

SPDT Electromechanical Relay Latching Switch, +COM, DC to 53 GHz, 5W, 12VDC, 2.4mm

The FMSW6559 is a Single Pole Double Throw (SPDT) electromechanical relay switch that operates across an ultra wideband frequency range from DC to 53 GHz and can handle up to 5W of average power in a break before make condition. The 50 Ohm design supports a positive common (+COM) biasing configuration and features a Latching Actuator with a 1 million lifecycle rating. The Latching Actuator magnetically latches in place after the control voltage is removed. For power sensitive applications, this is the best actuator option. Impressive typical performance includes 0.6 dB insertion loss and isolation greater than 80 dB. This switch requires 12 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 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 (TA = +25°C, DC Voltage = 12 Vdc)

Switch Type SPDT
 Actuator Type Latching

Description	Min	Typ	Max	Units
Frequency Range	DC		53	GHz
Operating Voltage	11	12	13	Volts
Actuating Current @ 12 Volts		140		mA
VSWR		1.7:1	2.2:1	
Insertion Loss		0.6	1.2	dB
Isolation	50	80		dB
Switching Time		20		ms

Performance by Frequency

Description	F1	F2	F3	F4	F5	Units
Frequency Range	DC - 6	6 - 18	18 - 26.5	26.5 - 40	40 - 50	GHz
VSWR, Max	1.2:1	1.3:1	1.6:1	1.6:1	1.8:1	
Insertion Loss, Max	0.2	0.3	0.6	0.6	0.8	dB
Isolation, Min	80	70	70	70	50	dB

Performance by Frequency

Description	F6	F7	F8	F9	F10	Units
Frequency Range	50 - 53					GHz
VSWR, Max	2.2:1					
Insertion Loss, Max	1.2					dB
Isolation, Min	50					dB



Features:

- Single Pole Double Throw (SPDT) Electromechanical Relay Switch
- DC to 53 GHz Frequency Range
- Latching Actuator
- Positive Common (+COM) Configuration
- 1M Lifecycle Rating
- Insertion Loss 0.6 dB typ
- Isolation > 80 dB typ
- VSWR as low as 1.2:1 max
- Solder Terminal Pins for DC Control
- 12 Volt DC Bias
- 2.4mm Female Connectors
- -25°C to +65°C Operating Temperature
- Up to 5 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	1.95 in [49.53 mm]
Width/Diameter	2.75 in [69.85 mm]
Height	0.92 in [23.37 mm]
Weight	0.5 lbs [226.8 g]

Connectors

RF Connector Type	2.4mm Female
Control Connector	Solder Terminals

Environmental Specifications

Temperature

Operating Range	-25 to +65 deg C
Storage Range	-55 to +100 deg C

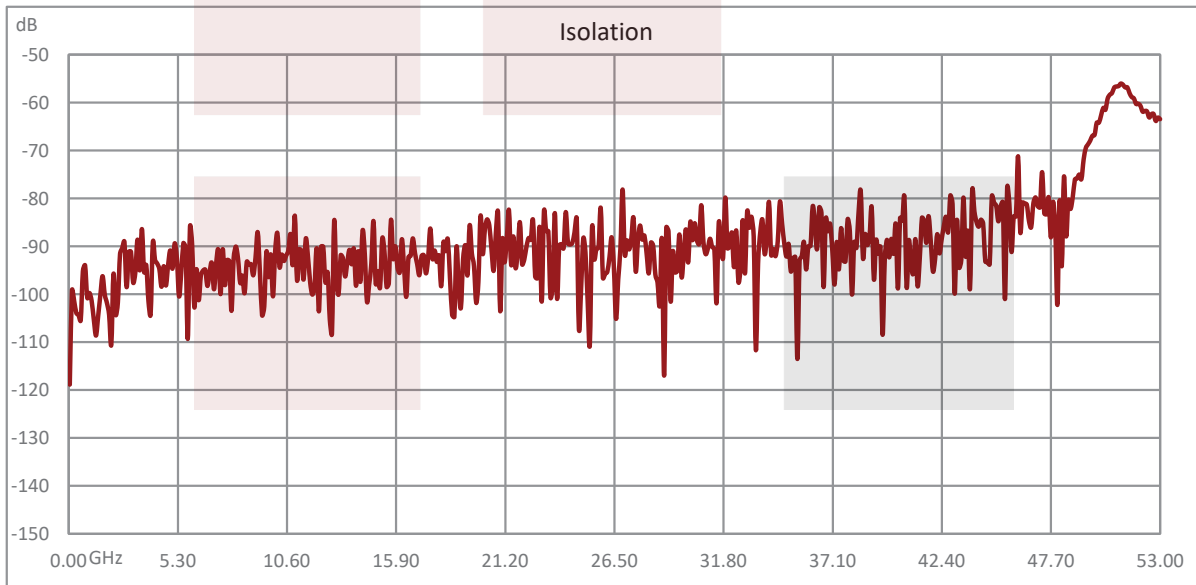
Shock	MIL-STD-202 Method 213, Condition D, 500G (non oper)
Vibration	MIL-STD-202 Method 204, Condition D, 10G RMS (non oper)

