



SP4T E-M Relay Latching Switch with Self Cut-Off, DC to 40 GHz, 10W, 2M Lifecycles, 28V, Indicators, TTL, Suppression Diodes, 2.92mm

Electromechanical Relay Switches Technical Data Sheet

PE71S6457

Features

- Single Pole Four Throw Electromechanical Relay Switch
- DC to 40 GHz Frequency Range
- Latching Actuator with Self Cut-Off
- TTL Logic Control
- Suppression Diodes
- Indicators
- 2M Lifecycle Rating
- Insertion Loss 0.5 dB typ
- Isolation >85 dB typ
- VSWR as low as 1.5:1 max
- +28 Volt DC Bias
- 15 Pin D-Sub Connector for DC Command Control
- 2.92mm Female Connectors
- -25°C to +65°C Operating Temperature
- Up to 10 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 PE71S6457 is a Single Pole Four Throw (SP4T) electromechanical relay switch that operates across a wide frequency range of DC to 40 GHz and can handle up to 10W of Average power in a break before make condition. The 50 Ohm design is rated for 2 million lifecycles and features a Latching Self Cut-Off Actuator that magnetically latches in place after the control voltage is removed. For power sensitive applications, this is the best actuator option. Additional features include TTL control logic, suppression diodes which limit voltage spikes or reverse current, and indicators. Impressive typical performance includes 0.5 dB insertion loss and isolation greater than 85 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 2.92mm female connectors and 15 pin D-Sub connector 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

Switch Type	SP4T
Actuator Type	Normally Open
Switching Sequence	Break Before Make
Actuator Options	Indicators, TTL Logic
TTL Control	on: 2.4 to 5 Volts off: 0 to 0.8 Volts

Description	Minimum	Typical	Maximum	Units
Frequency Range	DC		40	GHz
Impedance		50		Ohms
Operating Voltage	26	28	30	Volts
Actuating Set Current @ 28 Volts @ 28V AND 20°C			110	mA

Click the following link (or enter part number in "SEARCH" on website) to obtain additional part information including price, inventory and certifications: [SP4T E-M Relay Latching Switch with Self Cut-Off, DC to 40 GHz, 10W, 2M Lifecycles, 28V, Indicators, TTL, Suppression Diodes, 2.92mm PE71S6457](#)



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Actuating Reset Current		440	mA
VSWR	1.5:1	1.8:1	
Insertion Loss	0.5	1.1	dB
Isolation	60	85	dB
Switching Time		20	ms Max

Performance by Frequency

Description	F1	F2	F3	F4	F5	Units
Frequency Range	DC to 6	6 to 12	12 to 18	18 to 26.5	26.5 to 40	GHz
VSWR, Max	1.15:1	1.25:1	1.35:1	1.5:1	1.8:1	
Insertion Loss, Max	0.2	0.3	0.4	0.5	1.1	dB
Isolation, Min	90	80	80	75	60	dB

Mechanical Specifications

Size

Length	2.52 in [64.01 mm]
Width/Diameter	2.25 in [57.15 mm]
Height	2.25 in [57.15 mm]

Finish	NICKEL
Package Type	Connectorized
Operating Life	2,000,000 Cycles

Connectors

RF Connector Type	2.92mm Female
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Environmental Specifications

Temperature

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

Humidity	Moisture resistant or immersion sealing available
Shock	MIL-STD-202 Method 213, Condition D, 500G (non oper)

