

## SPDT Electromechanical Relay Failsafe Switch, DC to 40 GHz, 2M Lifecycles, 10W, 28V, 2.92mm, Solder Pins

The FMSW6478 is a Single Pole Double Throw (SP2T) electromechanical relay switch that operates across a wide frequency range from DC to 40 GHz and can handle up to 10W of average power in a break before make condition. The 50 Ohm design is rated for 2 million lifecycles and features a Failsafe Actuator. Impressive typical performance includes 0.4 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 2.92mm 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		40	GHz
Operating Voltage		+28		Volts
Actuating Current @ +28 Volts			90	mA
VSWR		1.4:1	1.5:1	
Insertion Loss		0.4	0.7	dB
Isolation	60	80		dB
Input Power (CW) (at 40 GHz)			10	Watts

### 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	1.15:1	1.35:1	1.4:1	1.4:1	1.5:1	
Insertion Loss, Max	0.15	0.25	0.35	0.5	0.7	dB
Isolation, Min	80	75	65	65	60	dB

### Mechanical Specifications

**Size**  
 Length 2.05 in [52.07 mm]  
 Width/Diameter 1.5 in [38.1 mm]  
 Height 0.52 in [13.21 mm]  
 Weight 0.4 lbs [181.44 g]

### Connectors

RF Connector Type 2.92mm Female



### Features:

- Single Pole Double Throw (SP2T) Electromechanical Relay Switch
- DC to 40 GHz Frequency Range
- Failsafe Actuator
- 2M Lifecycle Rating
- Insertion Loss 0.4 dB typ
- Isolation > 80 dB typ
- VSWR as low as 1.15:1 max
- Solder Terminal Pins for DC Control
- +28 Volt DC Bias
- 2.92mm Female Connectors
- -25°C to +65°C Operating Temperature
- Up to 10 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](http://www.fairviewmicrowave.com)  
[sales@fairviewmicrowave.com](mailto:sales@fairviewmicrowave.com)

**Environmental Specifications**

**Temperature**

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

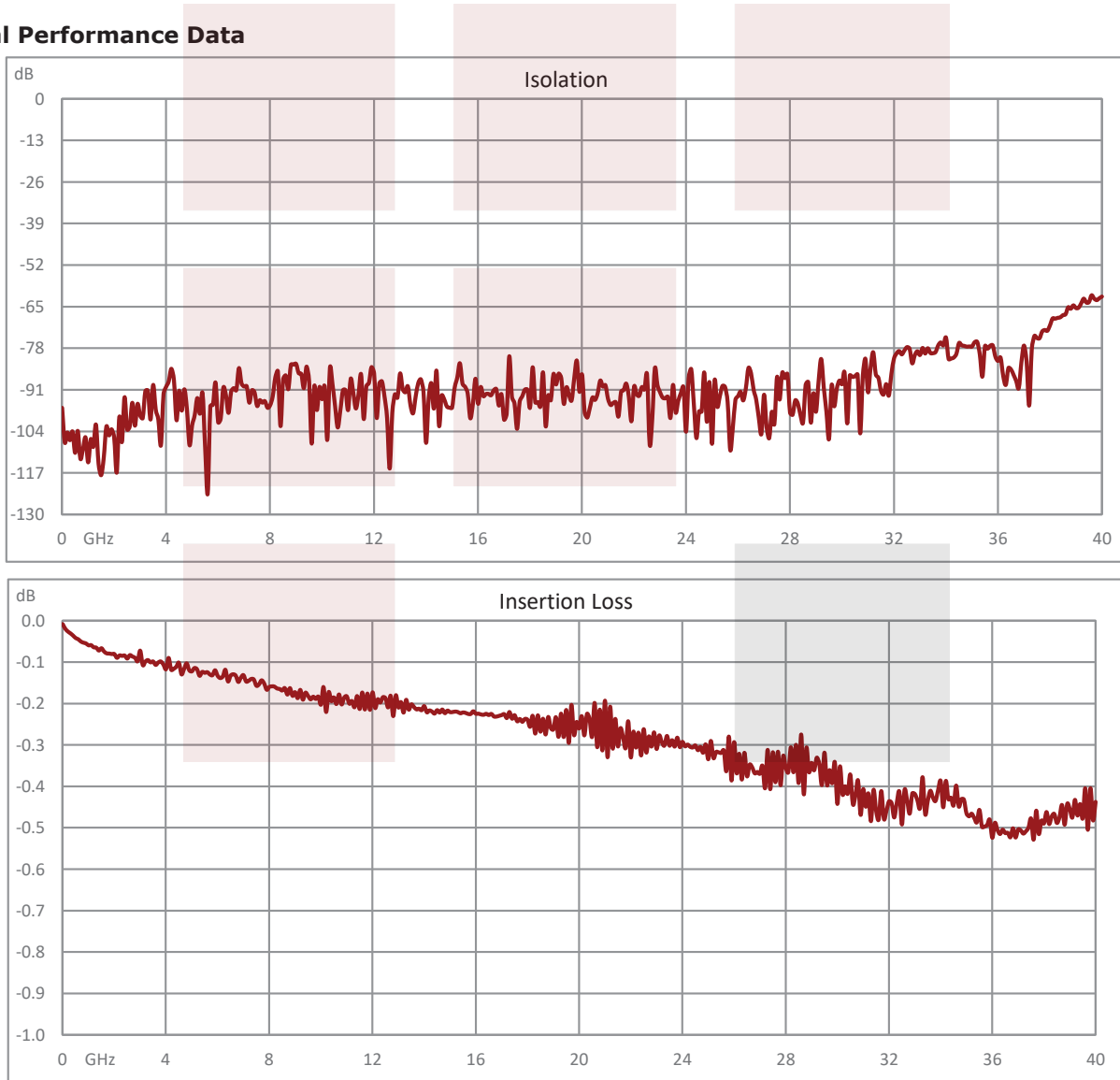
Shock MIL-STD-202 Method 213, Condition D, 500G (non oper)  
 Vibration MIL-STD-202 Method 204, Condition D, 10G RMS (non oper)

