



SP6T Electromechanical Relay Normally Open Switch, DC to 40 GHz, up to 10W, 2M Lifecycles, 12V, Indicators, TTL, Suppression Diodes, 2.92mm

## Electromechanical Relay Switches Technical Data Sheet

PE71S6458

### Features

- Single Pole Six Throw Electromechanical Relay Switch
- DC to 40 GHz Frequency Range
- Normally Open Actuator
- TTL Logic Control
- Suppression Diodes
- Indicators
- 2M Lifecycle Rating
- Insertion Loss 0.6 dB typ
- Isolation > 85 dB typ
- VSWR as low as 1.25:1 max
- +12 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 PE71S6458 is a Single Pole Six Throw (SP6T) electromechanical relay switch that operates across a wide frequency range of DC to 40 GHz and can handle up to 10 Watts of Average power in a break before make condition. The 50 Ohm 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, suppression diodes which limit voltage spikes or reverse current, and indicators. Impressive typical performance includes 0.6 dB insertion loss and isolation greater than 85 dB. This switch requires +12Vdc 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 a 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	SP6T
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	11	12	13	Volts
Actuating Set Current @ 12 Volts			250	mA

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 40 GHz, up to 10W, 2M Lifecycles, 12V, Indicators, TTL, Suppression Diodes, 2.92mm PE71S6458](#)



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VSWR		1.8:1	1.95:1	
Insertion Loss		0.6	1.3	dB
Isolation	50	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 28	28 to 40	GHz
VSWR, Max	1.25:1	1.4:1	1.5:1	1.8:1	1.95:1	
Insertion Loss, Max	0.2	0.4	0.5	0.9	1.3	dB
Isolation, Min	70	60	60	60	50	dB

### Mechanical Specifications

#### Size

Length	2.62 in [66.55 mm]
Width/Diameter	1.75 in [44.45 mm]
Height	1.75 in [44.45 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)

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

### Plotted and Other Data

Notes:

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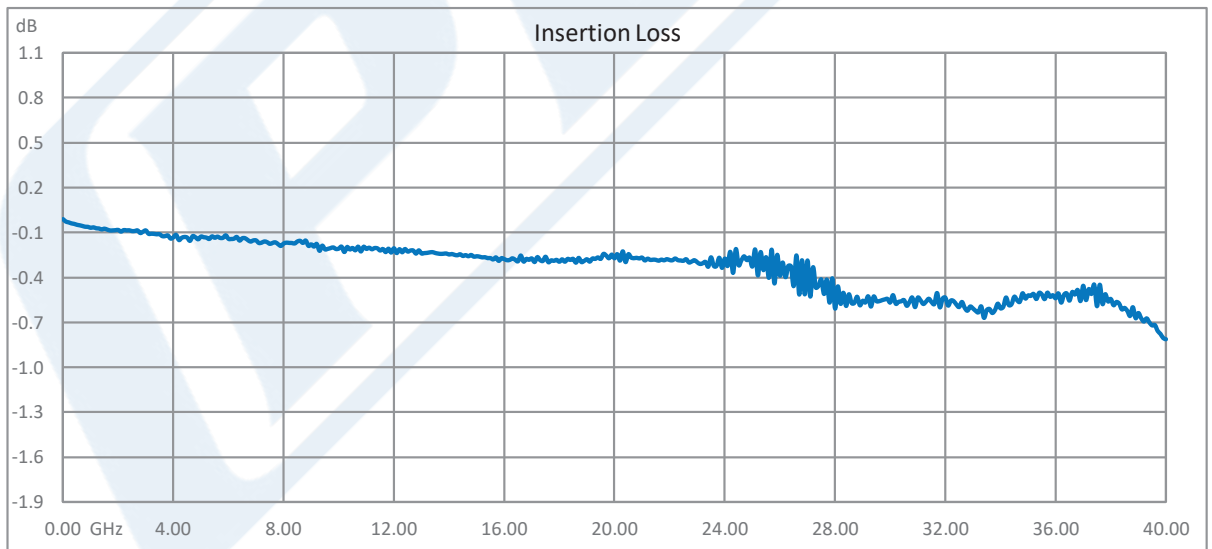
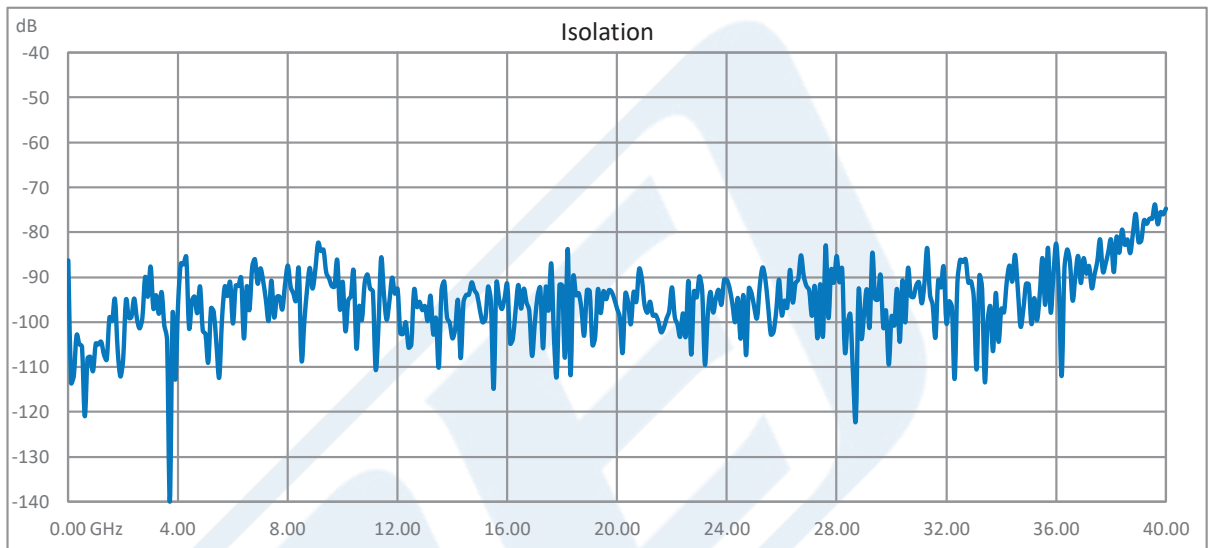


