



SP6T, IP64 Rated Electromechanical Relay Latching Switch, DC to 18 GHz, 90W, 12VDC, SMA

## Electromechanical Relay Switches Technical Data Sheet

**PE71S6550**

### Features

- SP4T Electromechanical Relay Switch
- IP64 Level 1 Rated
- DC to 26.5 GHz Frequency Range
- Latching Actuator
- 5M Lifecycle Rating
- Insertion Loss 0.2 dB typ
- Isolation > 80 dB typ
- VSWR as low as 1.25:1 max
- SMA Female Connectors
- +12 Volt DC Bias
- 15 Pin D-Sub Connector for DC Control
- -54°C to +85°C Operating Temperature
- Up to 90 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
- Actuating Set/Reset Feature

### Applications

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

### Description

The PE71S6550 is a Ruggedized SP6T electromechanical relay switch that operates across a broadband frequency range from DC to 18 GHz and can handle up to 90W of average power in a break before make condition. The 50 Ohm design is IP64 compliant with a Level 1 moisture seal and specially designed to operate reliably in harsh usage environments and conditions, such as over extreme temperatures and wet or dusty environments. Intrusion protection offers full protection against dust and other particulates. Moisture protection enables resistance to splashes in all directions. The switch has a Latching Actuator that magnetically latches in place after the control voltage is removed. For power sensitive applications, this is the best actuator option. Impressive typical performance includes 0.2 dB insertion loss and isolation greater than 80 dB. This switch requires +12Vdc bias voltage, operates over a temperature range of -54°C to +85°C, and is rated for 5 million lifecycles. The rugged and compact package assembly supports SMA female connectors and a 15 pin D-Sub connector 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 SP6T  
Actuator Type Latching

Description	Minimum	Typical	Maximum	Units
Frequency Range	DC		18	GHz
Impedance		50		Ohms
Operating Voltage	11	12	13	Volts
Actuating Set Current			280	mA
Actuating Reset Current			1.68	A
VSWR		1.1:1	1.5:1	
Insertion Loss		0.2	0.5	dB

Click the following link (or enter part number in "SEARCH" on website) to obtain additional part information including price, inventory and certifications: [SP6T, IP64 Rated Electromechanical Relay Latching Switch, DC to 18 GHz, 90W, 12VDC, SMA PE71S6550](#)



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Isolation	80	90	dB
Switching Time		<20	ms Typ

### Performance by Frequency

Description	F1	F2	F3	F4	F5	Units
Frequency Range	DC to 6	6 to 12	12 to 18			GHz
VSWR, Max	1.25:1	1.4:1	1.5:1			
Insertion Loss, Max	0.2	0.4	0.5			dB
Isolation, Min	80	80	80			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	0.182 lbs [82.55 g]

