ZOMWAVE
RF & Microwave Connection Solution

SP4T Electromechanical Relay Latching Switch, Unterminated DC to 40 GHz, up to 5W, 12V, TTL(H), 2.92mm Female Type

Electromechanical Relay Switches Technical Data Sheet **SWS4T-MK40G12V-L3D9-01**

Features

- Single Pole Four Throw (SP4T) Electromechanical Relay Switch
- DC to 40 GHz Frequency Range
- Latching Actuator
- TTL Logic Control
- 2M Lifecycle Rating
- Insertion Loss 0.9 dB typ
- VSWR as low as 1.9:1 max
- +12Volt DC Bias
- D-Sub 9 for DC Command Control
- -25°C to +65°C Operating Temperature
- Up to 5 Watt Average Power Handling
- 50 Ohm Design
- Isolation >55 dB typ
- Rugged Design meets Mil-STD-202 Test Conditions

Applications

- Aerospace & Defense
- Test & Measurement
- Microwave Radio Systems
- Military & Commercial Communication Systems
- Research & Development
- Wireless Communications
- Enterprise
- IoT

Description

The SWS4T-MK40G12V-L3D9-01 is a Single Pole Four Throw (SP4T) electromechanical relay switch that operates across a wide frequency range of DC to 6 GHz and can handle up to 5W of average power in a break before make condition. The design is rated for 2.5 million lifecycles and features a Latching Actuator where the selected position remains active with constant voltage, all positions are open when voltage is removed. Impressive typical performance includes 0.9 dB insertion loss and isolation greater than 90 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 2.92mm Type female connectors and D-sub 9pin 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

Switch Type	SP4T
Actuator Type	Latching

Description	Minimum	Typical	Maximum	Units
Frequency Range	DC		40	GHz
Impedance		50		Ohms
Operating Voltage	10.2	12	13	Volts
Actuating Set Current @ 28 Volts		320		mA
VSWR			1.90:1	
Insertion Loss			0.9	dB
Isolation	55			dB
Input Power (CW)			5	Watts
Switching Time			15	ms

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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	1.25:1	1.35:1	1.45:1	1.70:1	1.90:1	
Insertion Loss, Max	0.40	0.50	0.60	0.70	0.90	dB
Isolation, Min	80	70	65	60	55	dB
Input Power, Max (CW)	40	27	22	14	5	Watts

Electrical Specification Notes:
Average Power and Actuating Current values at 25°C.

Mechanical Specifications

Size

Length	2.42 in [61.5 mm]
Width/Diameter	1.75 in [44.5mm]
Height	1.75 in [44.5mm]
Weight	0.396 lbs [180g]
Package Type	Connectorized
Operating Life	2,500,000 Cycles

Connectors

RF Connector Type	SMA Female
RF Connector Specification	MIL C 39012
Control Connector	D-Sub 9

Mechanical Specification Notes:
D-Sub 15: 250°C max/30sec.

Environmental Specifications

Temperature

Operating Range	-25 to +65 deg C
Storage Range	-55 to +85 deg C
Construction	Splashproof
Shock	MIL-STD-202, Method 213B, Cond.C
Vibration	MIL-STD-202, Method 204D, Cond.D

Environmental Specification Notes:
Environmental specifications are guaranteed but not tested.