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Electromechanical Relay Switches Technical Data

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Typical Performance Data



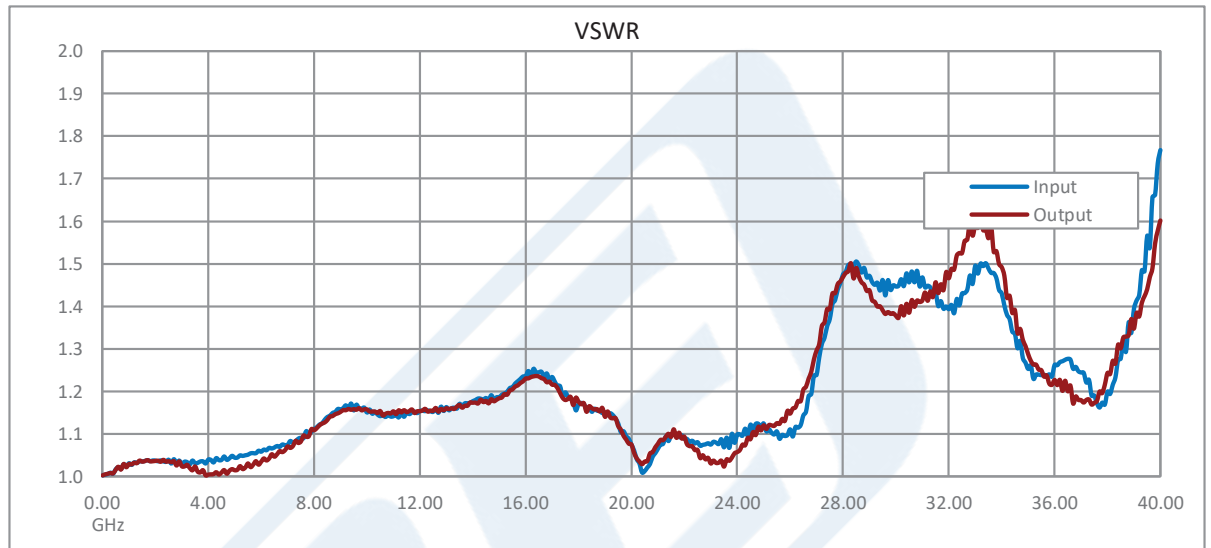
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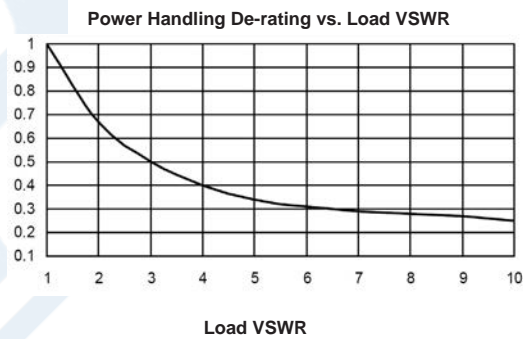
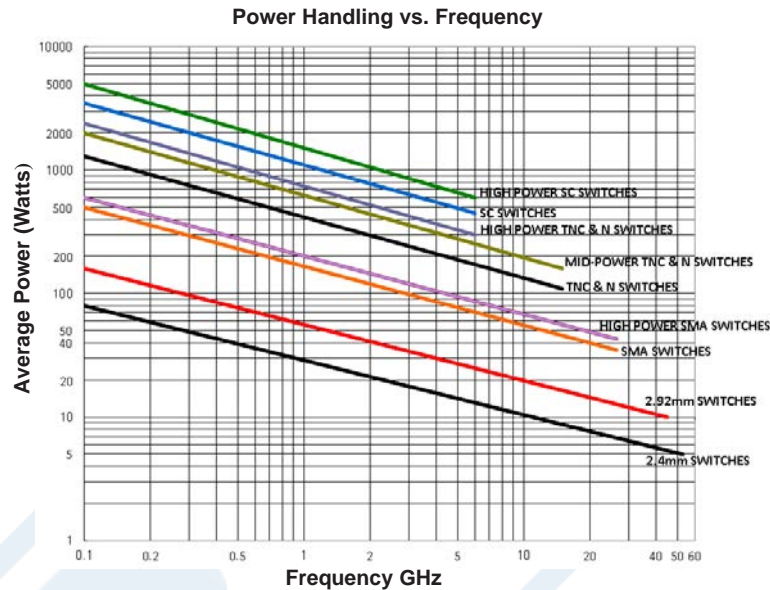
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Power Handling Chart and Derating Curves based on the following Test and Environmental Conditions:  
 Ambient temperature: 20 - 25°C  
 Altitude: Sea Level to 1,000 feet  
 Relative Humidity: 50 - 55%  
 Load VSWR:  $\leq 1.20:1$   
 Operation: Cold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