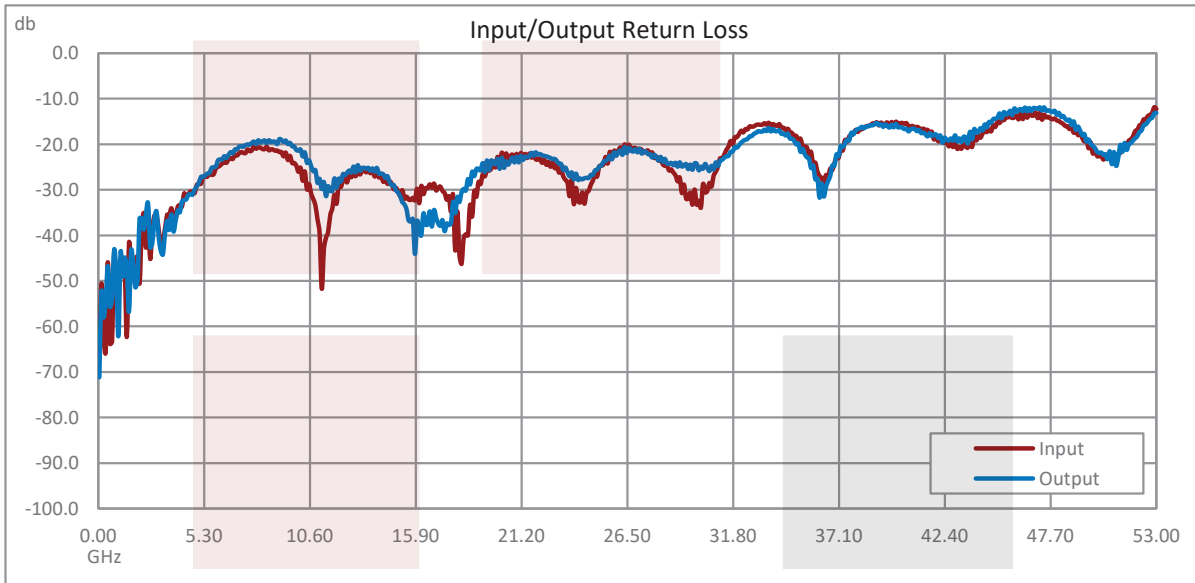
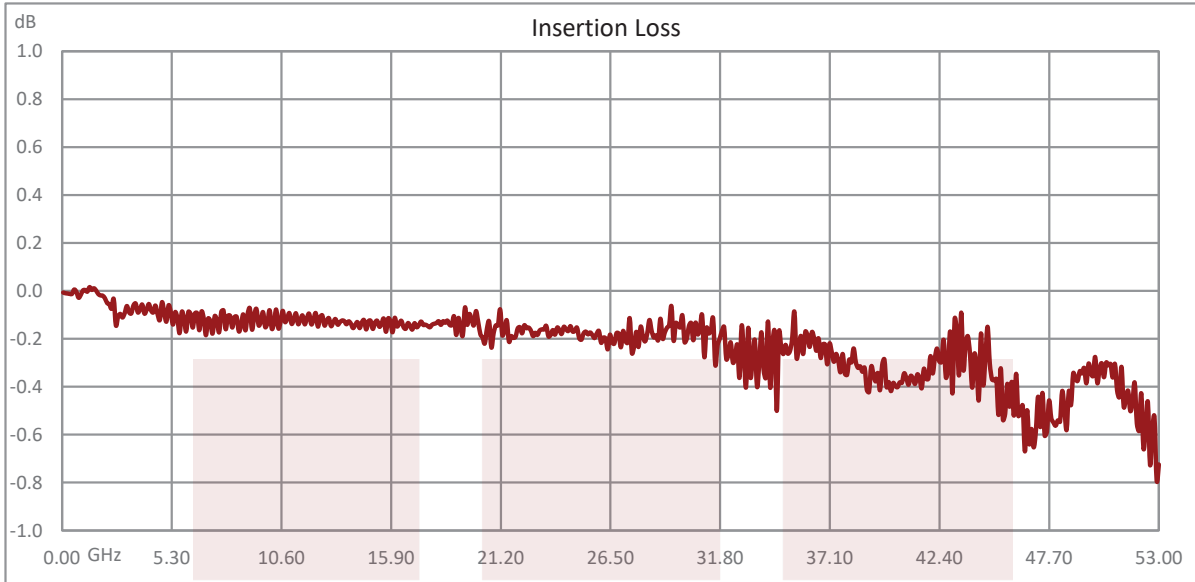
Compliance Certifications (see [product page](#) for current document)

