

SP10T NO DC to 20 GHz Electro-Mechanical Relay Switch, up to 90W, 28V, SMA

The FMSW6410 is a Single Pole Ten Throw (SP10T) electromechanical relay switch that operates across a wide frequency range of DC to 20 GHz and can handle up to 90 Watts of CW input power in a break before make condition. The design features a Normally Open actuator and is rated for 2M life cycles for high reliability operation. Impressive performance includes insertion loss less than 0.25 dB typical and isolation greater than 80 dB typical. The Normally Open actuator has a +28 Vdc bias voltage, and operates over a temperature range of -25°C to +70°C. The rugged and compact package assembly supports SMA Female connectors and a 15 Pin D-Sub Connector 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	SP10T
Actuator Type	Normally Open
Switching Sequence	Break before Make

Description	Min	Typ	Max	Units
Frequency Range	DC		20	GHz
Impedance		50		Ohms
Operating Voltage	26	28	30	Volts
Actuating Current @ 28 Volts		90		mA
VSWR		1.25:1	1.8:1	
Insertion Loss		0.25	0.7	dB
Insertion Loss Repeatability				
Isolation	70	80		dB
Input Power (CW)			60	Watts
Switching Time			20	ms

Performance by Frequency

Description	F1	F2	F3	F4	F5	Units
Frequency Range	DC - 6	6 - 12	12 - 18	18 - 20		GHz
VSWR, Max	1.25:1	1.35:1	1.6:1	1.8:1		
Insertion Loss, Max	0.25	0.35	0.5	0.7		dB
Isolation, Min	80	75	75	70		dB
Power In, Typ (CW)	90	75	65	60		Watts

Mechanical Specifications

Size

Weight	0.902 lbs [409.14 g]
Package Type	Connectorized
Operating Life	2,000,000 Cycles

Connectors

RF Connector Type	SMA Female
Control Connector	15 Pin D-Sub



Features:

- Single Pole Ten Throw
- DC to 20 GHz Frequency Range
- Isolation greater than 80 dB typical
- 2M Cycle Min Operating Life
- +28 Volt DC
- 90 Watt average Power
- Normally Open Actuator
- -25 to +70°C Operating Temperature
- Insertion Loss as low as 0.25 dB Max
- VSWR 1.25:1 Max
- SMA Female RF connectors
- 15 Pin D-Sub Connector for DC Control
- Hot Switching Capability - Consult Factory
- S-Parameter Data available upon request

Applications:

- High Performance Relay Switch
- Military Communications
- Communications Systems
- Test & Measurement

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Environmental Specifications

