



SP6T, IP64 Rated Electromechanical Relay Normally Open Switch, DC to 18GHz, 90W, TTL, Diodes, 28VDC, SMA

Electromechanical Relay Switches Technical Data Sheet

PE71S6535

Features

- Single Pole Four Throw (SP6T) Electromechanical Relay Switch
- IP64 Level 1 Rated
- DC to 18 GHz Frequency Range
- Normally Open Actuator
- TTL
- Suppression Diodes
- 2M Lifecycle Rating
- Insertion Loss 0.2 dB typ
- Isolation > 80 dB typ
- VSWR as low as 1.25:1 max
- +28 Volt DC Bias
- 15 Pin D-SUB Connector for Command Control functions
- 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 PE71S6535 is a Ruggedized SP6T electromechanical relay switch that operates across a broadband frequency range from DC to 18 GHz and can handle up to 90W of average power in a break before make condition. The 50 Ohm design is IP64 compliant with a Level 1 moisture seal and specially 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 50 Ohm 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 80 dB. This switch requires +28 Vdc bias voltage and operates over a temperature range of -54°C to +85°C. The rugged and compact package assembly supports SMA female connectors and 15 Pin 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	SP6T
Actuator Type	Normally Open
Actuator Options	Diodes, TTL Logic
TTL Control	on: 2.4 to 5 Volts off: 0 to 0.8 Volts

Description	Minimum	Typical	Maximum	Units
Frequency Range	DC		18	GHz
Impedance		50		Ohms
Operating Voltage	26	28	30	Volts

Click the following link (or enter part number in "SEARCH" on website) to obtain additional part information including price, inventory and certifications: [SP6T, IP64 Rated Electromechanical Relay Normally Open Switch, DC to 18GHz, 90W, TTL, Diodes, 28VDC, SMA PE71S6535](#)



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Actuating Set Current		140	mA
VSWR	1.1:1	1.5:1	
Insertion Loss	0.2	0.5	dB
Isolation	80	90	dB
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	1.25:1	1.4:1	1.5:1			
Insertion Loss, Max	0.2	0.4	0.5			dB
Isolation, Min	80	80	80			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	0.124 lbs [56.25 g]

Connectors

RF Connector Type	SMA Female
Control Connector	D-Subminiature

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)

