



SP4T, IP64 Rated Electromechanical Relay Normally Open Switch, DC to 18GHz, 90W, 28VDC, SMA

Electromechanical Relay Switches Technical Data Sheet

PE71S6549

Features

- Single Pole Four Throw (SP4T) Electromechanical Relay Switch
- IP64 Level 1 Rated
- DC to 18 GHz Frequency Range
- Normally Open Actuator
- 2M Lifecycle Rating
- Insertion Loss 0.2 dB typ
- Isolation >80 dB typ
- VSWR as low as 1.25:1 max
- +28 Volt DC Bias
- 15 Pin D-SUB Connector for DC Control
- SMA Female Connectors
- -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

Applications

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

Description

The PE71S6549 is a Ruggedized SP4T 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 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. Impressive typical performance includes 0.2 dB insertion loss and isolation greater than 80 dB. This switch requires +28 Vdc bias voltage and operates over a temperature range of -54°C to +85°C. The rugged and compact package assembly supports SMA female connectors and 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 = 28 Vdc)

Switch Type
Actuator Type

SP4T
Normally Open

Description	Minimum	Typical	Maximum	Units
Frequency Range	DC		18	GHz
Impedance		50		Ohms
Operating Voltage	26	28	30	Volts
Actuating Set Current			140	mA
VSWR		1.1:1	1.5:1	
Insertion Loss		0.2	0.5	dB
Isolation	80	90		dB

Click the following link (or enter part number in "SEARCH" on website) to obtain additional part information including price, inventory and certifications: [SP4T, IP64 Rated Electromechanical Relay Normally Open Switch, DC to 18GHz, 90W, 28VDC, SMA PE71S6549](#)



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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	0.104 lbs [47.17 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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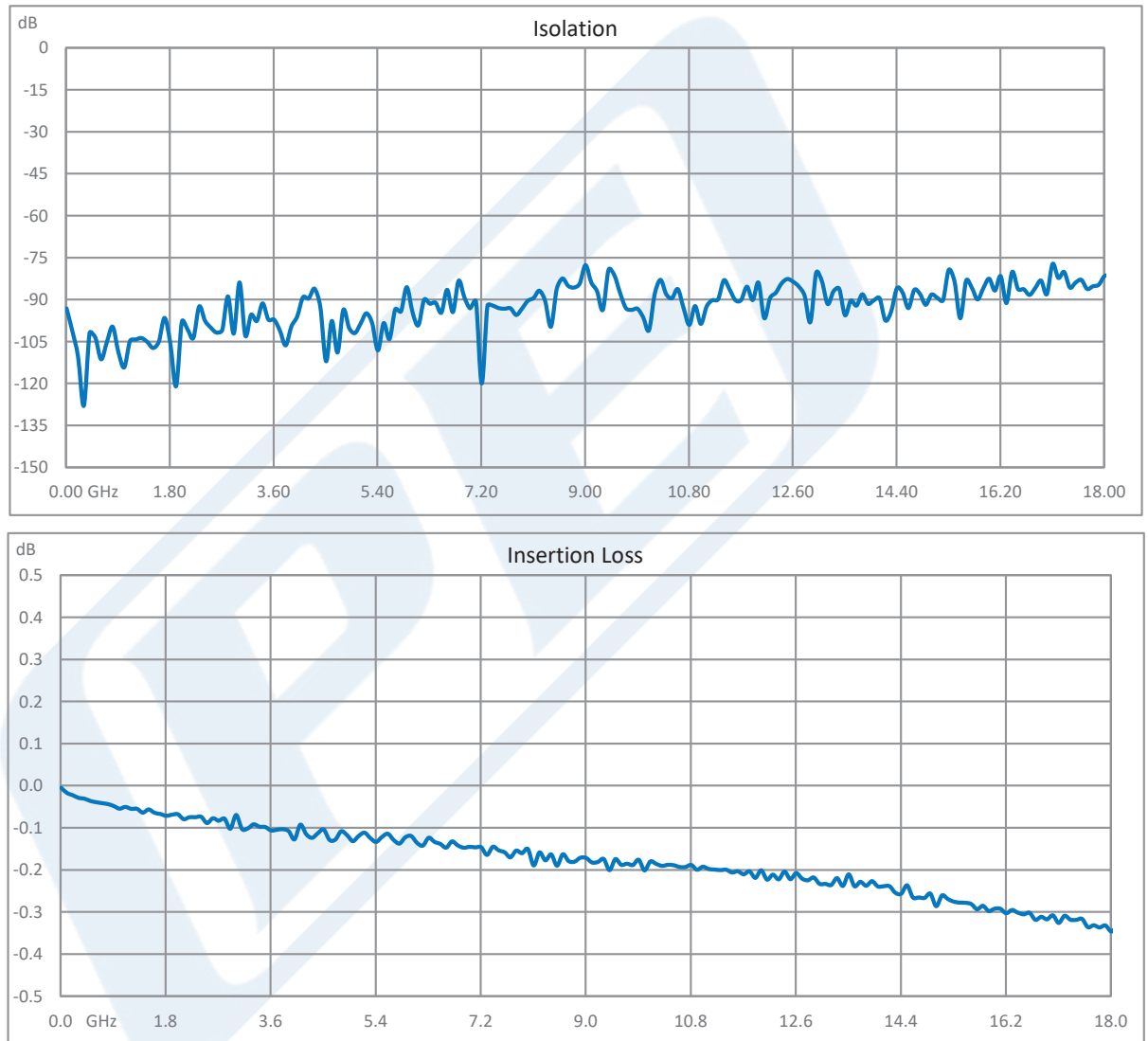