Vibration	MIL-STD-202 Method 214, Condition D, 10G RMS (non oper)
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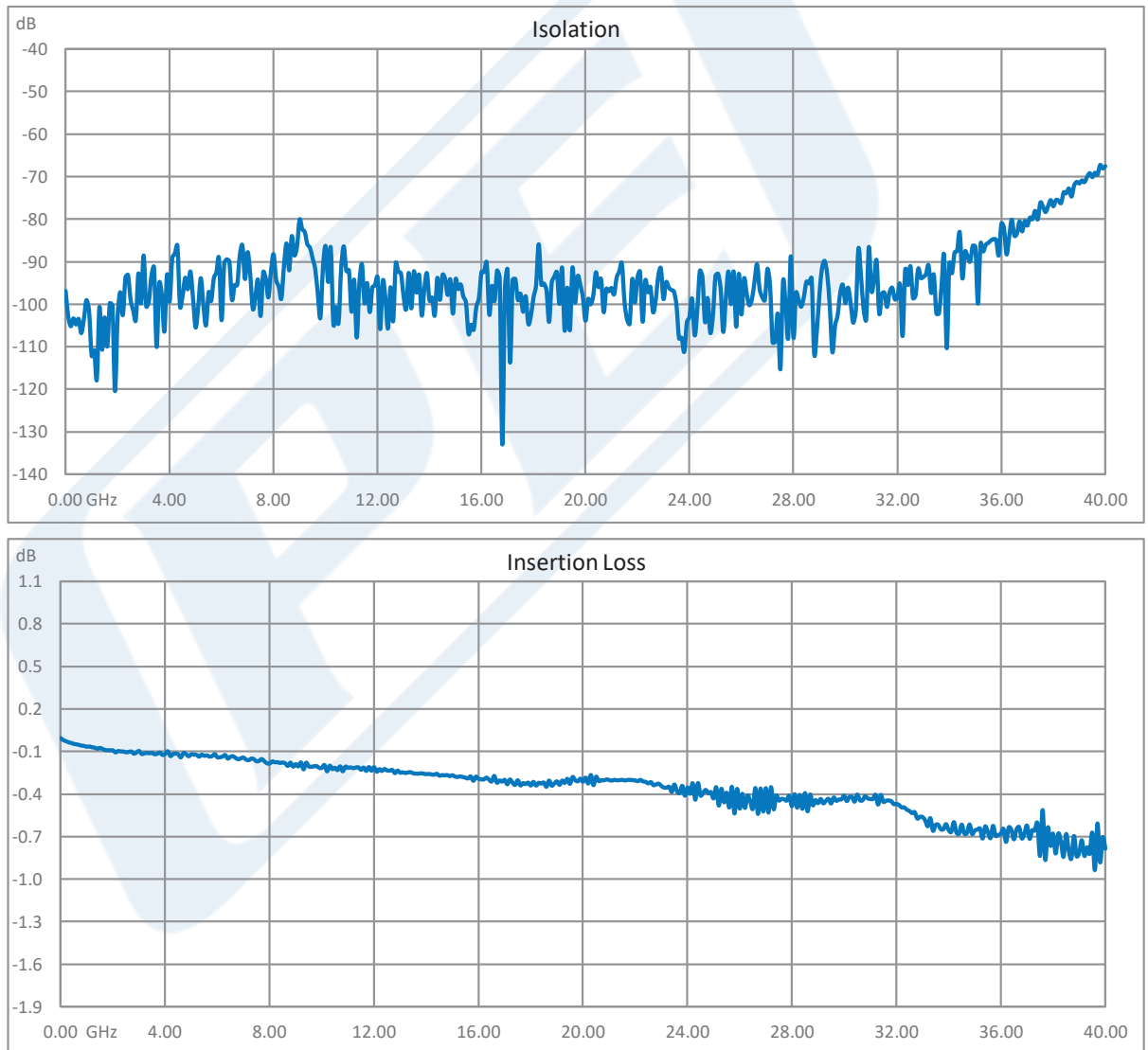
PE71S6457

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

Plotted and Other Data

Notes:

Typical Performance Data



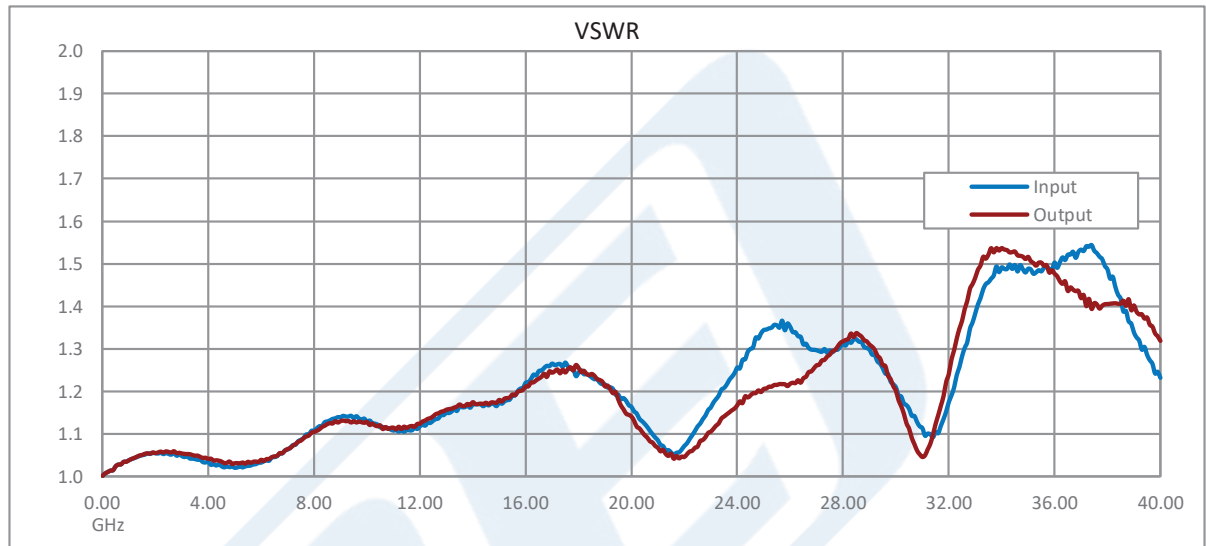
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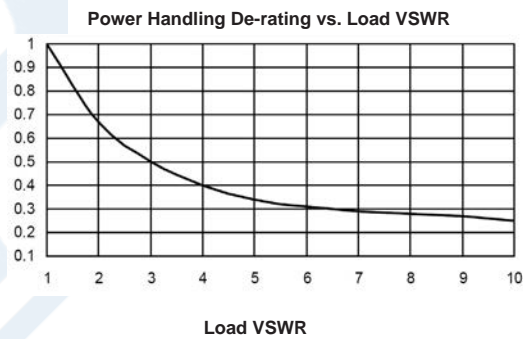
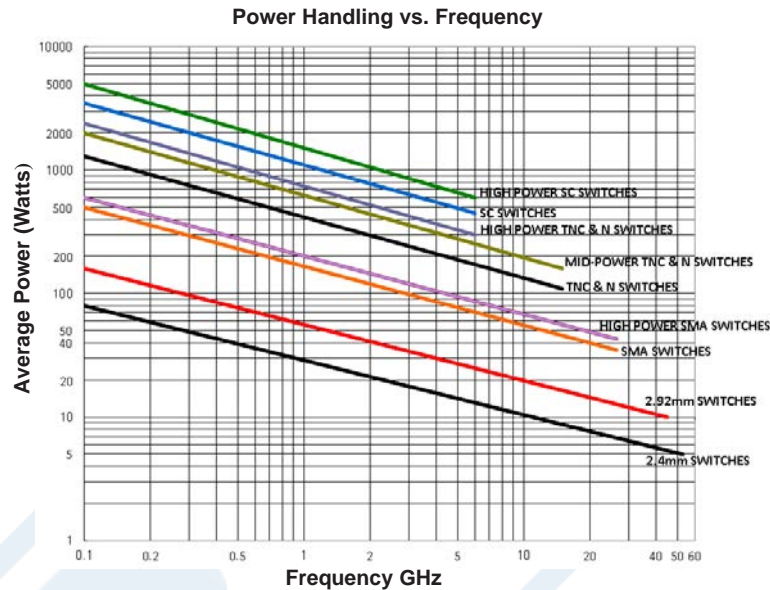
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Power Handling Chart and Derating Curves based on the following Test and Environmental Conditions:
 Ambient temperature: 20 - 25°C
 Altitude: Sea Level to 1,000 feet
 Relative Humidity: 50 - 55%
 Load VSWR: $\leq 1.20:1$
 Operation: Cold Switching

