



SP4T Electromechanical Relay Normally Open Switch, DC to 40 GHz, 2M Lifecycles, 3W, 12V, 2.92mm, Solder Pins

## Electromechanical Relay Switches Technical Data Sheet

**PE71S6488**

### Features

- Single Pole Four Throw (SP4T) Electromechanical Relay Switch
- DC to 40 GHz Frequency Range
- Normally Open Actuator
- 2M Lifecycle Rating
- Insertion Loss 0.5 dB typ
- Isolation > 70 dB typ
- VSWR as low as 1.25:1 max
- +12 Volt DC Bias
- Solder Terminal Pins for DC Control
- 2.92mm Female Connectors
- -25°C to +65°C Operating Temperature
- Up to 3 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 PE71S6488 is a Single Pole Four Throw (SP4T) electromechanical relay switch that operates across a wide frequency range from DC to 40 GHz and can handle up to 3W of average power in a break before make condition. The 50 Ohm design is rated for 2M lifecycles and features a Normally Open Actuator where the selected position remains active with constant voltage, all positions are open when voltage is removed. Impressive typical performance includes 0.5 dB insertion loss and isolation greater than 70 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 solder terminal pins for DC control. 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 = +12 Vdc)

Switch Type SP4T  
Actuator Type Normally Open

Description	Minimum	Typical	Maximum	Units
Frequency Range	DC		40	GHz
Operating Voltage		+12		Volts
Actuating Set Current @ +12 Volts			250	mA
VSWR		1.5:1	1.8:1	
Insertion Loss		0.5	1.3	dB
Isolation	50	70		dB
Input Power (CW) (at 40 GHz)			3	Watts

Click the following link (or enter part number in "SEARCH" on website) to obtain additional part information including price, inventory and certifications: [SP4T Electromechanical Relay Normally Open Switch, DC to 40 GHz, 2M Lifecycles, 3W, 12V, 2.92mm, Solder Pins PE71S6488](#)



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## Electromechanical Relay Switches Technical Data

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### 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	1.8:1	
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	1.75 in [44.45 mm]
Width/Diameter	1.75 in [44.45 mm]
Height	1.75 in [44.45 mm]
Weight	0.1 lbs [45.36 g]

#### 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

Shock	MIL-STD-202 Method 213, Condition D, 500G (non oper)
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Vibration	MIL-STD-202 Method 204, Condition D, 10G RMS (non oper)
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**Compliance Certifications** (see [product page](#) for current document)

### Plotted and Other Data

Notes:

