



SPDT Electromechanical Relay Failsafe Switch
DC to 12.4 GHz, 2M Lifecycles, TNC, 50 Watts,
12V, Indicators, TTL, Diodes, Solder Pins

Electromechanical Relay Switches Technical Data Sheet

PE71S6509

Features

- Single Pole Double Throw (SPDT) Electromechanical Relay Switch
- DC to 12 GHz Frequency Range
- Failsafe Actuator
- TTL Logic Control
- Suppression Diodes
- 2M Lifecycle Rating
- Insertion Loss 0.3 dB typ
- Isolation > 80 dB typ
- VSWR as low as 1.25:1 max
- +12 Volt DC Bias
- Terminal Solder Pins for DC Command Control
- TNC Female Connectors
- -25°C to +65°C Operating Temperature
- Up to 50 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 PE71S6509 is a Single Pole Double Throw (SPDT) electromechanical relay switch that operates across a wide frequency range from DC to 12 GHz and can handle up to 50 Watts of average power in a break before make condition. The design is rated for 2 million lifecycles and features a Failsafe Actuator. Additional features include TTL control logic, suppression diodes which limit voltage spikes or reverse current, and indicators to monitor the switch position. Impressive typical performance includes 0.3 dB insertion loss and isolation greater than 80 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 TNC female connectors and Solder Pins 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 (TA = +25°C, DC Voltage = +12 Vdc)

Switch Type	SPDT
Actuator Type	Failsafe
Actuator Options	Indicators, TTL Logic
TTL Control	on: 2.4 to 5.5 Volts off: 0 to 0.8 Volts

Description	Minimum	Typical	Maximum	Units
Frequency Range	DC		12.4	GHz
Operating Voltage		+12		Volts
Actuating Set Current @ +12 Volts			450	mA
VSWR		1.4:1	1.8:1	
Insertion Loss		0.3	0.6	dB
Isolation	60	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 Electromechanical Relay Failsafe Switch DC to 12.4 GHz, 2M Lifecycles, TNC, 50 Watts, 12V, Indicators, TTL, Diodes, Solder Pins PE71S6509](#)



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Input Power (CW) (at 12.4 GHz)	50	Watts
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Performance by Frequency

Description	F1	F2	F3	F4	F5	Units
Frequency Range	DC to 2	2 to 4	4 to 8	8 to 12		GHz
VSWR, Max	1.25:1	1.3:1	1.6:1	1.8:1		
Insertion Loss, Max	0.2	0.4	0.5	0.5		dB
Isolation, Min	80	80	70	70		dB

Mechanical Specifications

Size

Length	1.95 in [49.53 mm]
Width/Diameter	2.75 in [69.85 mm]
Height	0.92 in [23.37 mm]
Weight	0.1 lbs [45.36 g]

Connectors

RF Connector Type	TNC 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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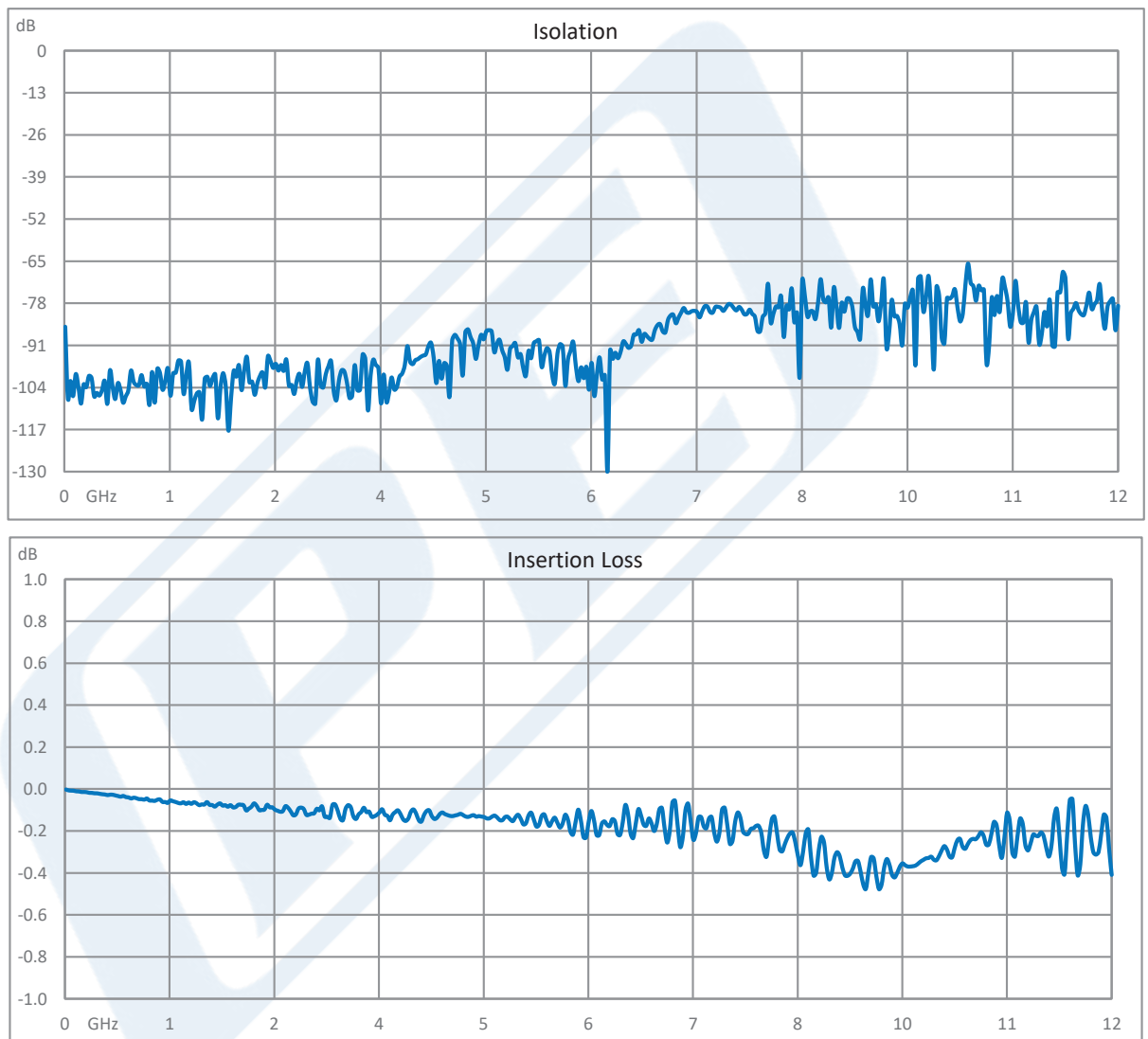


