Fairview Microwave
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FMSW6513 DATA SHEET

SP4T Electromechanical Relay Normally Open Switch, Terminated, DC to 26.5 GHz, 2M Lifecycles, 20W, 12V, SMA, Solder Pins

The FMSW6513 is a Single Pole Four Throw (SP4T) electromechanical relay switch that operates across a wide frequency range from DC to 26.5 GHz and can handle up to 20W of CW input power in a break before make condition. The 50 Ohm design is rated for 2 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. The output ports are terminated in 50 ohms when swtiched in the isolation (off) state. Impressive typical performance includes 0.5 dB insertion loss and isolation greater than 70 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 SMA 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 = +12 Vdc)

Switch Type	SP4T
Actuator Type	Normally Open

Description	Min	Typ	Max	Units
Frequency Range	DC		26.5	GHz
Operating Voltage		+12		Volts
Actuating Current @ +12 Volts			420	mA
VSWR		1.3:1	1.8:1	
Insertion Loss		0.5	0.8	dB
Isolation	50	70		dB
Input Power (CW) (at 26.5 GHz)			20	Watts

Performance by Frequency

Description	F1	F2	F3	F4	F5	Units
Frequency Range	DC - 6	6 - 12	12 - 18	18 - 26.5		GHz
VSWR, Max	1.25:1	1.4:1	1.5:1	1.8:1		
Insertion Loss, Max	0.2	0.4	0.5	0.8		dB
Isolation, Min	70	60	60	50		dB

Mechanical Specifications

Size

Length	2.52 in [64.01 mm]
Width/Diameter	2.25 in [57.15 mm]
Height	2.25 in [57.15 mm]
Weight	0.4 lbs [181.44 g]

Connectors

RF Connector Type	SMA Female

Features:

- Single Pole Four Throw (SP4T) Electromechanical Relay Switch
- DC to 26.5 GHz Frequency Range
- Normally Open Actuator
- 2M Lifecycle Rating
- Insertion Loss 0.5 dB typ
- Isolation > 70 dB typ
- VSWR as low as 1.25:1 max
- +12 Volt DC Bias
- Terminal Solder Pins for DC Control
- SMA Female Connectors
- -25°C to +65°C Operating Temperature
- Up to 20 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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sales@fairviewmicrowave.com

Environmental Specifications

Temperature

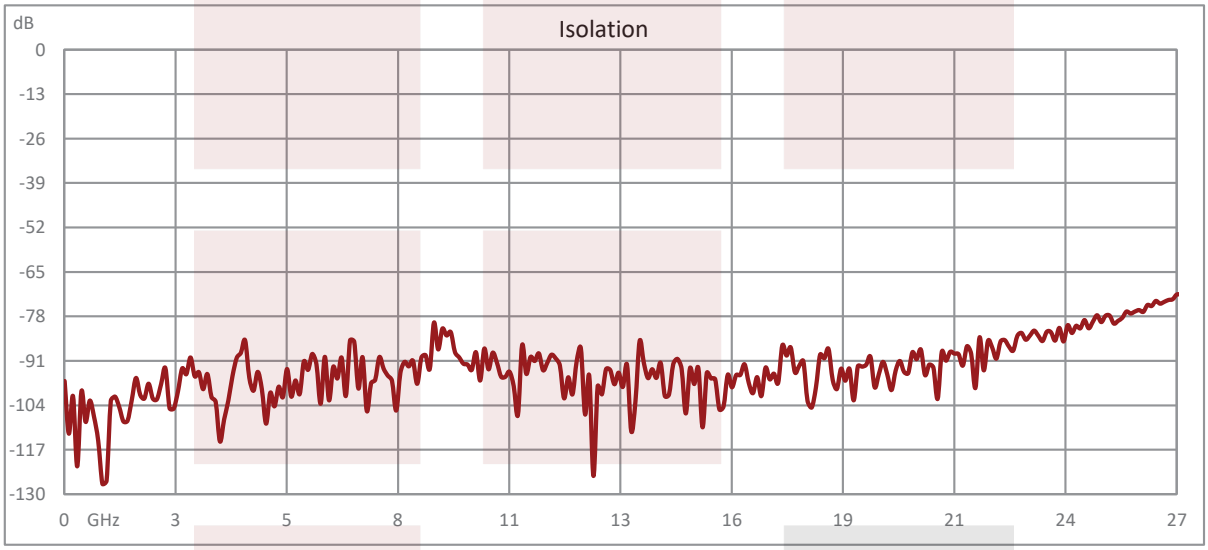
Operating Range	-25 to +65 deg C
Storage Range	-55 to +100 deg C
Shock	MIL-STD-202 Method 213, Condition D, 500G (non oper)
Vibration	MIL-STD-202 Method 204, Condition D, 10G RMS (non oper)