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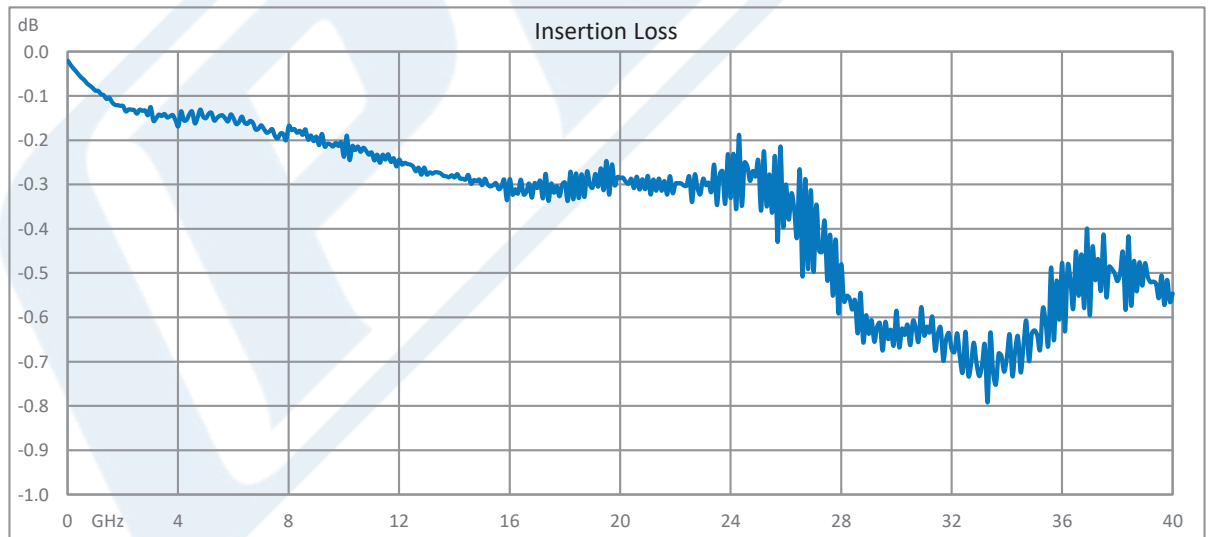
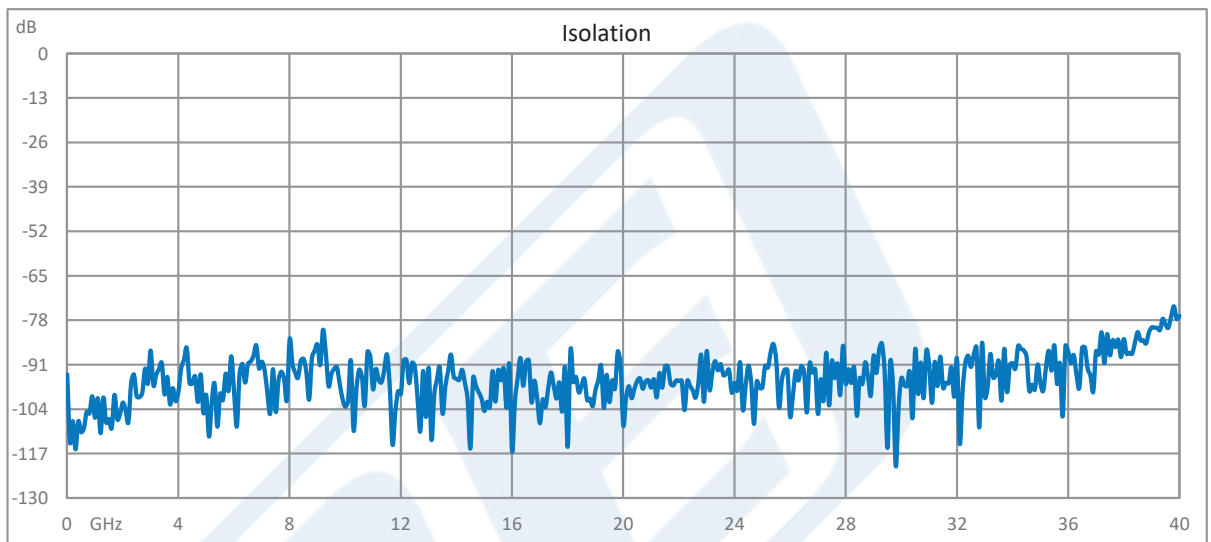


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## Electromechanical Relay Switches Technical Data