Vibration

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

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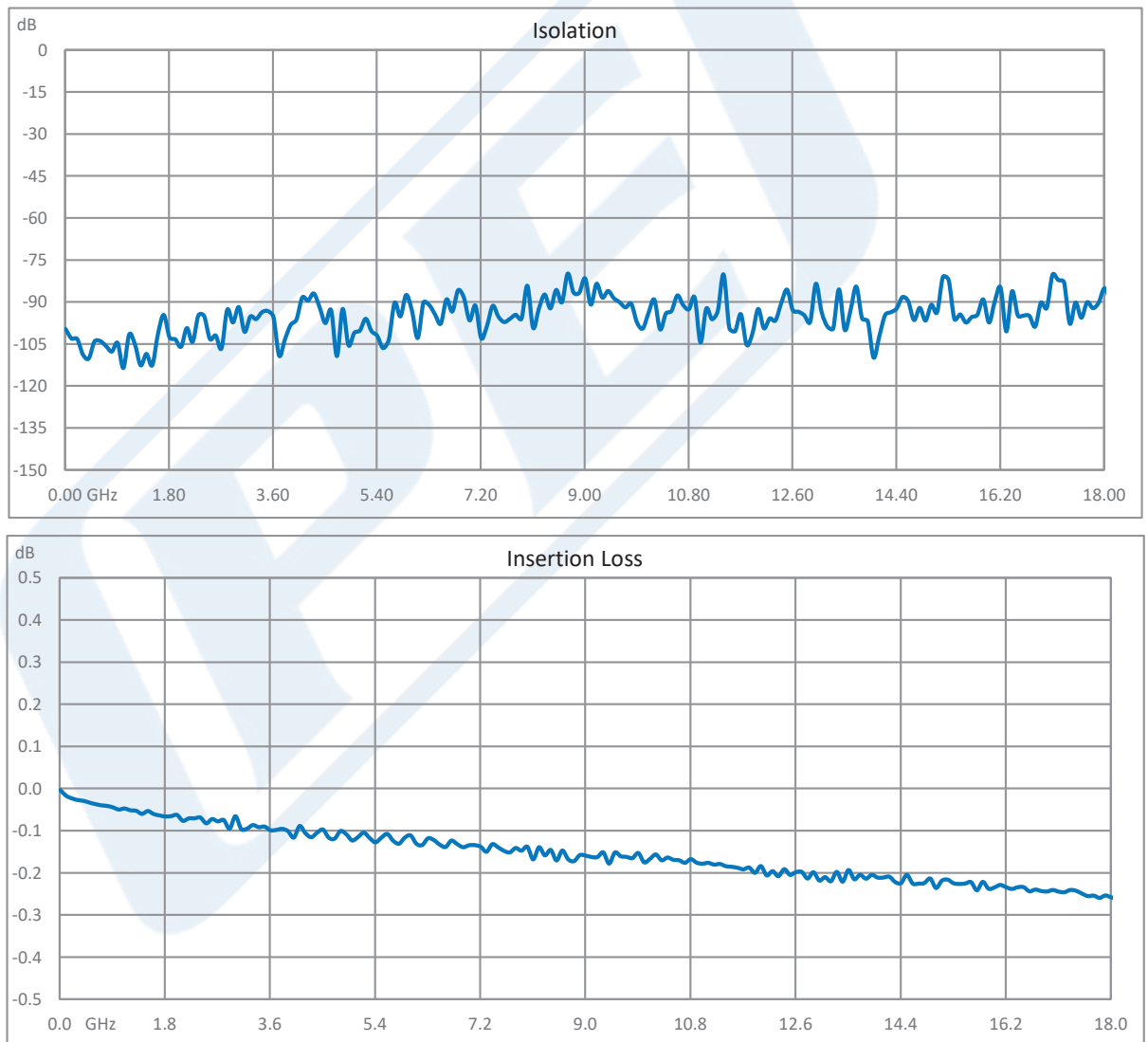
PE71S6535

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

Plotted and Other Data

Notes:

Typical Performance Data



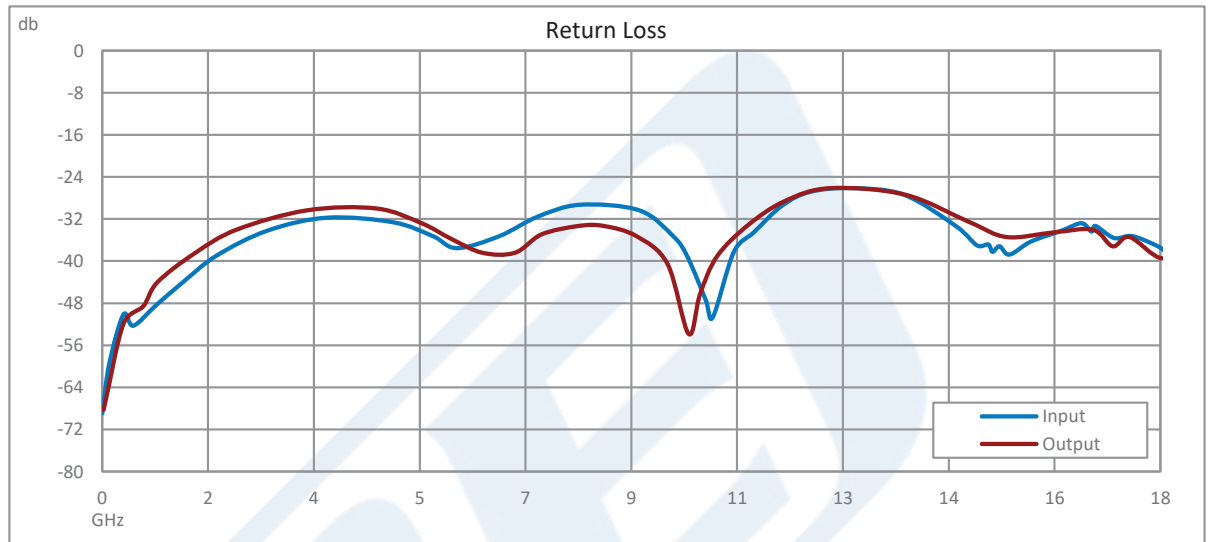
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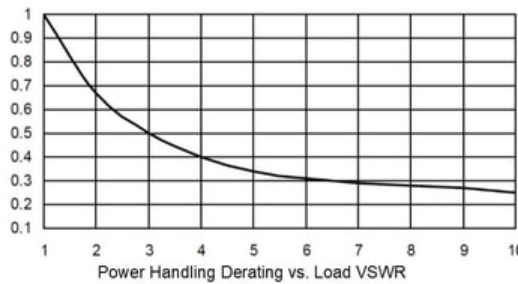
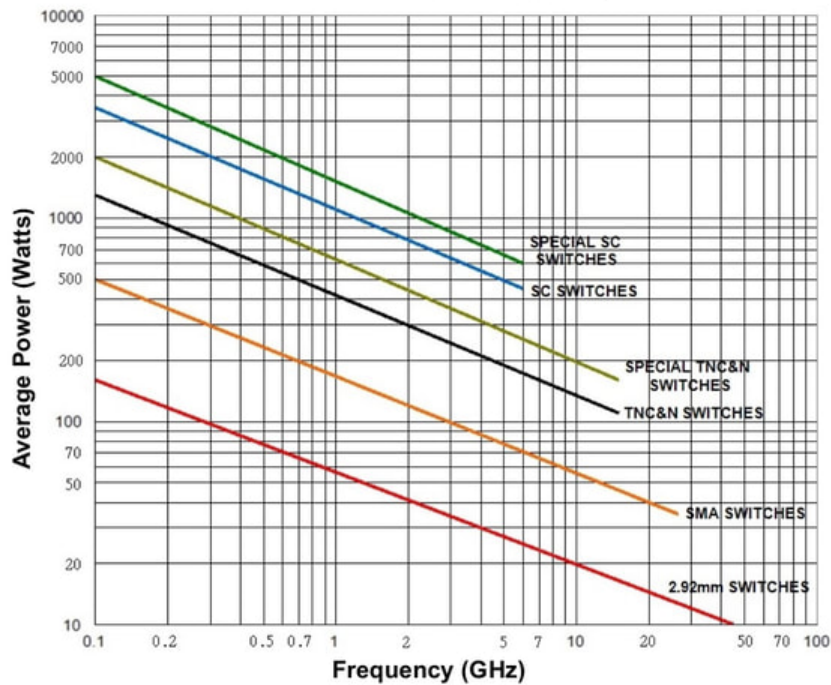


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Power Handling vs. Frequency



