SPDT 0.03 dB Low Insertion Loss Repeatability
Relay Latching Switch, DC to 20 GHz, 1W, 24V,
Indicators, Self Cut Off, Terminated, SMA

Electromechanical Relay Switches Technical Data Sheet

Features

• DC to 20 GHz SPDT Switch
• Guaranteed Low Insertion loss Repeatability: 0.03 dB max over 10 Million Lifecycles
• Insertion Loss: 0.5 dB max
• Isolation: up to 65 dB min
• +24 Vdc Nominal Voltage
• Hot Switching: 1W CW max
• Latching Self Cutoff Actuator
• Position Indicators
• Terminated
• Guaranteed to meet MIL-STD-202 Environmental Conditions
• SMA connectors
• -25°C to +75°C Operating Temperature
• 10 Million Lifecycles Minimum

Applications

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

Description

The PE71S6337 is a single pole double throw (SPDT) electromechanical switch that operates across a wide frequency range from DC to 20 GHz and has guaranteed insertion loss repeatability of 0.03 dB max over a life span of 10 million switching cycles in a Break Before Make condition. Maximum Insertion loss is 0.5 dB and Isolation is rated up to 65 dB minimum. The model also supports a hot switching limit of up to 1W CW maximum. The Latching Self Cut-Off TTL Control 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 SMA connectors and solder pins 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

<table>
<thead>
<tr>
<th>Description</th>
<th>Minimum</th>
<th>Typical</th>
<th>Maximum</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency Range</td>
<td>DC</td>
<td>20</td>
<td>GHz</td>
<td></td>
</tr>
<tr>
<td>Impedance</td>
<td>50</td>
<td></td>
<td></td>
<td>Ohms</td>
</tr>
<tr>
<td>Operating Voltage</td>
<td>20</td>
<td>24</td>
<td>32</td>
<td>Volts</td>
</tr>
<tr>
<td>Actuating Current @ 24 Volts</td>
<td>140</td>
<td></td>
<td></td>
<td>mA</td>
</tr>
<tr>
<td>Insertion Loss</td>
<td>0.5</td>
<td></td>
<td></td>
<td>dB</td>
</tr>
<tr>
<td>Insertion Loss Repeatability</td>
<td>0.03</td>
<td></td>
<td></td>
<td>dB</td>
</tr>
<tr>
<td>Coil Resistance</td>
<td>175</td>
<td></td>
<td></td>
<td>Ohms</td>
</tr>
<tr>
<td>Third Order Intermodulation</td>
<td>-120</td>
<td></td>
<td></td>
<td>dBC</td>
</tr>
<tr>
<td>Input Power (CW)</td>
<td>1</td>
<td></td>
<td></td>
<td>Watts</td>
</tr>
</tbody>
</table>

Click the following link (or enter part number in “SEARCH” on website) to obtain additional part information including price, inventory and certifications: SPDT 0.03 dB Low Insertion Loss Repeatability Relay Latching Switch, DC to 20 GHz, 1W, 24V, Indicators, Self Cut Off, Terminated, SMA PE71S6337

Pasternack Enterprises, Inc. • P.O. Box 16759, Irvine, CA 92613
Phone: (866) 727-8376 or (949) 261-1920 • Fax: (949) 261-7451
Sales@Pasternack.com • Techsupport@Pasternack.com

© 2017 Pasternack Enterprises All Rights Reserved
Performance by Frequency

<table>
<thead>
<tr>
<th>Description</th>
<th>F1</th>
<th>F2</th>
<th>F3</th>
<th>F4</th>
<th>F5</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency Range</td>
<td>DC to 6</td>
<td>6 to 12.4</td>
<td>12.4 to 20</td>
<td>GHz</td>
<td></td>
<td></td>
</tr>
<tr>
<td>VSWR, Max</td>
<td>1.15:1</td>
<td>1.25:1</td>
<td>1.3:1</td>
<td>dB</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Insertion Loss, Max</td>
<td>0.3</td>
<td>0.4</td>
<td>0.5</td>
<td>dB</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Isolation, Min</td>
<td>85</td>
<td>75</td>
<td>65</td>
<td>dB</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Electrical Specification Notes:
Insertion Loss Repeatability at 25° is 0.03 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: 0.187 lbs [84.82 g]
- Body Material and Plating: Aluminum, Nickel
- Package Type: Connectorized
- Operating Life: 10,000,000 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 Pin