Temperature

Operating Range -25 to +70 deg C
 Storage Range -55 to +100 deg C

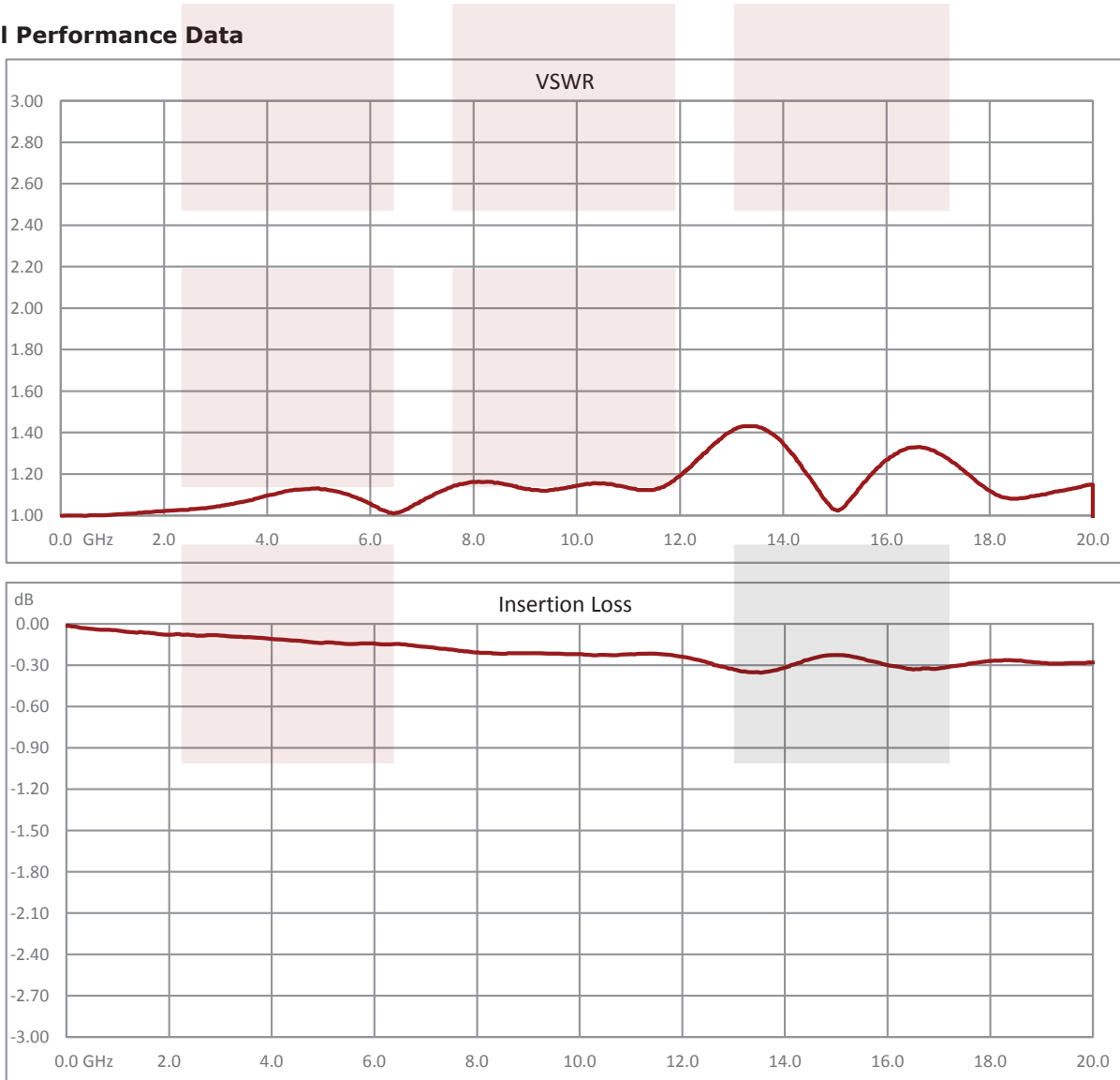
Shock MIL-STD-202 Method 213, Cond. D 500G Non Operating
 Vibration MIL-STD-202 Method 214, Cond. D 10G RMS Non Operating

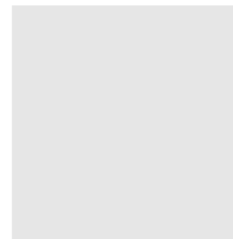
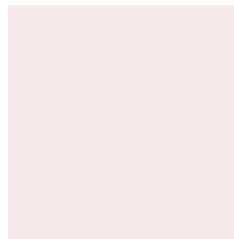
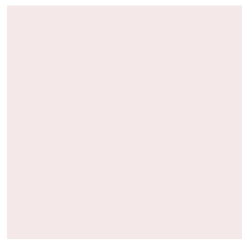
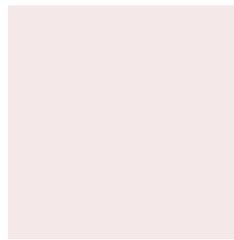
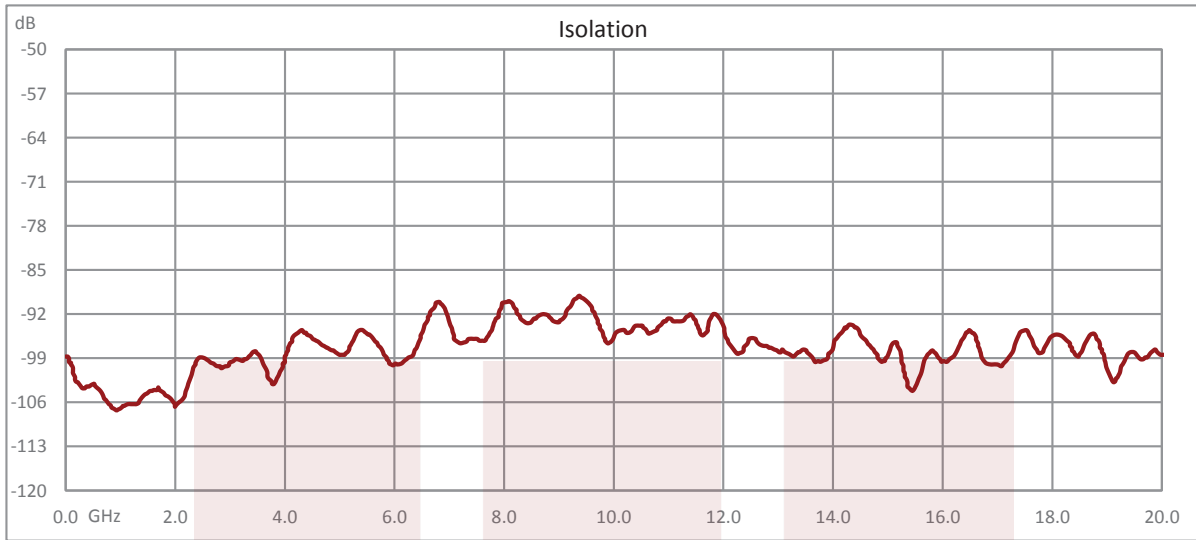
Compliance Certifications (see [product page](#) for current document)

