



SPDT, IP64 Rated Electromechanical Relay Failsafe
 Switch, DC to 18 GHz, 90W, 12VDC, SMA

Electromechanical Relay Switches Technical Data Sheet

PE71S6542

Features

- Single Pole Double Throw (SP2T) Ruggedized Electro-mechanical Relay Switch
- IP64 Level 1 Rated
- DC to 12 GHz Frequency Range
- Failsafe Actuator
- 2M Lifecycle Rating
- Insertion Loss 0.2 dB typ
- Isolation > 85 dB typ
- VSWR as low as 1.25:1 max
- Solder Terminal Pins for DC Control
- +12 Volt DC Bias
- 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 PE71S6542 is a Ruggedized Single Pole Double Throw (SP2T) electromechanical relay switch that operates across a frequency range from DC to 18 GHz and can handle up to 90 Watts of average power in a break before make condition. The 50 Ohm design is IP64 compliant with a Level 1 moisture seal and specifically 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 Failsafe actuator and is rated for 2 million lifecycles. Impressive typical performance includes 0.2 dB insertion loss and isolation greater than 85 dB. The switch requires +12 Vdc bias voltage and operates over a wide temperature range of -54°C to +85°C. The rugged and compact package assembly supports SMA 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
 Actuator Type

SPDT
 Failsafe

Description	Minimum	Typical	Maximum	Units
Frequency Range	DC		18	GHz
Impedance		50		Ohms
Operating Voltage	11	12	13	Volts
Actuating Set Current			200	mA
VSWR		1.2:1	1.4:1	
Insertion Loss		0.2	0.4	dB
Isolation	65	80		dB

Click the following link (or enter part number in "SEARCH" on website) to obtain additional part information including price, inventory and certifications: [SPDT, IP64 Rated Electromechanical Relay Failsafe Switch, DC to 18 GHz, 90W, 12VDC, SMA PE71S6542](#)



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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	1.2:1	1.3:1	1.4:1			
Insertion Loss, Max	0.15	0.25	0.4			dB
Isolation, Min	85	70	65			dB

Mechanical Specifications

Size

Length	2.05 in [52.07 mm]
Width/Diameter	1.5 in [38.1 mm]
Height	0.52 in [13.21 mm]
Weight	0.044 lbs [19.96 g]

Connectors

RF Connector Type	SMA Female
Control Connector	Solder Terminals

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)
MIL-STD-202 Method 204, Condition D, 10G RMS (non oper)

Vibration

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

Plotted and Other Data

Notes:

Click the following link (or enter part number in "SEARCH" on website) to obtain additional part information including price, inventory and certifications: [SPDT, IP64 Rated Electromechanical Relay Failsafe Switch, DC to 18 GHz, 90W, 12VDC, SMA PE71S6542](#)

