



SP6T, Electromechanical Relay Normally Open Switch, 52GHz, 28VDC, Indicators, TTL, Diodes, D-Sub, 2.4mm

Electromechanical Relay Switches Technical Data Sheet

PE71S8023

Features

- Single Pole Double Throw (SPDT) Electromechanical Relay Switch
- DC to 52 GHz Frequency Range
- Normally Open Actuator
- TTL Logic Control
- Indicators
- Suppression Diodes
- 1M Lifecycle Rating
- Insertion Loss 0.7 dB typ
- Isolation > 80 dB typ
- VSWR as low as 1.3:1 max
- D-Sub Connector for DC Command Control
- +28 Volt DC Bias
- 2.4mm Female Connectors
- -25°C to +65°C Operating Temperature
- Up to 3 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 PE71S8023 is a Single Pole Six Throw (SP6T) electromechanical relay switch that operates across an ultra wide frequency range from DC to 52 GHz and can handle up to 3 Watts of Average Power in a break before make condition. The 50 Ohm design is rated for 1 million lifecycles and has 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, indicators to monitor the switch position, and suppression diodes which limit voltage spikes or reverse current. Impressive typical performance includes 0.7 dB insertion loss and isolation greater than 80 dB. This switch requires +28 Vdc bias voltage and operates over a temperature range of -25°C to +65°C. The rugged and compact package assembly supports 2.4mm female connectors and D-Sub Connector 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 = 28 Vdc)

Switch Type	SP6T
Actuator Type	Normally Open
Actuator Options	Indicators, TTL Logic, Diodes
TTL Control	on: 2.4 to 5 Volts off: 0 to 0.8 Volts

Description	Minimum	Typical	Maximum	Units
Frequency Range	DC		52	GHz
Operating Voltage	26	28	30	Volts
Actuating Set Current			140	mA
VSWR		1.5:1	2.2:1	
Insertion Loss		0.7	1.6	dB

Click the following link (or enter part number in "SEARCH" on website) to obtain additional part information including price, inventory and certifications: [SP6T, Electromechanical Relay Normally Open Switch, 52GHz, 28VDC, Indicators, TTL, Diodes, D-Sub, 2.4mm PE71S8023](#)



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Isolation	60	90		dB
Input Power			3	Watts
Switching Time			20	ms

Performance by Frequency

Description	F1	F2	F3	F4	F5	Units
Frequency Range	DC to 6	6 to 12.4	12.4 to 18	18 to 26.5	26.5 to 40	GHz
VSWR, Max	1.3:1	1.4:1	1.5:1	1.6:1	1.7:1	
Insertion Loss, Max	0.2	0.4	0.5	0.7	0.9	dB
Isolation, Min	80	80	80	70	65	dB

Performance by Frequency

Description	F6	F7	F8	F9	F10	Units
Frequency Range	40 to 50	50 to 52				GHz
VSWR, Max	1.8:1	2.2:1				
Insertion Loss, Max	1.2	1.6				dB
Isolation, Min	60	60				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	0.31 lbs [140.61 g]
Finish	Electroless Nickel

Connectors

RF Connector Type	2.4mm Female
Control Connector	D-Subminiature

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 operational)
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Vibration