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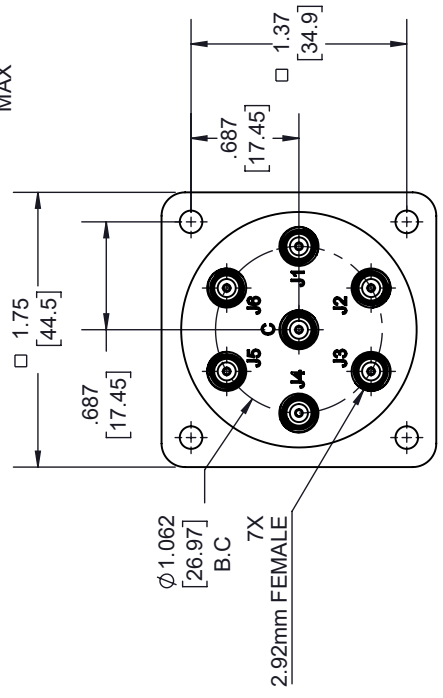
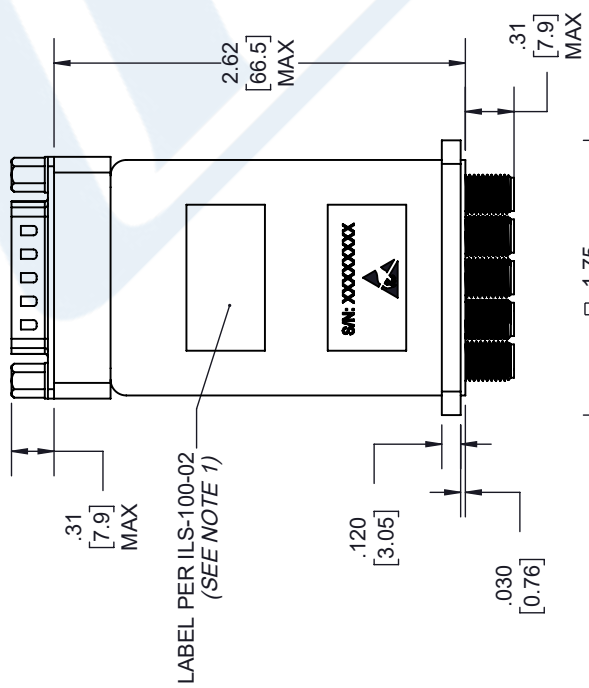
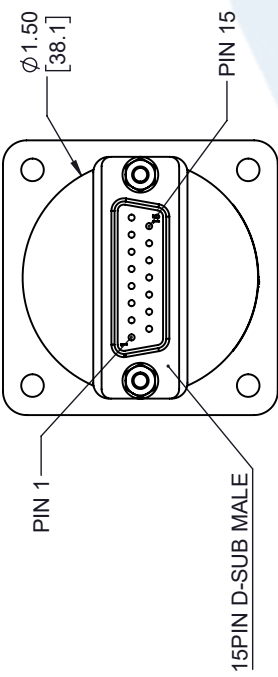
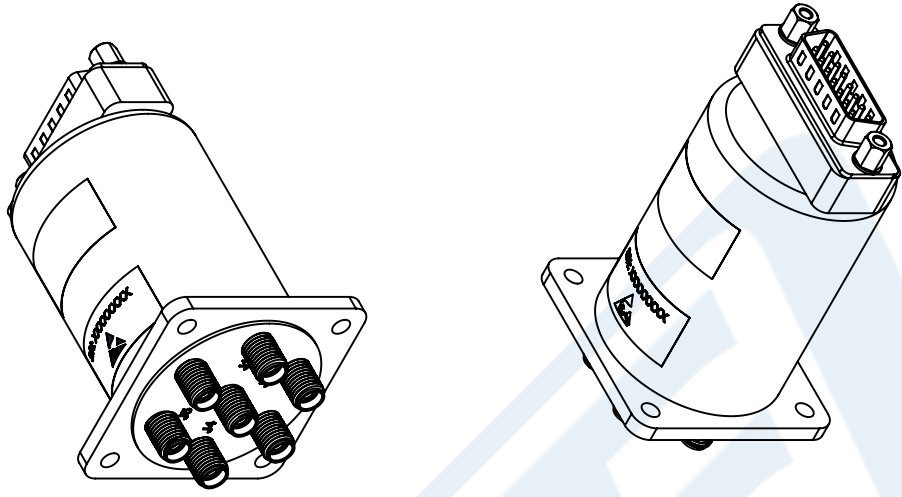
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# PE71S6458 CAD Drawing

