

SP4T, Electromechanical Relay Normally Open Switch, DC to 43 GHz, 12VDC, 10W, Indicators, TTL, Diodes, D-Sub, 2.92mm

The FMSW7290 is a Single Pole Four Throw (SP4T) electromechanical relay switch that operates across an ultra wide frequency range from DC to 43 GHz and can handle up to 10 Watts of Average 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. Additional features include TTL logic control, Indicators to monitor the switch position, and Suppression Diodes which limit voltage spikes or reverse current. Impressive typical performance includes 0.6 dB insertion loss and isolation greater than 70 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 2.92mm female connectors and a 15 Pin D-Sub connector for all DC command control functions. 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
Actuator Options	Indicators, TTL Logic, Diodes
TTL Control	on: 2.4 to 5 Volts off: 0 to 0.8 Volts

Description	Min	Typ	Max	Units
Frequency Range	DC		43	GHz
Operating Voltage	11	12	13	Volts
Actuating Current @ 12 Volts			400	mA
VSWR		1.4:1	2.1:1	
Insertion Loss		0.6	1.6	dB
Isolation	40	85		dB
Input Power			10	Watts
Switching Time			20	ms

Performance by Frequency

Description	F1	F2	F3	F4	F5	Units
Frequency Range	DC - 6	6 - 12	12 - 18	18 - 28	28 - 34	GHz
VSWR, Max	1.25:1	1.4:1	1.5:1	1.8:1	1.8:1	
Insertion Loss, Max	0.2	0.4	0.5	0.9	1	dB
Isolation, Min	70	60	60	60	60	dB

Performance by Frequency

Description	F6	F7	F8	F9	F10	Units
Frequency Range	34 - 40	40 - 43				GHz
VSWR, Max	1.8:1	2.1:1				
Insertion Loss, Max	1.3	1.6				dB



Features:

- Single Pole Four Throw (SP4T) Electromechanical Relay Switch
- DC to 43 GHz Frequency Range
- Normally Open Actuator
- TTL Logic Control
- Indicators
- Suppression Diodes
- 2M Lifecycle Rating
- Insertion Loss 0.6 dB typ
- Isolation > 70 dB typ
- VSWR as low as 1.25:1 max
- 15 Pin D-Sub Connector for all DC Command Control Functions
- +12 Volt DC Bias
- 2.92mm Female Connectors
- -25°C to +65°C Operating Temperature
- Up to 10 Watts 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

Isolation, Min 50 40 dB

Mechanical Specifications

Size

Length	1.75 in [44.45 mm]
Width/Diameter	1.75 in [44.45 mm]
Height	2.5 in [63.5 mm]
Weight	0.22 lbs [99.79 g]
Body Material and Plating	Electroless Nickel

Connectors

RF Connector Type	2.92mm Female
Control Connector	D-Subminiature

Environmental Specifications

Temperature

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

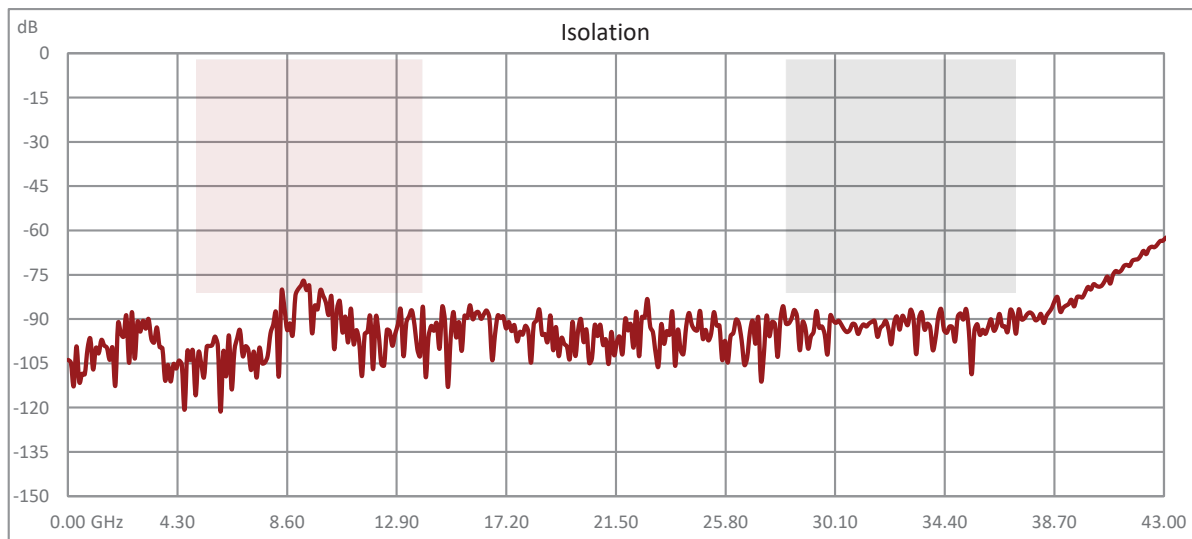
Shock	MIL-STD-202 Method 213, Condition D, 500G (non operational)
Vibration	MIL-STD-202 Method 204, Condition D, 10G RMS (non operational)

