



SP6T Electromechanical Relay Normally Open
Switch DC to 12.4 GHz, 2M Lifecycles, N,
160 Watts, 12V, TTL, Diodes, Solder Pins

Electromechanical Relay Switches Technical Data Sheet

PE71S6506

Features

- Single Pole Six Throw (SP6T) Electromechanical Relay Switch
- DC to 12 GHz Frequency Range
- Normally Open Actuator
- TTL Logic Control
- Suppression Diodes
- 2M Lifecycle Rating
- Insertion Loss 0.2 dB typ
- Isolation > 70 dB typ
- VSWR as low as 1.25:1 max
- +12 Volt DC Bias
- Solder Terminal Pins for DC Command Control
- N Type Female Connectors
- -25°C to +65°C Operating Temperature
- Up to 160 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 PE71S6506 is a Single Pole Six Throw (SP6T) electromechanical relay switch that operates across a wide frequency range from DC to 12 GHz and can handle up to 160W of average power in a break before make condition. The 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. Additional features include TTL control logic, and suppression diodes which limit voltage spikes or reverse current. Impressive typical performance includes 0.2 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 N Type 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	SP6T
Actuator Type	Normally Open
Actuator Options	TTL Logic
TTL Control	on: 2.4 to 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			600	mA
VSWR		1.4:1	1.7:1	
Insertion Loss		0.2	0.7	dB

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Isolation	60	70		dB
Input Power (CW) (at 12.4 GHz)			160	Watts

Performance by Frequency

Description	F1	F2	F3	F4	F5	Units
Frequency Range	DC to 1	1 to 4	4 to 8	8 to 12		GHz
VSWR, Max	1.25:1	1.4:1	1.45:1	1.7:1		
Insertion Loss, Max	0.3	0.4	0.4	0.7		dB
Isolation, Min	70	60	60	60		dB

Mechanical Specifications

Size

Length	3.2 in [81.28 mm]
Width/Diameter	2.5 in [63.5 mm]
Height	2.5 in [63.5 mm]
Weight	0.1 lbs [45.36 g]

Connectors

RF Connector Type	N 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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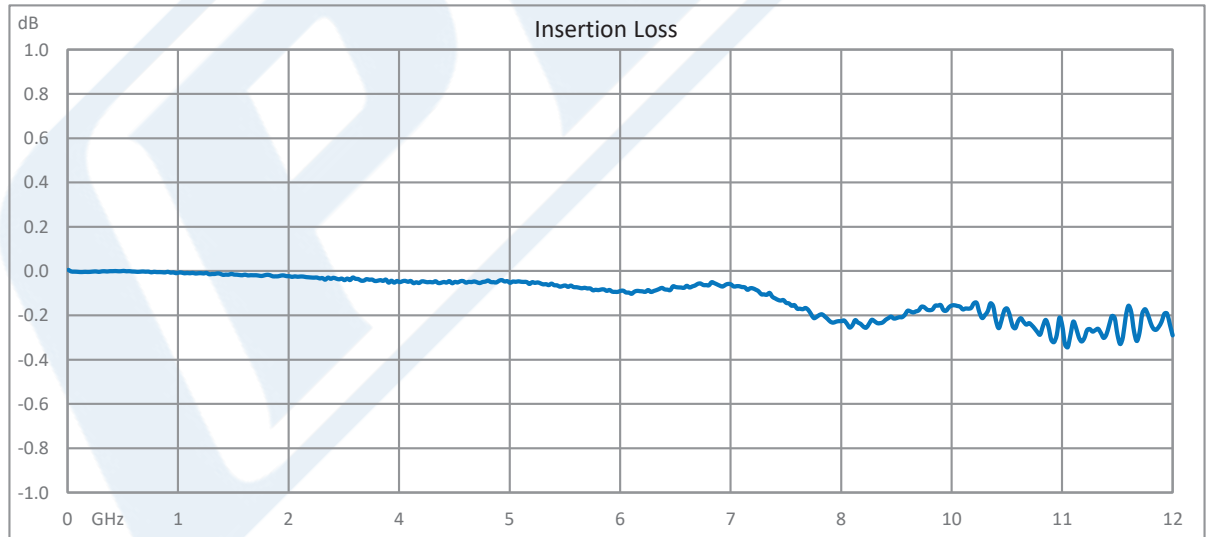
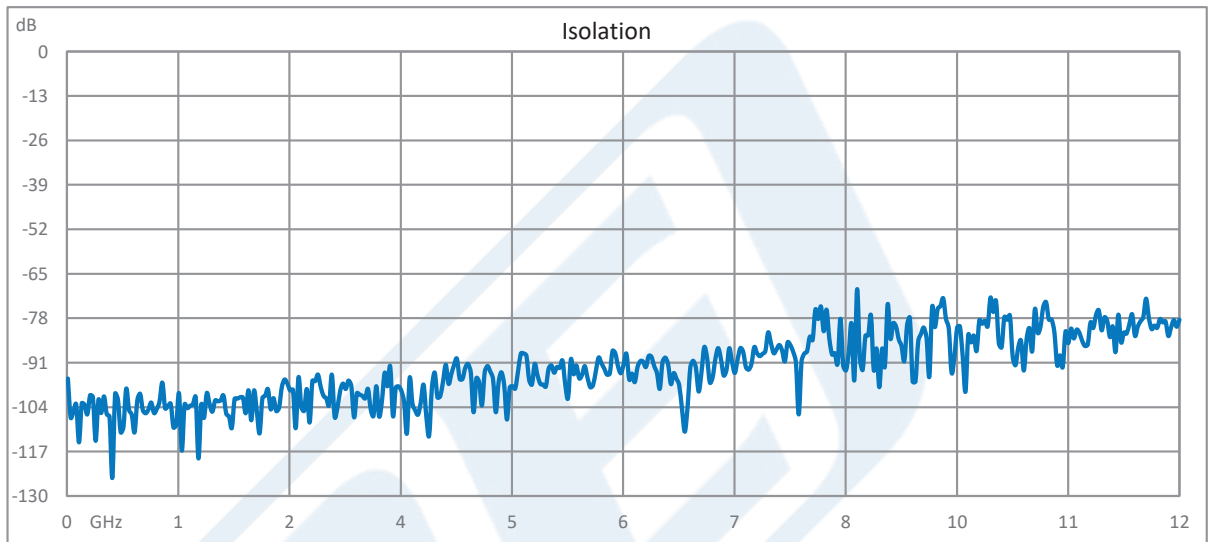