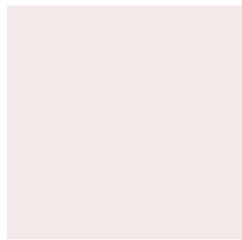
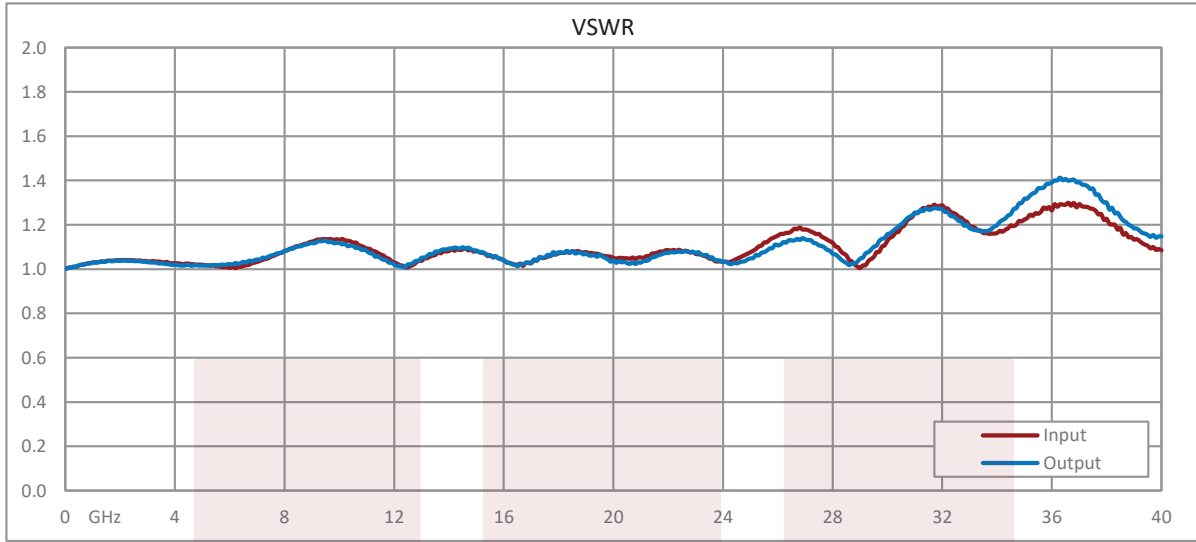
**Compliance Certifications** (see [product page](#) for current document)

