



SP6T, Electromechanical Relay Normally Open
Switch, DC to 52GHz, 28VDC, D-Sub, 2.4mm

Electromechanical Relay Switches Technical Data Sheet

PE71S8021

Features

- Single Pole Six Throw (SP6T) Electromechanical Relay Switch
- DC to 52 GHz Frequency Range
- Normally Open Actuator
- 1M Lifecycle Rating
- Insertion Loss 0.8 dB typ
- Isolation > 80 dB typ
- VSWR as low as 1.3:1 max
- D-Sub Connector for DC 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 PE71S8021 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 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 0.8 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 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

SP6T
Normally Open

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		0.8	1.6	dB
Isolation	60	80		dB
Input Power			3	Watts
Switching Time			20	ms

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, DC to 52GHz, 28VDC, D-Sub, 2.4mm PE71S8021](#)



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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	0.28 lbs [127.01 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)

Vibration

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

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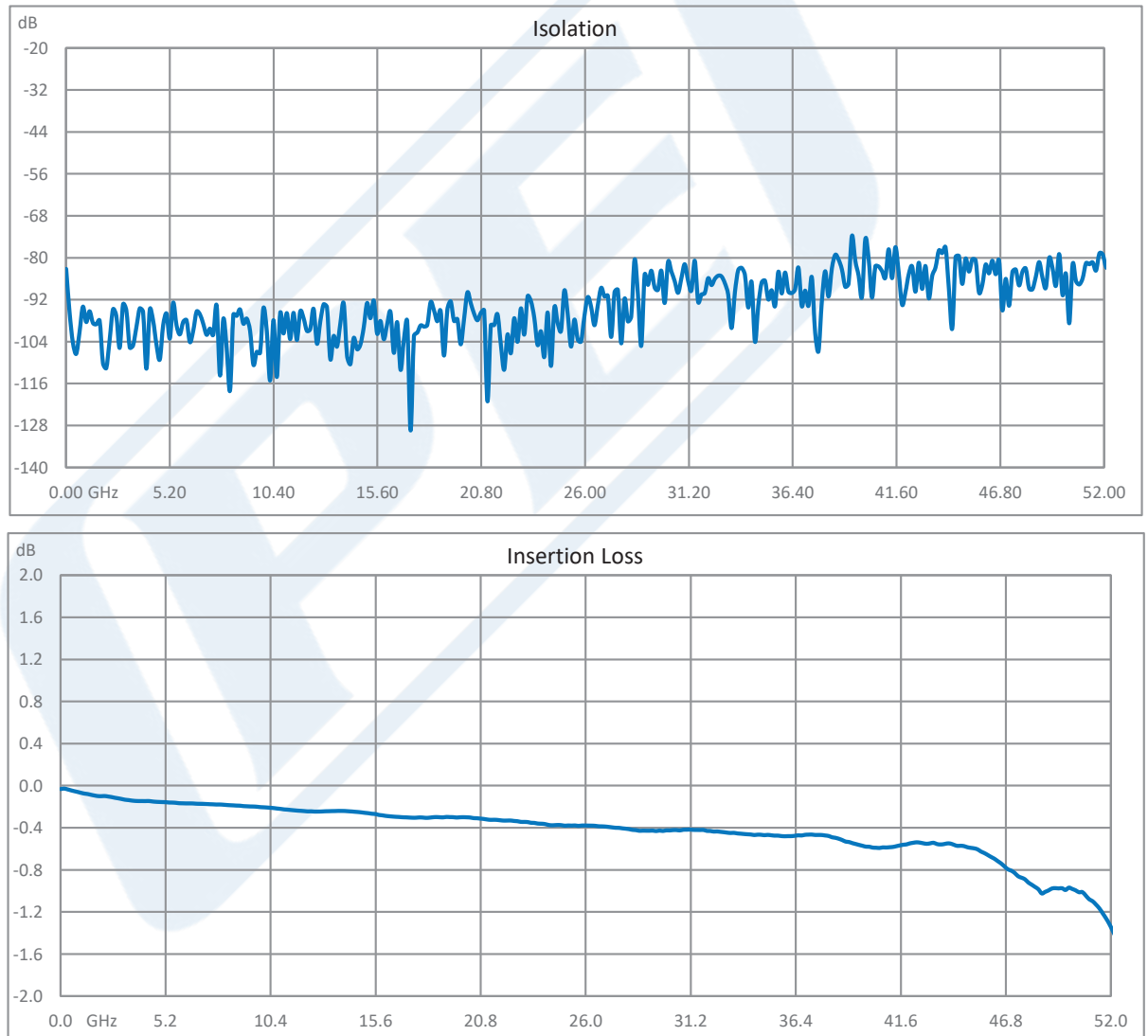
PE71S8021