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Typical Performance Data



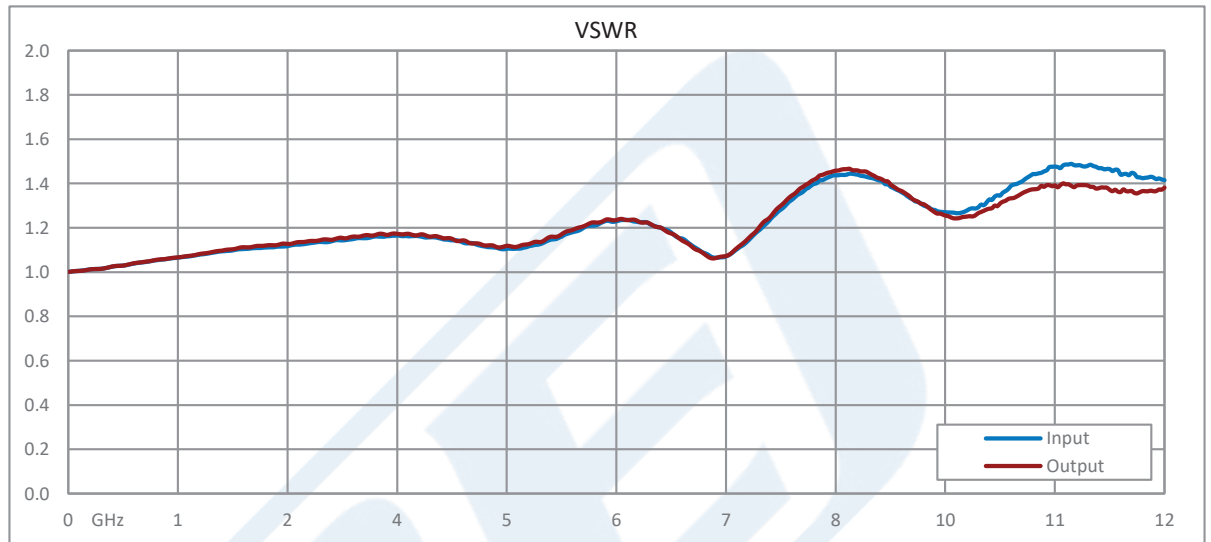
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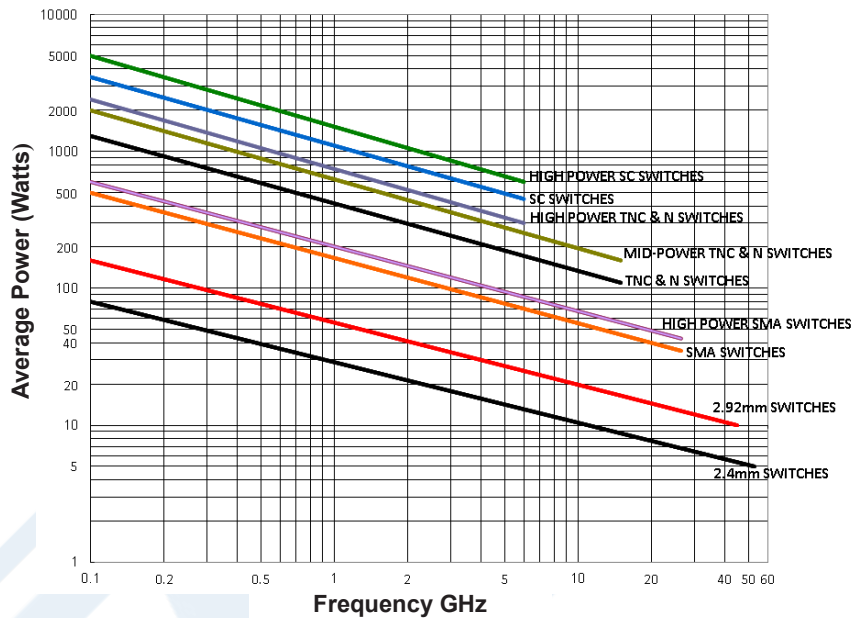