**PE71S6488**

### Typical Performance Data



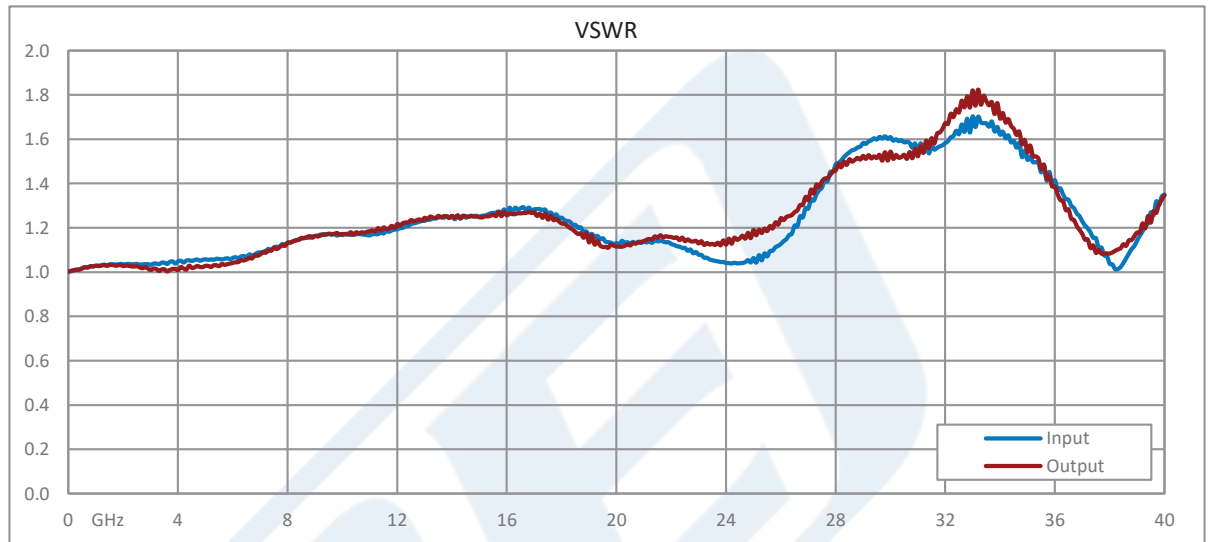
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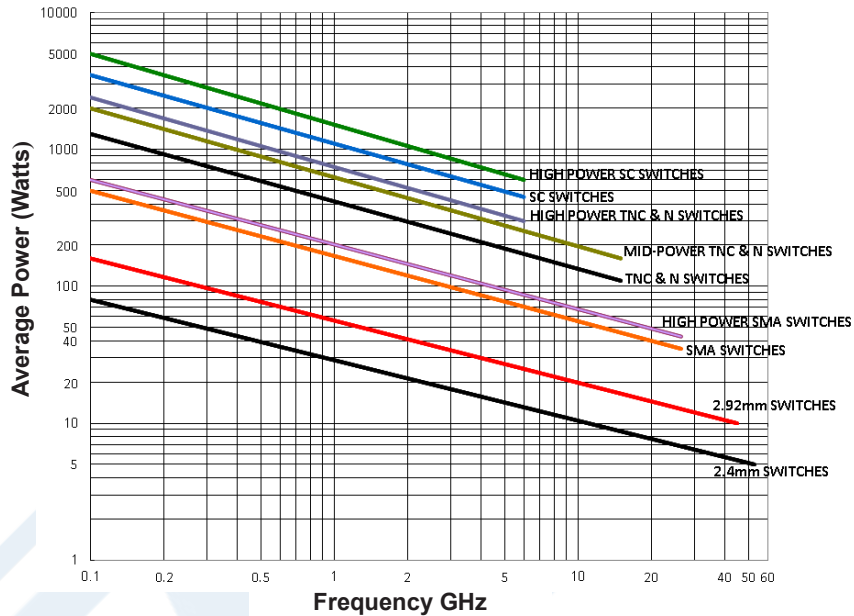


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**Electromechanical Relay Switches Technical Data**

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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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## Electromechanical Relay Switches Technical Data