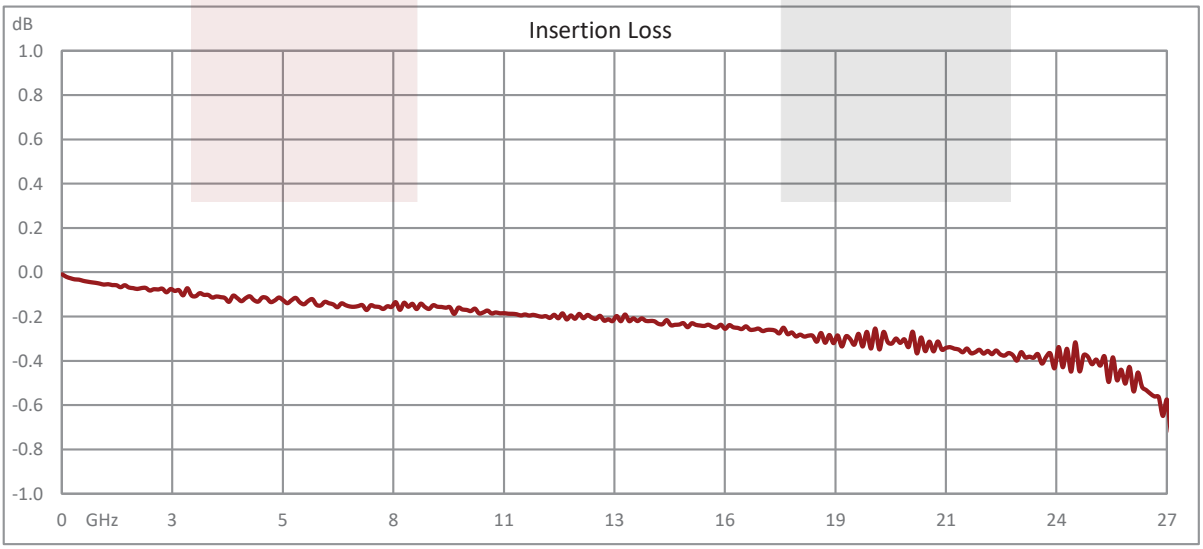
Compliance Certifications (see product page for current document)

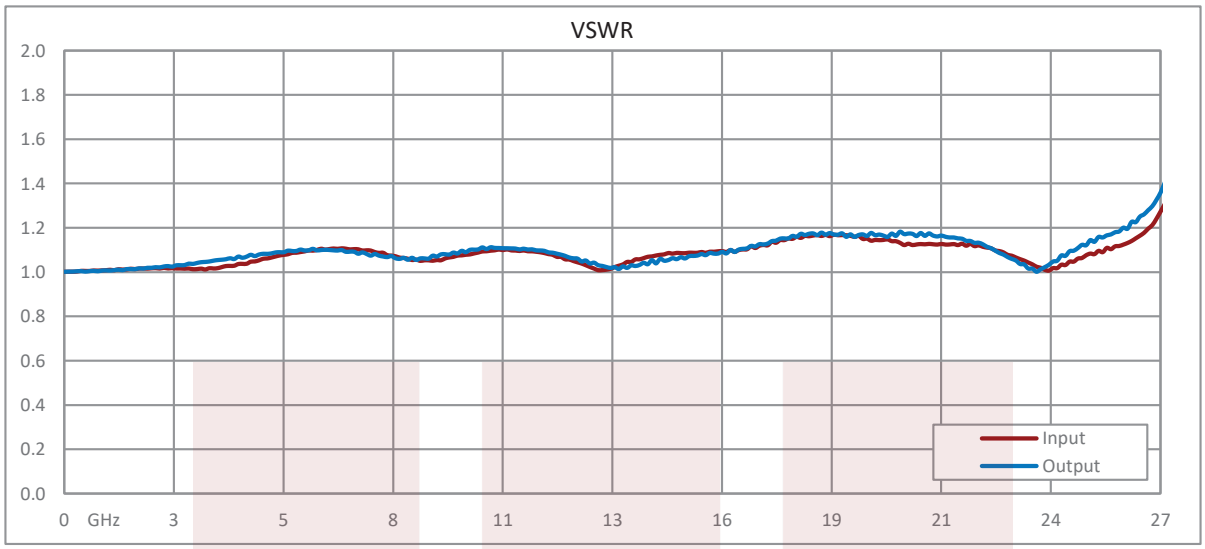
Plotted and Other Data

Notes:

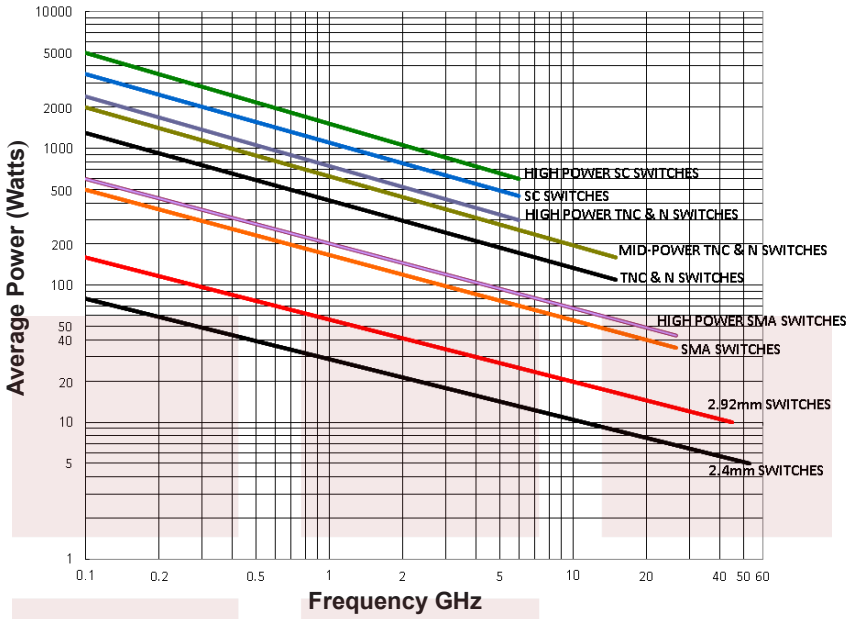
Typical Performance Data







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:

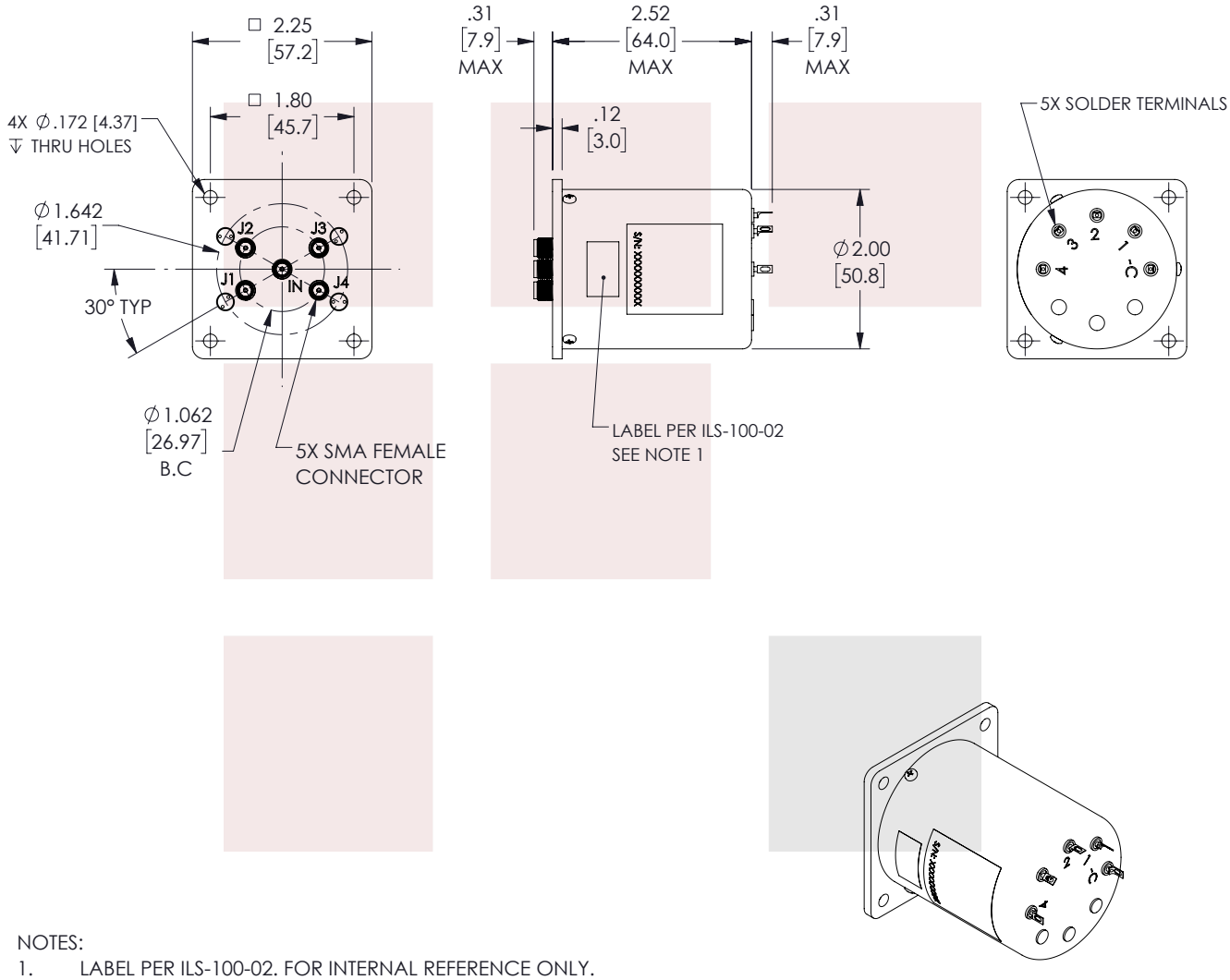
- Ambient temperature: 20-25°C
- Altitude: Sea Level to 1,000 feet
- Relative Humidity: 50-55%
- Load VSWR: ≤ 1.20:1
- Operation: Cold Switching