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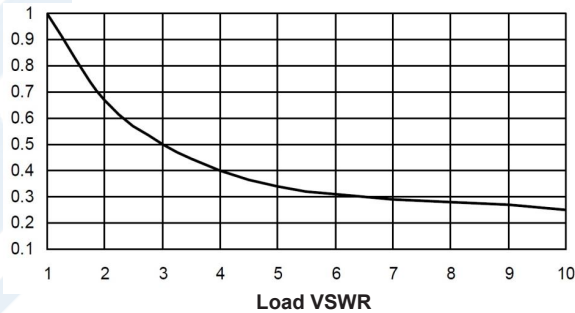
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Power Handling vs. Frequency



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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SP6T Electromechanical Relay Normally Open Switch DC to 12.4 GHz, 2M Lifecycles, N, 160 Watts, 12V, 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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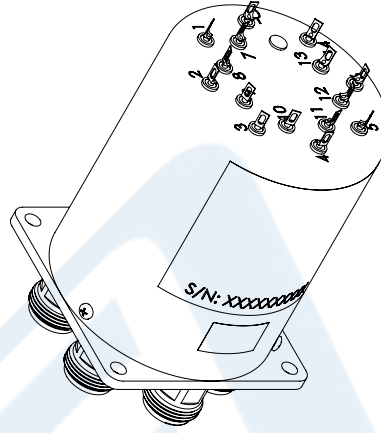
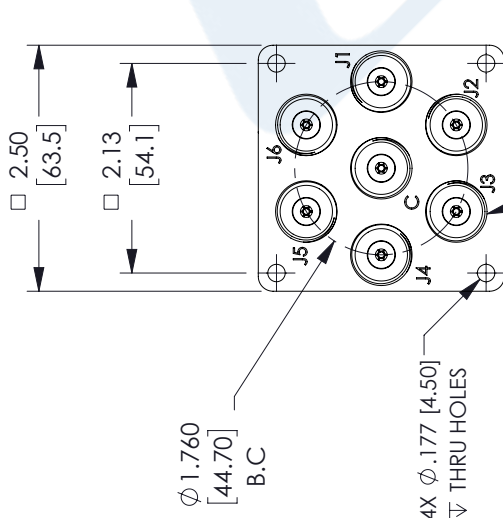
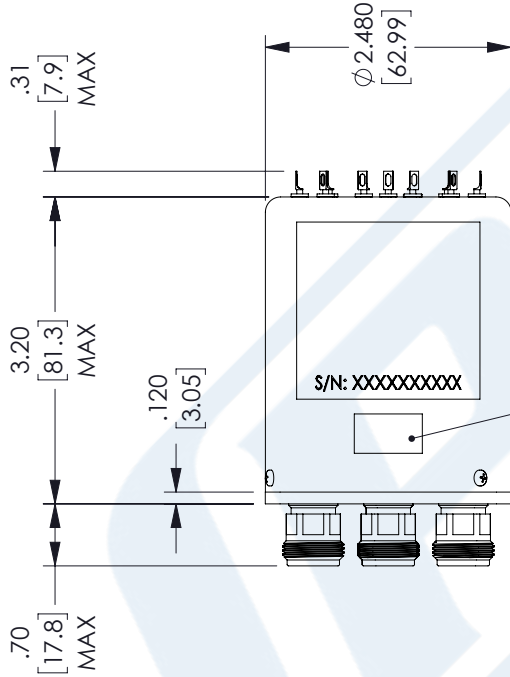
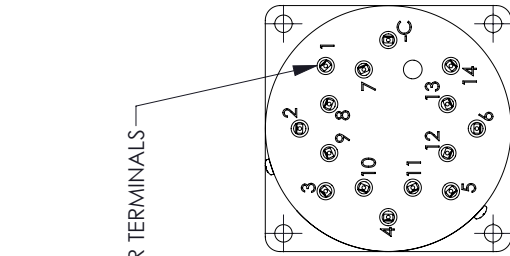
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PE71S6506 CAD Drawing

