

SPDT Electromechanical Relay Failsafe Switch DC to 12.4 GHz, 2M Lifecycles, TNC, 50 Watts, 28V, Solder Pins

The FMSW6508 is a Single Pole Double Throw (SPDT) electromechanical relay switch that operates across a wide frequency range of DC to 12 GHz and can handle up to 50 Watts of average power in a break before make condition. The design is rated for 2 million lifecycles and features a Failsafe Actuator. Impressive typical performance includes 0.3 dB insertion loss and isolation greater than 80 dB. This switch requires +28Vdc bias voltage and operates over a temperature range of -25°C to +65°C. The rugged and compact package assembly supports TNC female connectors and Solder 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 = +28 Vdc)

Switch Type SPDT
Actuator Type Failsafe

Description	Min	Typ	Max	Units
Frequency Range	DC		12.4	GHz
Operating Voltage		+28		Volts
Actuating Current @ +28 Volts			220	mA
VSWR		1.4:1	1.8:1	
Insertion Loss		0.3	0.5	dB
Isolation	70	80		dB
Input Power (CW) (at 12.4 GHz)			50	Watts

Performance by Frequency

Description	F1	F2	F3	F4	F5	Units
Frequency Range	DC - 2	2 - 4	4 - 8	8 - 12		GHz
VSWR, Max	1.25:1	1.3:1	1.6:1	1.8:1		
Insertion Loss, Max	0.2	0.4	0.5	0.5		dB
Isolation, Min	80	80	70	70		dB

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 0.4 lbs [181.44 g]

Connectors

RF Connector Type TNC Female



Features:

- Single Pole Double Throw (SPDT) Electromechanical Relay Switch
- DC to 12 GHz Frequency Range
- Failsafe Actuator with Self Cut-Off
- 2M Lifecycle Rating
- Insertion Loss 0.3 dB typ
- Isolation > 80 dB typ
- VSWR as low as 1.25:1 max
- +28 Volt DC Bias
- Solder Terminal Pins for DC Control
- TNC Female Connectors
- -25°C to +65°C Operating Temperature
- Up to 50 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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Environmental Specifications

Temperature

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

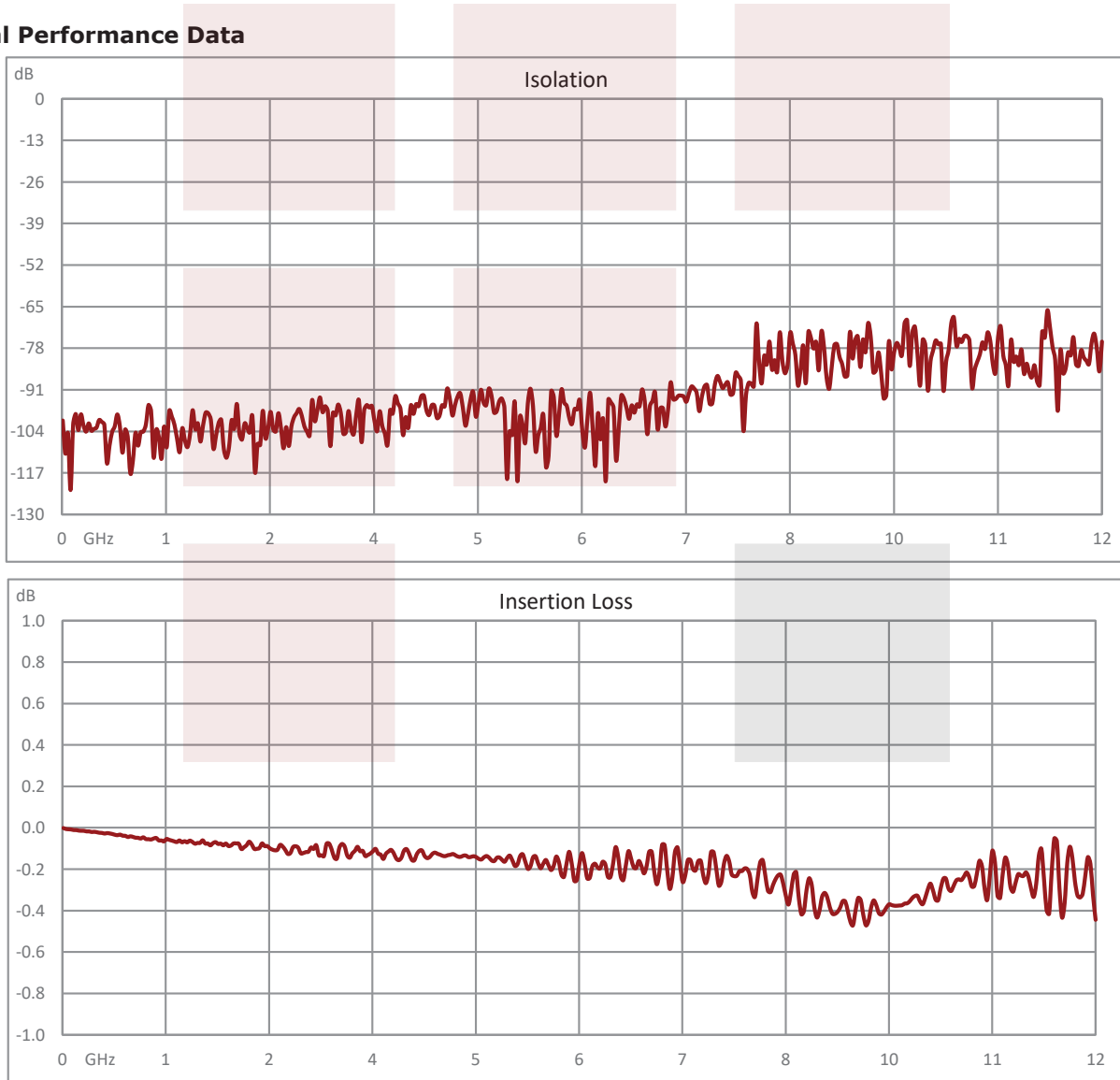
Shock MIL-STD-202 Method 213, Condition D, 500G (non oper)
Vibration MIL-STD-202 Method 204, Condition D, 10G RMS (non oper)