**Plotted and Other Data**

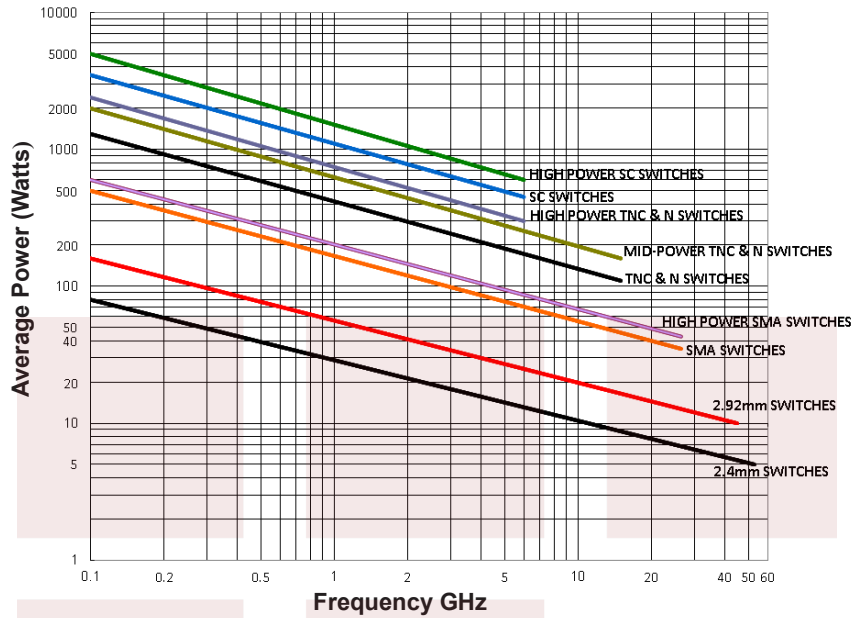
Notes:

**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 40 GHz, 2M Lifecycles, 10W, 28V, 2.92mm, 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.

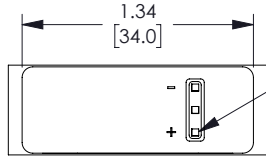
For additional information on this product, please click the following link: [SPDT Electromechanical Relay Failsafe Switch, DC to 40 GHz, 2M Lifecycles, 10W, 28V, 2.92mm, Solder Pins FMSW6478](#)

URL: <https://www.fairviewmicrowave.com/spdt-failsafe-40-ghz-electro-mechanical-relay-switch-10w-28v-2.92mm-fm-sw6478-p.aspx>

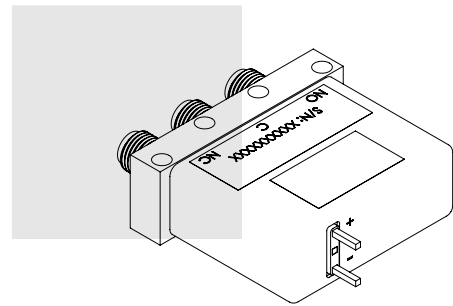
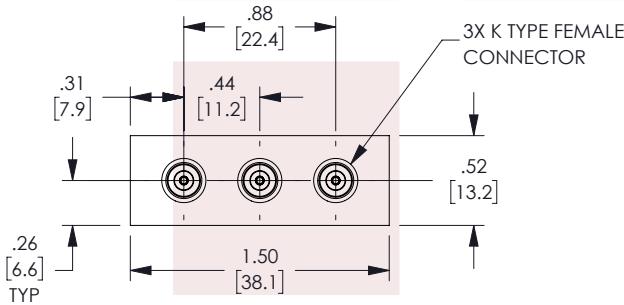
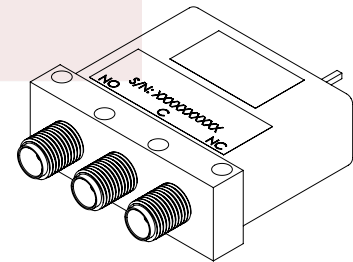
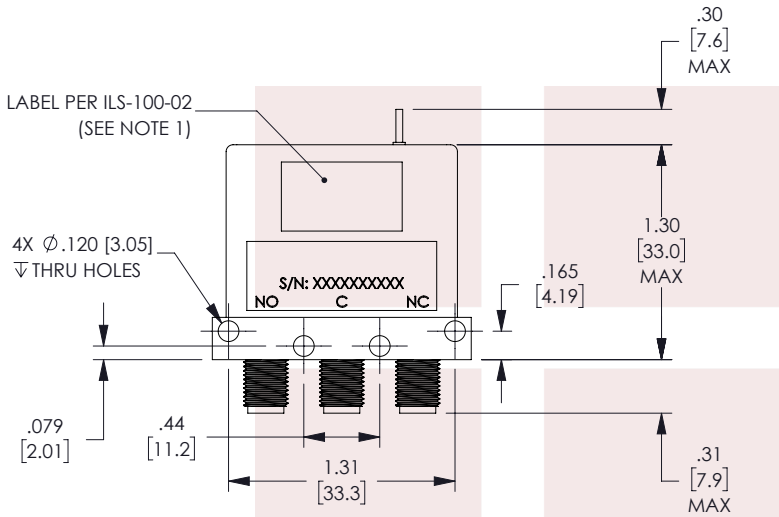
The information contained in this document is accurate to the best of our knowledge and representative of the part described herein. It may be necessary to make modifications to the part and/or the documentation of the part, in order to implement improvements. Fairview Microwave reserves the right to 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 430 °F FOR  
NO MORE THAN 5 SEC.