Plotted and Other Data

Notes:

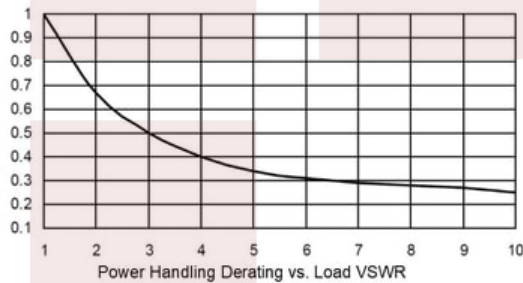
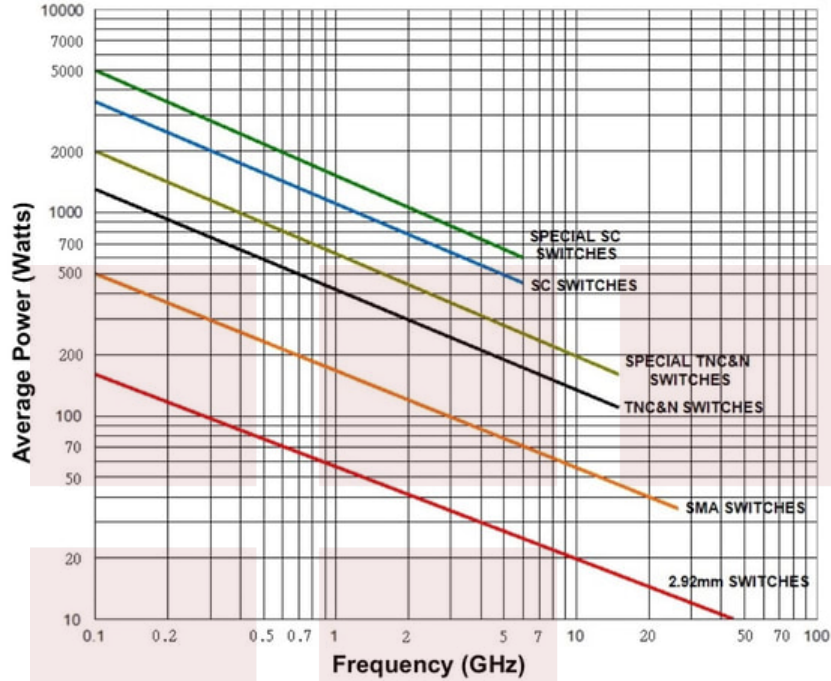
Typical Performance Data