SP4T Electromechanical Relay Normally Open Switch, Terminated, DC to 26.5 GHz, 2M Lifecycles, 20W, 12V, SMA, 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: SP4T Electromechanical Relay Normally Open Switch, Terminated, DC to 26.5 GHz, 2M Lifecycles, 20W, 12V, SMA, Solder Pins FMSW6513

URL: https://www.fairviewmicrowave.com/sp4t-normally-open-26.5-ghz-electro-mechanical-relay-switch-20w-12v-sma-fmsw6513-p.aspx

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



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

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TITLE

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

TOLERANCES:

.X = ±.2 [5.08]
.XX = ±.02 [.51]
.XXX = ±.005 [.13]
FRACTIONS ± 1/32
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

THIRD-ANGLE PROJECTION

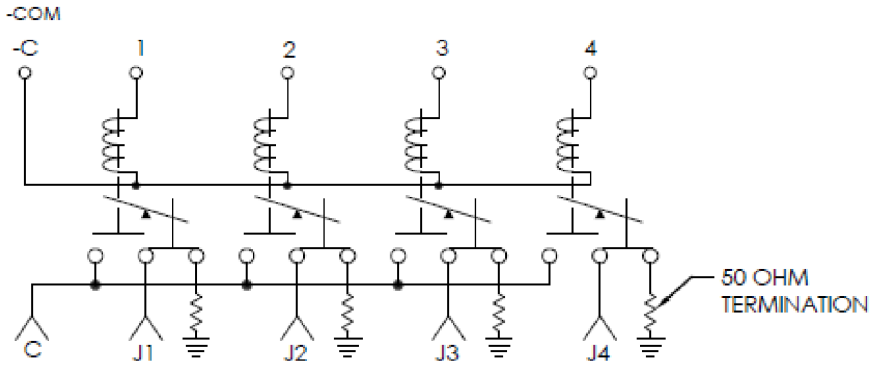
SHEET 1 OF 2

ALL DIMENSIONS SHOWN ARE FOR REFERENCE ONLY.

SCALE N/A

SIZE	CAGE CODE	DRAWN BY	ITEM NO.	REV
A	3FKR5	KGLEBOVA	FMSW6513	A

T-Rev.D



SCHEMATIC

(SHOWN IN NORMALLY OPEN AND INTERNALLY TERMINATE POSITIONS)

TRUTH TABLE/PIN ASSIGNMENT :

PIN ASSIGNMENT

TERMINALS / PIN ASSIGNMENT	RF PATH			
	J1	J2	J3	J4
1	ON	OFF	OFF	OFF
2	OFF	ON	OFF	OFF
3	OFF	OFF	ON	OFF
4	OFF	OFF	OFF	ON

PIN -C. -COM

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THIRD-ANGLE PROJECTION

SHEET 2 OF 2

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SIZE	CAGE CODE	DRAWN BY	ITEM NO.	REV
A	3FKR5	KGLEBOVA	FMSW6513	A

T-Rev.D