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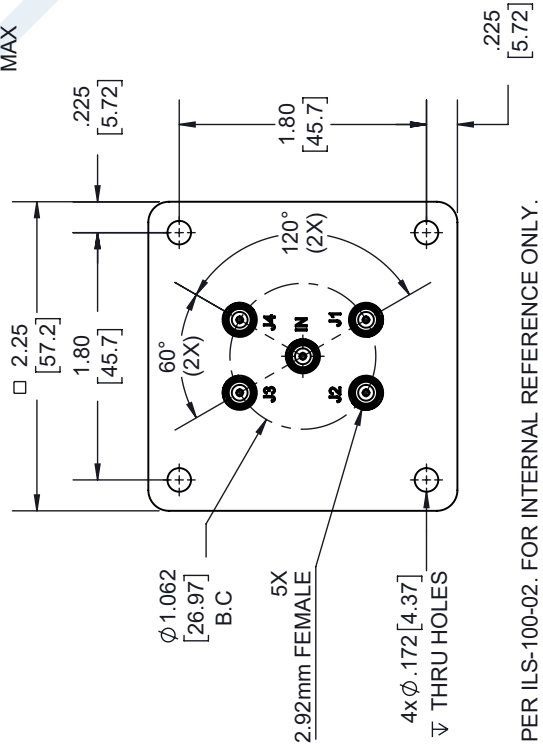
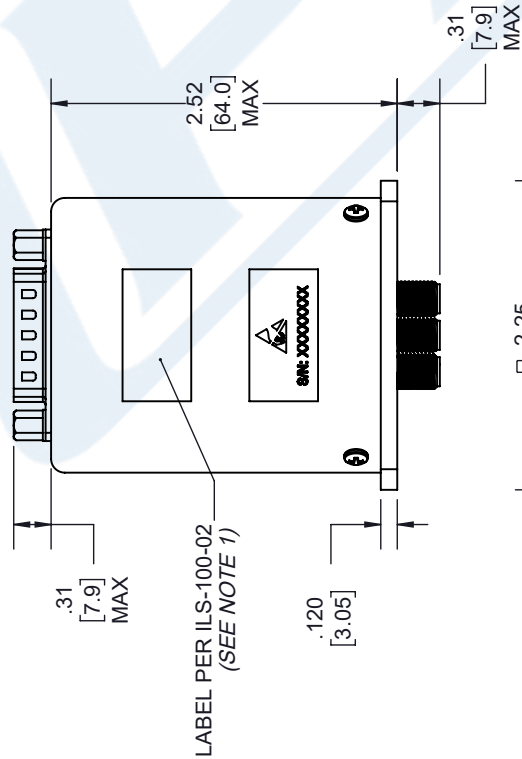
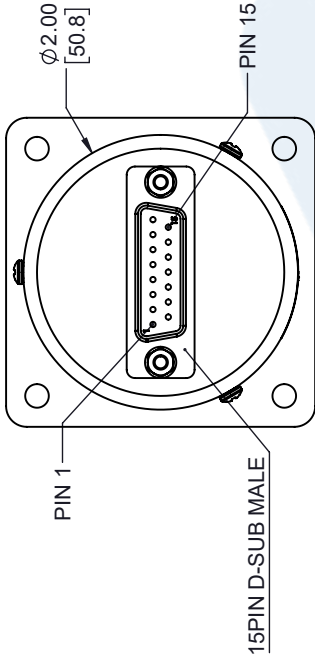
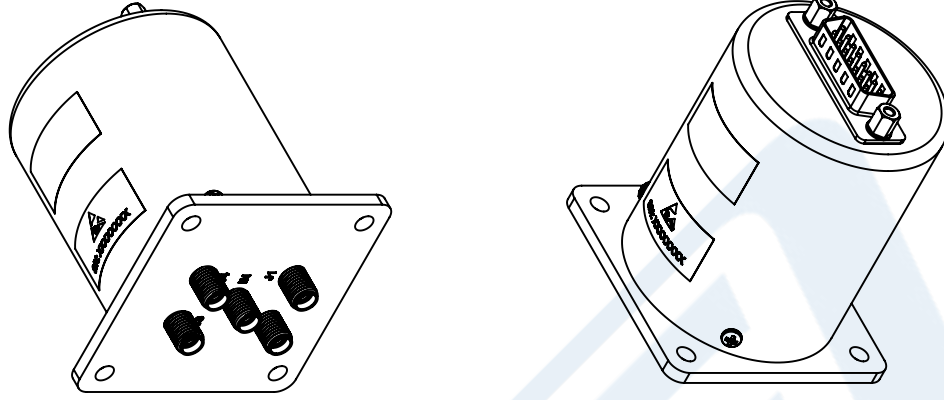
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PE71S6457 CAD Drawing

SP4T E-M Relay Latching Switch with Self Cut-Off, DC to 40 GHz, 10W,
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REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
A	INITIAL RELEASE	1/29/2021	T.GALLA



- NOTES:
- LABEL PER ILS-100-02. FOR INTERNAL REFERENCE ONLY. LABEL LOCATION FOR REFERENCE ONLY.

