

## SP4T, IP64 Rated Electromechanical Relay Normally Open Switch, Terminated, DC to 18GHz, 90W, 12VDC, SMA

The FMSW6530 is a Ruggedized SP4T electromechanical relay switch that operates across a broadband frequency range from DC to 18 GHz and can handle up to 90W of average power in a break before make condition. The 50 Ohm design is IP64 compliant with a Level 1 moisture seal and specifically designed to operate reliably in harsh usage environments and conditions, such as over extreme temperatures and wet or dusty environments. Intrusion protection offers full protection against dust and other particulates. Moisture protection enables resistance to splashes in all directions. 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 switched in the isolation (off) state. Impressive typical performance includes 0.2 dB insertion loss and isolation greater than 80 dB. This switch requires +12 Vdc bias voltage and operates over a temperature range of -54°C to +85°C. The rugged and compact package assembly supports SMA female connectors and 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 (TA = +25°C, DC Voltage = 12 Vdc)

Switch Type SP4T  
 Actuator Type Normally Open

Description	Min	Typ	Max	Units
Frequency Range	DC		18	GHz
Impedance		50		Ohms
Operating Voltage	11	12	13	Volts
Actuating Current @ 12 Volts			400	mA
VSWR		1.15:1	1.5:1	
Insertion Loss		0.2	0.5	dB
Isolation	80	90		dB
Switching Time		20		ms

### Performance by Frequency

Description	F1	F2	F3	F4	F5	Units
Frequency Range	DC - 6	6 - 12	12 - 18			GHz
VSWR, Max	1.25:1	1.4:1	1.5:1			
Insertion Loss, Max	0.2	0.4	0.5			dB
Isolation, Min	80	80	80			dB

### Mechanical Specifications

Size	
Length	1.75 in [44.45 mm]
Width/Diameter	1.75 in [44.45 mm]
Height	1.75 in [44.45 mm]
Weight	0.112 lbs [50.8 g]



### Features:

- Single Pole Four Throw (SP4T) Electromechanical Relay Switch
- IP64 Level 1 Rated
- DC to 18 GHz Frequency Range
- Normally Open Actuator
- 2M Lifecycle Rating
- Insertion Loss 0.2 dB typ
- Isolation >80 dB typ
- VSWR as low as 1.25:1 max
- +12 Volt DC Bias
- 15 Pin D-SUB Connector for DC Control
- SMA Female Connectors
- -54°C to +85°C Operating Temperature
- Up to 90 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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**Connectors**

RF Connector Type  
Control Connector

SMA Female  
D-Subminiature

**Environmental Specifications**

**Temperature**

Operating Range  
Storage Range

-54 to +85 deg C  
-55 to +100 deg C

Ingress Protection (IP) Rating

IP64

Shock

MIL-STD-202 Method 213, Condition D, 500 G (non oper)

Vibration

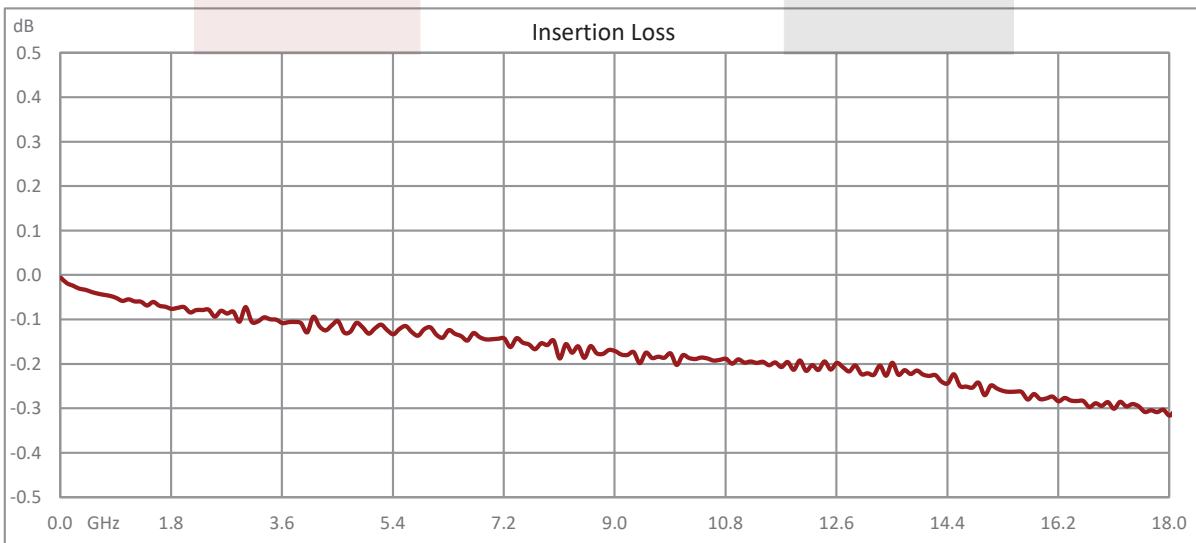
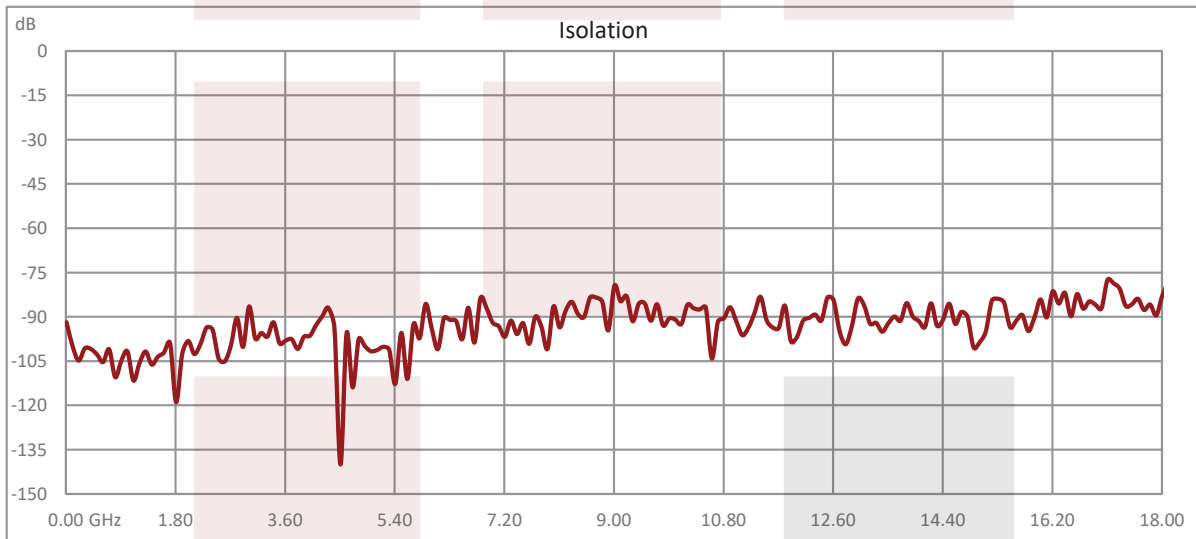
MIL-STD-202 Method 204, Condition D, 10G RMS (non oper)