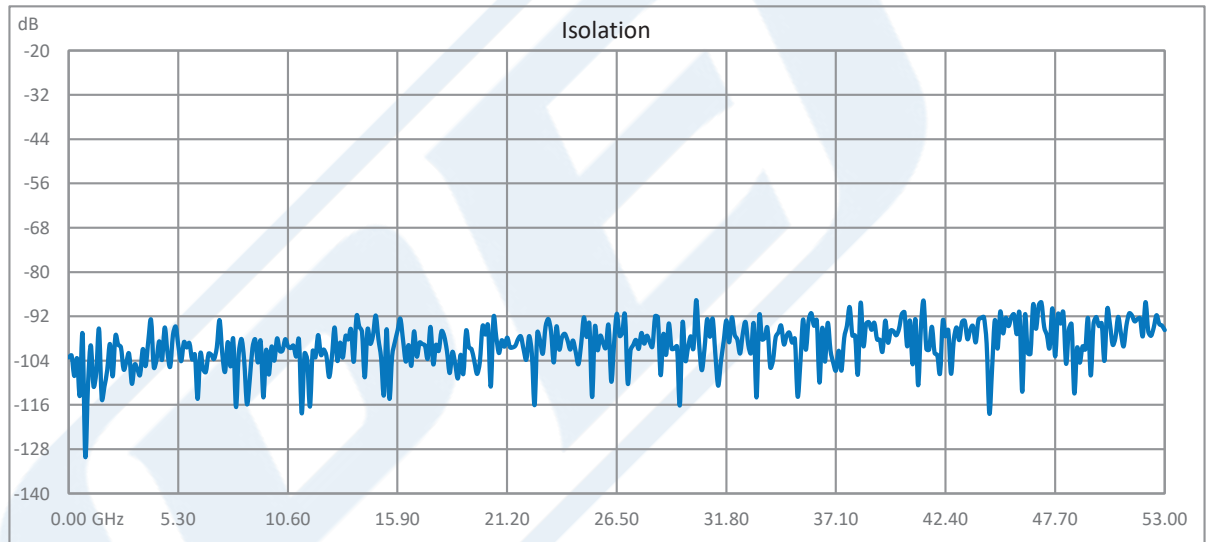
MIL-STD-202 Method 204, Condition D, 10G RMS (non operational)

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

Plotted and Other Data

Notes:

