



SPDT Electromechanical Relay Pulse Latching  
Switch DC to 18 GHz, SMA, 35 Watts,  
175V Indicator, 12V Control with Indicators

## Electromechanical Relay Switches Technical Data Sheet

PE7146

### Features

- SPDT Switch
- DC to 18GHz Frequency Range
- 1M Cycles Min Lifetime
- Pulse Latching Switch
- Break before Make
- -40 to +85 Deg C Operating Temperature
- Insertion Loss 0.5 dB Max
- VSWR 1.5:1 Max
- +12 Vdc Operating Voltage

### Applications

- Test & Measurement
- Instrumentation

### Description

The PE7146 is a Single Pole Double Throw Electromechanical Relay Switch that operates from DC to 18 GHz and can handle up to 85 Watts of CW input power in a Break before Make condition. This design features a Pulse Latching Actuator with Indicators and is rated for 1M Life Cycles. Insertion loss is specified from 0.2 dB max and Isolation from 80 dB min, with +8.5 Vdc operating voltage. Performance is guaranteed over -40 deg C to +85 deg C, and the switch assembly is RoHS and REACH compliant. The package interface uses solder terminals and SMA female connectors.

### Electrical Specifications

|                    |                              |
|--------------------|------------------------------|
| Switch Type        | SPDT, Reflective             |
| Actuator Type      | Pulse Latching               |
| Switching Sequence | Break before Make            |
| Actuator Options   | Indicators                   |
| Pickup Voltage     | 8.5 Volts                    |
| Indicator Rating   | 5 Watts / 175 Volts / 250 mA |

| Description                  | Minimum | Typical | Maximum | Units |
|------------------------------|---------|---------|---------|-------|
| Frequency Range              | DC      |         | 18      | GHz   |
| Impedance                    |         | 50      |         | Ohms  |
| Operating Voltage            | 10      | 12      | 14      | Volts |
| Actuating Current @ 12 Volts |         |         | 215     | mA    |
| VSWR                         |         |         | 1.5:1   |       |
| Insertion Loss               |         |         | 0.5     | dB    |
| Isolation                    | 60      |         |         | dB    |
| Input Power (CW)             |         |         | 35      | Watts |

Click the following link (or enter part number in "SEARCH" on website) to obtain additional part information including price, inventory and certifications: [SPDT Electromechanical Relay Pulse Latching Switch DC to 18 GHz, SMA, 35 Watts, 175V Indicator, 12V Control with Indicators PE7146](#)



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### Performance by Frequency

| Description           | F1      | F2     | F3        | F4         | F5 | Units |
|-----------------------|---------|--------|-----------|------------|----|-------|
| Frequency Range       | DC to 4 | 4 to 8 | 8 to 12.4 | 12.4 to 18 |    | GHz   |
| VSWR, Max             | 1.2:1   | 1.3:1  | 1.4:1     | 1.5:1      |    |       |
| Insertion Loss, Max   | 0.2     | 0.3    | 0.4       | 0.5        |    | dB    |
| Isolation, Min        | 80      | 70     | 60        | 60         |    | dB    |
| Input Power, Typ (CW) | 85      | 55     | 45        | 35         |    | Watts |

Electrical Specification Notes:

Recommended pulse width duration for switching relay, 50-500 milliseconds

### Mechanical Specifications

#### Size

|                           |                          |
|---------------------------|--------------------------|
| Length                    | 1.34 in [34.04 mm]       |
| Width/Diameter            | 0.5 in [12.7 mm]         |
| Height                    | 2.13 in [54.1 mm]        |
| Weight                    | 0.088 lbs [39.92 g]      |
| Body Material and Plating | Aluminum, Black Anodized |
| Package Type              | Connectorized Module     |
| Operating Life            | 1,000,000 Cycles         |
| Switching Time            | 15 ms Max                |