#### Connectors

RF Connector Type	SMA Female
Control Connector	D-Subminiature

### Environmental Specifications

#### Temperature

Operating Range	-54 to +85 deg C
Storage Range	-55 to +100 deg C

Ingress Protection (IP) Rating  
Shock

IP64  
MIL-STD-202 Method 213, Condition D, 500 G (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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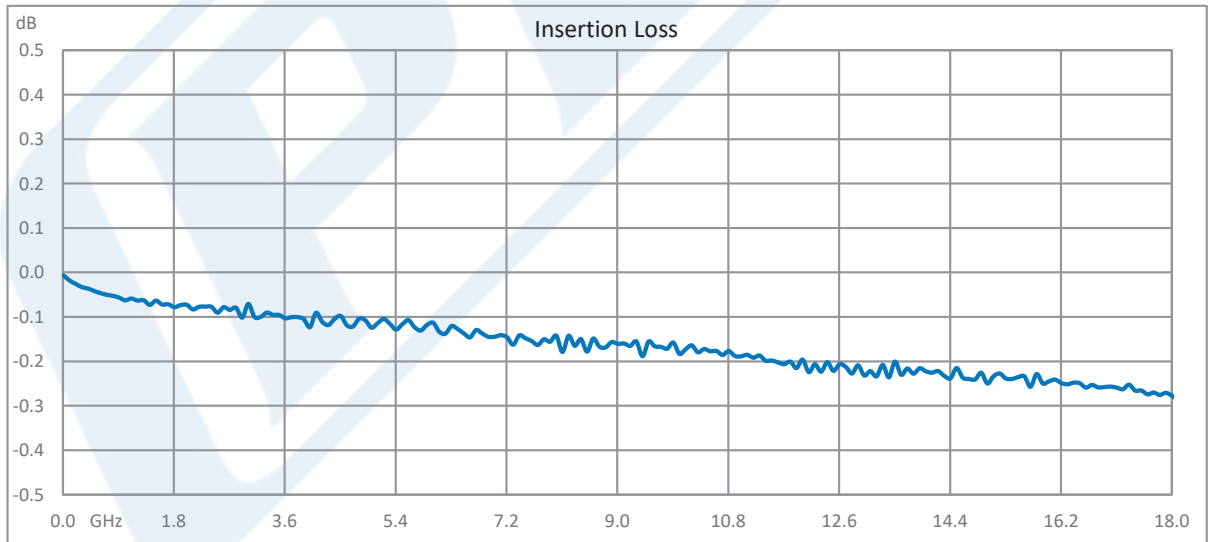
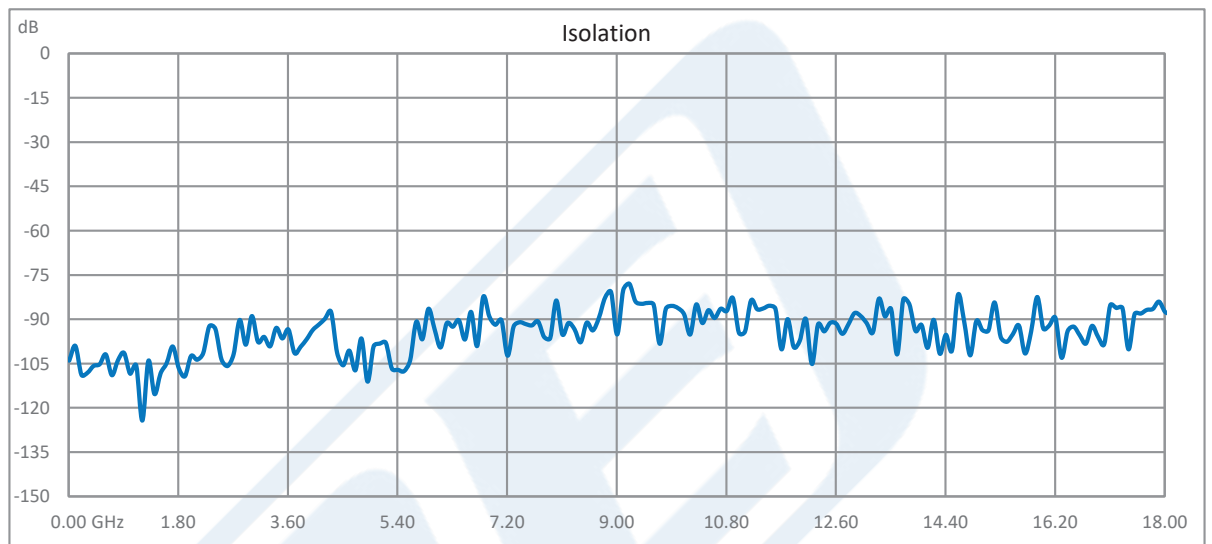


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**Electromechanical Relay Switches Technical Data**

