



SP6T Electromechanical Relay Normally Open
Switch DC to 12.4 GHz, 2M lifecycles, N,
160 Watts, 28V, TTL, Diodes, Solder Pins

Electromechanical Relay Switches Technical Data Sheet

PE71S6507

Features

- Single Pole Six Throw (SP6T) Electromechanical Relay Switch
- DC to 12 GHz Frequency Range
- Latching Actuator with Self Cut-Off
- TTL Logic Control
- Suppression Diodes
- 5M Lifecycle Rating
- Insertion Loss 0.2 dB typ
- Isolation > 70 dB typ
- VSWR as low as 1.251 max
- +12 Volt DC Bias
- Solder Terminal Pins for DC Command Control
- N Type Female Connectors
- -25°C to +65°C Operating Temperature
- Up to 160 Watt Average Power Handling
- 50 Ohm Design
- Hot Switching Capability - Consult Factory
- S-Parameter Data available upon request
- Rugged Design meets Mil-STD-202 Test Conditions

Applications

- Aerospace & Defense
- Test & Measurement
- Microwave Radio Systems
- Military & Commercial Communication Systems
- Research & Development
- SATCOM
- Wireless Communications
- Enterprise
- IoT

Description

The PE71S6507 is a Single Pole Six Throw (SP6T) electromechanical relay switch that operates across a wide frequency range from DC to 12 GHz and can handle up to 160W of average input power in a break before make condition. The design is rated for 2 million lifecycles and features a Normally Open Actuator where the selected position remains active with constant voltage, all positions are open when voltage is removed. Additional features include TTL control logic, and suppression diodes which limit voltage spikes or reverse current. Impressive typical performance includes 0.2 dB insertion loss and isolation greater than 70 dB. This switch requires +28Vdc bias voltage and operates over a temperature range of -25°C to +65°C. The rugged and compact package assembly supports N Type female connectors and Solder Pins for DC command control functions. And for highly reliable operation, the model is guaranteed to meet MIL-STD-202 environmental test conditions for shock and random vibration.

Electrical Specifications (TA = +25°C, DC Voltage = +28 Vdc)

| | |
|------------------|---|
| Switch Type | SP6T |
| Actuator Type | Normally Open |
| Actuator Options | TTL Logic |
| TTL Control | on: 2.4 to 5 Volts off: 0 to 0.8 Volts |

| Description | Minimum | Typical | Maximum | Units |
|-----------------------------------|---------|---------|---------|-------|
| Frequency Range | DC | | 12.4 | GHz |
| Operating Voltage | | +28 | | Volts |
| Actuating Set Current @ +28 Volts | | | 280 | mA |
| VSWR | | 1.4:1 | 1.7:1 | |
| Insertion Loss | | 0.2 | 0.7 | dB |

Click the following link (or enter part number in "SEARCH" on website) to obtain additional part information including price, inventory and certifications: [SP6T Electromechanical Relay Normally Open Switch DC to 12.4 GHz, 2M lifecycles, N, 160 Watts, 28V, TTL, Diodes, Solder Pins PE71S6507](#)



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| | | | | |
|-----------------------------------|----|----|-----|-------|
| Isolation | 60 | 70 | | dB |
| Input Power (CW) (at 12.4 GHz) | | | 160 | Watts |

Performance by Frequency

| Description | F1 | F2 | F3 | F4 | F5 | Units |
|---------------------|---------|--------|--------|---------|----|-------|
| Frequency Range | DC to 1 | 1 to 4 | 4 to 8 | 8 to 12 | | GHz |
| VSWR, Max | 1.25:1 | 1.4:1 | 1.45:1 | 1.7:1 | | |
| Insertion Loss, Max | 0.3 | 0.4 | 0.4 | 0.7 | | dB |
| Isolation, Min | 70 | 60 | 60 | 60 | | dB |

Mechanical Specifications

Size

| | |
|----------------|-------------------|
| Length | 3.2 in [81.28 mm] |
| Width/Diameter | 2.5 in [63.5 mm] |
| Height | 2.5 in [63.5 mm] |
| Weight | 0.1 lbs [45.36 g] |

Connectors

| | |
|-------------------|----------|
| RF Connector Type | N Female |
|-------------------|----------|

