

SPDT Electromechanical Relay Failsafe Switch, DC to 40 GHz, up to 10W, 2M Lifecycles, 12V, 2.92mm

The FMSW6443 is a Single Pole Double Throw (SPDT) electromechanical relay switch that operates across a wide frequency range of DC to 40 GHz and can handle up to 10W Watts of average power in a break before make condition. The 50 Ohm design features a Failsafe Actuator and is rated for 2 million lifecycles. Impressive typical performance includes 0.35 dB insertion loss and isolation greater than 85 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 2.92mm 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	SPDT
Actuator Type	Failsafe
Switching Sequence	Break Before Make

Description	Min	Typ	Max	Units
Frequency Range	DC		40	GHz
Impedance		50		Ohms
Operating Voltage	11	12	13	Volts
Actuating Current @ 12 Volts			200	mA
VSWR		1.4:1	1.5:1	
Insertion Loss		0.35	0.7	dB
Isolation	60	85		dB
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	1.15:1	1.35:1	1.4:1	1.45:1	1.5:1	
Insertion Loss, Max	0.2	0.3	0.4	0.5	0.7	dB
Isolation, Min	85	80	80	75	60	dB

Mechanical Specifications

Size	
Length	1.3 in [33.02 mm]
Width/Diameter	1.5 in [38.1 mm]
Height	0.52 in [13.21 mm]
Finish	NICKEL
Package Type	Connectorized
Operating Life	2,000,000 Cycles

Connectors

RF Connector Type	2.92mm Female
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Features:

- Single Pole Double Throw Electromechanical Relay Switch
- DC to 40 GHz Frequency Range
- Failsafe Actuator
- 2M Lifecycle Rating
- Insertion Loss 0.35 dB typ
- Isolation > 85 dB typ
- VSWR as low as 1.15:1 max
- Solder Terminal Pins for DC Control
- +12 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

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Environmental Specifications

Temperature

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

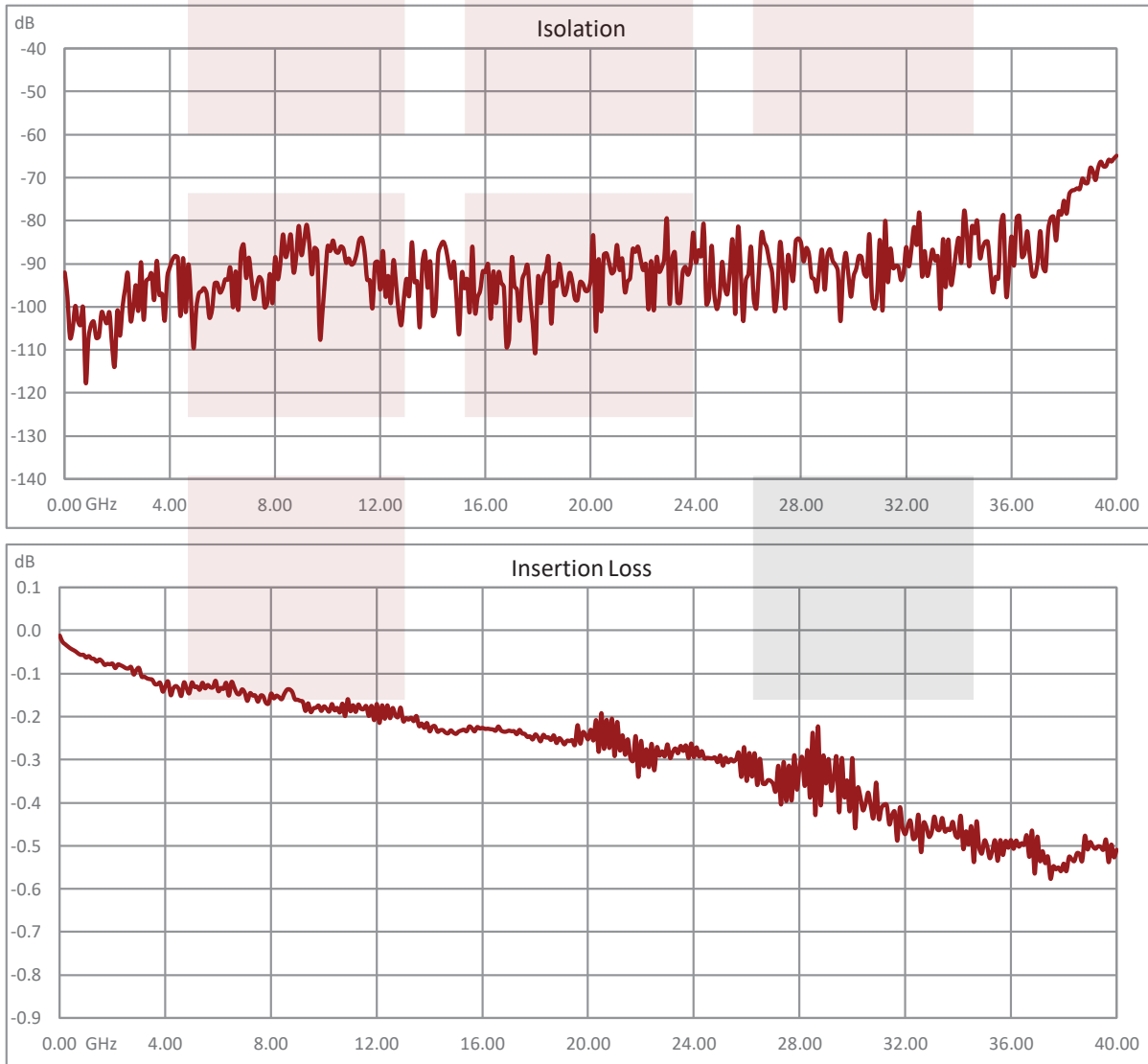
Humidity Moisture resistant or immersion sealing available
Shock MIL-STD-202 Method 213, Condition D, 500G (non oper)
Vibration MIL-STD-202 Method 214, Condition D, 10G RMS (non oper)