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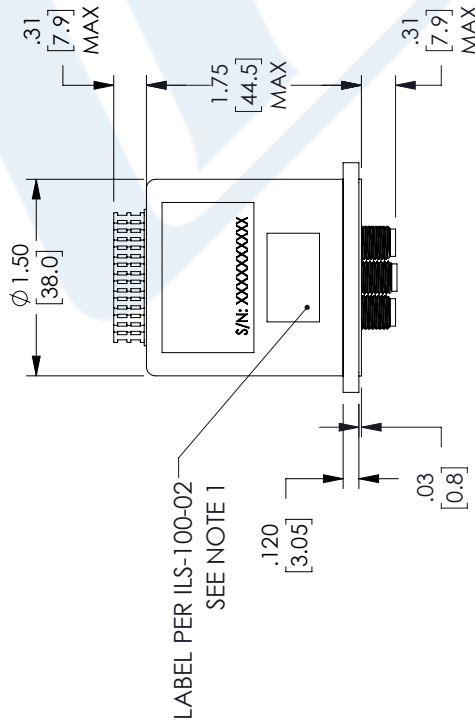
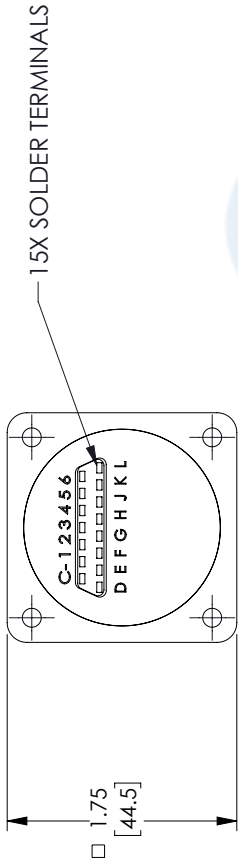
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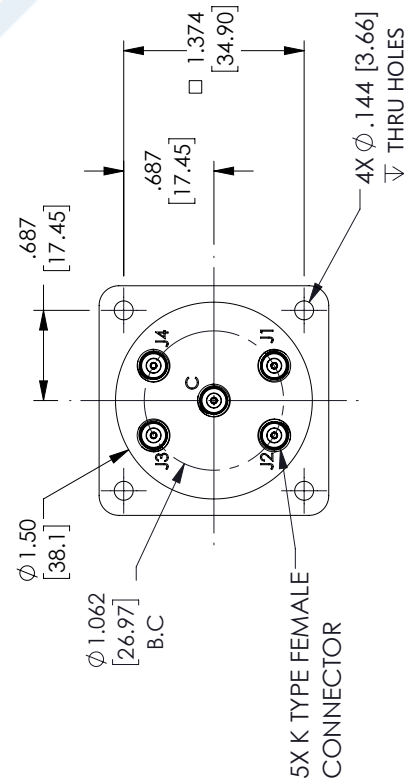
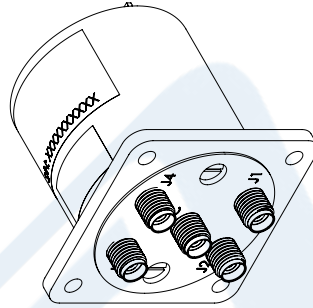
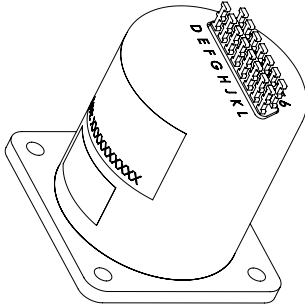
# PE71S6488 CAD Drawing

SP4T Electromechanical Relay Normally Open Switch, DC to 40 GHz, 2M Lifecycles, 3W, 12V, 2.92mm, Solder Pins

REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
A	INITIAL RELEASE	05/17/2022	T. GALLA



LABEL PER ILS-100-02  
SEE NOTE 1



5X K TYPE FEMALE  
CONNECTOR

NOTES:

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

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TOLERANCES:  
 .X = ±.2 [5.08] FRACTIONS ±.1/32  
 .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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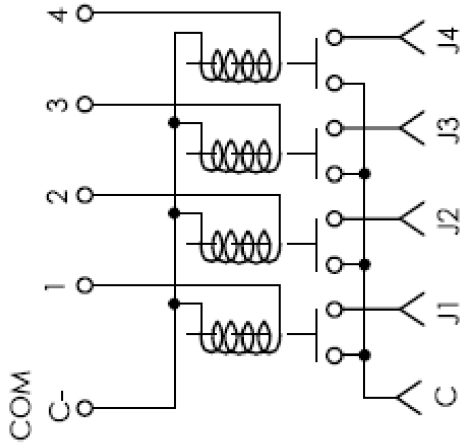
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RF POSITION  
SCHEMATIC

TRUTH TABLE/PIN ASSIGNMENT:  
PIN ASSIGNMENT

TERMINALS PIN ASSIGNMENT	RF PATH			
	J1	J2	J3	J4
1	ON	OFF	OFF	OFF
2	OFF	ON	OFF	OFF
3	OFF	OFF	ON	OFF
4	OFF	OFF	OFF	ON

UNLESS OTHERWISE SPECIFIED  
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DIMENSIONS IN [ ] ARE MILLIMETERS

TOLERANCES:

.X = ±.2 [ .08]    FRACTIONS  
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