

SP4T Electromechanical Relay Normally Open Switch, DC to 26.5 GHz, up to 90W, 2M Lifecycles, 12V, SMA

The FMSW6452 is a Single Pole Four Throw (SP4T) electromechanical relay switch that operates across a wide frequency range of DC to 26.5 GHz and can handle up to 90 Watts of average power in a break before make condition. 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. Impressive typical performance includes 0.35 dB insertion loss and isolation greater than 80 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 SMA female connectors and solder terminal pins 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	Normally Open
Switching Sequence	Break Before Make
Actuator Options	Solder Pins

Description	Min	Typ	Max	Units
Frequency Range	DC		26.5	GHz
Impedance		50		Ohms
Operating Voltage	11	12	13	Volts
Actuating Current @ 12 Volts			250	mA
VSWR		1.3:1	1.7:1	
Insertion Loss		0.35	0.7	dB
Isolation	70	80		dB
Switching Time			20	ms

Performance by Frequency

Description	F1	F2	F3	F4	F5	Units
Frequency Range	DC - 6	6 - 12	12 - 18	18 - 26.5		GHz
VSWR, Max	1.2:1	1.3:1	1.4:1	1.7:1		
Insertion Loss, Max	0.15	0.25	0.4	0.7		dB
Isolation, Min	80	80	80	70		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]
Finish	NICKEL
Package Type	Connectorized
Operating Life	2,000,000 Cycles



Features:

- Single Pole Four Throw Electromechanical Relay Switch
- DC to 26.5 GHz Frequency Range
- Normally Open Actuator
- 2M Lifecycle Rating
- Insertion Loss 0.35 dB typ
- Isolation > 80 dB typ
- VSWR as low as 1.2:1 max
- +12 Volt DC Bias
- Solder Terminal Pins for DC Control
- SMA Female Connectors
- -25°C to +65°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

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Connectors

RF Connector Type
Control Connector

SMA Female
D-Subminiature

Environmental Specifications

Temperature

Operating Range
Storage Range

-25 to +65 deg C
-55 to +100 deg C

Humidity
Shock
Vibration

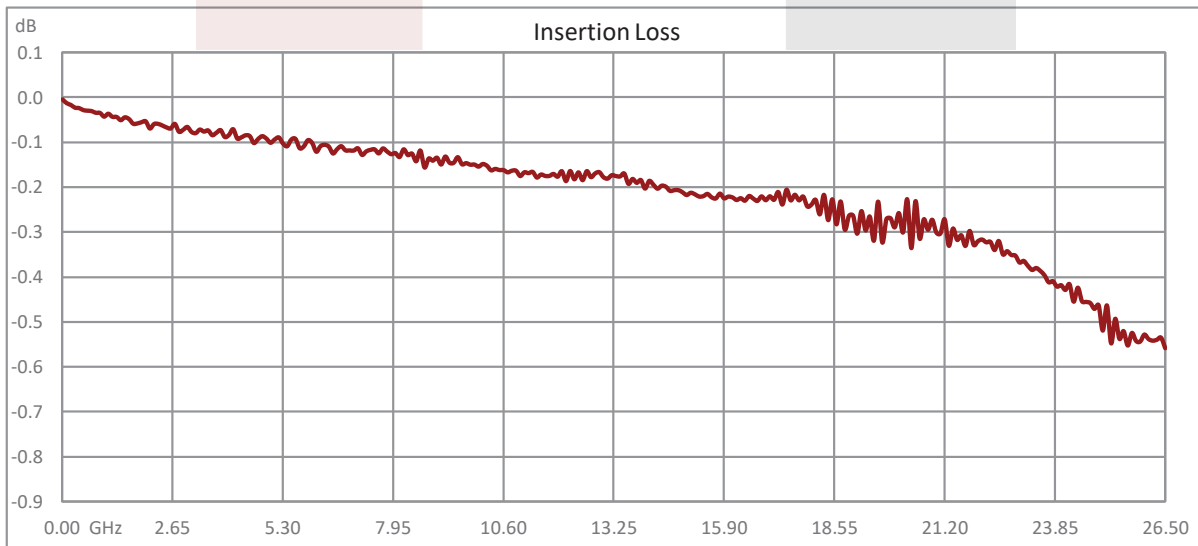
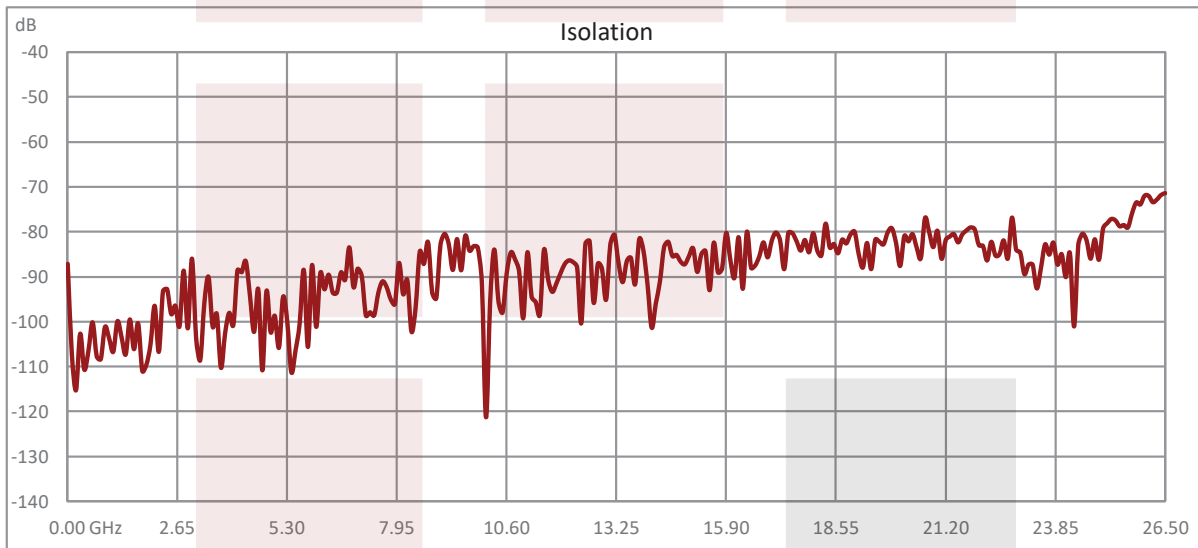
Moisture resistant or immersion sealing available
MIL-STD-202 Method 213, Condition D, 500G (non oper)
MIL-STD-202 Method 214, Condition D, 10G RMS (non oper)