Typical Performance Data



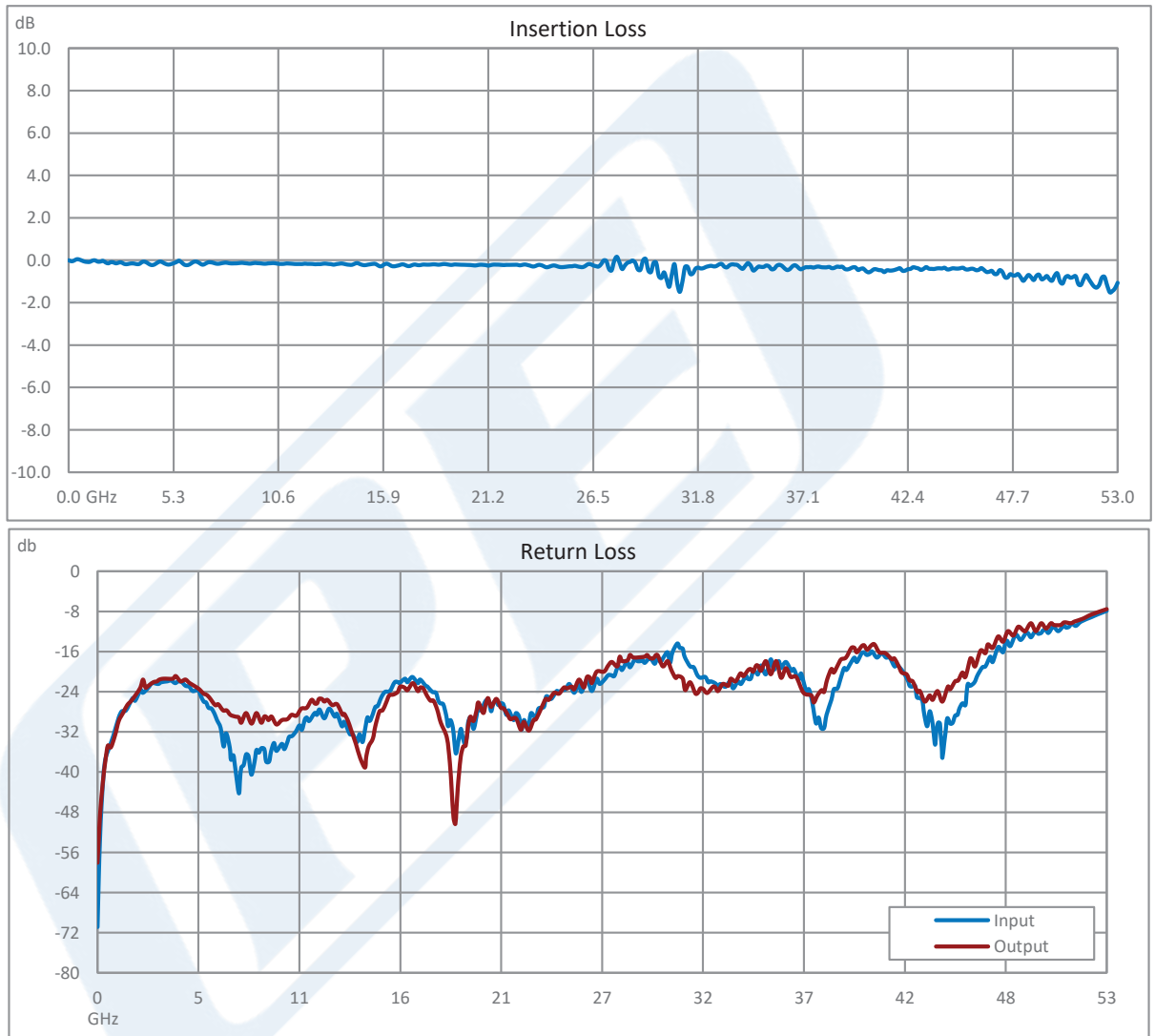
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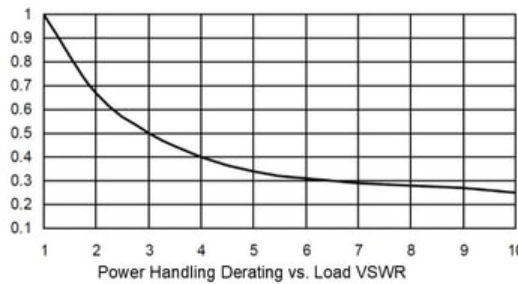
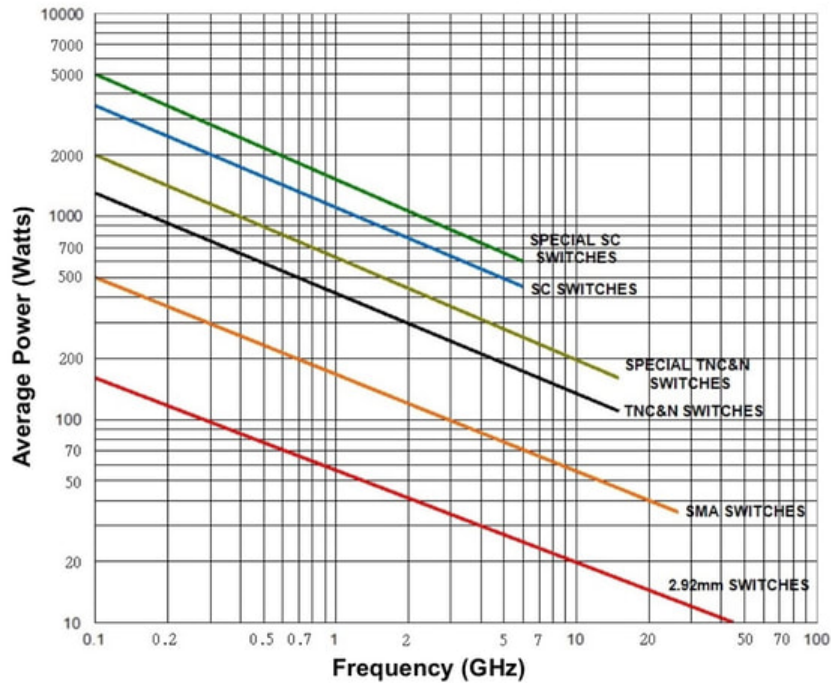


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Power Handling vs. Frequency



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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SP6T, Electromechanical Relay Normally Open Switch, 52GHz, 28VDC, Indicators, TTL, Diodes, D-Sub, 2.4mm 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.