#### Connectors

|   |                            |
|---|----------------------------|
| RF Connector Type                         | SMA Female                 |
| RF Connector Contact Material and Plating | Beryllium Copper, Gold     |
| RF Connector Body Material and Plating    | Passivated Stainless Steel |
| Control Connector                         | Solder Terminals           |

Mechanical Specification Notes:

RF Connector mating requirements per MIL-C-39012

### Environmental Specifications

#### Temperature

|                 |                   |
|-----------------|-------------------|
| Operating Range | -40 to +85 deg C  |
| Storage Range   | -55 to +100 deg C |

### Compliance Certifications (visit [www.Pasternack.com](http://www.Pasternack.com) for current document)

|                 |            |
|-----------------|------------|
| RoHS Compliant  |            |
| REACH Compliant | 12/17/2014 |

### Plotted and Other Data

Notes:

Click the following link (or enter part number in "SEARCH" on website) to obtain additional part information including price, inventory and certifications: [SPDT Electromechanical Relay Pulse Latching Switch DC to 18 GHz, SMA, 35 Watts, 175V Indicator, 12V Control with Indicators PE7146](#)

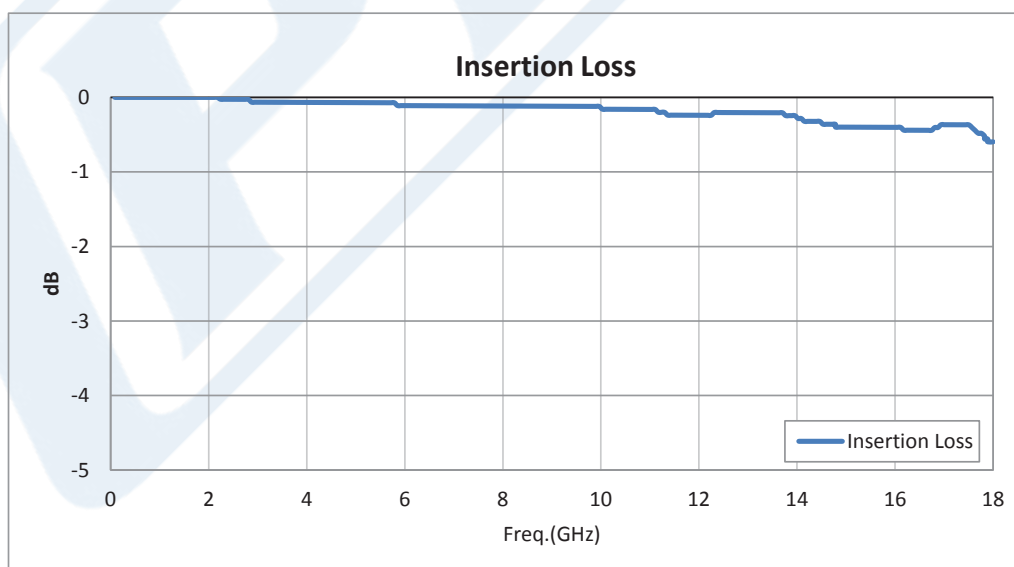


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### Typical Performance Data



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SPDT Electromechanical Relay Pulse Latching Switch DC to 18 GHz, SMA, 35 Watts, 175V Indicator, 12V Control with Indicators from Pasternack Enterprises has same day shipment for domestic and International orders. Our RF, microwave and millimeter wave products maintain a 99% availability and are part of the broadest selection in the industry.