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



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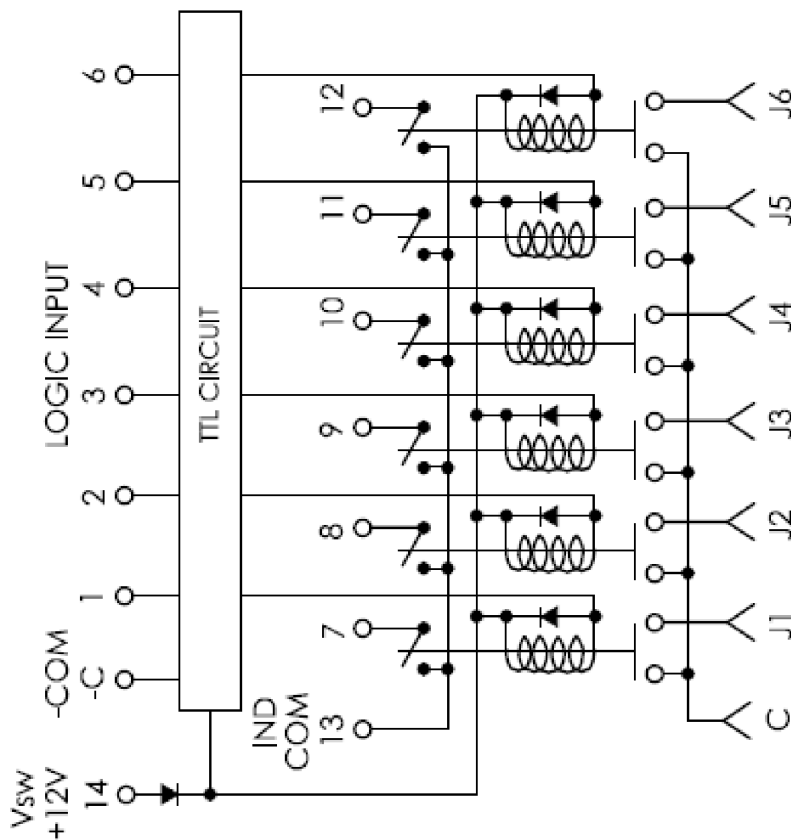
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RF POSITION
SCHEMATIC

TRUTH TABLE/PIN ASSIGNMENT:
PIN ASSIGNMENT

TERMINALS LOGIC INPUT PINS	RF PATH						INDICATOR					
	J1	J2	J3	J4	J5	J6	7	8	9	10	11	12
1 ("1")	ON	OFF	OFF	OFF	OFF	OFF	ON	OFF	OFF	OFF	OFF	OFF
2 ("2")	OFF	ON	OFF	OFF	OFF	OFF	OFF	ON	OFF	OFF	OFF	OFF
3 ("3")	OFF	OFF	ON	OFF	OFF	OFF	OFF	OFF	ON	OFF	OFF	OFF
4 ("4")	OFF	OFF	OFF	ON	OFF	OFF	OFF	OFF	OFF	ON	OFF	OFF
5 ("5")	OFF	OFF	OFF	OFF	ON	OFF	OFF	OFF	OFF	OFF	ON	OFF
6 ("6")	OFF	OFF	OFF	OFF	OFF	ON	OFF	OFF	OFF	OFF	OFF	ON

PIN -C, -COM
PIN 14, Vsw +12V
PIN 13, IND COM

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