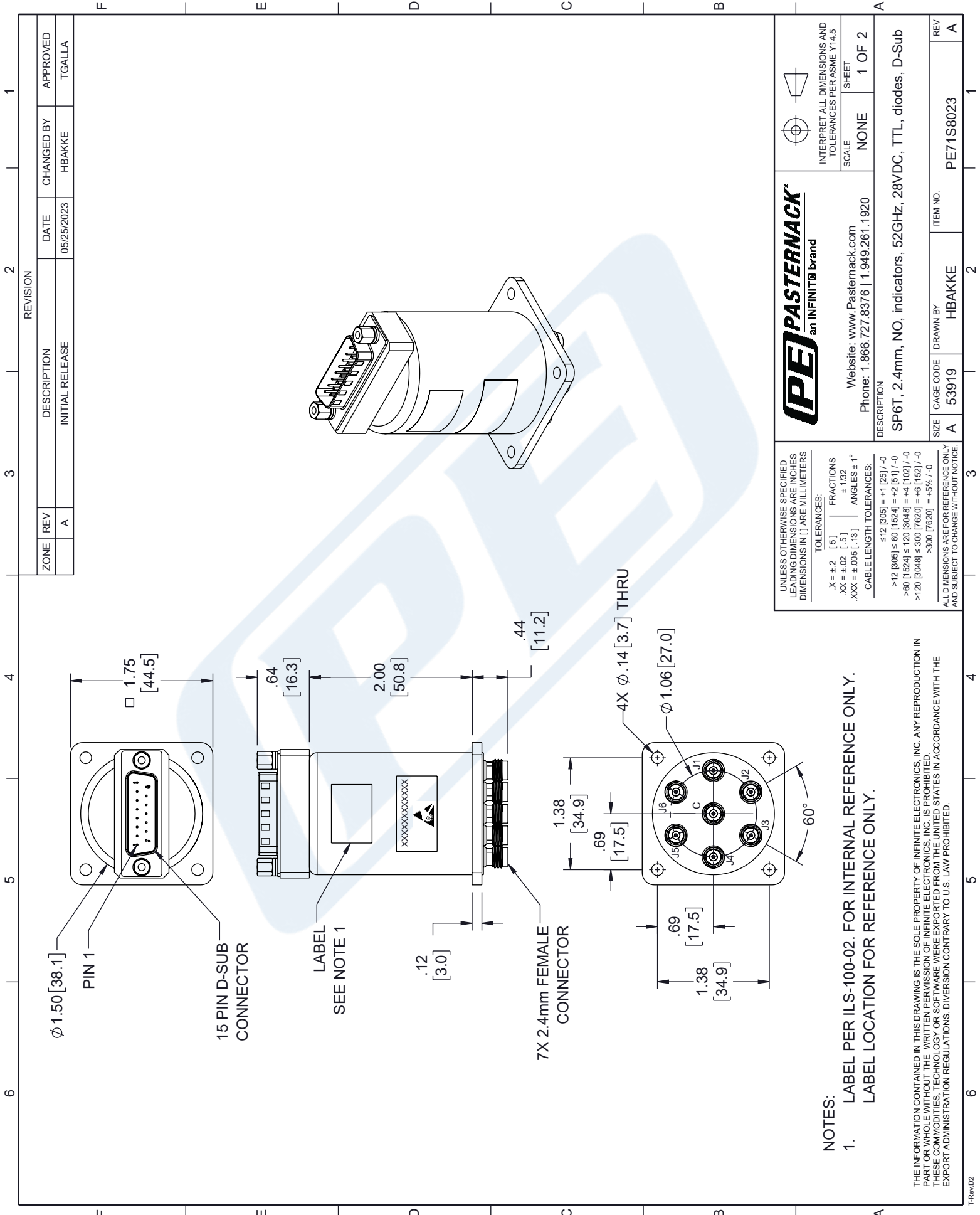
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PE71S8023 CAD Drawing

