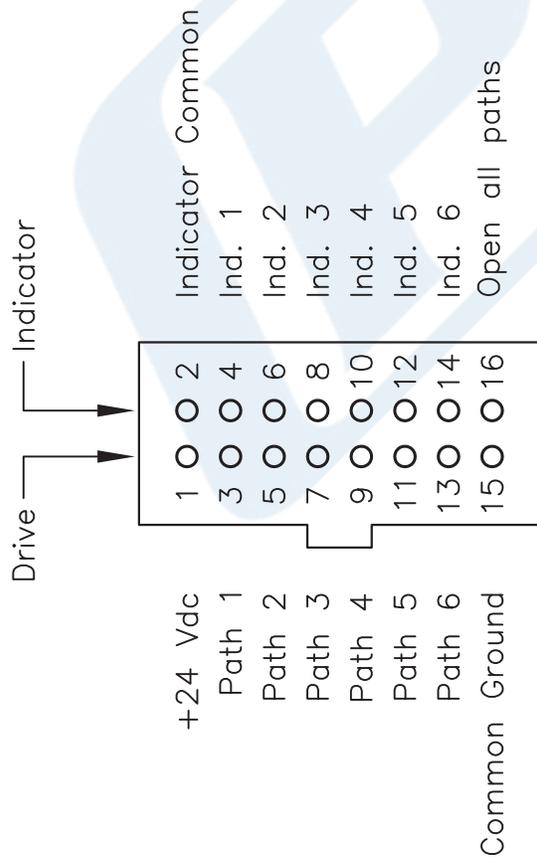
SCALE N/A

SIZE A

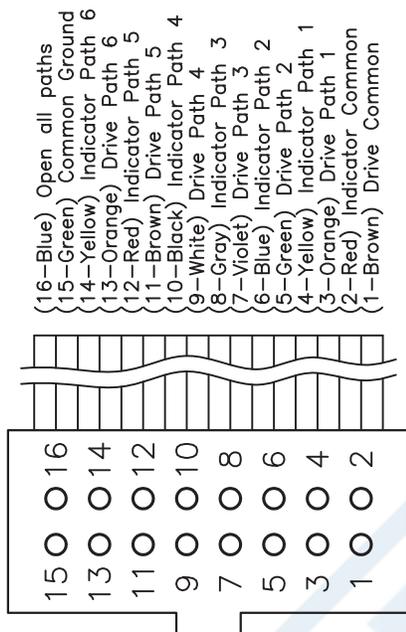
2233

# PE71S6334 CAD Drawing

SP4T 0.05 dB Low Insertion Loss Repeatability Relay Latching Switch,  
Terminated, DC to 40 GHz, 5W, 24V, Indicators, Self Cut Off, 2.92mm



## Switch Connector



## Mating Cable Connector

Ways 1 and 4 are not connected

**STANDARD TOLERANCES**  
DECIMAL  
±0.02

\*STANDARD TOLERANCES APPLY ONLY TO DIMENSIONS IN INCHES

### Standard drive

- Connect pin 15 to ground.
- Connect pin 1 to supply (+20 VDC to +32 VDC)
- Select (close) desired RF path by applying Ground to the corresponding "drive" pin (Ex: apply Ground to pin 3 to close RF path 1).
- To select another path, ensure that all unwanted RF path "drive" pins are disconnected from Ground (to prevent multiple RF path engagement). Apply Ground to the "drive" pin which corresponds to the desired RF path.
- To open all RF paths, ensure that all RF path "drive" pins are disconnected from Ground. Complete the operation by applying Ground to pin 16.

### Break-Before-Make

Open the undesired RF path. After 15 ms (minimum), close the new RF port.

### Make-Before-Break

Ensure that the previously selected RF path "drive" is connected to Ground then close the new RF path.



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

DWG TITLE

**PE71S6334**

- 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].

CAGE CODE 53919

CAD FILE 031717

SCALE N/A

SIZE A

2233