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

Plotted and Other Data

Notes:

Typical Performance Data



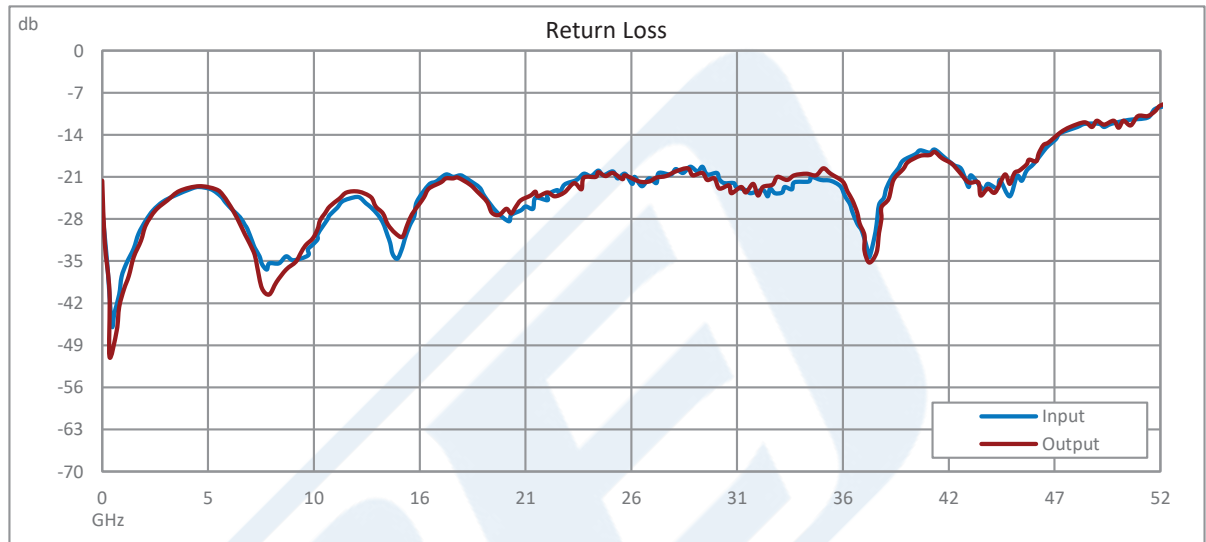
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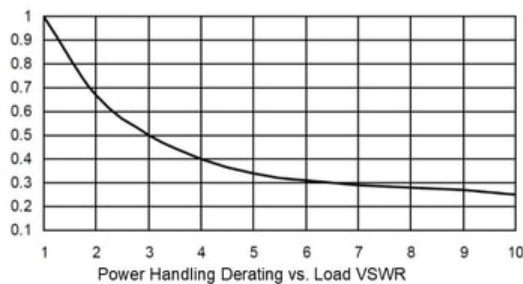
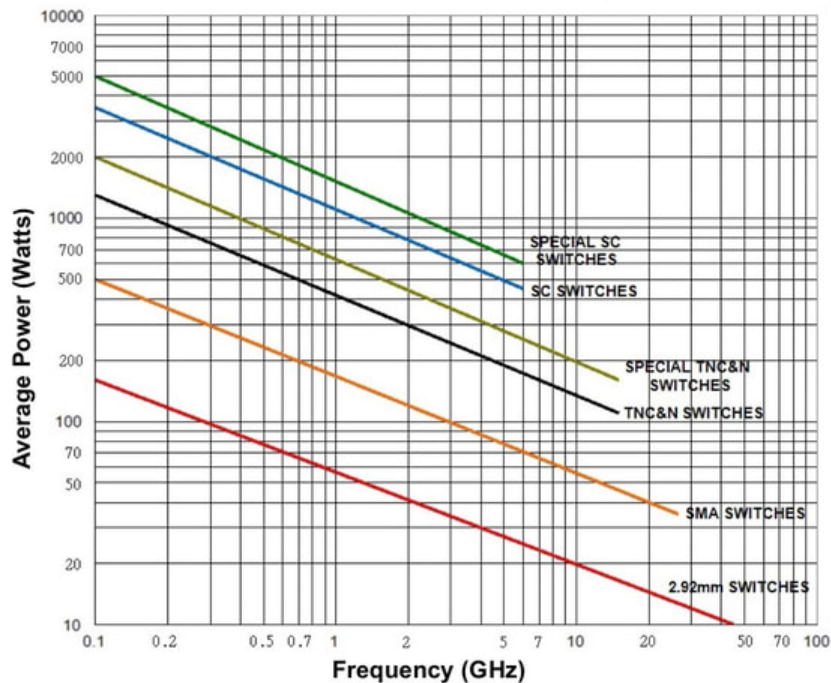


