

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

The FMSW8021 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	SP6T
Actuator Type	Normally Open

Description	Min	Typ	Max	Units
Frequency Range	DC		52	GHz
Operating Voltage		28		Volts
Actuating Current @ 28 Volts			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

Performance by Frequency

Description	F1	F2	F3	F4	F5	Units
Frequency Range	DC - 6	6 - 12.4	12.4 - 18	18 - 26.5	26.5 - 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 - 50	50 - 52				GHz
VSWR, Max	1.8:1	2.2:1				
Insertion Loss, Max	1.2	1.6				dB
Isolation, Min	60	60				dB



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

Fairview Microwave
301 Leora Ln., Suite 100
Lewisville, TX 75056
Tel: 1-800-715-4396 / (972) 649-6678
Fax: (972) 649-6689
www.fairviewmicrowave.com
sales@fairviewmicrowave.com

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

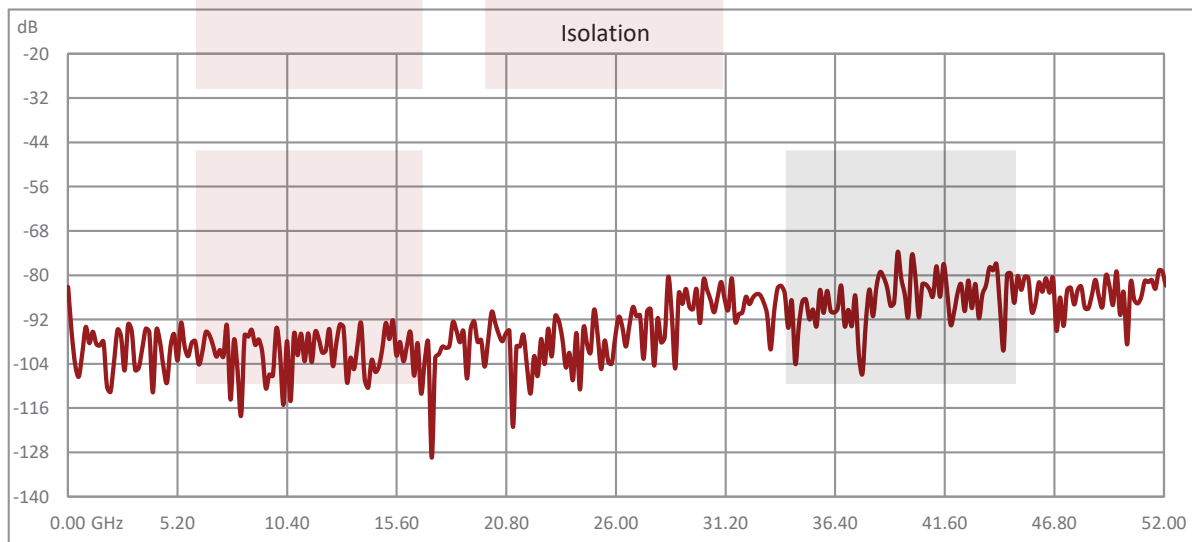
Shock	MIL-STD-202 Method 213, Condition D, 500G (non operational)
Vibration	MIL-STD-202 Method 204, Condition D, 10G RMS (non operational)