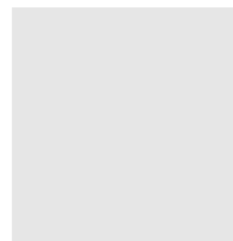
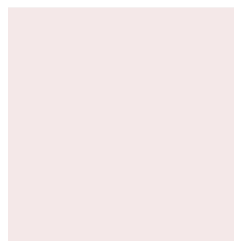
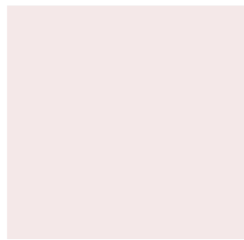
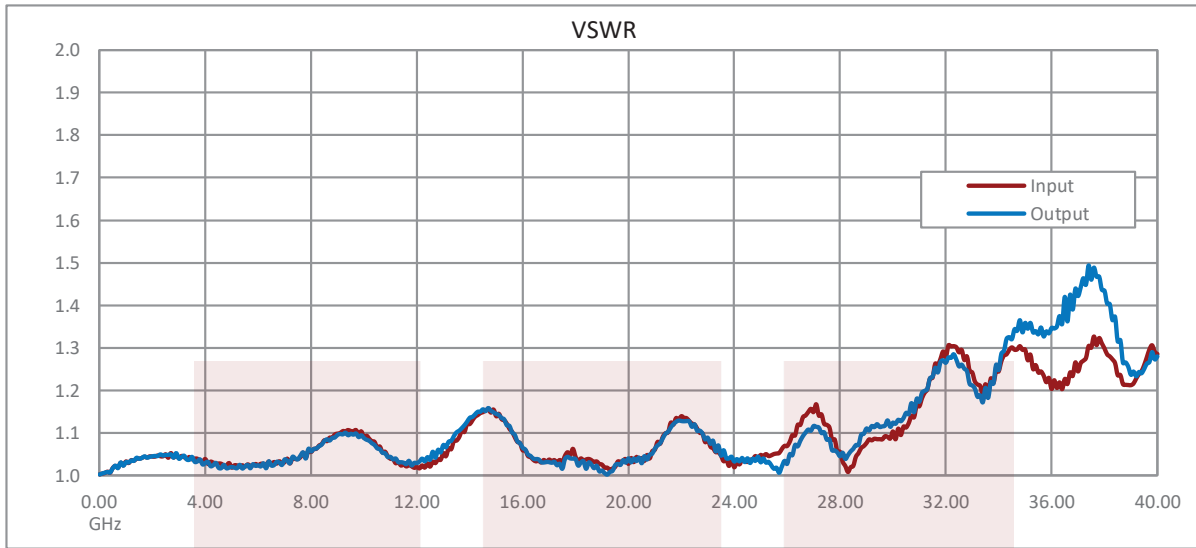
Compliance Certifications (see [product page](#) for current document)