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Power Handling vs. Frequency



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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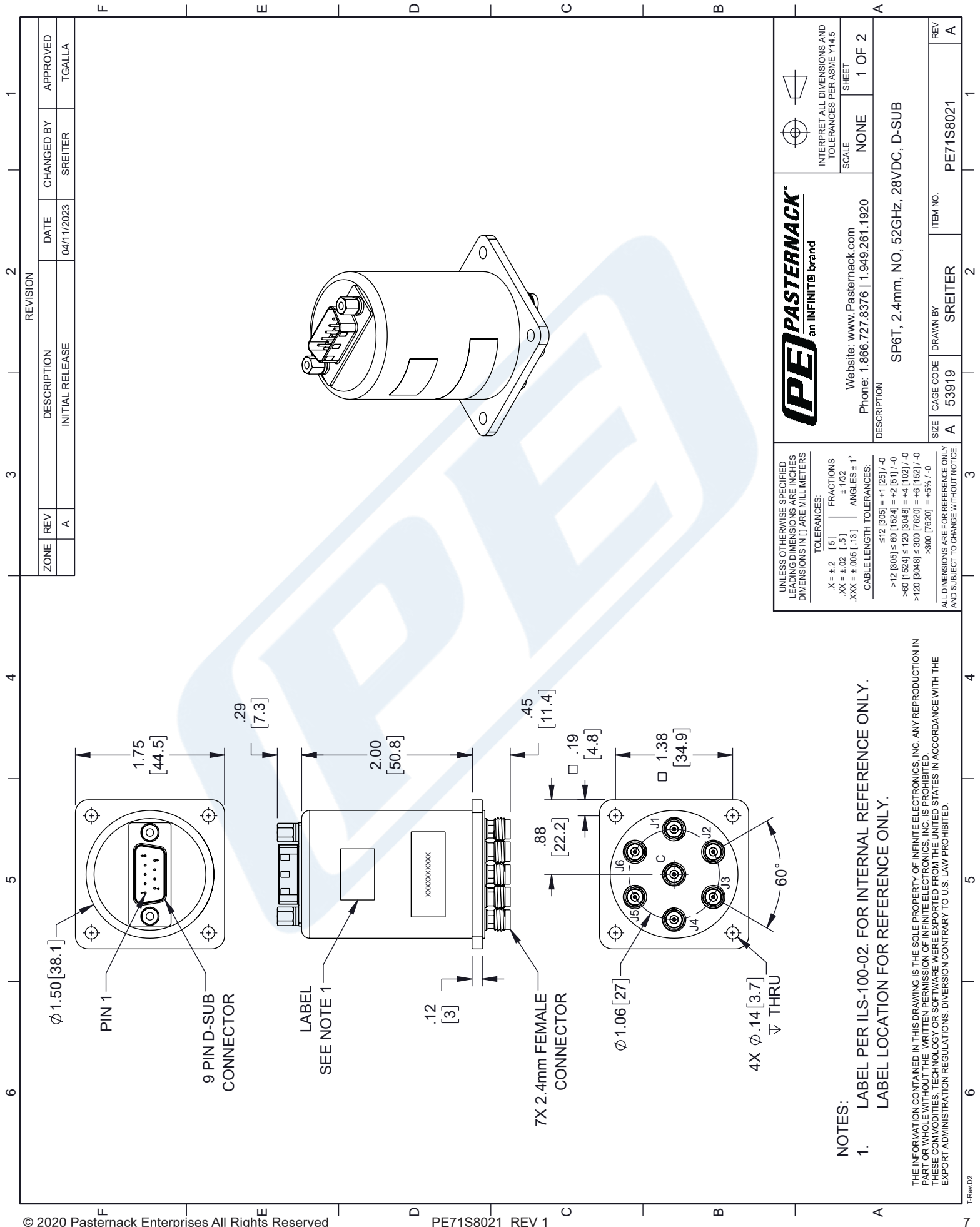
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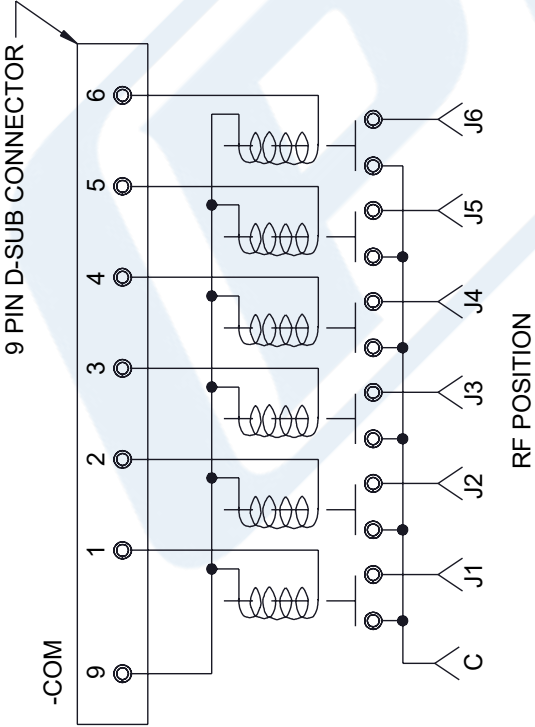
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PE71S8021 CAD Drawing

SP6T, Electromechanical Relay Normally Open Switch, DC to 52GHz, 28VDC, D-Sub, 2.4mm



SCHEMATIC

PIN ASSIGNMENT:

TERMINALS D-SUB PIN ASSIGNMENT		RF PATH					
		J1	J2	J3	J4	J5	J6
1		ON	OFF	OFF	OFF	OFF	OFF
2		OFF	ON	OFF	OFF	OFF	OFF
3		OFF	OFF	ON	OFF	OFF	OFF
4		OFF	OFF	OFF	ON	OFF	OFF
5		OFF	OFF	OFF	OFF	ON	OFF
6		OFF	OFF	OFF	OFF	OFF	ON

PIN 9. -COM

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

ALL DIMENSIONS ARE FOR REFERENCE ONLY
AND SUBJECT TO CHANGE WITHOUT NOTICE

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SCALE NONE

SHEET 2 OF 2

DESCRIPTION
SP6T, 2.4mm, NO, 52GHz, 28VDC, D-SUB

SIZE	CAGE CODE	DRAWN BY	ITEM NO.
A	53919	SREITER	PE71S8021

REV A