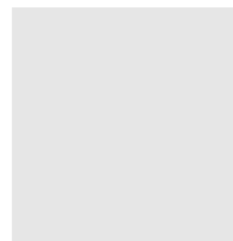
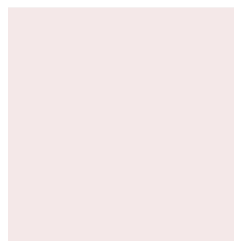
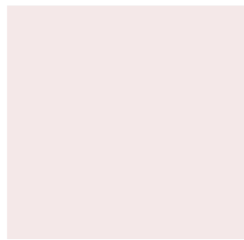
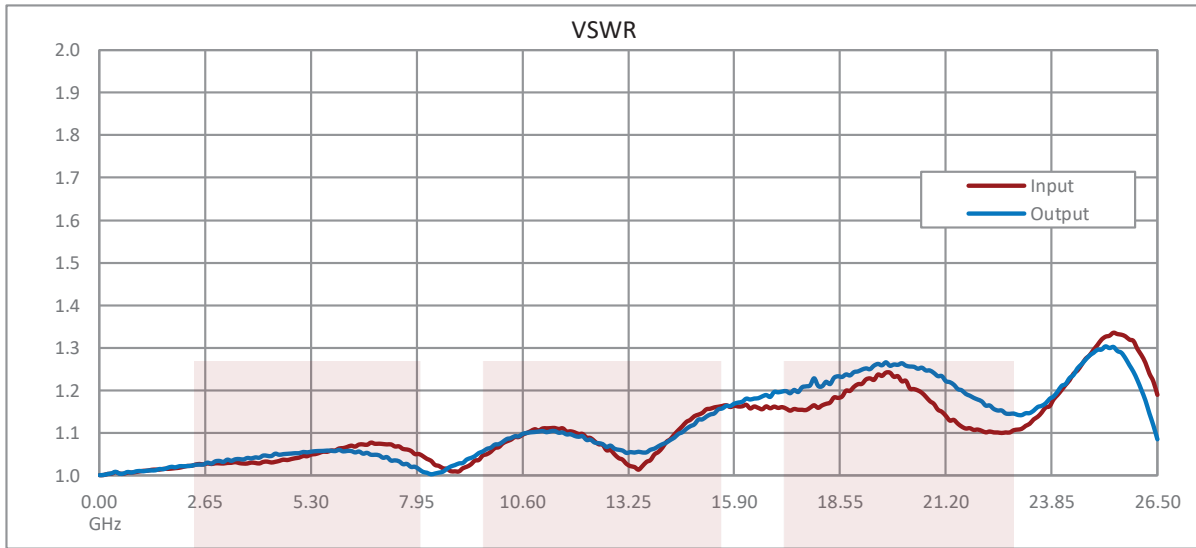
Compliance Certifications (see [product page](#) for current document)