Power Handling vs. Frequency

Power Handling 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

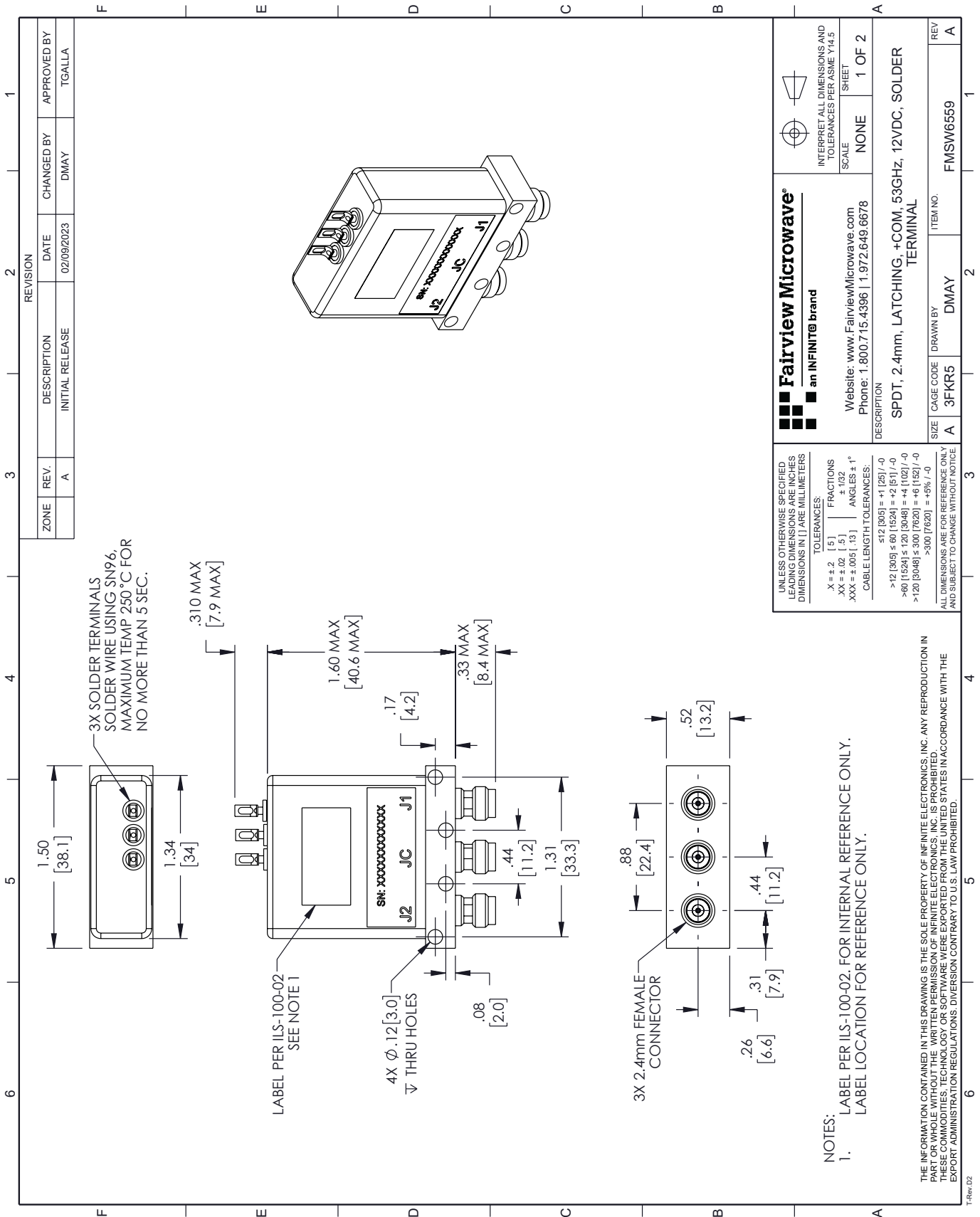
SPDT Electromechanical Relay Latching Switch, +COM, DC to 53 GHz, 5W, 12VDC, 2.4mm from Fairview Microwave is in-stock and available to ship same-day. All of our RF/microwave products are available off-the-shelf from our ISO 9001:2008 certified facilities in Lewisville, Texas. Fairview Microwave is RF on-demand.