**PE71S6550**

**Typical Performance Data**



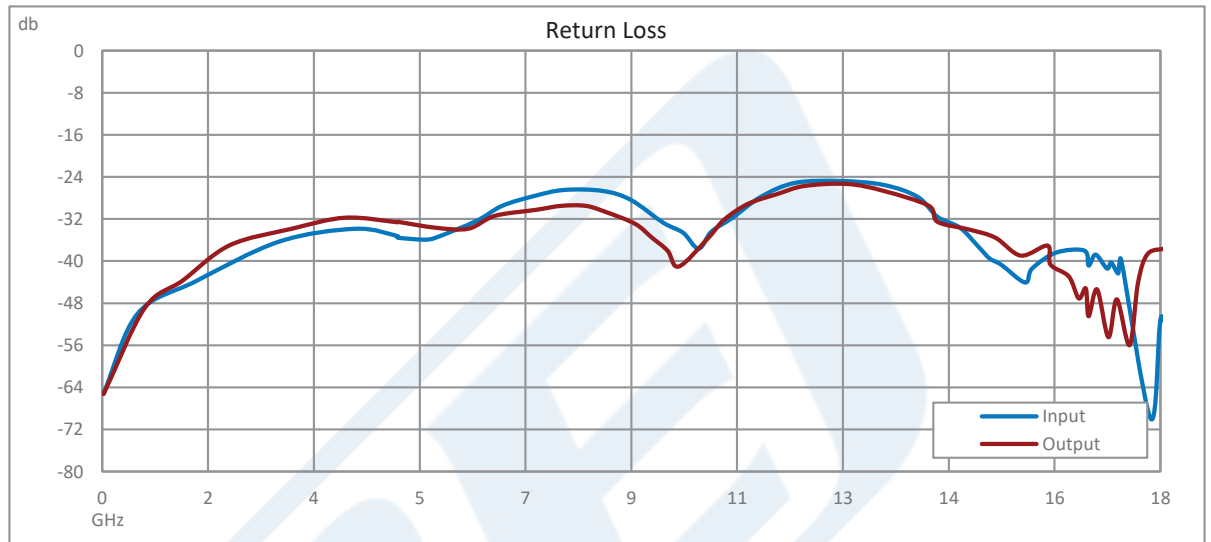
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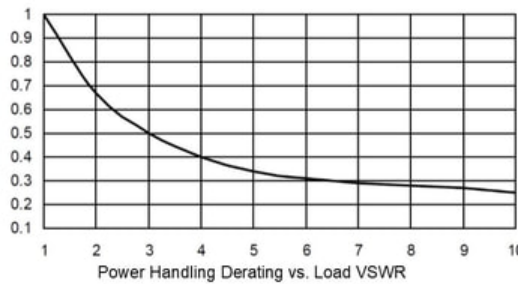
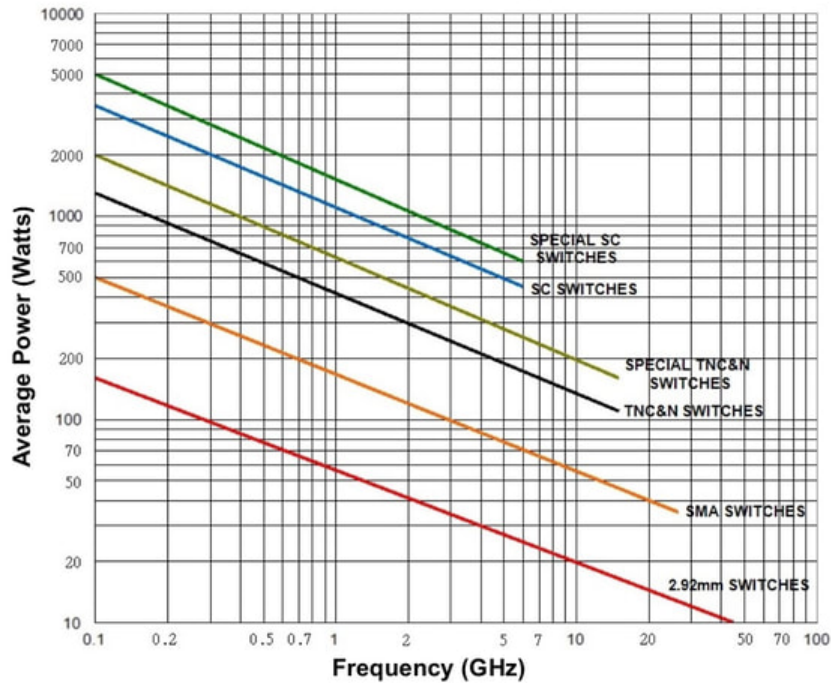


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**Electromechanical Relay Switches Technical Data**

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**Power Handling vs. Frequency**



Power handling chart and derating curves based on the following conditions:

- Ambient temperature: 40°C or less
- Altitude: Sea level
- Load VSWR: 1.20:1 Maximum
- Relative Humidity: 40-50%
- Cold switching: RF signal off

Note: specifications subject to change without notice

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## Electromechanical Relay Switches Technical Data