Environmental Specifications

Temperature

| | |
|-----------------|-------------------|
| Operating Range | -25 to +65 deg C |
| Storage Range | -55 to +100 deg C |

| | |
|-------|--|
| Shock | MIL-STD-202 Method 213, Condition D, 500G (non oper) |
|-------|--|

| | |
|-----------|---|
| Vibration | MIL-STD-202 Method 204, Condition D, 10G RMS (non oper) |
|-----------|---|

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

Plotted and Other Data

Notes:

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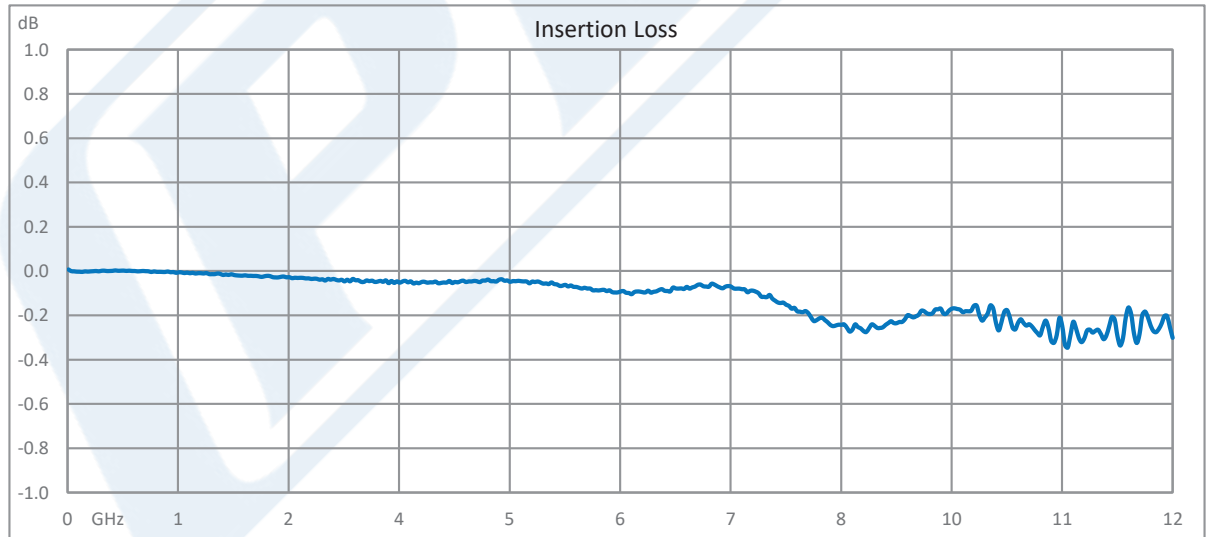
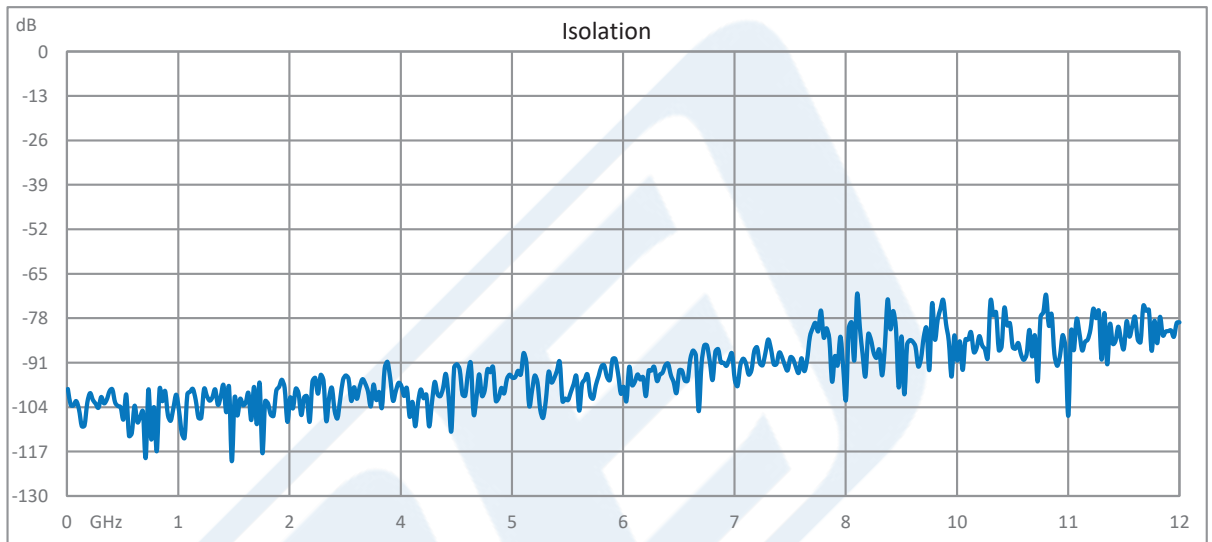