Plotted and Other Data

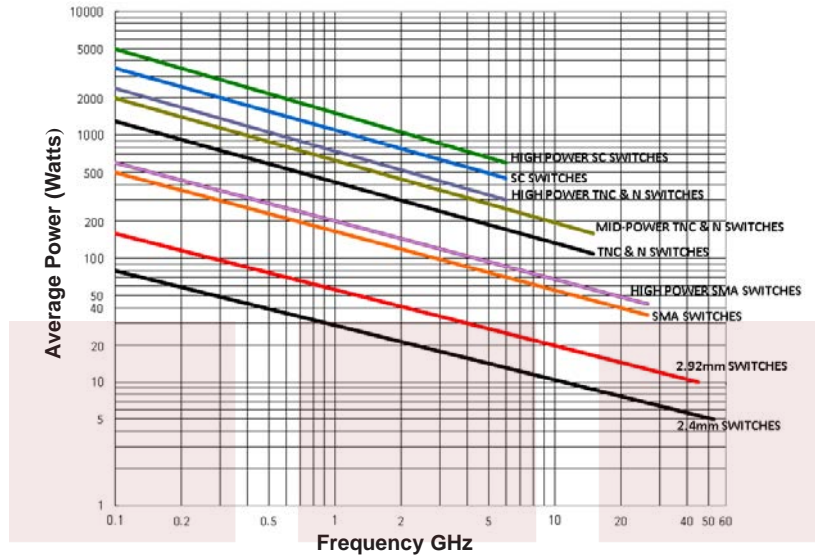
Notes:

Typical Performance Data

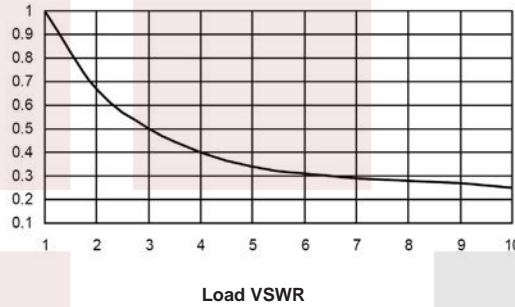




Power Handling vs. Frequency



Power Handling De-rating vs. Load VSWR



Power Handling Chart and Derating Curves based on the following Test and Environmental Conditions:
 Ambient temperature: 20 - 25°C
 Altitude: Sea Level to 1,000 feet
 Relative Humidity: 50 - 55%
 Load VSWR: ≤ 1.20:1
 Operation: Cold Switching

SP4T Electromechanical Relay Normally Open Switch, DC to 26.5 GHz, up to 90W, 2M Lifecycles, 12V, SMA from Fairview Microwave is in-stock and available to ship same-day. All of our RF/microwave products are available off-the-shelf from our ISO 9001:2008 certified facilities in Lewisville, Texas. Fairview Microwave is RF on-demand.