**PE71S6550**

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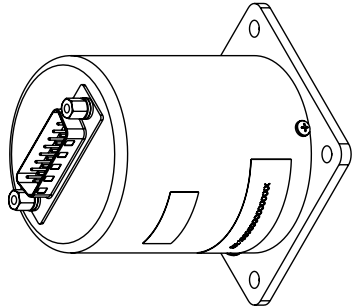
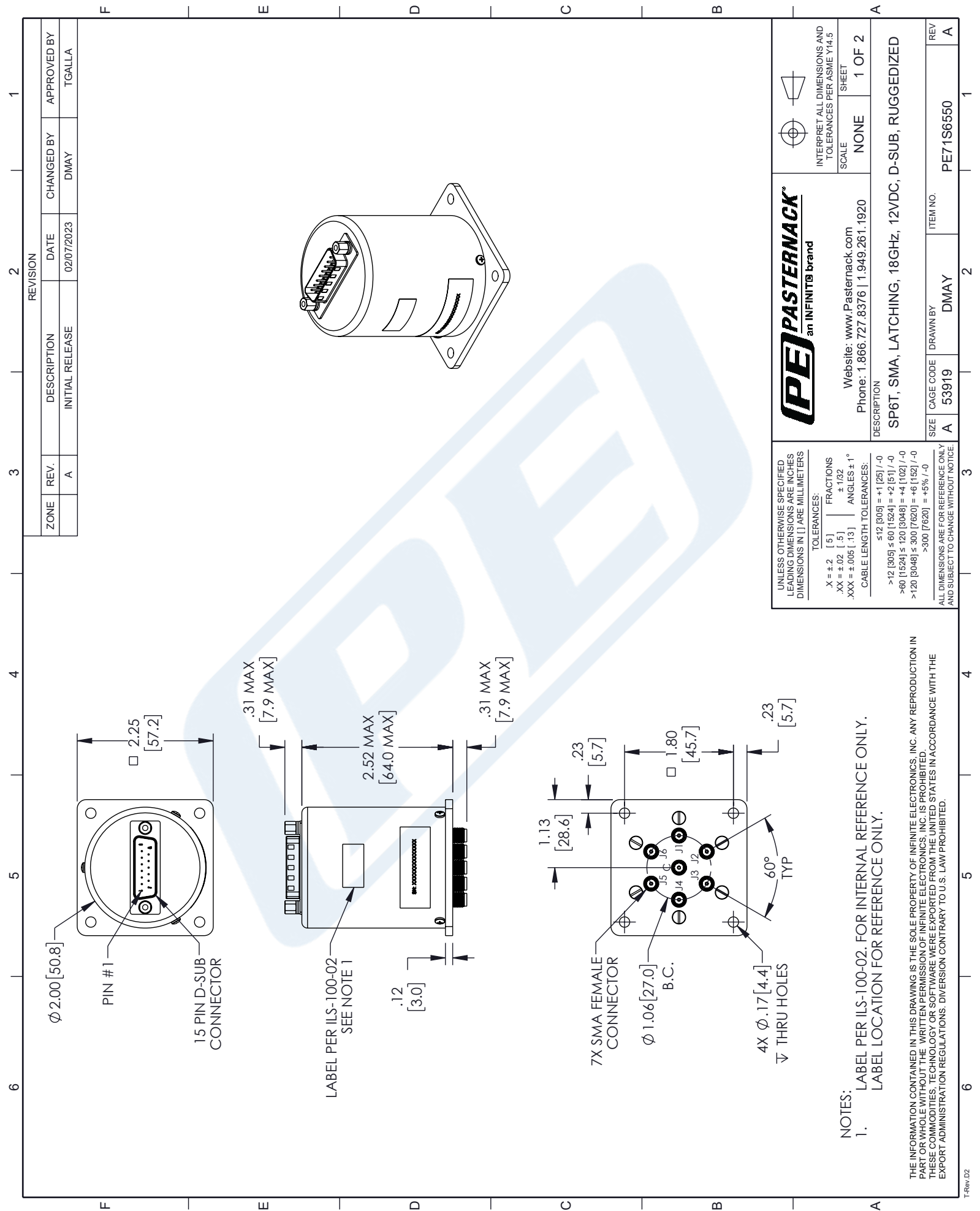
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The information contained in this document is accurate to the best of our knowledge and representative of the part described herein. It may be necessary to make modifications to the part and/or the documentation of the part, in order to implement improvements. 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.