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Typical Performance Data



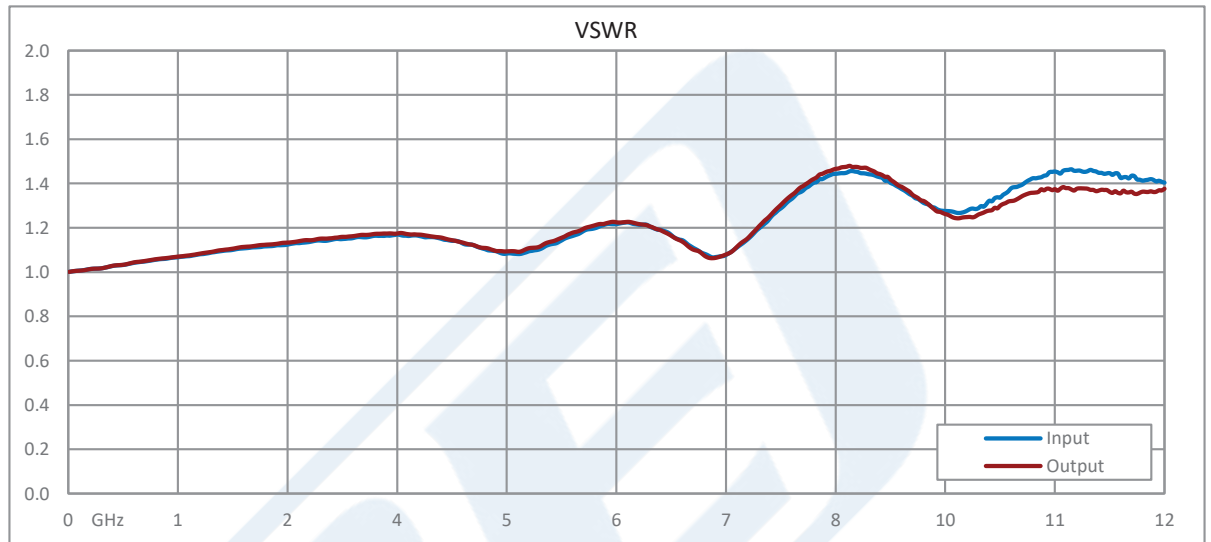
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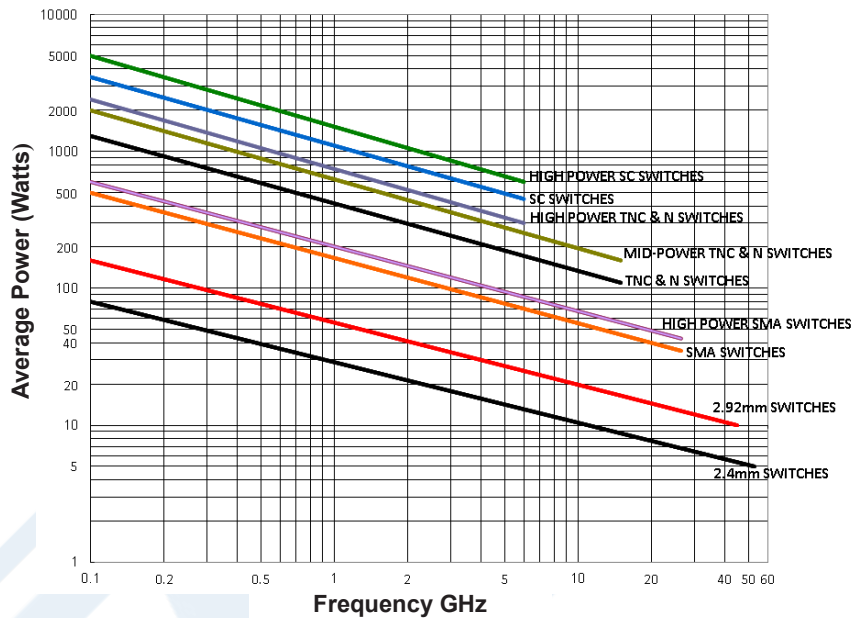