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Typical Performance Data



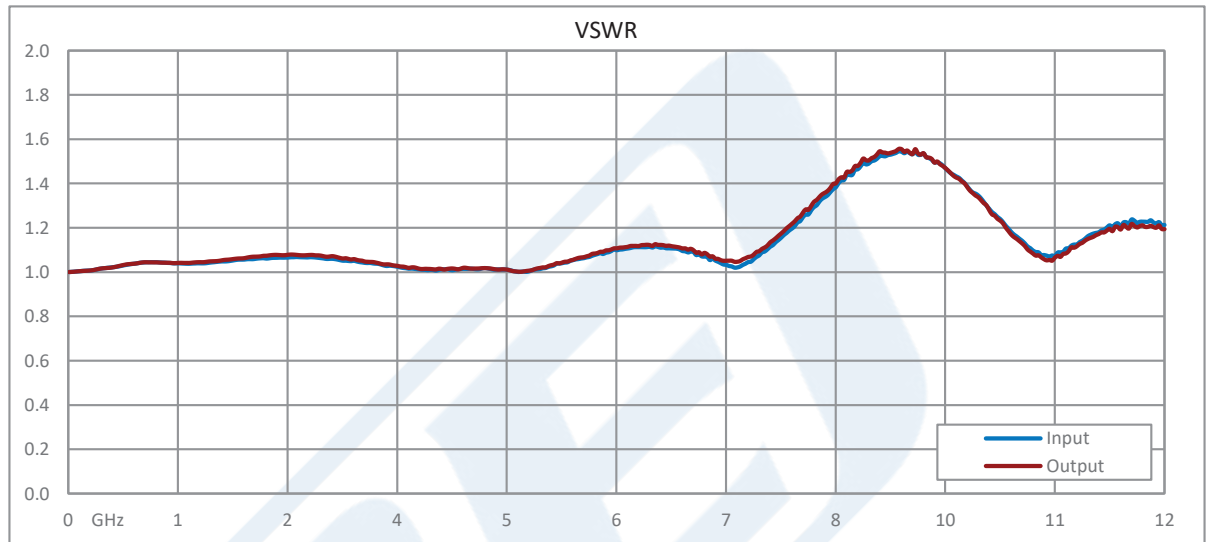
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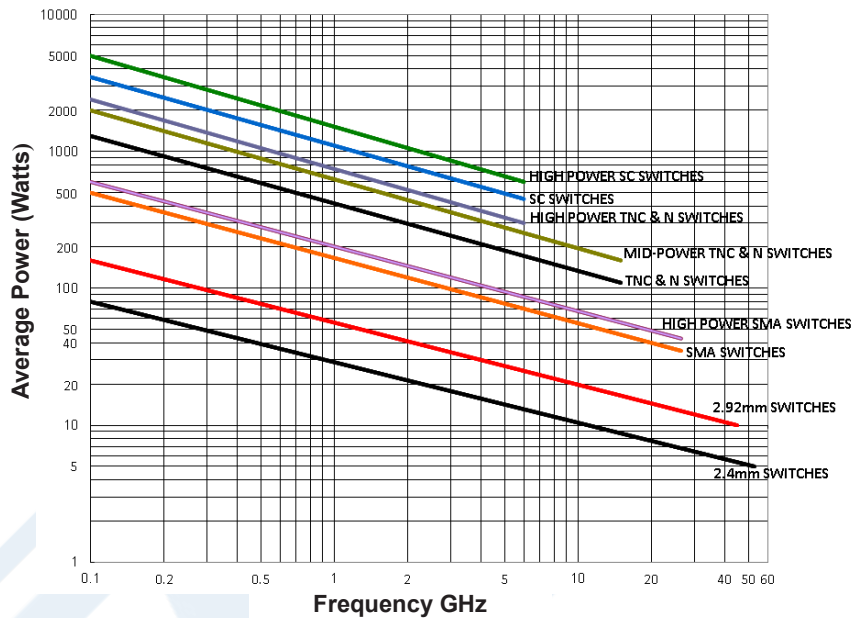