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Typical Performance Data



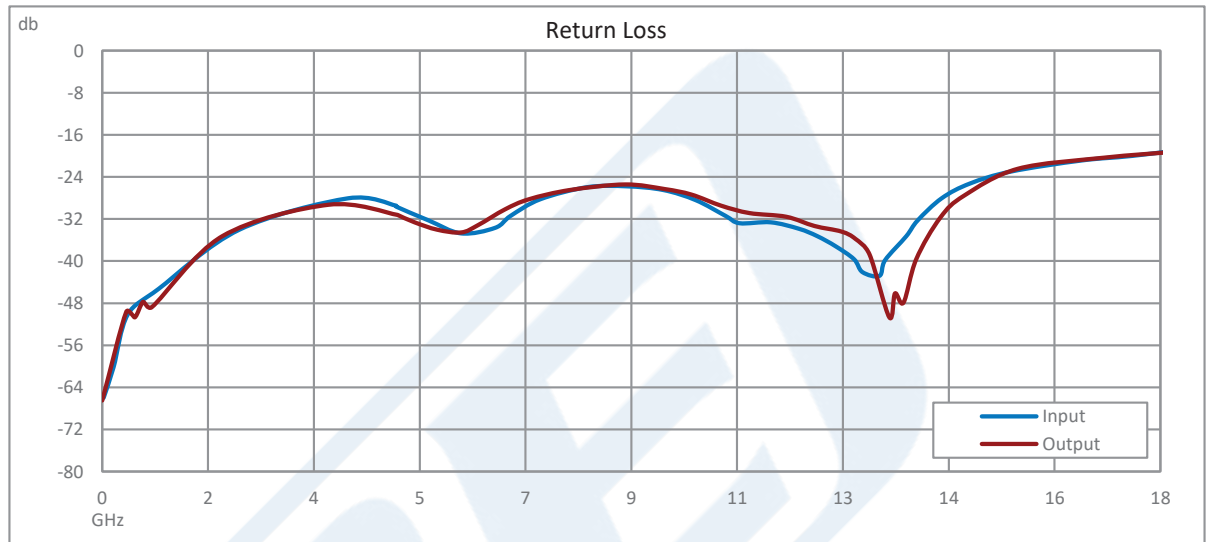
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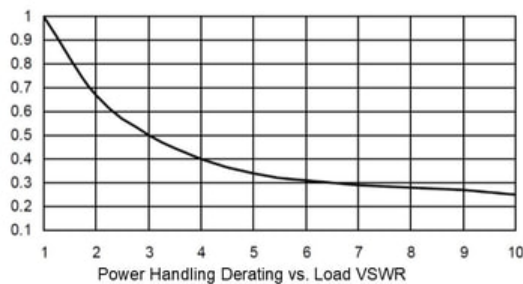
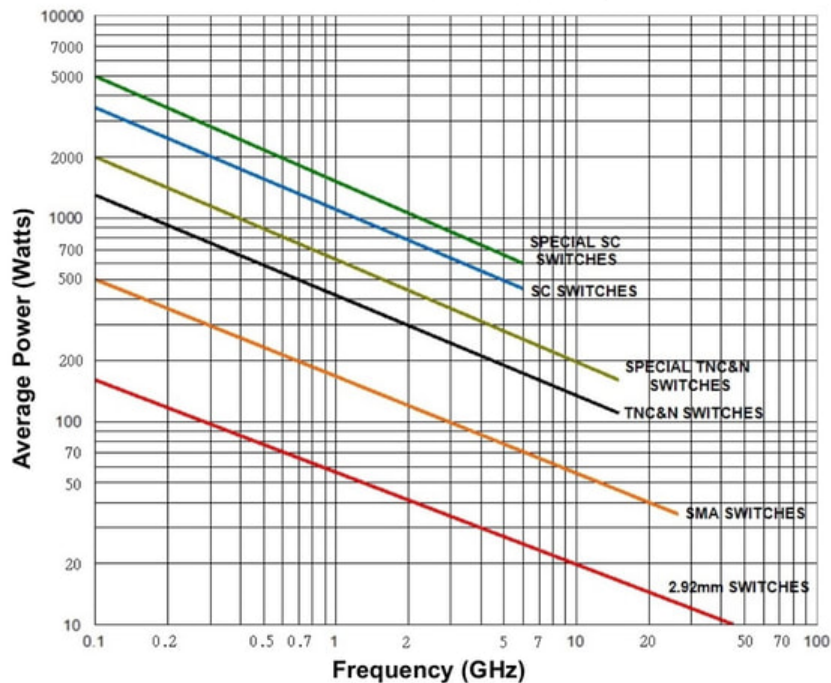


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Power Handling vs. Frequency