Environmental Specifications

Temperature
- Operating Range: -25 to +75 deg C
- Storage Range: -55 to +85 deg C

Humidity
- 15 to 95% relative humidity

Shock
- 50g / 11 ms, sawtooth

Sine Vibration
- 10-2000 Hz, 20g

Random Vibration
- 16.91g (rms) 50-2000 Hz, 3 min/axis

Altitude
- 15000 ft
Temperature Cycling: -55 to +85 (10 Cycles)

ESD Sensitivity: 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:

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: SPDT 0.03 dB Low Insertion Loss Repeatability Relay Latching Switch, DC to 20 GHz, 1W, 24V, Indicators, Self Cut Off, Terminated, SMA PE71S6337
SPDT 0.03 dB Low Insertion Loss Repeatability Relay Latching Switch, DC to 20 GHz, 1W, 24V, Indicators, Self Cut Off, Terminated, SMA

Electromechanical Relay Switches Technical Data

Insertion Loss

0.00
-0.30
-0.60
-0.90
-1.20
-1.50

0.00 GHz 2 4 6 8 10 12 14 16 18 20

Isolation

0
-25
-50
-75
-100
-125

0.00 GHz 2 4 6 8 10 12 14 16 18 20

Click the following link (or enter part number in “SEARCH” on website) to obtain additional part information including price, inventory and certifications: SPDT 0.03 dB Low Insertion Loss Repeatability Relay Latching Switch, DC to 20 GHz, 1W, 24V, Indicators, Self Cut Off, Terminated, SMA PE71S6337
Click the following link (or enter part number in “SEARCH” on website) to obtain additional part information including price, inventory and certifications: SPDT 0.03 dB Low Insertion Loss Repeatability Relay Latching Switch, DC to 20 GHz, 1W, 24V, Indicators, Self Cut Off, Terminated, SMA PE71S6337
SPDT 0.03 dB Low Insertion Loss Repeatability Relay Latching Switch, DC to 20 GHz, 1W, 24V, Indicators, Self Cut Off, Terminated, SMA 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: SPDT 0.03 dB Low Insertion Loss Repeatability Relay Latching Switch, DC to 20 GHz, 1W, 24V, Indicators, Self Cut Off, Terminated, SMA PE71S6337


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.
PE71S6337 CAD Drawing

SPDT 0.03 dB Low Insertion Loss Repeatability Relay Latching Switch, DC to 20 GHz, 1W, 24V, Indicators, Self Cut Off, Terminated, SMA
**RF SCHEMATIC DIAGRAM**

<table>
<thead>
<tr>
<th>Position E1</th>
<th>Position E2</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>3</td>
</tr>
</tbody>
</table>

**INDICATORS POSITION**

State "11"

- 1
- 2

State "22"

- 1
- 2

**SOLDER PINS**

+Vcc

**Standard drive option “1” (Positive common):**

- Connect pin +Vcc to supply
- Select desired RF path by applying ground to the corresponding “Close” pin (Ex: ground pin E1 to switch to position E1. RF path 1-2 closed and RF path 2-3 open).
- To open desired path and close the new RF path, connect ground to the corresponding “Close” pin (Ex: ground pin E2 to open RF path 1-2 and close RF path 2-3).

**STANDARD TOLERANCES**

DECIMAL ±0.02

*STANDARD TOLERANCES APPLY ONLY TO DIMENSIONS IN INCHES*