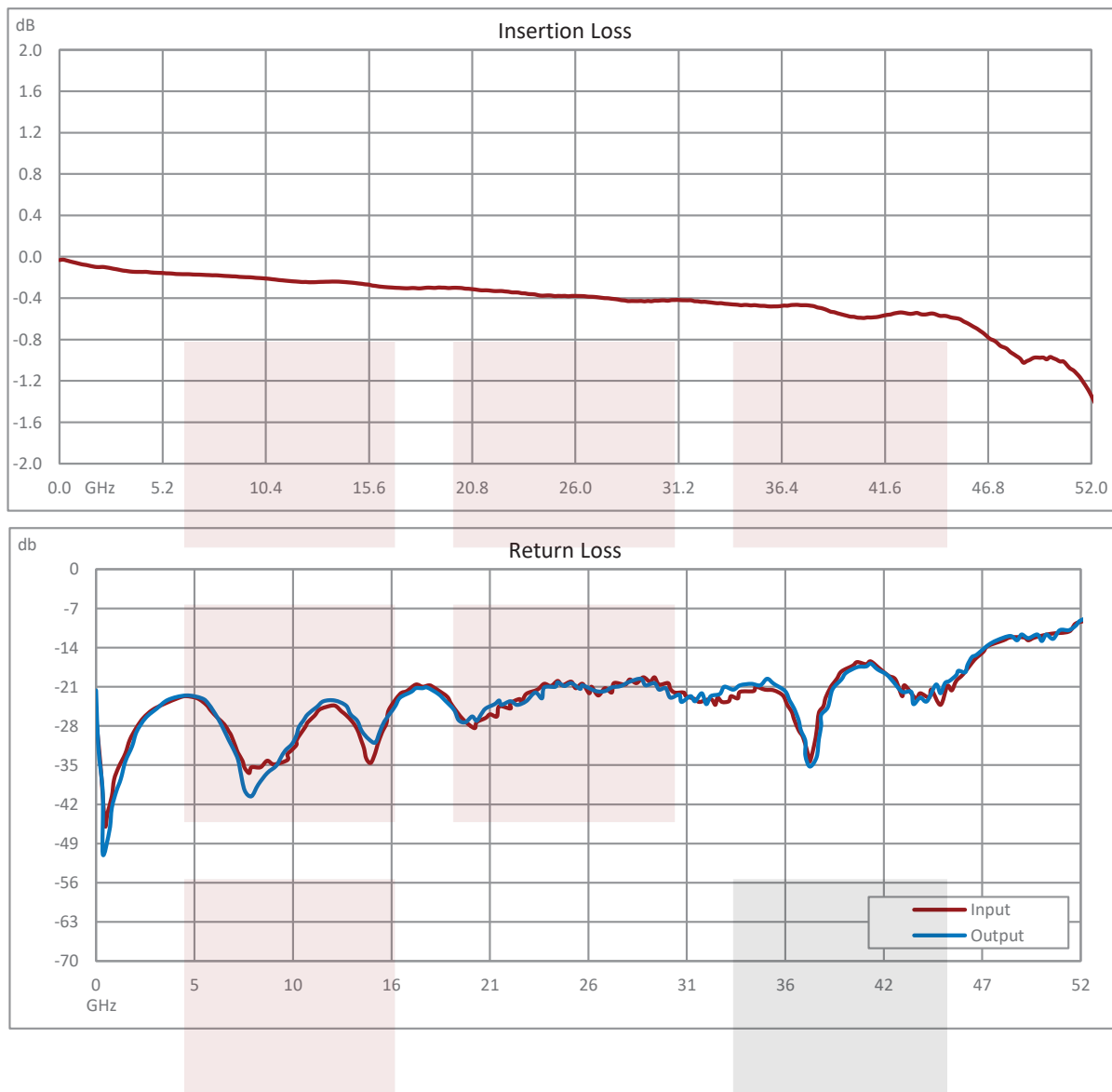
Compliance Certifications (see [product page](#) for current document)