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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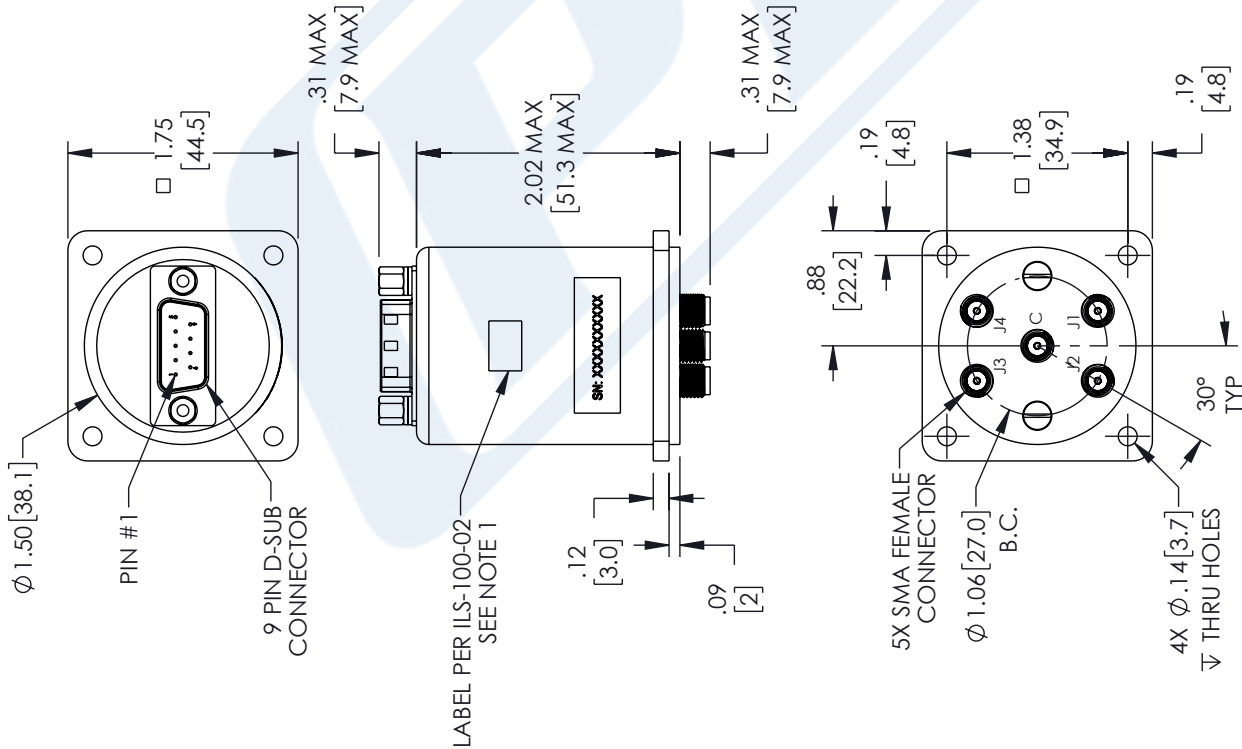
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PE71S6549 CAD Drawing

SP4T, IP64 Rated Electromechanical Relay Normally Open Switch, DC to 18GHz, 90W, 28VDC, SMA

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

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

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DESCRIPTION

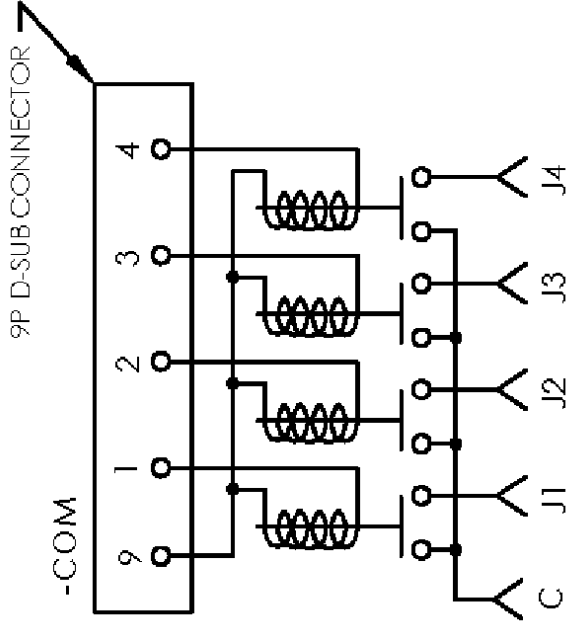
SP4T, SMA, NO, 18GHz, 28VDC, D-SUB, RUGGEDIZED



INTERPRET ALL DIMENSIONS AND
TOLERANCES PER ASME Y14.5

SCALE NONE
SHEET 1 OF 2

SIZE	CAGE CODE	DRAWN BY	ITEM NO.	REV
A	53919	DMAY	PE71S6549	A



TRUTH TABLE/PIN ASSIGNMENT :
PIN ASSIGNMENT

TERMINALS D-SUB 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

PIN 9, -COM

RF POSITION
SCHEMATIC

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SP4T, SMA, NO, 18GHz, 28VDC, D-SUB, RUGGEDIZED

INTERPRET ALL DIMENSIONS AND
TOLERANCES PER ASME Y14.5

SCALE
NONE

SHEET
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SIZE A CASE CODE 53919 DRAWN BY DMAY ITEM NO. PE71S6549 REV A