# PE71S6550 CAD Drawing

SP6T, IP64 Rated Electromechanical Relay Latching Switch, DC to 18 GHz, 90W, 12VDC, SMA



ZONE		REV.		DESCRIPTION		DATE		CHANGED BY		APPROVED BY	
	A			INITIAL RELEASE		02/07/2023		DMAY		TGALLA	

REVISION	
1	
2	
3	
4	
5	
6	

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

TOLERANCES:  
 X = ±.2 [5] FRACTIONS  
 .XX = ±.02 [.5] ±.1/32  
 .XXX = ±.005 [.13] ANGLES ± 1°

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

ALL DIMENSIONS ARE FOR REFERENCE ONLY AND SUBJECT TO CHANGE WITHOUT NOTICE

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SCALE: NONE SHEET: 1 OF 2

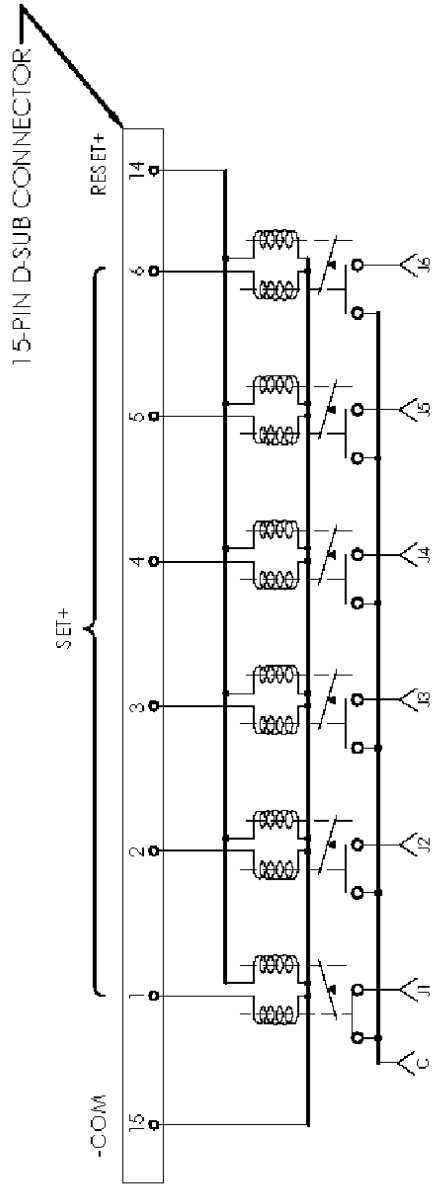
INTERPRET ALL DIMENSIONS AND TOLERANCES PER ASME Y14.5

DESCRIPTION: SP6T, SMA, LATCHING, 18GHz, 12VDC, D-SUB, RUGGEDIZED

SIZE	CAGE CODE	DRAWN BY	ITEM NO.	REV
A	53919	DMAY	PE71S6550	A

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

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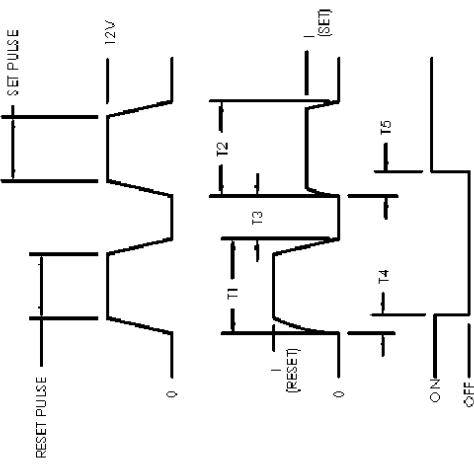
**SCHEMATIC**

(COIL 1 SHOWN LAST ENERGIZED)

TRUTH TABLE/PIN ASSIGNMENT :  
PIN ASSIGNMENT

TERMINALS	RF PATH					
	J1	J2	J3	J4	J5	J6
D-SUB PIN ASSIGNMENT						
1 (SET+)	ON	OFF	OFF	OFF	OFF	OFF
2 (SET+)	OFF	ON	OFF	OFF	OFF	OFF
3 (SET+)	OFF	OFF	ON	OFF	OFF	OFF
4 (SET+)	OFF	OFF	OFF	ON	OFF	OFF
5 (SET+)	OFF	OFF	OFF	OFF	ON	OFF
6 (SET+)	OFF	OFF	OFF	OFF	OFF	ON
14 (RESET+)	ALL OFF					

PIN 15. -COM



- ACTUATION CHARACTERISTICS:
- REQUIRES TWO (2) SEQUENTIAL PULSES (RESET & SET)
  - T1 & T2 = 30mSEC MIN
  - T3 = 10mSEC MIN
  - T4 & T5 = 20mSEC MAX

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

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>120 [3048] ≤300 [7620] = +6 [152] / -0  
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SCALE NONE

SHEET 2 OF 2

DESCRIPTION  
SP6T, SMA, LATCHING, 18GHz, 12VDC, D-SUB, RUGGEDIZED

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