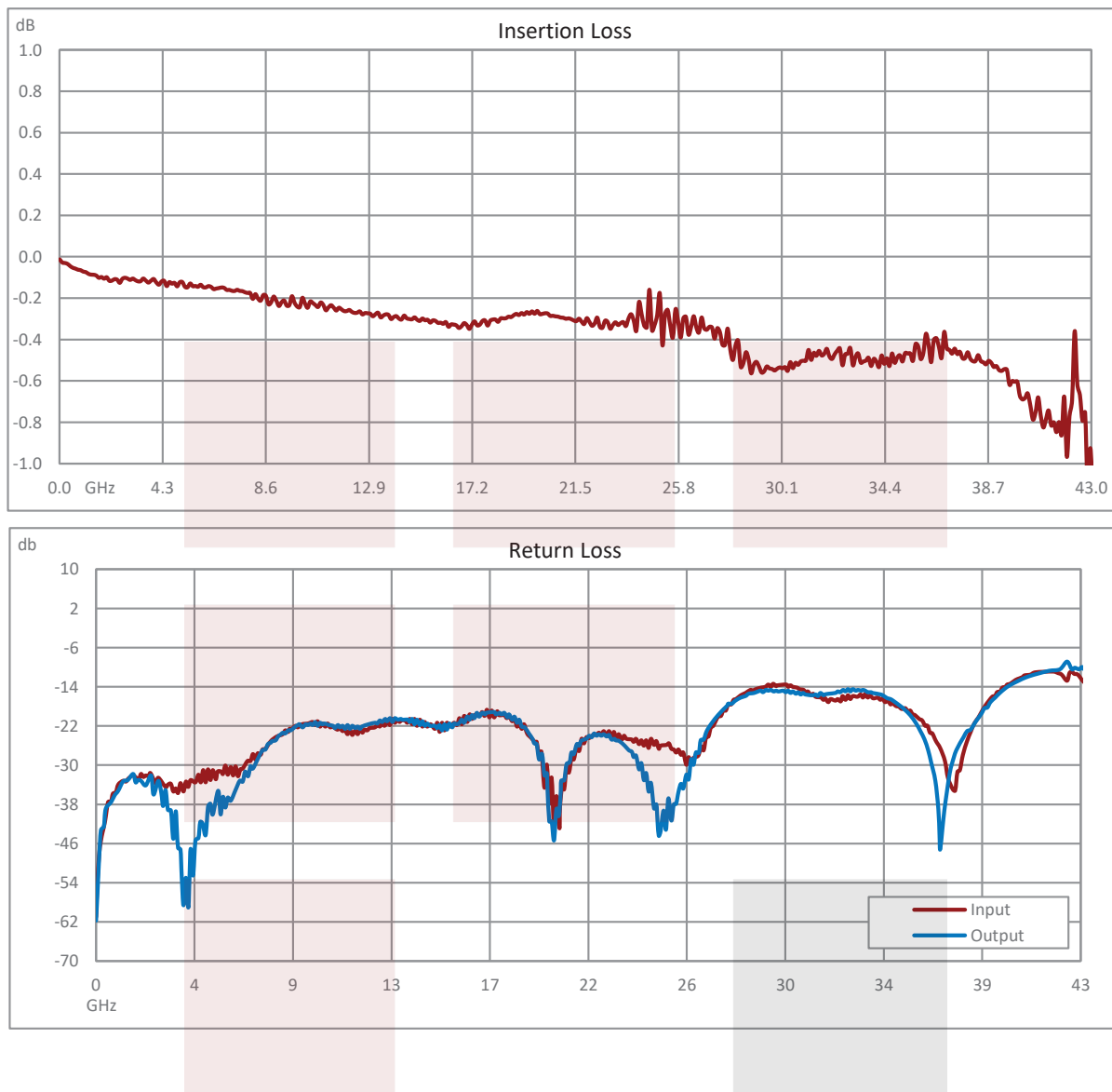
Compliance Certifications (see [product page](#) for current document)