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REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
A	INITIAL RELEASE	1/29/2021	T.GALLA



NOTES:  
 1. 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] ± 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% / -0

ALL DIMENSIONS SHOWN ARE FOR REFERENCE ONLY.

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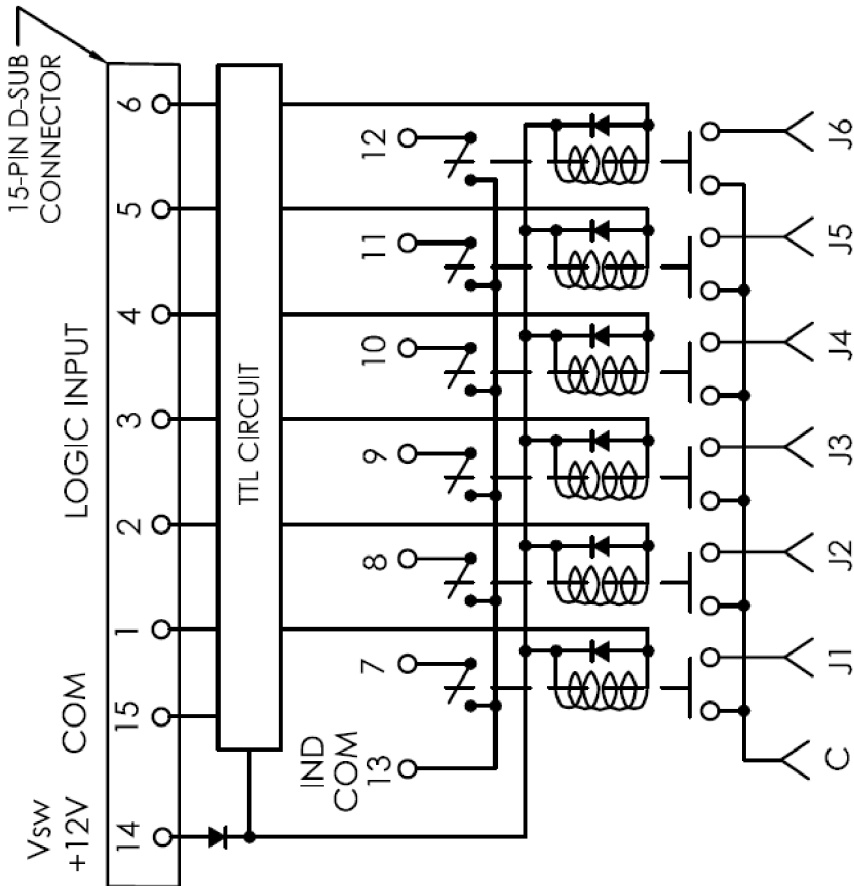
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RF POSITION  
**SCHEMATIC**

## PIN ASSIGNMENT:

TERMINALS LOGIC INPUT PINS	RF PATH						INDICATOR					
	J1	J2	J3	J4	J5	J6	7	8	9	10	11	12
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 15. COM  
PIN 14. V<sub>SW</sub> +12VDC  
PIN 13. IND COM

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