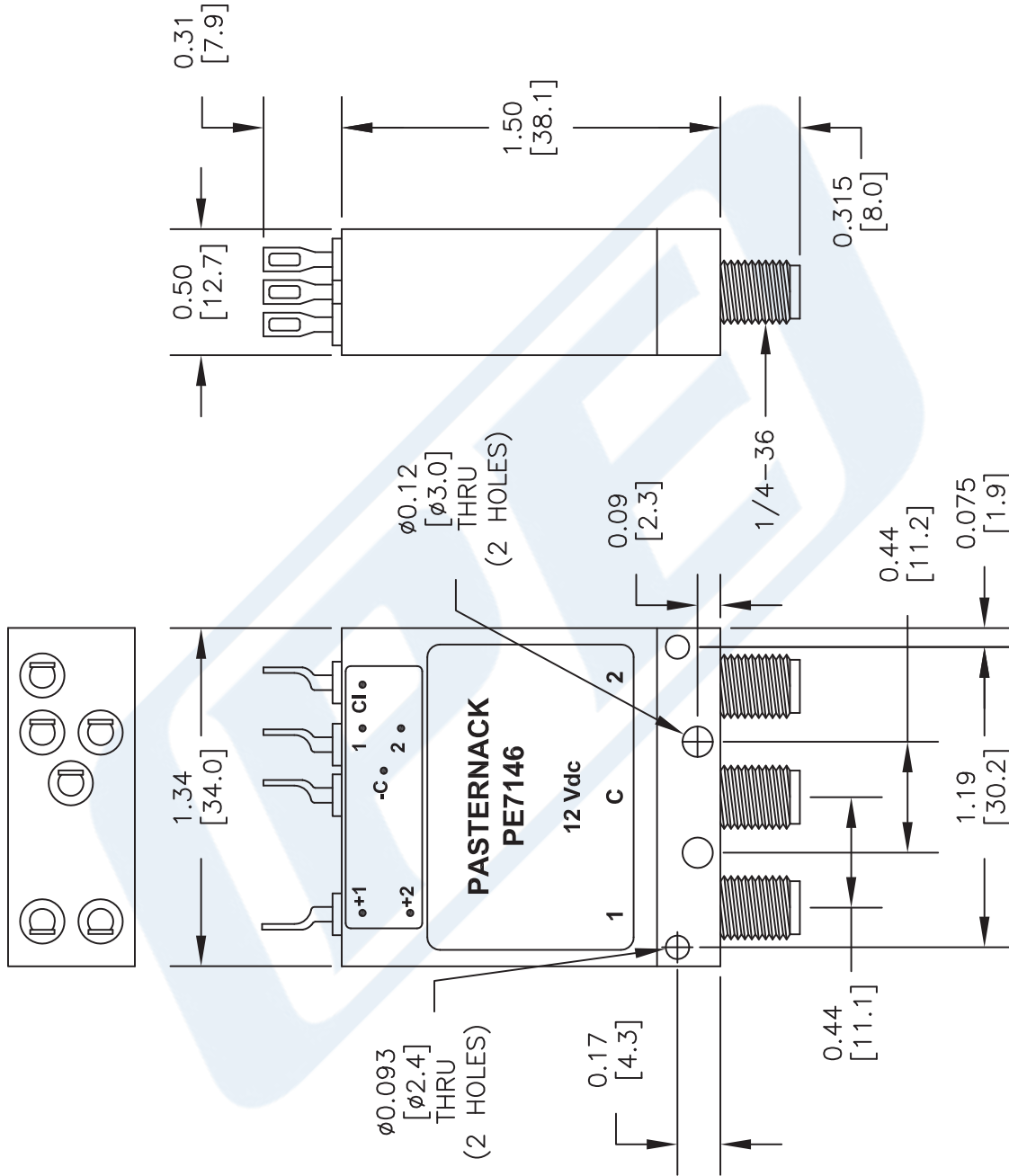
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URL: <http://www.pasternack.com/sma-relay-switch-pe7146-p.aspx>

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.

# PE7146 CAD Drawing

SPDT Electromechanical Relay Pulse Latching Switch DC to 18 GHz,  
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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].

DWG TITLE

**PE7146**

**PE PASTERNAK**  
THE ENGINEER'S RF SOURCE

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FSCM NO. 53919

CAD FILE 090815

SCALE N/A

SIZE A

150

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