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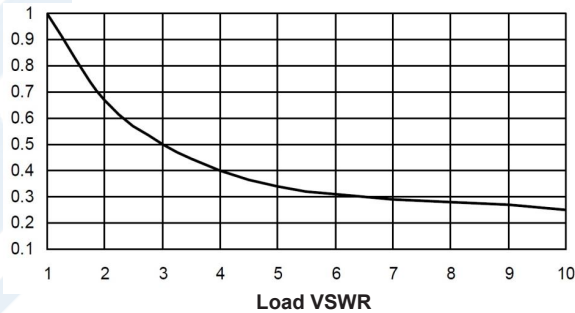
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Power Handling vs. Frequency



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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SPDT Electromechanical Relay Failsafe Switch DC to 12.4 GHz, 2M Lifecycles, TNC, 50 Watts, 12V, Indicators, TTL, Diodes, Solder Pins 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.

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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.

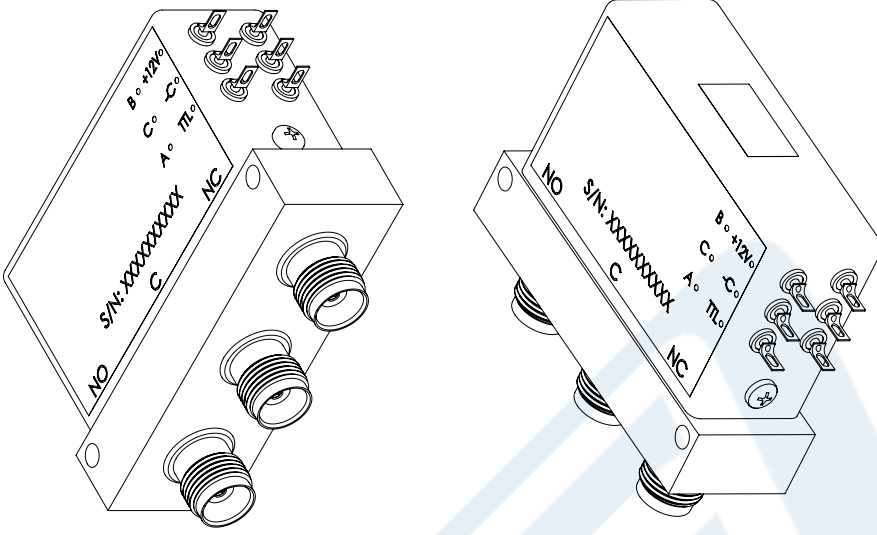
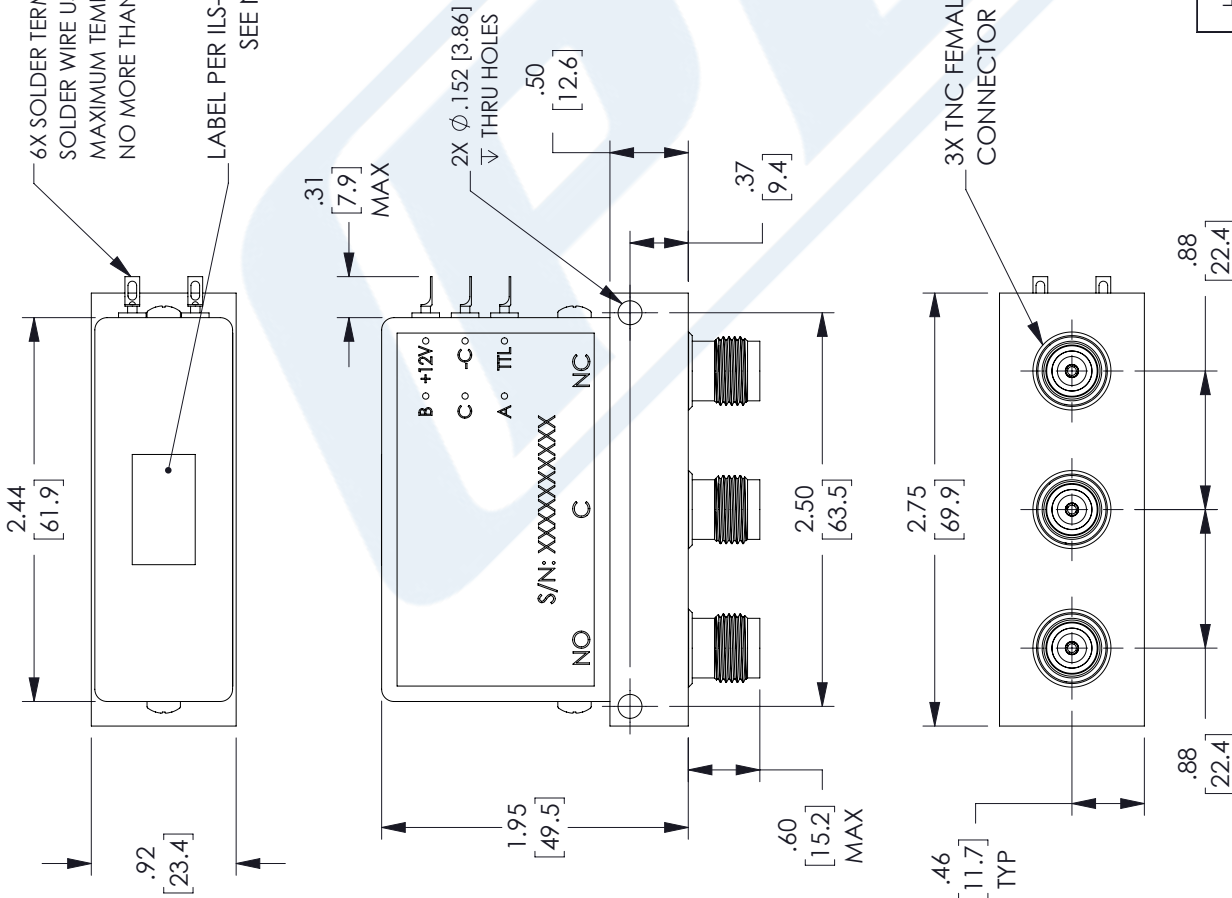
PE71S6509 CAD Drawing