Plotted and Other Data

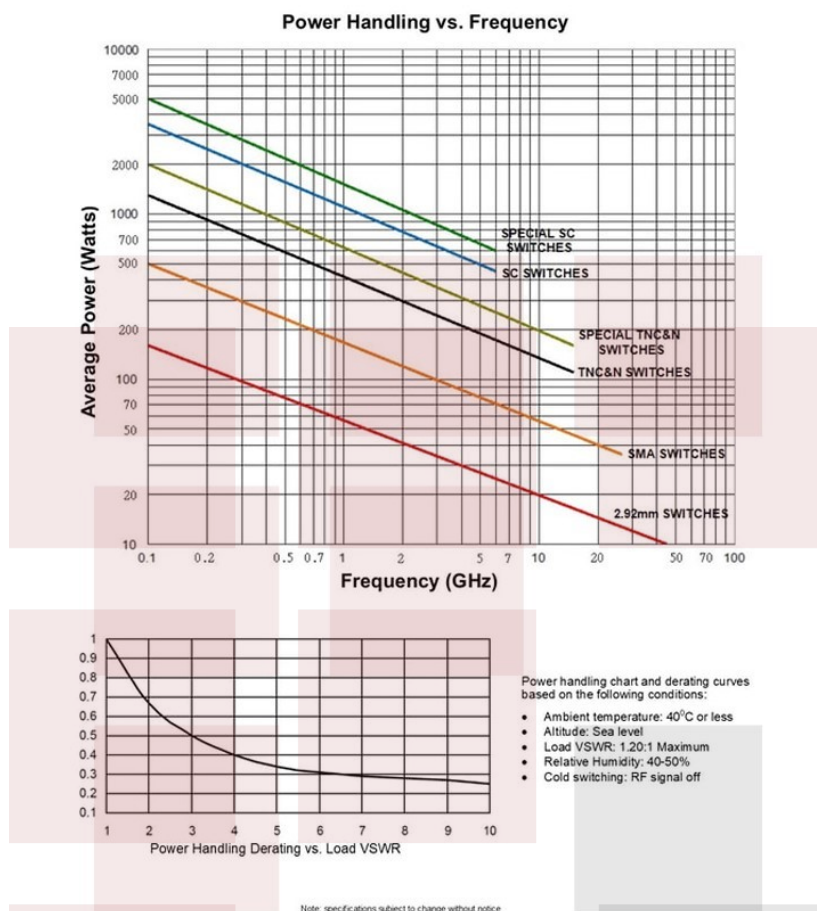
Notes:

Typical Performance Data





Power Handling vs. Frequency



SP4T, Electromechanical Relay Normally Open Switch, DC to 43 GHz, 12VDC, 10W, Indicators, TTL, Diodes, D-Sub, 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: [SP4T, Electromechanical Relay Normally Open Switch, DC to 43 GHz, 12VDC, 10W, Indicators, TTL, Diodes, D-Sub, 2.92mm FMSW7290](https://www.fairviewmicrowave.com/sp4t-normally-open-43-ghz-electro-mechanical-relay-switch-indicators-ttl-diodes-12v-2.92mm-fmsw7290-p.aspx)

URL: <https://www.fairviewmicrowave.com/sp4t-normally-open-43-ghz-electro-mechanical-relay-switch-indicators-ttl-diodes-12v-2.92mm-fmsw7290-p.aspx>

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SP4T, Electromechanical Relay Normally Open Switch,
DC to 43 GHz, 12VDC, 10W, Indicators, TTL, Diodes,
D-Sub, 2.92mm

RF POSITION
SCHEMATIC

15 PIN D-SUB
CONNECTOR

14

15

GND

V_{SW}

1

2

3

4

TTL CIRCUIT

IND
COM
13

5

6

7

8

1

2

3

4

1

2

3

4

TRUTH TABLE/PIN ASSIGNMENT:

TERMINALS	RF PATH				INDICATOR			
	J1	J2	J3	J4	5	6	7	8
LOGIC INPUT PINS								
1("1")	ON	OFF	OFF	OFF	ON	OFF	OFF	OFF
2("1")	OFF	ON	OFF	OFF	OFF	ON	OFF	OFF
3("1")	OFF	OFF	ON	OFF	OFF	OFF	ON	OFF
4("1")	OFF	OFF	OFF	ON	OFF	OFF	OFF	ON

PIN 13: IND COM

PIN 14: V_{SW} +12VDC

PIN 15: GND

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

TOLERANCES:

X = ±2 [5] FRACTIONS

.XX = ±.02 [.5] ANGLES ± 1°

.XXX = ±.005 [.13]

CABLE LENGTH TOLERANCES:

≤12 [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

ALL DIMENSIONS ARE FOR REFERENCE ONLY
AND SUBJECT TO CHANGE WITHOUT NOTICE.

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Website: www.FairviewMicrowave.com
Phone: 1.800.715.4396 | 1.972.649.6678

INTERPRET ALL DIMENSIONS AND
TOLERANCES PER ASME Y14.5
SCALE

NONE

2 OF 2

DESCRIPTION
SP4T, NO, 43GHz, 12VDC, indicators, TTL, diodes, 2.92mm, D-Sub

SIZE

CAGE CODE

DRAWN BY

ITEM NO.

REV

A

3FKR5

BPUCHASKI

FMSW7290

A

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301 Leora Ln., Suite 100, Lewisville, TX 75056 | Tel: 1-800-715-4396 / (972) 649-6678 / Fax: (972) 649-6689

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