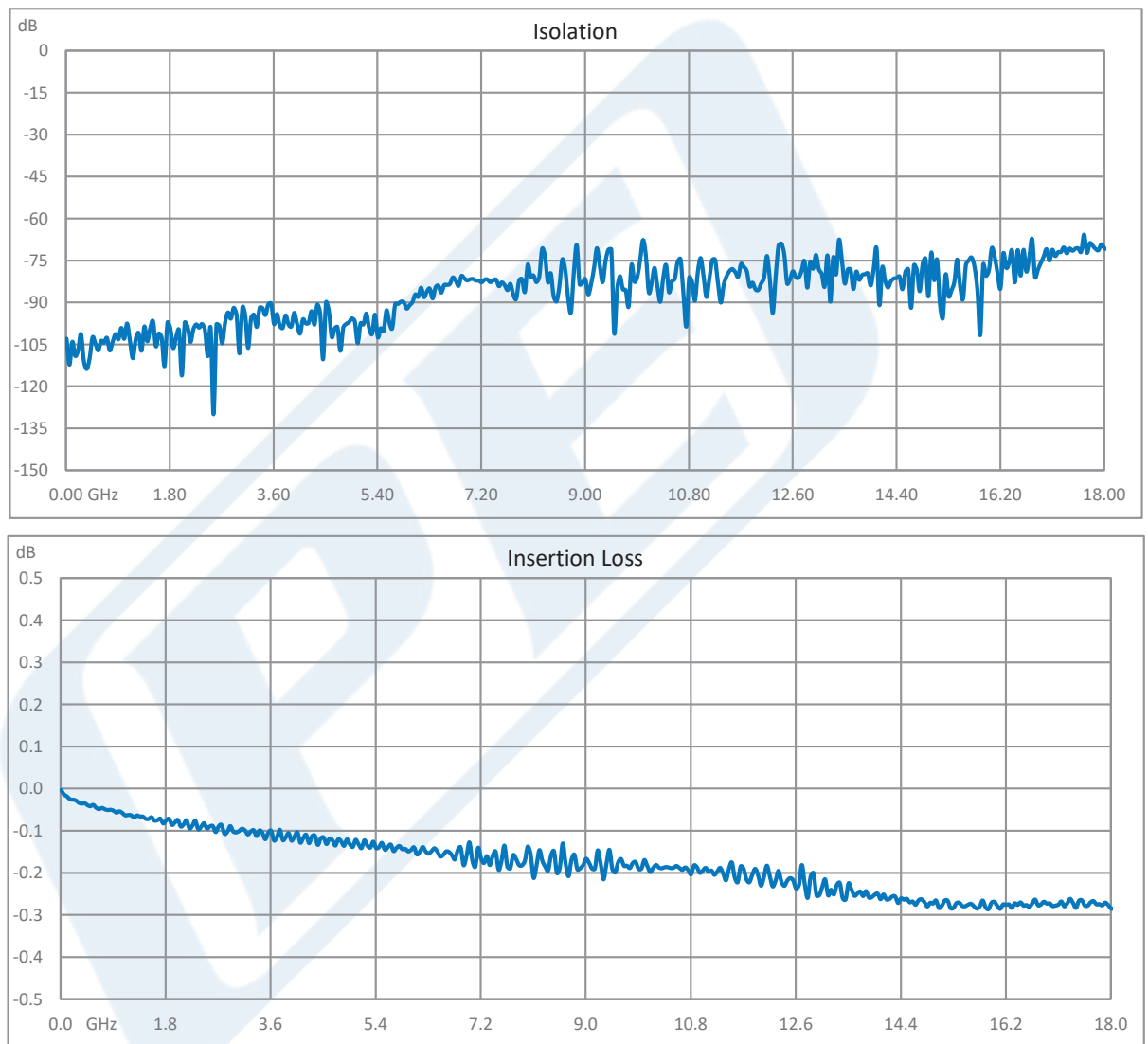


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Electromechanical Relay Switches Technical Data

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Typical Performance Data



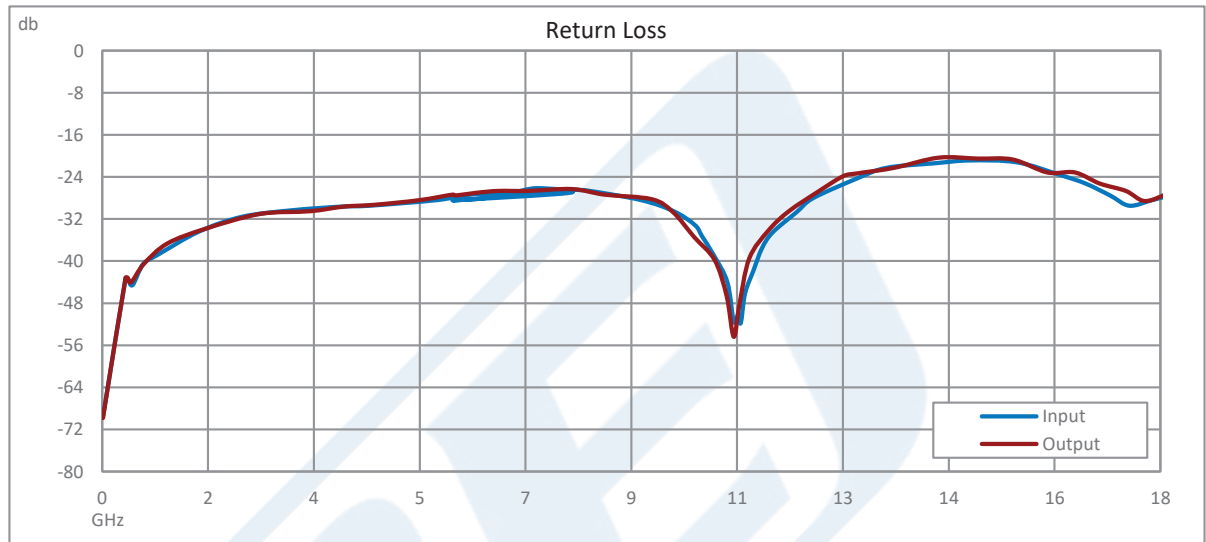
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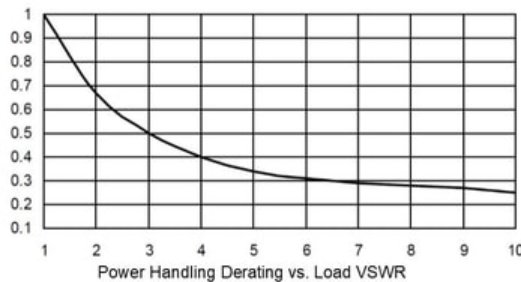