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

THESE COMMODITIES, TECHNOLOGY OR SOFTWARE WERE EXPORTED FROM THE UNITED STATES IN ACCORDANCE WITH THE EXPORT ADMINISTRATION REGULATIONS. DIVERSION CONTRARY TO U.S. LAW PROHIBITED.

TITLE  
SPDT Electromechanical Relay Failsafe Switch, DC to 40 GHz, 2M Lifecycles, 10W, 28V, 2.92mm, Solder Pins

UNLESS OTHERWISE SPECIFIED LEADING DIMENSIONS ARE INCHES  
DIMENSIONS IN [ ] ARE MILLIMETERS

TOLERANCES:		CABLE LENGTH (L) TOLERANCES:	
.X ± .2 [5.08]	FRACTIONS ± 1/32	L ≤ 12 [305] = +1 [25] / -0	
.XX ± .02 [51]	ANGLES ± 1°	12 [305] < L ≤ 60 [1524] = +2 [51] / -0	
.XXX ± .005 [13]		60 [1524] < L ≤ 120 [3048] = +4 [102] / -0	
		120 [3048] < L ≤ 300 [7620] = +6 [152] / -0	
		300 [7620] < L = +5%L / -0	

THIRD-ANGLE PROJECTION  
THE INFORMATION AND DESIGN IN THIS DOCUMENT IS THE PROPERTY OF FAIRVIEW MICROWAVE CORPORATION. ALL RIGHTS RESERVED.

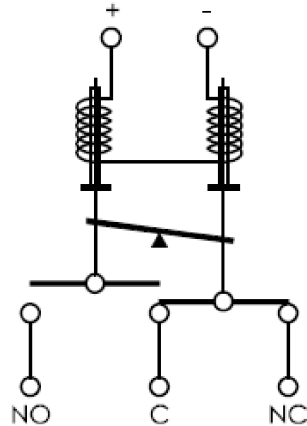
SHEET 1 OF 2

ALL DIMENSIONS SHOWN ARE FOR REFERENCE ONLY.

SCALE N/A



SIZE A	CAGE CODE 3FKR5	DRAWN BY KGLEBOVA	ITEM NO. FMSW6478	REV A
-----------	--------------------	----------------------	----------------------	----------

T-Rev.D



**SCHEMATIC (FAILSAFE POSITION)**

THESE COMMODITIES, TECHNOLOGY OR SOFTWARE WERE EXPORTED FROM THE UNITED STATES IN ACCORDANCE WITH THE EXPORT ADMINISTRATION REGULATIONS. DIVERSION CONTRARY TO U.S. LAW PROHIBITED.

 <b>Fairview Microwave</b> an INFINIT <sup>®</sup> brand	UNLESS OTHERWISE SPECIFIED LEADING DIMENSIONS ARE INCHES DIMENSIONS IN [ ] ARE MILLIMETERS		THIRD-ANGLE PROJECTION 		
	TOLERANCES: .X = ±.2 [ .51]    FRACTIONS    ± 1/32 .XX = ±.02 [ .51]    ± 1/32 .XXX = ±.005 [ .13]    ANGLES ± 1°		CABLE LENGTH (L) TOLERANCES: 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.
TITLE SPDT Electromechanical Relay Failsafe Switch, DC to 40 GHz, 2M Lifecycles, 10W, 28V, 2.92mm, Solder Pins			SHEET 2 OF 2		
ALL DIMENSIONS SHOWN ARE FOR REFERENCE ONLY.			SCALE N/A		
SIZE A	CAGE CODE 3FKR5	DRAWN BY KGLEBOVA	ITEM NO. FMSW6478	REV A	

T-Rev.D