Plotted and Other Data

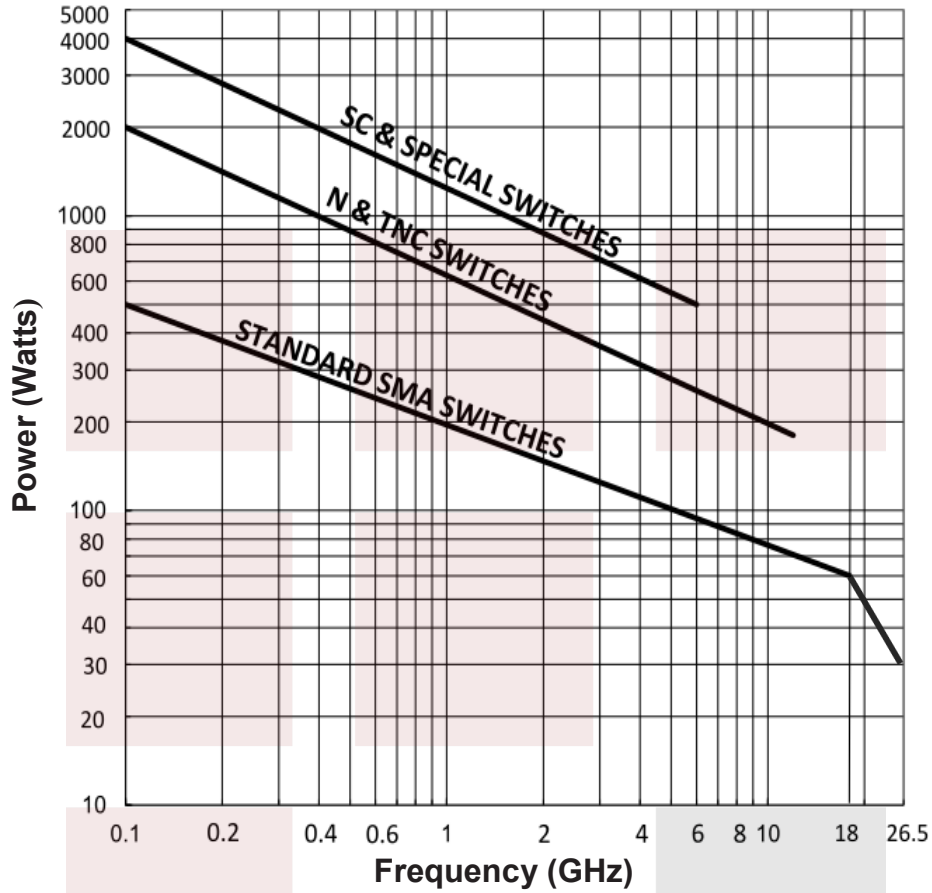
Notes:

Typical Performance Data





Power Handling vs. Frequency & Connector Type



Environmental and Test Conditions:

- Ambient temperature of 25°C or less
- Altitude: Sea Level
- Load VSWR: 1.20:1 max.
- Cold Switching

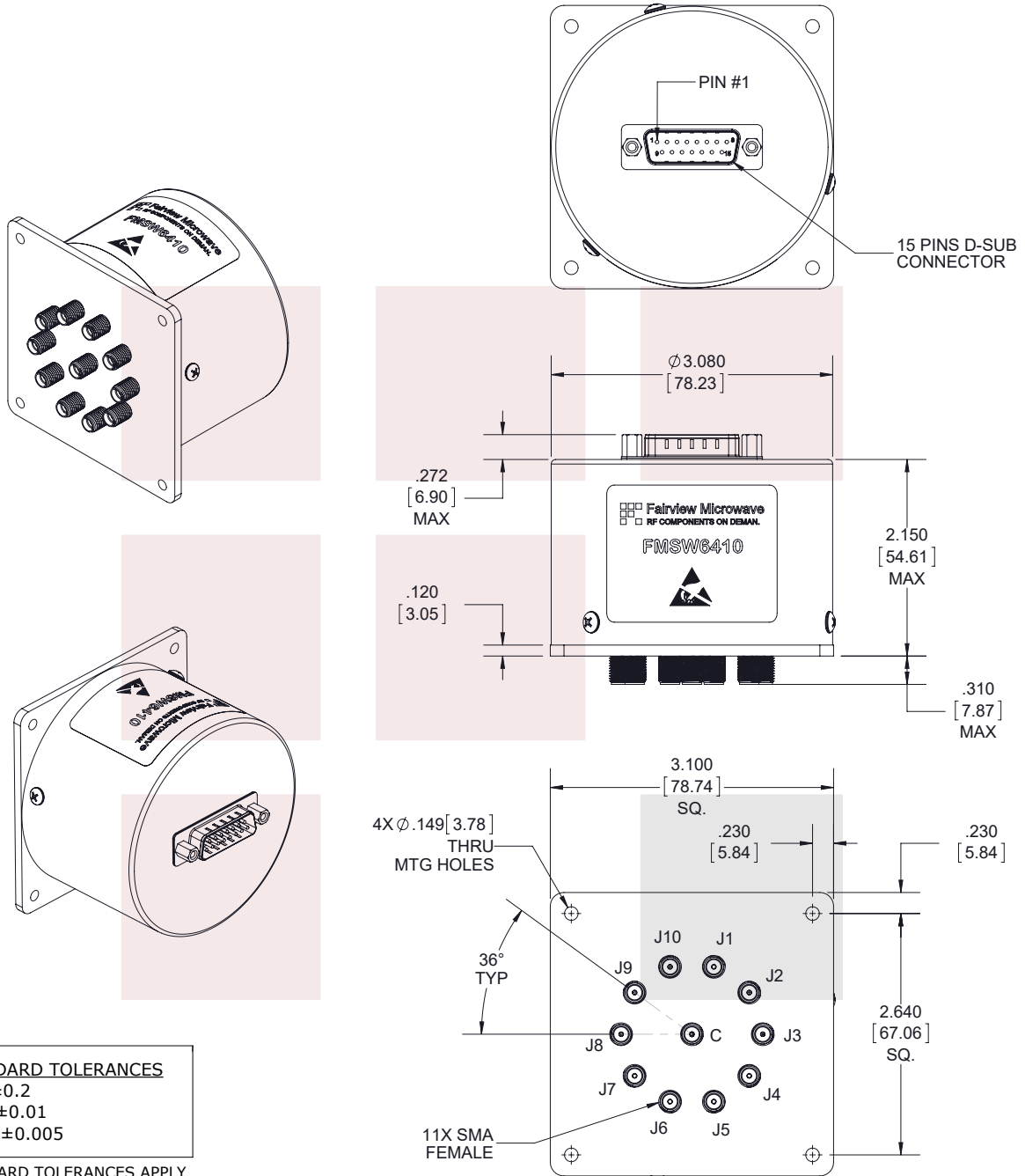
SP10T NO DC to 20 GHz Electro-Mechanical Relay Switch, up to 90W, 28V, SMA from Fairview Microwave is in-stock and available to ship same-day. All of our RF/microwave products are available off-the-shelf from our ISO 9001:2008 certified facilities in Allen, Texas. Fairview Microwave is RF on-demand.