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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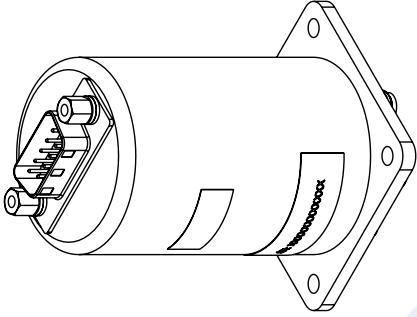
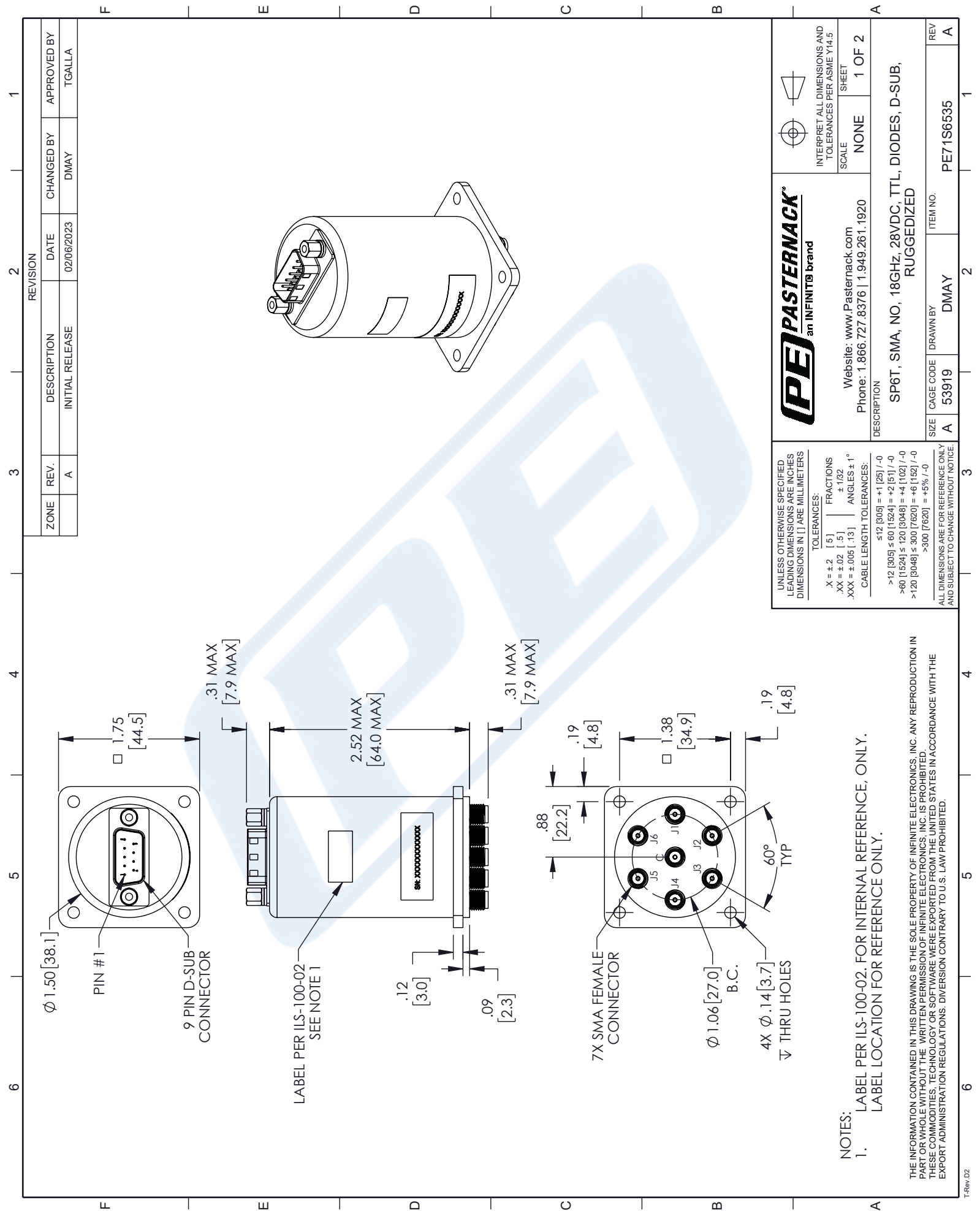
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The information contained in this document is accurate to the best of our knowledge and representative of the part described herein. It may be necessary to make modifications to the part and/or the documentation of the part, in order to implement improvements. 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.