Plotted and Other Data

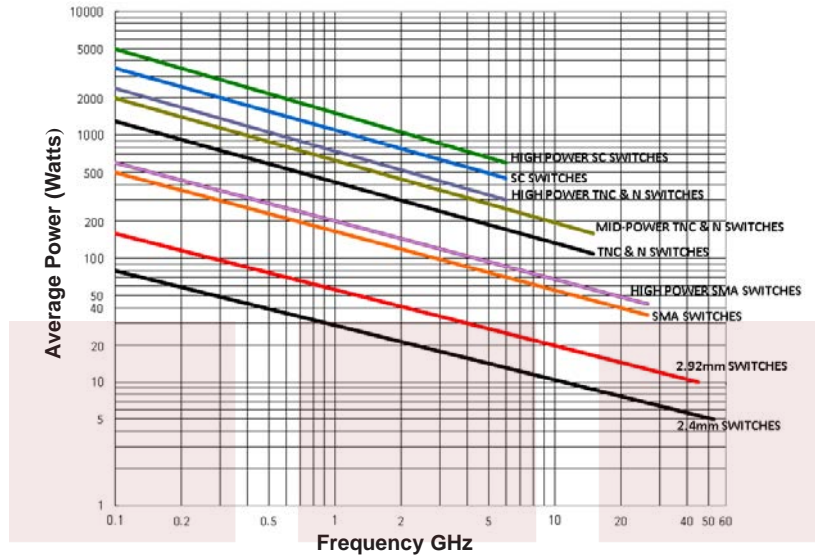
Notes:

Typical Performance Data

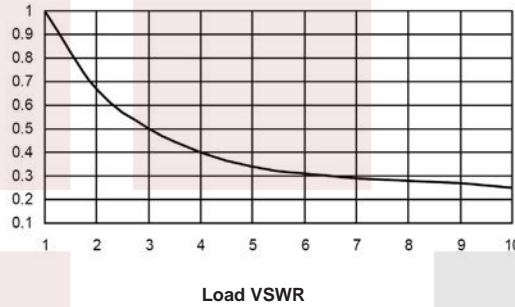




Power Handling vs. Frequency



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

SPDT Electromechanical Relay Failsafe Switch, DC to 40 GHz, up to 10W, 2M Lifecycles, 12V, 2.92mm 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.

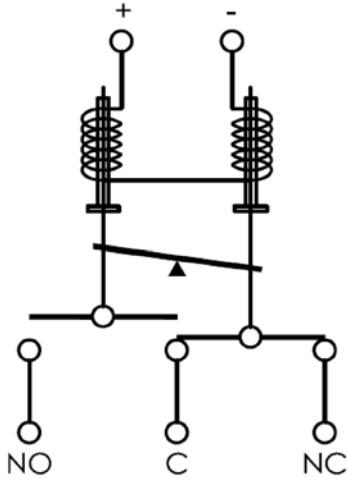
For additional information on this product, please click the following link: [SPDT Electromechanical Relay Failsafe Switch, DC to 40 GHz, up to 10W, 2M Lifecycles, 12V, 2.92mm FMSW6443](#)

URL: <https://www.fairviewmicrowave.com/spdt-failsafe-40-ghz-electro-mechanical-relay-switch-12v-2.92mm-fm-sw6443-p.aspx>