For additional information on this product, please click the following link: [SP10T NO DC to 20 GHz Electro-Mechanical Relay Switch, up to 90W, 28V, SMA FMSW6410](#)

URL: <https://www.fairviewmicrowave.com/sp10t-normally-open-20-ghz-electro-mechanical-relay-switch-60w-28v-sma-fmsw6410-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.

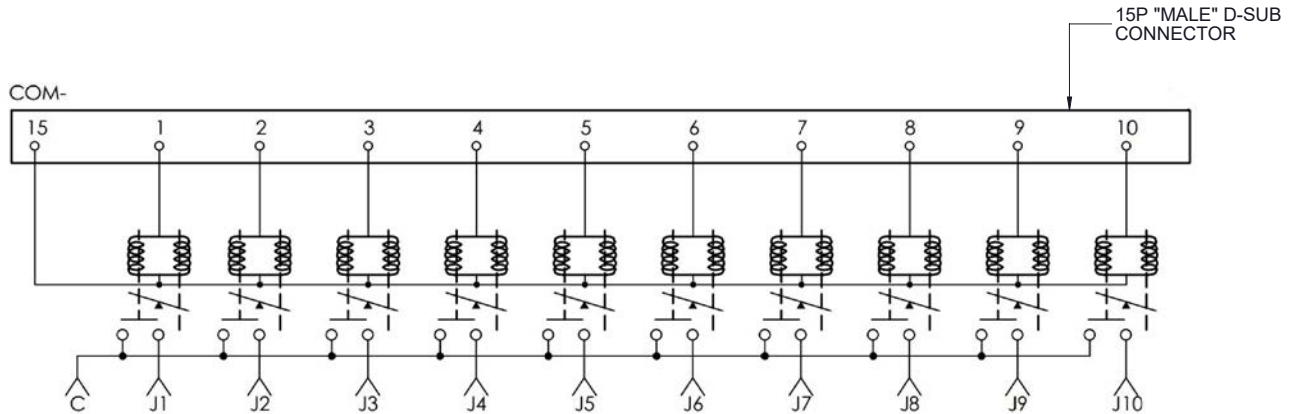




STANDARD TOLERANCES
 .X ±0.2
 .XX ±0.01
 .XXX ±0.005

*STANDARD TOLERANCES APPLY ONLY TO DIMENSIONS IN INCHES

FAIRVIEW MICROWAVE INC. ALLEN, TX 75013 WWW.FAIRVIEWMICROWAVE.COM		NOTES: 1. UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE NOMINAL. 2. ALL SPECIFICATIONS ARE SUBJECT TO CHANGE WITHOUT NOTICE AT ANY TIME. 3. DIMENSIONS ARE IN INCHES [mm].						
TITLE SP10T NO DC to 20 GHz Electro-Mechanical Relay Switch, up to 90W, 28V, SMA		DWG NO FMSW6410		CAGE CODE 3FKR5				
CAD FILE	091117	SHEET	1 OF 2	SCALE	N/A	SIZE	A	7361



SCHEMATIC SHOWN IN NORMALLY OPEN POSITION

TERMINALS D-SUB PIN ASSIGNMENT	RF PATH									
	J1	J2	J3	J4	J5	J6	J7	J8	J9	J10
1	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
2	OFF	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
3	OFF	OFF	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF
4	OFF	OFF	OFF	ON	OFF	OFF	OFF	OFF	OFF	OFF
5	OFF	OFF	OFF	OFF	ON	OFF	OFF	OFF	OFF	OFF
6	OFF	OFF	OFF	OFF	OFF	ON	OFF	OFF	OFF	OFF
7	OFF	OFF	OFF	OFF	OFF	OFF	ON	OFF	OFF	OFF
8	OFF	OFF	OFF	OFF	OFF	OFF	OFF	ON	OFF	OFF
9	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	ON	OFF
10	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	ON

PIN 15. -COM

STANDARD TOLERANCES

- .X ±0.2
- .XX ±0.01
- .XXX ±0.005

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