PE71S6535 CAD Drawing

SP6T, IP64 Rated Electromechanical Relay Normally Open Switch, DC to 18GHz, 90W, TTL, Diodes, 28VDC, SMA



ZONE	REV.	DESCRIPTION	DATE	CHANGED BY	APPROVED BY
	A	INITIAL RELEASE	02/06/2023	DMAY	TGALLA

REVISION					
1					
2					
3					
4					
5					
6					

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

TOLERANCES:

X = ±.2 [5] FRACTIONS
 .XX = ±.02 [.5] ±.1/32
 .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: 1 OF 2

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DESCRIPTION: SP6T, SMA, NO, 18GHZ, 28VDC, TTL, DIODES, D-SUB, RUGGEDIZED

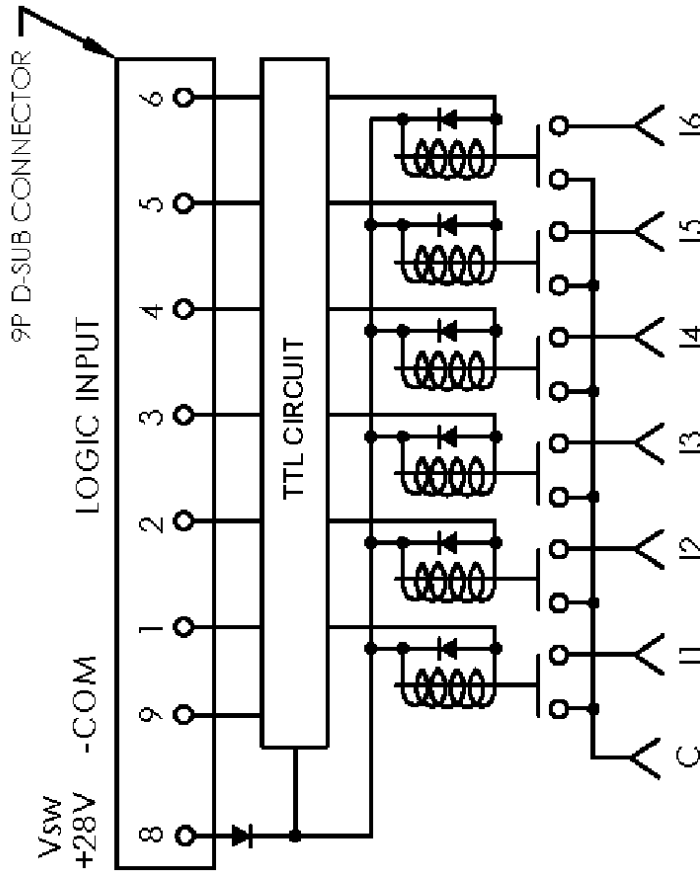
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REV: A

NOTES:

- LABEL PER ILS-100-02. FOR INTERNAL REFERENCE, ONLY.
 LABEL LOCATION FOR REFERENCE ONLY.

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RF POSITION SCHEMATIC

TRUTH TABLE/PIN ASSIGNMENT:
PIN ASSIGNMENT

TERMINALS LOGIC INPUT PIN ASSIGNMENT	RF PATH					
	J1	J2	J3	J4	J5	J6
1 ("1")	ON	OFF	OFF	OFF	OFF	OFF
2 ("1")	OFF	ON	OFF	OFF	OFF	OFF
3 ("1")	OFF	OFF	ON	OFF	OFF	OFF
4 ("1")	OFF	OFF	OFF	ON	OFF	OFF
5 ("1")	OFF	OFF	OFF	OFF	ON	OFF
6 ("1")	OFF	OFF	OFF	OFF	OFF	ON

PIN 9. -COM
PIN 8. Vsw +28VDC

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

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DESCRIPTION
 SP6T, SMA, NO, 18GHZ, 28VDC, TTL, DIODES, D-SUB, RUGGEDIZED

SCALE NONE SHEET 2 OF 2

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A	53919	DMAY	PE71S6535	A