



DPDT Electromechanical Relay Latching Switch, Unterminated DC to 40 GHz, up to 10W, 12V, Positive Common, 2.92mm Female

Electromechanical Relay Switches Technical Data Sheet

SWSDP-MK40G12V-L3J1-01

Features

- Double Pole Double Throw (DPDT) Electromechanical Relay Switch
- DC to 40 GHz Frequency Range
- Latching Actuator
- Positive Common Logic Control
- 2M Lifecycle Rating
- Insertion Loss 1.0 dB typ
- VSWR as low as 1.9:1 max
- +12Volt DC Bias
- 2*5P JTAG for DC Command Control
- -25°C to +65°C Operating Temperature
- Up to 10 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 SWSDP-MK40G12V-L3J1-01 is a Double Pole Double Throw (DPDT) electromechanical relay switch that operates across a wide frequency range of DC to 40 GHz and can handle up to 10W 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 1.0 dB insertion loss and isolation greater than 55 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 2*5P JTAG 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 | DPDT |
| 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 | | | 1.0 | dB |
| Isolation | 55 | | | dB |
| Input Power (CW) | | | 10 | 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 | 1.20:1 | 1.30:1 | 1.40:1 | 1.65:1 | 1.90:1 | |
| Insertion Loss, Max | 0.35 | 0.50 | 0.65 | 0.90 | 1.0 | dB |
| Isolation, Min | 80 | 70 | 65 | 60 | 55 | dB |
| Input Power, Max (CW) | 80 | 55 | 45 | 24 | 10 | Watts |

Electrical Specification Notes:

Average Power and Actuating Current values at 25°C.

Mechanical Specifications

Size

| | |
|----------------|-------------------|
| Length | 2.17 in [55.2 mm] |
| Width/Diameter | 1.25 in [31.75mm] |
| Height | 1.25 in [31.75mm] |
| Weight | 0.187 lbs [85g] |
| Package Type | Connectorized |
| Operating Life | 2,500,000 Cycles |

Connectors

| | |
|----------------------------|---------------|
| RF Connector Type | 2.92mm Female |
| RF Connector Specification | MIL C 39012 |
| Control Connector | 2*5P JTAG |

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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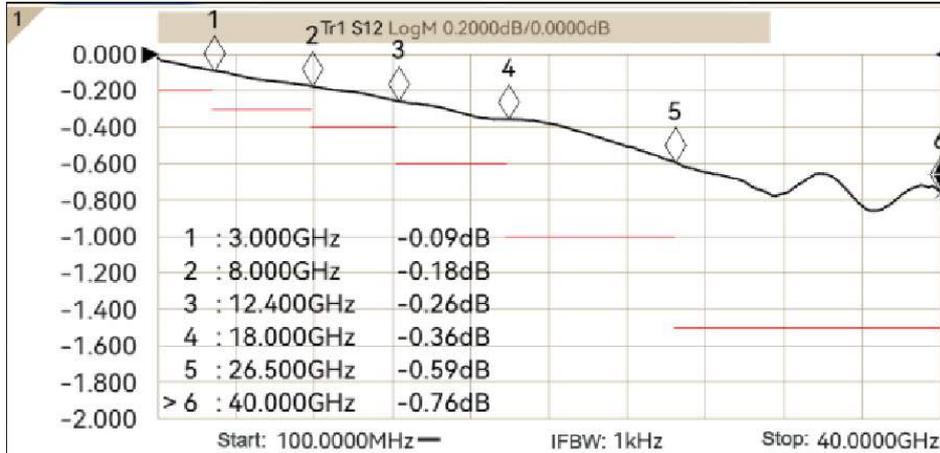


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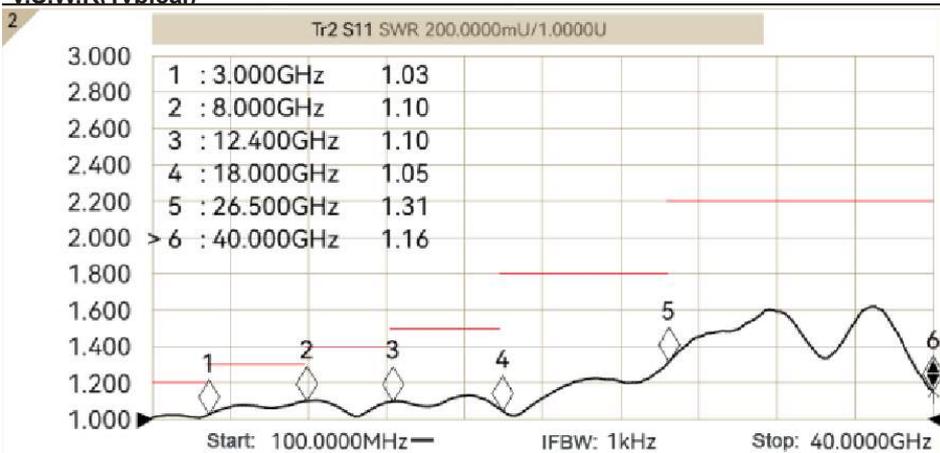
SWSDP-MK40G12V-L3J1-01