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Power Handling vs. Frequency



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

Click the following link (or enter part number in "SEARCH" on website) to obtain additional part information including price, inventory and certifications: [SPDT, IP64 Rated Electromechanical Relay Failsafe Switch, DC to 18 GHz, 90W, 12VDC, SMA PE71S6542](#)



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SPDT, IP64 Rated Electromechanical Relay Failsafe Switch, DC to 18 GHz, 90W, 12VDC, SMA from Pasternack Enterprises has same day shipment for domestic and International orders. Our RF, microwave and millimeter wave products maintain a 99.4% availability and are part of the broadest selection in the industry.

Click the following link (or enter part number in "SEARCH" on website) to obtain additional part information including price, inventory and certifications: [SPDT, IP64 Rated Electromechanical Relay Failsafe Switch, DC to 18 GHz, 90W, 12VDC, SMA PE71S6542](https://www.pasternack.com/spdt-electromechanical-relay-failsafe-switch-18-ghz-sma-pe71s6542-p.aspx)

URL: <https://www.pasternack.com/spdt-electromechanical-relay-failsafe-switch-18-ghz-sma-pe71s6542-p.aspx>

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.

PE71S6542 CAD Drawing

SPDT, IP64 Rated Electromechanical Relay Failsafe 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
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2X SOLDER TERMINALS
SOLDER WIRE USING SN96,
MAXIMUM TEMP 250 °C FOR
NO MORE THAN 5 SEC.

.31 MAX
[7.9 MAX]

1.63 MAX
[41.4 MAX]

.20
[5.1]

.31 MAX
[7.9 MAX]

LABEL PER ILS-100-02
SEE NOTE 1

4X Ø.12 [3.0]
THRU HOLES

.09
[2.4]

.28
[7.1]

.44
[11.2]

1.31
[33.3]

.88
[22]

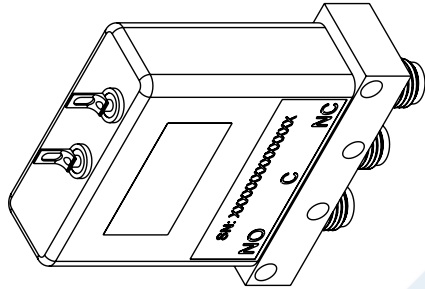
.52
[13.2]

.44
[11.2]

.31
[7.9]

.26
[6.6]

3X SMA FEMALE
CONNECTOR



UNLESS OTHERWISE SPECIFIED LEADING DIMENSIONS ARE INCHES DIMENSIONS IN [] ARE MILLIMETERS	
TOLERANCES:	
X = ±.2	[.5]
.XX = ±.02	[.5]
.XXX = ±.005	[.13]
FRACTIONS	
± 1/32	
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	



Website: www.Pasternack.com
Phone: 1.866.727.8376 | 1.949.261.1920

DESCRIPTION

SPDT, SMA, FAILSAFE, 12 GHz, 12VDC, SOLDER TERMINALS,
RUGGEDIZED

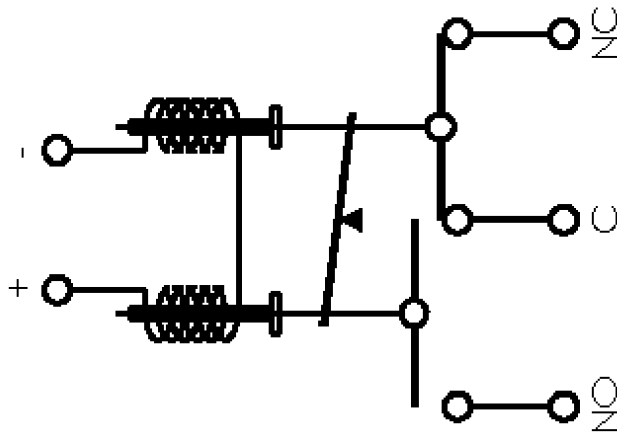
INTERPRET ALL DIMENSIONS AND TOLERANCES PER ASME Y14.5	SCALE	SHEET
	NONE	1 OF 2

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

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SCHEMATIC (FAILSAFE POSITION)

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

TOLERANCES:
X = ±.2 [.5] FRACTIONS
.XX = ±.02 [.5] ±.132
.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

DESCRIPTION
SPDT, SMA, FAILSAFE, 12 GHz, 12VDC, SOLDER TERMINALS,
RUGGEDIZED

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INTERPRET ALL DIMENSIONS AND
TOLERANCES PER ASME Y14.5
SCALE NONE
SHEET 2 OF 2

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