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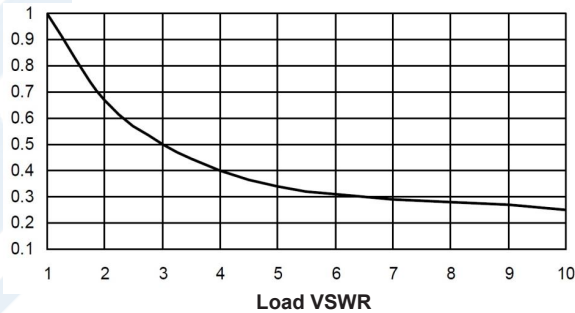
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Power Handling vs. Frequency



Power Handling De-rating vs. Load VSWR



Power Handling Chart and Derating Curves based on the following Test and Environmental Conditions:
 Ambient temperature: 20-25°C
 Altitude: Sea Level to 1,000 feet
 Relative Humidity: 50-55%
 Load VSWR: ≤ 1.20:1
 Operation: Cold Switching

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SP6T Electromechanical Relay Normally Open Switch DC to 12.4 GHz, 2M lifecycles, N, 160 Watts, 28V, TTL, Diodes, Solder Pins 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.

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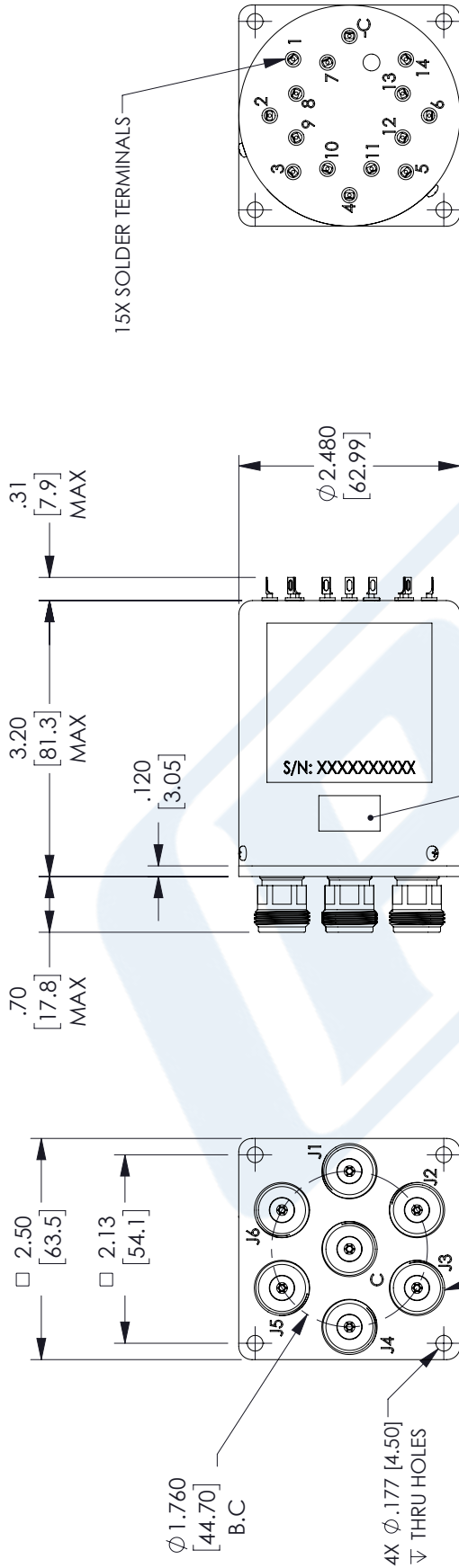
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PE71S6507 CAD Drawing

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| REVISIONS | | | |
|-----------|-----------------|------------|----------|
| REV. | DESCRIPTION | DATE | APPROVED |
| A | INITIAL RELEASE | 05/17/2022 | TGALLA |