Compliance Certifications

RoHS Compliant
REACH Compliant

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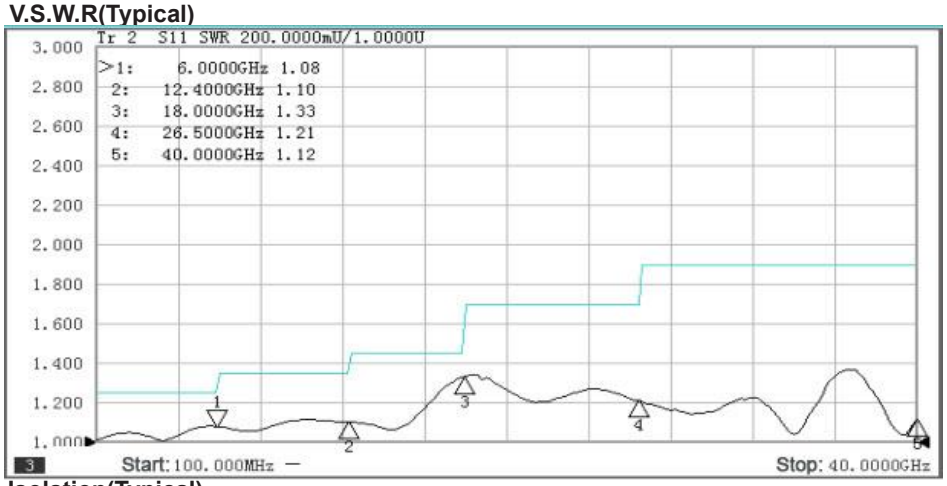
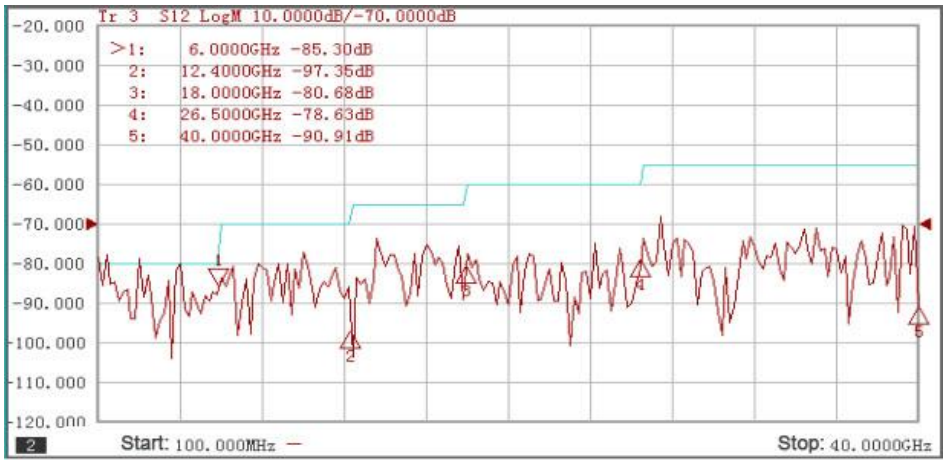
Typical Performance data

Insertion Loss(Typical)

V.S.W.R(Typical)



Isolation(Typical)



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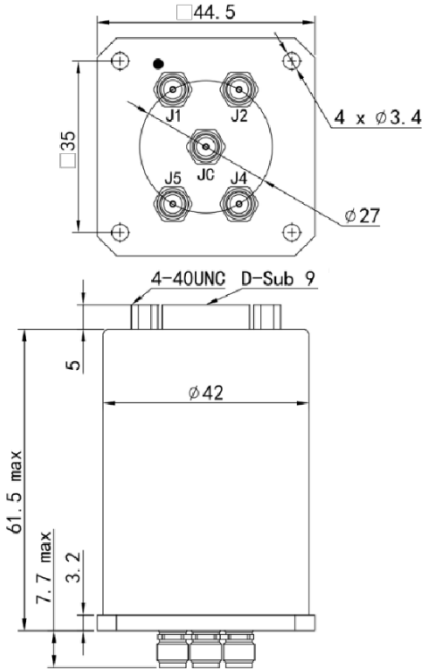
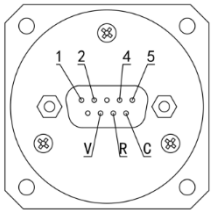
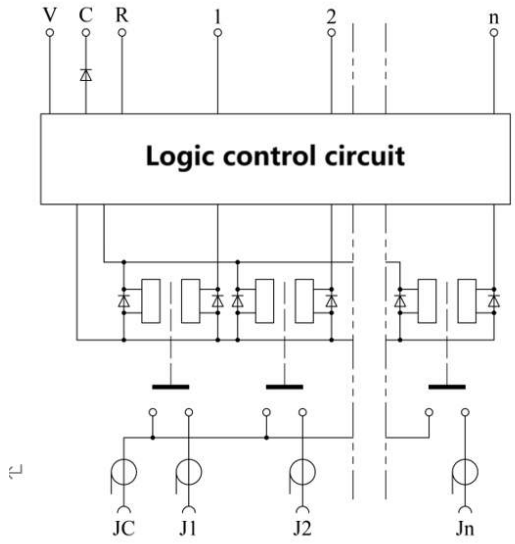
CAD Drawing





Schematic & Truth Table/ PIN Assignment:



PIN ASSIGNMENT	RF PATH
"1"=1	J1 ◀▶ JC
"2"=1	J2 ◀▶ JC
"3"=1	J4 ◀▶ JC
"4"=1	J5 ◀▶ JC
V (Voltage)	
"R"=1	Reset: All Ports Open
C (GND)	

LOGIC LOW (OFF)= 0-0.8 Vdc

LOGIC HIGH (ON)= 2.5-5.5 Vdc