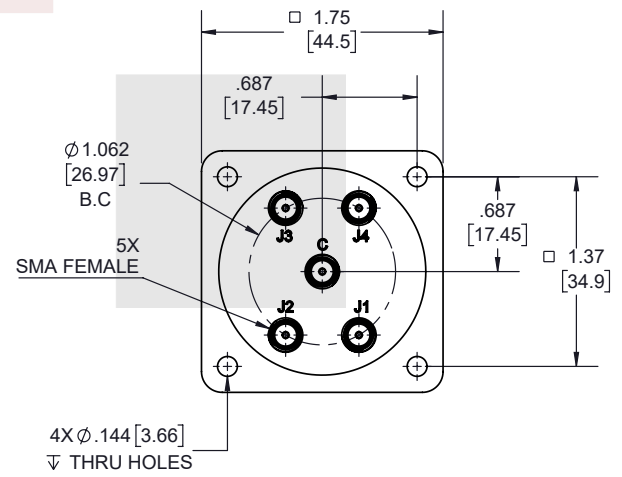
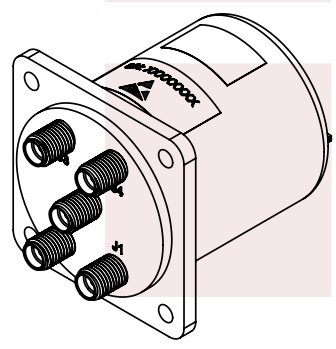
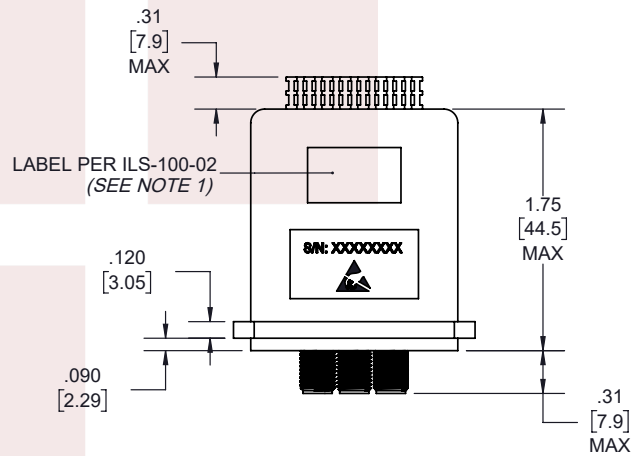
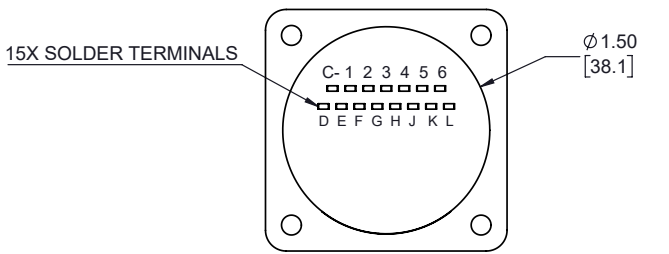
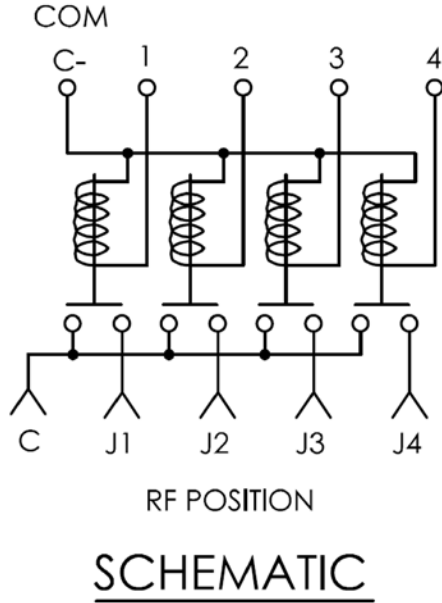
For additional information on this product, please click the following link: [SP4T Electromechanical Relay Normally Open Switch, DC to 26.5 GHz, up to 90W, 2M Lifecycles, 12V, SMA FMSW6452](#)

URL: <https://www.fairviewmicrowave.com/sp4t-normally-open-26.5-ghz-electro-mechanical-relay-switch-12v-sma-fm-sw6452-p.aspx>

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REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
A	INITIAL RELEASE	1/27/2021	T.GALLA



- NOTES:**
1. LABEL PER ILS-100-02. FOR INTERNAL REFERENCE ONLY. LABEL LOCATION FOR REFERENCE ONLY.
 2. PINS 5, 6, D, E, F, G, H, J, K, L ARE NO CONNECTION (N/C).

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<p>Fairview Microwave an INFINIT[®] brand</p>	UNLESS OTHERWISE SPECIFIED LEADING DIMENSIONS ARE INCHES DIMENSIONS IN [] ARE MILLIMETERS		THIRD-ANGLE PROJECTION 		
	TOLERANCES:		CABLE LENGTH (L) TOLERANCES:		
TITLE SP4T Electromechanical Relay Normally Open Switch, DC to 26.5 GHz, up to 90W, 2M Lifecycles, 12V, SMA	.X = ±.2 [5.08] FRACTIONS ± 1/32 .XX = ±.02 [.51] ± 1/32 .XXX = ±.005 [.13] ANGLES ± 1°		L ≤ 12 [305] = +1 [25] / -0 12 [305] < L ≤ 60 [1524] = +2 [51] / -0 60 [1524] < L ≤ 120 [3048] = +4 [102] / -0 120 [3048] < L ≤ 300 [7620] = +6 [152] / -0 300 [7620] < L = +5%L / -0		THE INFORMATION AND DESIGN IN THIS DOCUMENT IS THE PROPERTY OF FAIRVIEW MICROWAVE CORPORATION. ALL RIGHTS RESERVED.
	ALL DIMENSIONS SHOWN ARE FOR REFERENCE ONLY.			SHEET 1 OF 1 SCALE N/A	
SIZE A	CAGE CODE 3FKR5	DRAWN BY K.DANG	ITEM NO. FMSW6452	REV A	

T-Rev.D