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TOLERANCES:

.X = ±.2 [5.08] FRACTIONS
.XX = ±.02 [.51] ±.1/32
.XXX = ±.005 [.13] ANGLES ± 1°

CABLE LENGTH (L) TOLERANCES:
L ≤ 12 [305] = +1 [25] / -0
12 [305] < L ≤ 60 [1524] = +2 [51] / -0
60 [1524] < L ≤ 120 [3048] = +4 [102] / -0
120 [3048] < L ≤ 300 [7620] = +6 [152] / -0
300 [7620] < L = +5%L / -0

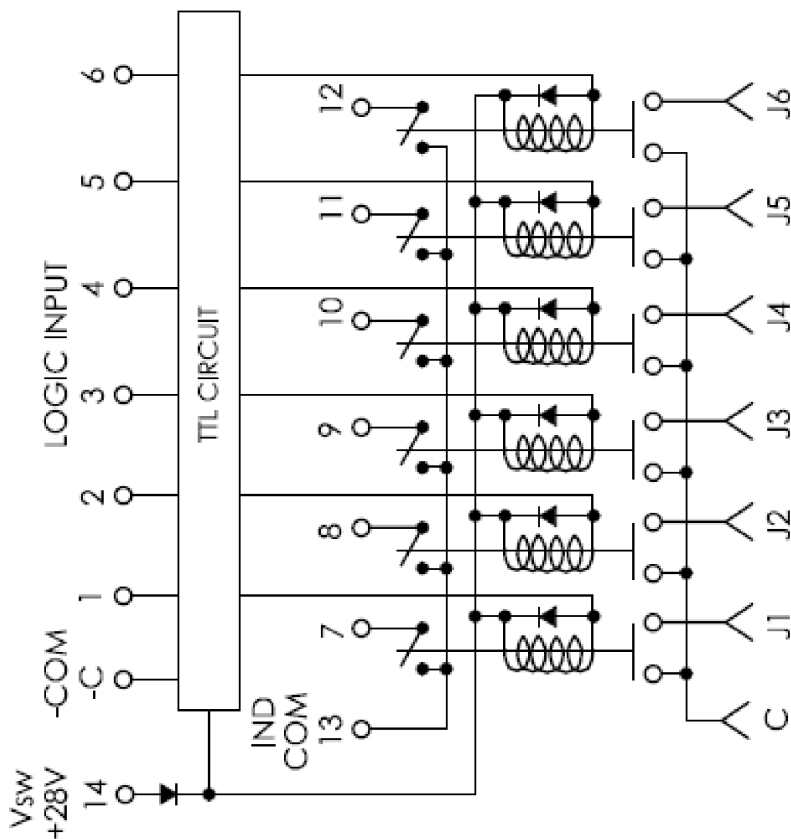
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RF POSITION
SCHEMATIC

TRUTH TABLE/PIN ASSIGNMENT:
PIN ASSIGNMENT

| TERMINALS | RF PATH | | | | | | INDICATOR | | | | | |
|---------------------|---------|-----|-----|-----|-----|-----|-----------|-----|-----|-----|-----|-----|
| | J1 | J2 | J3 | J4 | J5 | J6 | 7 | 8 | 9 | 10 | 11 | 12 |
| LOGIC INPUT PINS | | | | | | | | | | | | |
| 1 ("1") | ON | OFF | OFF | OFF | OFF | OFF | ON | OFF | OFF | OFF | OFF | OFF |
| 2 ("1") | OFF | ON | OFF | OFF | OFF | OFF | OFF | ON | OFF | OFF | OFF | OFF |
| 3 ("1") | OFF | OFF | ON | OFF | OFF | OFF | OFF | OFF | ON | OFF | OFF | OFF |
| 4 ("1") | OFF | OFF | OFF | ON | OFF | OFF | OFF | OFF | OFF | ON | OFF | OFF |
| 5 ("1") | OFF | OFF | OFF | OFF | ON | OFF | OFF | OFF | OFF | OFF | ON | OFF |
| 6 ("1") | OFF | OFF | OFF | OFF | OFF | ON | OFF | OFF | OFF | OFF | OFF | ON |

PIN -C. -COM
PIN 14. Vsw +28V
PIN 13. IND COM

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