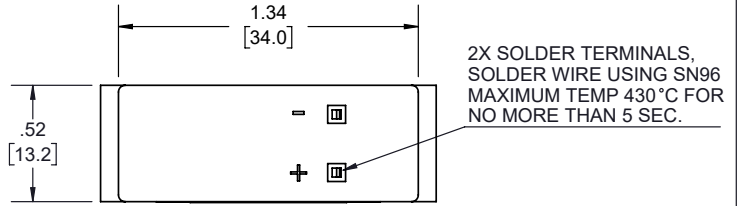
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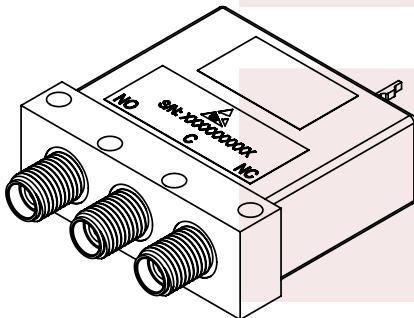
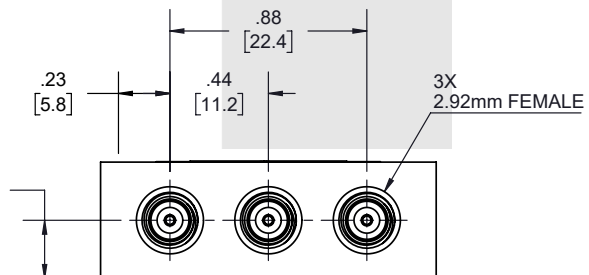
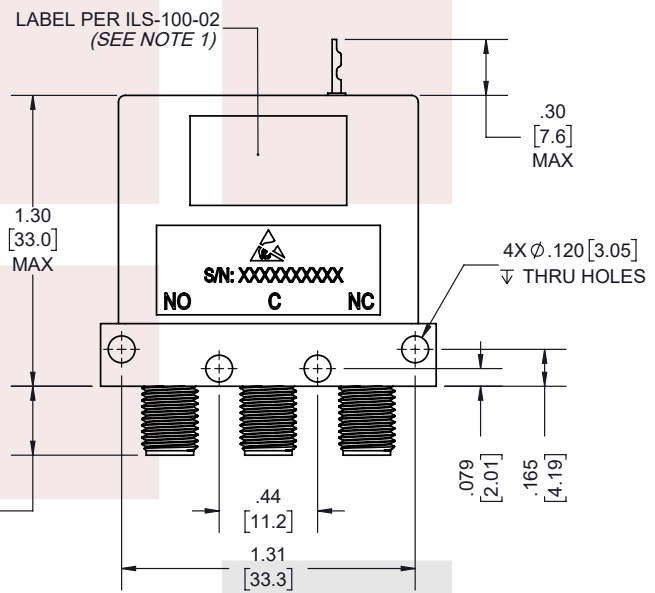
REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
A	INITIAL RELEASE	1/26/2021	T.GALLA



SCHMATIC (FAILSAFE POSITION)



2X SOLDER TERMINALS,
SOLDER WIRE USING SN96
MAXIMUM TEMP 430°C FOR
NO MORE THAN 5 SEC.



NOTES:

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

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TITLE
SPDT Electromechanical Relay Failsafe Switch, DC to 40 GHz, up to 10W, 2M Lifecycles, 12V, 2.92mm

UNLESS OTHERWISE SPECIFIED LEADING DIMENSIONS ARE INCHES DIMENSIONS IN [] ARE MILLIMETERS		THIRD-ANGLE PROJECTION	
TOLERANCES:			
CABLE LENGTH (L) TOLERANCES:		THE INFORMATION AND DESIGN IN THIS DOCUMENT IS THE PROPERTY OF FAIRVIEW MICROWAVE CORPORATION. ALL RIGHTS RESERVED.	
.X = ±.2 [5.08]	FRACTIONS ± 1/32	L ≤ 12 [305] = +1 [25] / -0	SHEET 1 OF 1
.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	
ALL DIMENSIONS SHOWN ARE FOR REFERENCE ONLY.			SCALE N/A
SIZE A	CAGE CODE 3FKR5	DRAWN BY K.DANG	ITEM NO. FMSW6443
			REV A

T-Rev.D