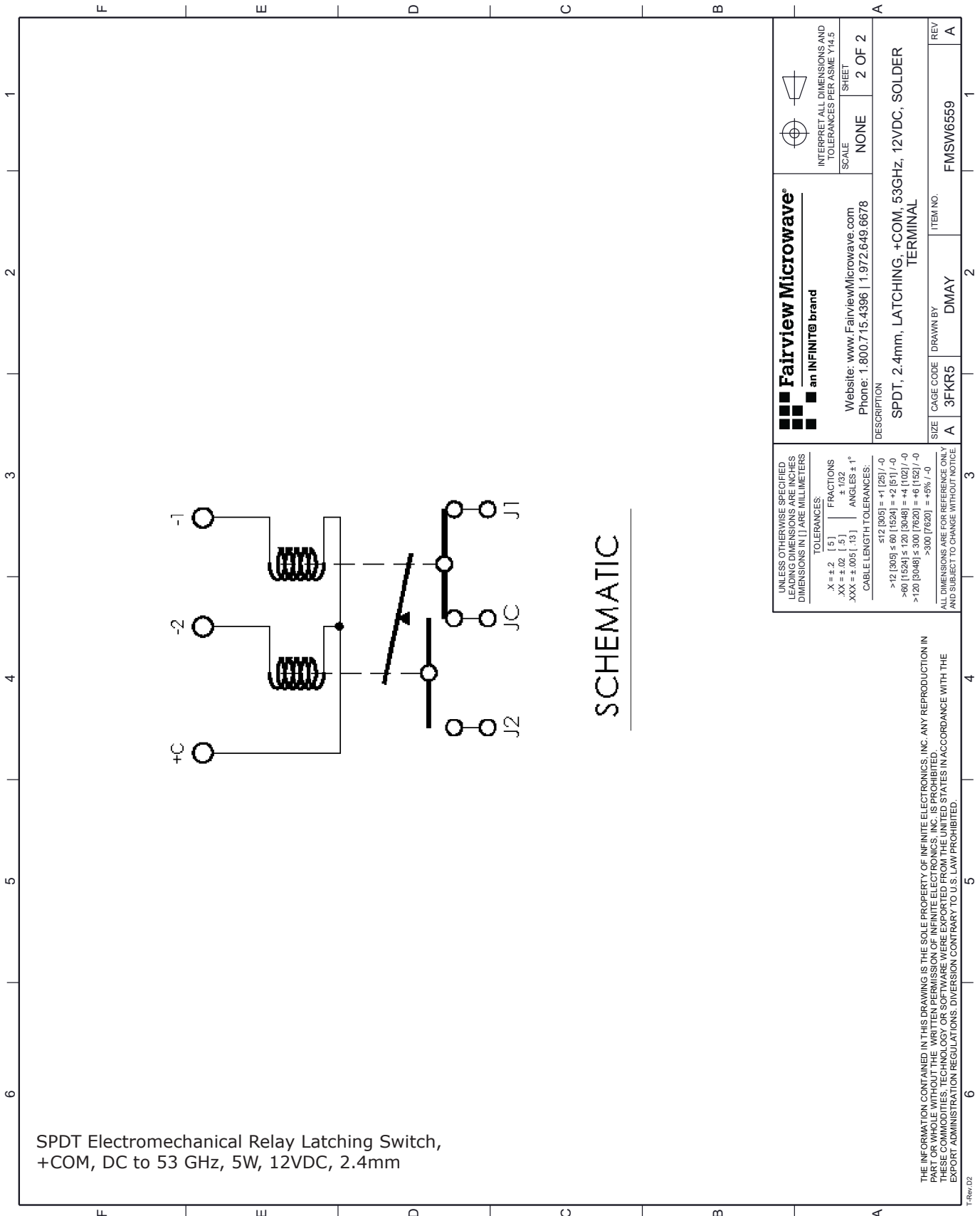
For additional information on this product, please click the following link: [SPDT Electromechanical Relay Latching Switch, +COM, DC to 53 GHz, 5W, 12VDC, 2.4mm FMSW6559](#)

URL: <https://www.fairviewmicrowave.com/spdt-latching-53-ghz-electro-mechanical-relay-switch-12v-2.4mm-fm-sw6559-p.aspx>

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SPDT Electromechanical Relay Latching Switch,
+COM, DC to 53 GHz, 5W, 12VDC, 2.4mm

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<p>UNLESS OTHERWISE SPECIFIED, LEADING DIMENSIONS ARE INCHES AND DIMENSIONS IN [] ARE MILLIMETERS.</p> <p>TOLERANCES:</p> <table border="0"> <tr> <td>.X = ±.2</td> <td>[.5]</td> <td>FRACTIONS</td> <td>±.132</td> </tr> <tr> <td>.XX = ±.02</td> <td>[.5]</td> <td>ANGLES ± 1°</td> <td></td> </tr> <tr> <td>.XXX = ±.005</td> <td>[.13]</td> <td>CABLE LENGTH TOLERANCES:</td> <td></td> </tr> </table> <p>512 [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</p> <p>ALL DIMENSIONS ARE FOR REFERENCE ONLY AND SUBJECT TO CHANGE WITHOUT NOTICE.</p>				.X = ±.2	[.5]	FRACTIONS	±.132	.XX = ±.02	[.5]	ANGLES ± 1°		.XXX = ±.005	[.13]	CABLE LENGTH TOLERANCES:	
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DESCRIPTION	SPDT, 2.4mm, LATCHING, +COM, 53GHz, 12VDC, SOLDER TERMINAL	ITEM NO.	FMSW6559												
SIZE	A	CAGE CODE	3FKR5												
DRAWN BY	DMAY	REV	A												

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