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ZONE	REV	DESCRIPTION	DATE	CHANGED BY	APPROVED
	A	INITIAL RELEASE	05/25/2023	HBAKKE	TGALLA

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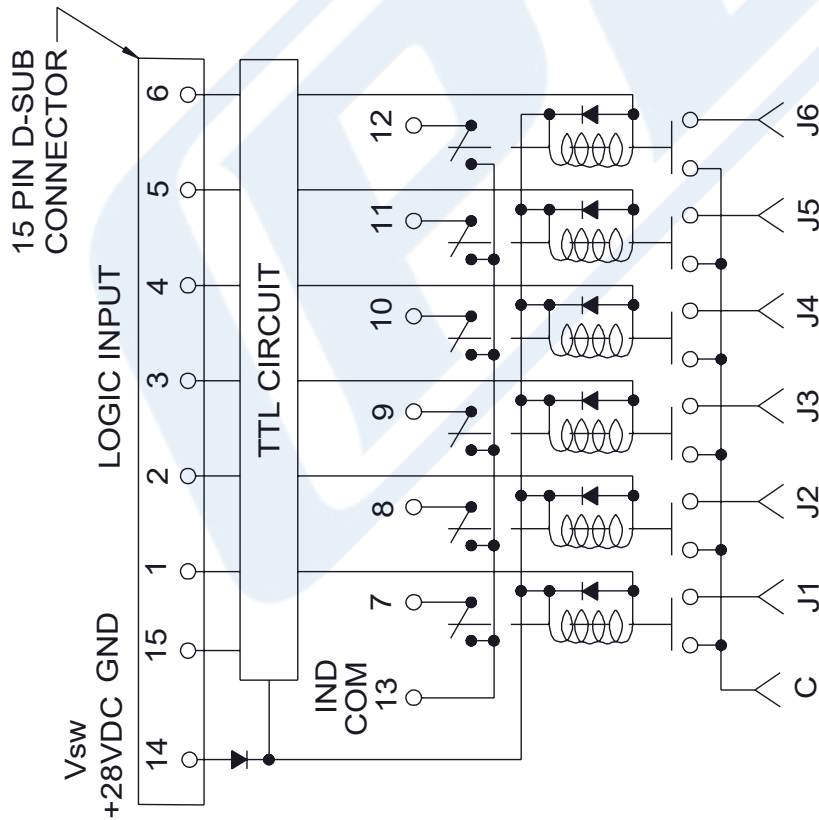
Website: www.Pasternack.com
Phone: 1.866.727.8376 | 1.949.261.1920

INTERPRET ALL DIMENSIONS AND TOLERANCES PER ASME Y14.5

SCALE: NONE SHEET: 1 OF 2

DESCRIPTION: SP6T, 2.4mm, NO, indicators, 52GHz, 28VDC, TTL, diodes, D-Sub

SIZE: A CAGE CODE: 53919 DRAWN BY: HBAKKE ITEM NO.: PE71S8023 REV: A



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("1")	OFF	ON	OFF	OFF	OFF	OFF	OFF	ON	OFF	OFF	OFF	OFF
3("1")	OFF	OFF	ON	OFF	OFF	OFF	OFF	OFF	ON	OFF	OFF	OFF
4("1")	OFF	OFF	OFF	ON	OFF	OFF	OFF	OFF	OFF	ON	OFF	OFF
5("1")	OFF	OFF	OFF	OFF	ON	OFF	OFF	OFF	OFF	OFF	ON	OFF
6("1")	OFF	OFF	OFF	OFF	OFF	ON	OFF	OFF	OFF	OFF	OFF	ON

PIN 15. GND
PIN 14. Vsw +28VDC
PIN 13. IND COM

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

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

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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DESCRIPTION

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