UNLESS OTHERWISE SPECIFIED LEADING DIMENSIONS ARE INCHES DIMENSIONS IN [] ARE MILLIMETERS

TOLERANCES:

.X = ±.2 [5.08] FRACTIONS
 .XX = ±.02 [.51] ±.132
 .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% / -0

ALL DIMENSIONS SHOWN ARE FOR REFERENCE ONLY.

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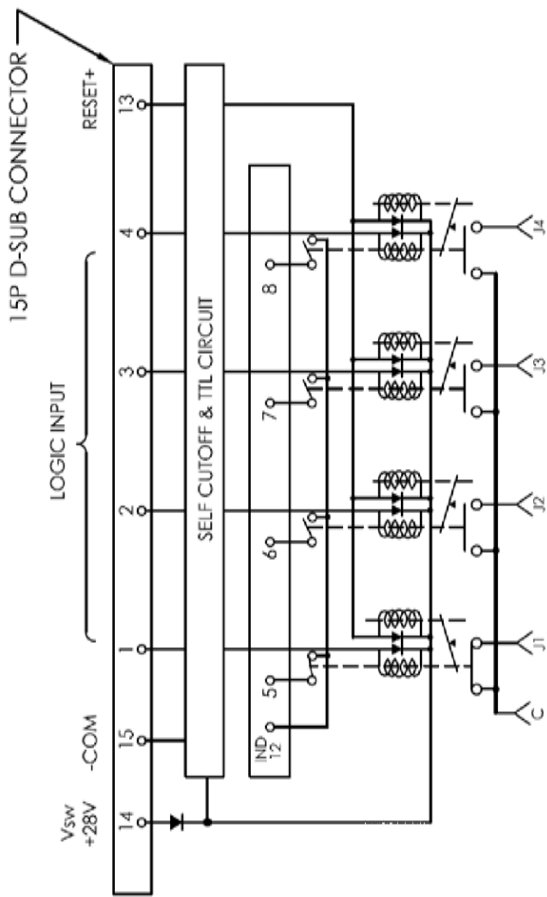
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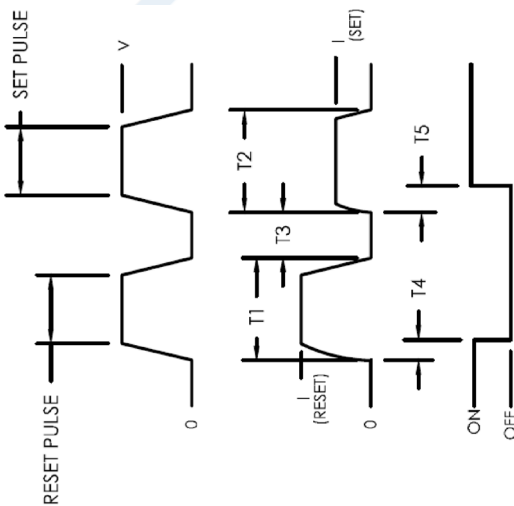
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SCHEMATIC

(COIL 1 SHOWN LAST ENERGIZED)



ACTUATION CHARACTERISTICS:

- REQUIRES TWO (2) SEQUENTIAL PULSES (RESET & SET)
- T1 & T2 = 50mSEC MIN.
- T3 = 10mSEC MIN.
- T4 & T5 = 20mSEC MAX.

PIN ASSIGNMENT

TERMINALS	RF PATH	INDICATOR
LOGIC INPUT PINS	J1 J2 J3 J4	5 6 7 8
1 ("1")	ON OFF OFF OFF	ON OFF OFF OFF
2 ("1")	OFF ON OFF OFF	OFF ON OFF OFF
3 ("1")	OFF OFF ON OFF	OFF OFF ON OFF
4 ("1")	OFF OFF OFF ON	OFF OFF OFF ON
13 ("1")	ALL OFF	ALL OFF

PIN 15. -COM
PIN 12. IND COM
PIN 14. VSW +28V

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