SPDT Electromechanical Relay Failsafe Switch DC to 12.4 GHz, 2M Lifecycles, TNC, 50 Watts, 12V, Indicators, TTL, Diodes, Solder Pins

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

6X SOLDER TERMINALS
SOLDER WIRE USING SN96
MAXIMUM TEMP 210 °C FOR
NO MORE THAN 5 SEC.

LABEL PER ILS-100-02
SEE NOTE 1



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%L / -0

ALL DIMENSIONS SHOWN
ARE FOR REFERENCE ONLY.

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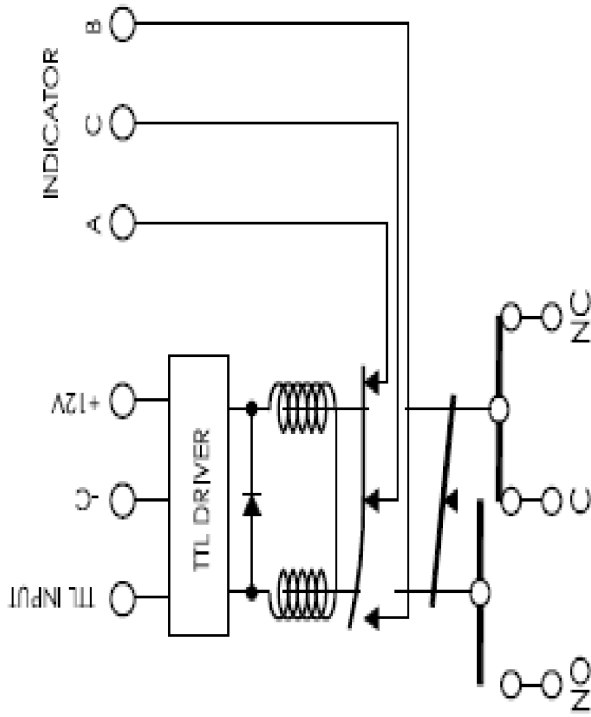
SIZE	CAGE CODE	DRAWN BY	ITEM NO.	REV
A	53919	KGLEBOVA	PE71S6509	A

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

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