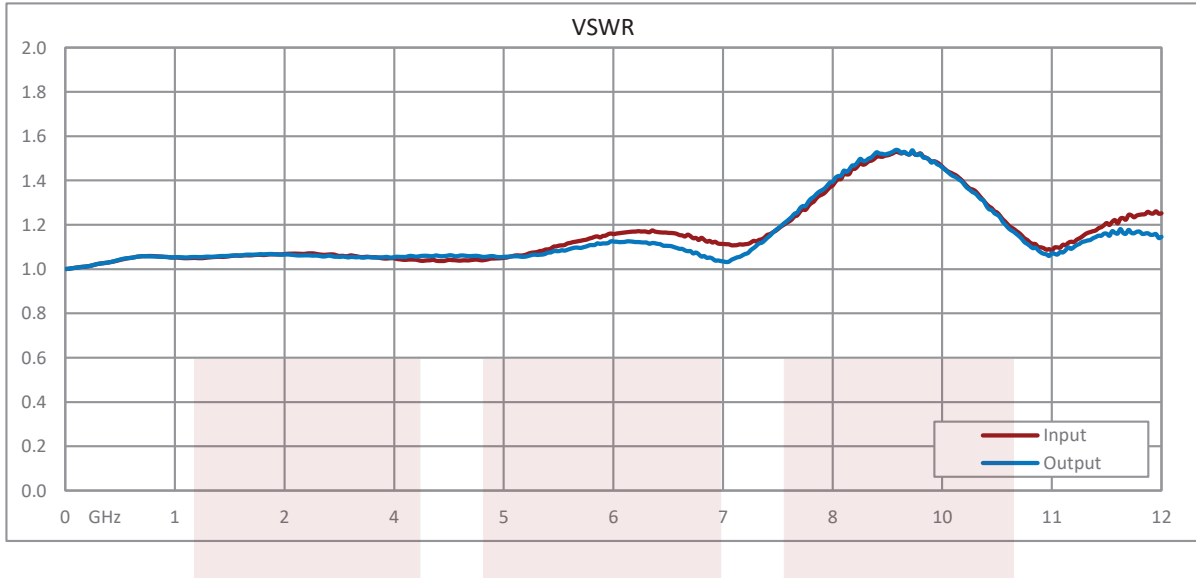
Compliance Certifications (see [product page](#) for current document)

Plotted and Other Data

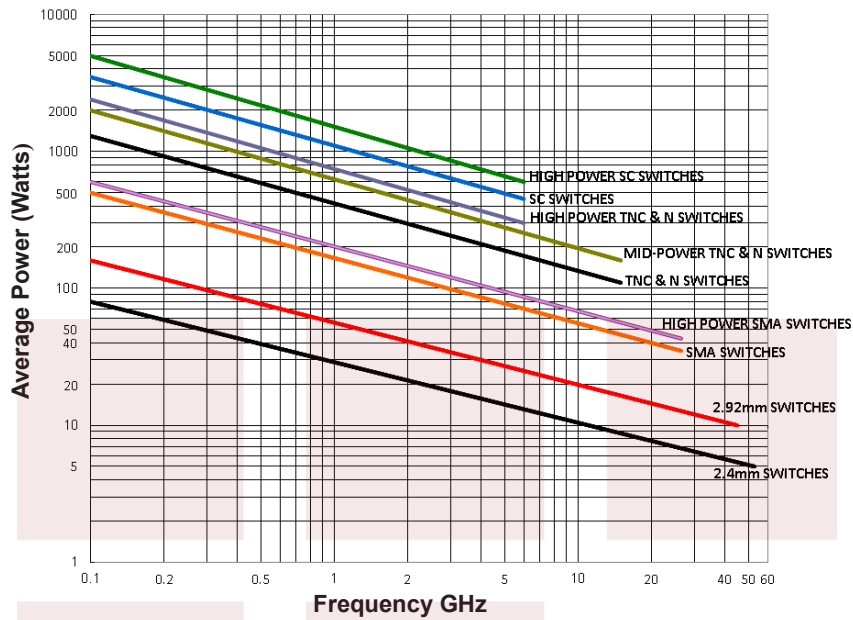
Notes:

Typical Performance Data





Power Handling vs. Frequency



Power Handling 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

SPDT Electromechanical Relay Failsafe Switch DC to 12.4 GHz, 2M Lifecycles, TNC, 50 Watts, 28V, Solder Pins 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 Failsafe Switch DC to 12.4 GHz, 2M Lifecycles, TNC, 50 Watts, 28V, Solder Pins FMSW6508](#)

URL: <https://www.fairviewmicrowave.com/spdt-failsafe-12.4-ghz-electro-mechanical-relay-switch-50w-28v-tnc-fm-sw6508-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.



REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
A	INITIAL RELEASE	05/19/2022	T.GALLA

2X SOLDER TERMINALS
SOLDER WIRE USING SN96
MAXIMUM TEMP 210 °C FOR
NO MORE THAN 5 SEC.

LABEL PER ILS-100-02
SEE NOTE 1

2X Ø.152 [3.86]
THRU HOLES

3X TNC FEMALE
CONNECTOR

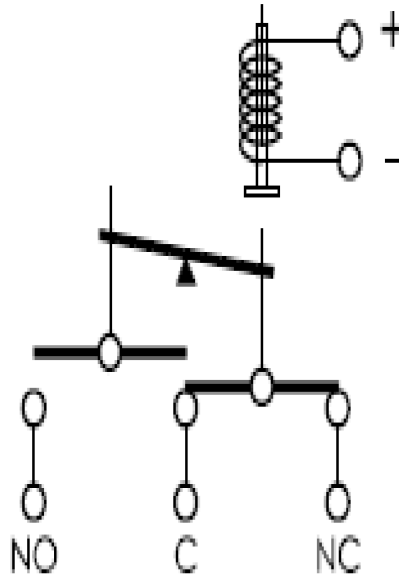
NOTES:

- LABEL PER ILS-100-02. FOR INTERNAL REFERENCE ONLY. LABEL LOCATION FOR REFERENCE ONLY.

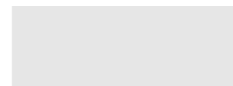
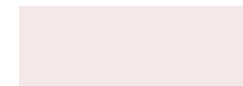
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<p>Fairview Microwave an INFINIT[®] brand</p> <p>TITLE</p> <p>SPDT Electromechanical Relay Failsafe Switch DC to 12.4 GHz, 2M Lifecycles, TNC, 50 Watts, 28V, Solder Pins</p>	<p>UNLESS OTHERWISE SPECIFIED LEADING DIMENSIONS ARE INCHES DIMENSIONS IN [] ARE MILLIMETERS</p> <p>TOLERANCES: CABLE LENGTH (L) TOLERANCES:</p> <table style="width: 100%; border: none;"> <tr> <td style="border: none;">.X = ±.2 [5.08]</td> <td style="border: none;">FRACTIONS</td> <td style="border: none;">L ≤ 12 [305] = +1 [25] / -0</td> </tr> <tr> <td style="border: none;">.XX = ±.02 [.51]</td> <td style="border: none;">± 1/32</td> <td style="border: none;">12 [305] < L ≤ 60 [1524] = +2 [51] / -0</td> </tr> <tr> <td style="border: none;">.XXX = ±.005 [.13]</td> <td style="border: none;">ANGLES ± 1°</td> <td style="border: none;">60 [1524] < L ≤ 120 [3048] = +4 [102] / -0</td> </tr> <tr> <td></td> <td></td> <td style="border: none;">120 [3048] < L ≤ 300 [7620] = +6 [152] / -0</td> </tr> <tr> <td></td> <td></td> <td style="border: none;">300 [7620] < L = +5%L / -0</td> </tr> </table>	.X = ±.2 [5.08]	FRACTIONS	L ≤ 12 [305] = +1 [25] / -0	.XX = ±.02 [.51]	± 1/32	12 [305] < L ≤ 60 [1524] = +2 [51] / -0	.XXX = ±.005 [.13]	ANGLES ± 1°	60 [1524] < L ≤ 120 [3048] = +4 [102] / -0			120 [3048] < L ≤ 300 [7620] = +6 [152] / -0			300 [7620] < L = +5%L / -0	<p>THIRD-ANGLE PROJECTION</p> <p>THE INFORMATION AND DESIGN IN THIS DOCUMENT IS THE PROPERTY OF FAIRVIEW MICROWAVE CORPORATION. ALL RIGHTS RESERVED.</p> <p>SHEET 1 OF 2</p> <p>SCALE N/A</p>
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
T-Rev.D



SCHEMATIC SHOWN IN FAILSAFE POSITION



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T-Rev.D