Plotted and Other Data

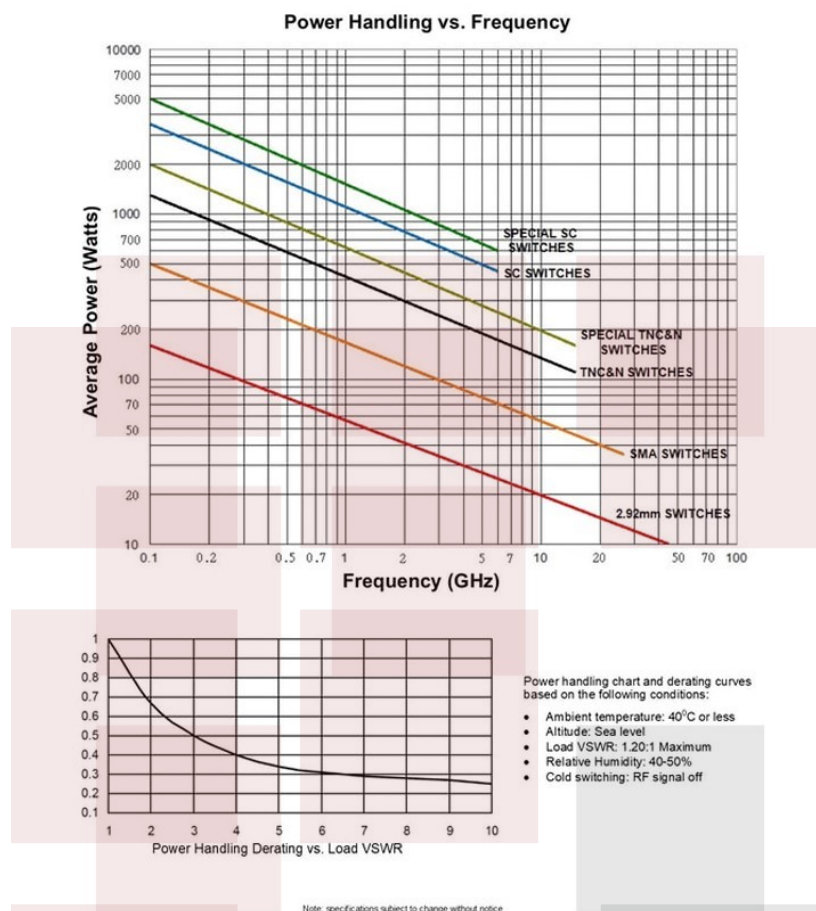
Notes:

Typical Performance Data





Power Handling vs. Frequency

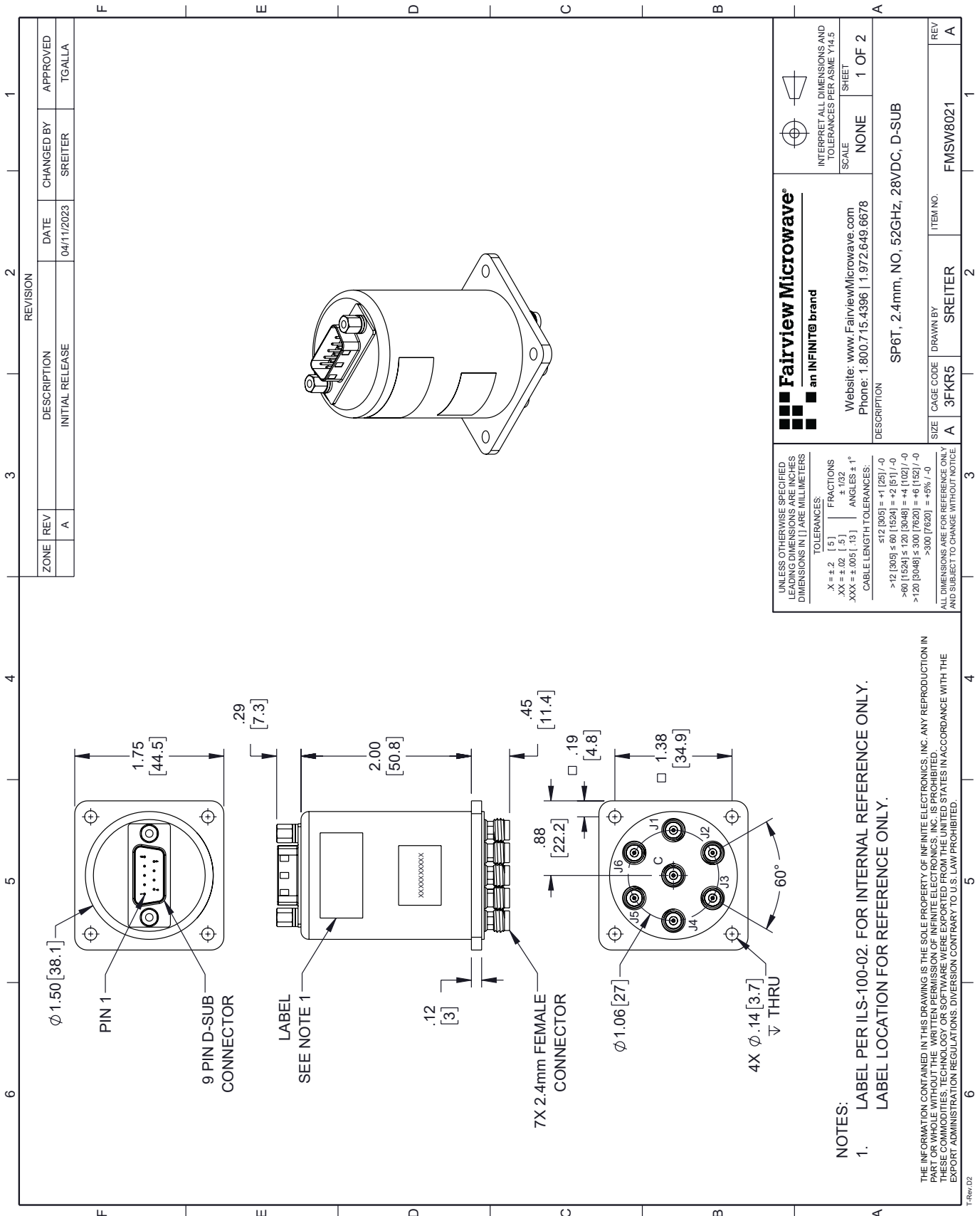


SP6T, Electromechanical Relay Normally Open Switch, DC to 52GHz, 28VDC, D-Sub, 2.4mm from Fairview Microwave is in-stock and available to ship same-day. All of our RF/microwave products are available off-the-shelf from our ISO 9001:2008 certified facilities in Lewisville, Texas. Fairview Microwave is RF on-demand.

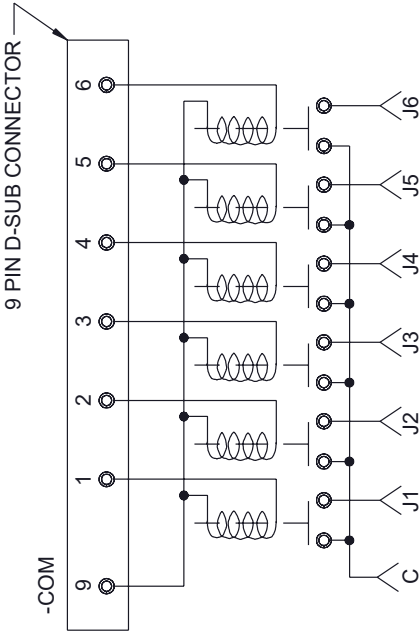
For additional information on this product, please click the following link: [SP6T, Electromechanical Relay Normally Open Switch, DC to 52GHz, 28VDC, D-Sub, 2.4mm FMSW8021](https://www.fairviewmicrowave.com/sp6t-normally-open-52-ghz-electro-mechanical-relay-switch-28v-2.4mm-fm-sw8021-p.aspx)

URL: <https://www.fairviewmicrowave.com/sp6t-normally-open-52-ghz-electro-mechanical-relay-switch-28v-2.4mm-fm-sw8021-p.aspx>

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. Fairview Microwave reserves the right to make such changes as required. Unless otherwise stated, all specifications are nominal. Fairview Microwave does not make any representation or warranty regarding the suitability of the part described herein for any particular purpose, and Fairview Microwave does not assume any liability arising out of the use of any part or documentation.



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DC to 52GHz, 28VDC, D-Sub, 2.4mm



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

RF POSITION

SCHEMATIC

Fairview Microwave®

an INFINITE brand

Website: www.FairviewMicrowave.com

Phone: 1.800.715.4396 | 1.972.649.6678

INTERPRET ALL DIMENSIONS AND TOLERANCES PER ASME Y14.5

SCALE: NONE

SHEET: 2 OF 2

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.

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

SIZE: A CAGE CODE: 3FKR5 DRAWN BY: SREITER ITEM NO.: FMSW8021 REV: A