Typical Performance data

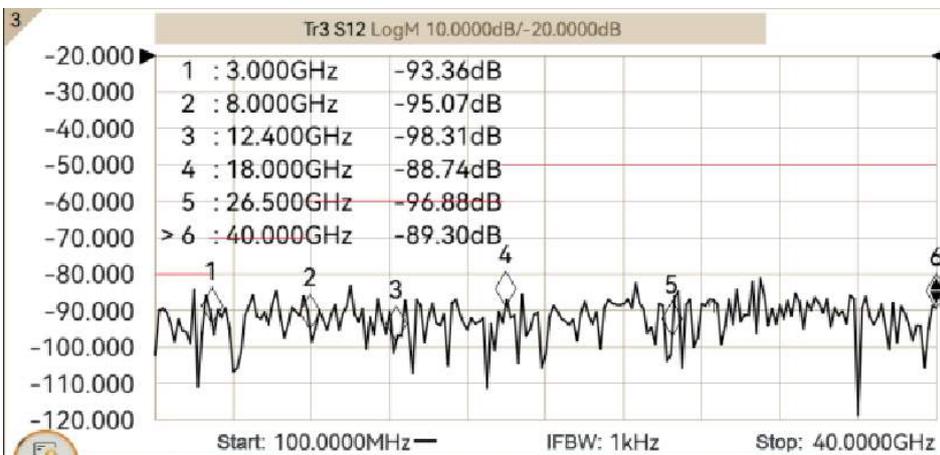
Insertion Loss(Typical)



V.S.W.R(Typical)



Isolation(Typical)



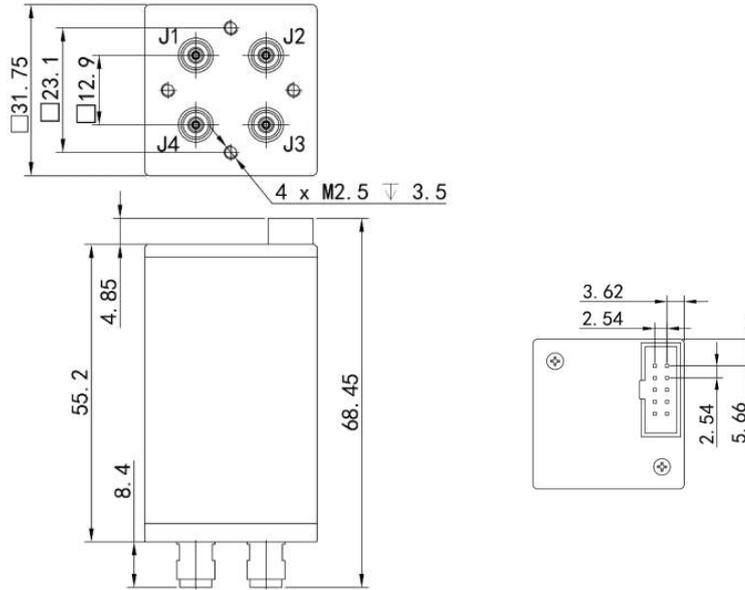
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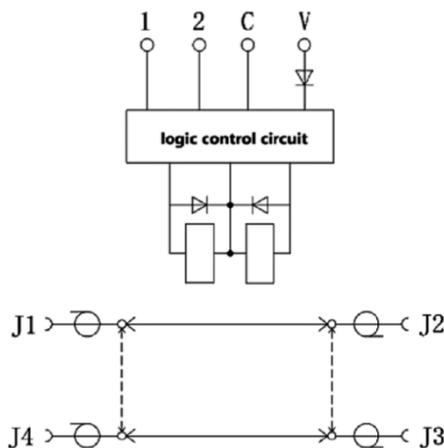
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CAD Drawing



Schematic & Truth Table/ PIN Assignment:



| PIN ASSIGNMENT | RF PATH |
|----------------|--------------------|
| "1" ↔ GND | J1 ↔ J2 J3 ↔ J4 |
| "2" ↔ GND | J1 ↔ J4 J2 ↔ J3 |
| V (Voltage) | |
| C (GND) | |

LOGIC LOW (OFF)= 0-0.8 Vdc
LOGIC HIGH (ON)= 2.5-5.5 Vdc