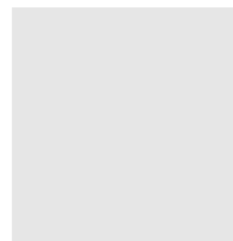
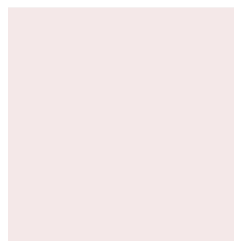
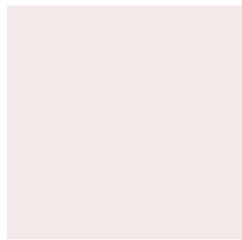
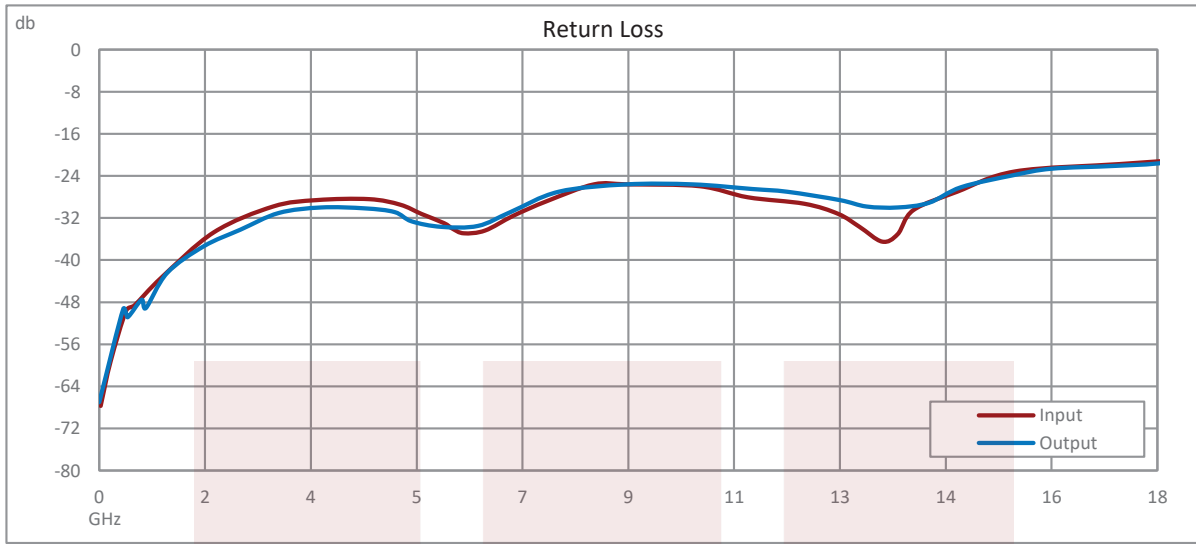
**Compliance Certifications** (see [product page](#) for current document)

**Plotted and Other Data**

Notes:

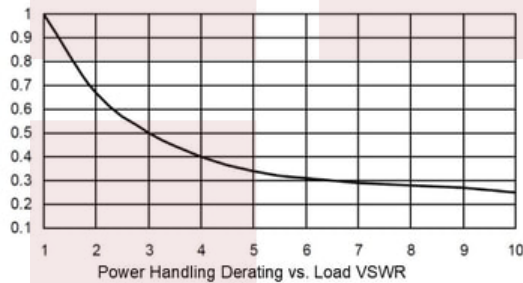
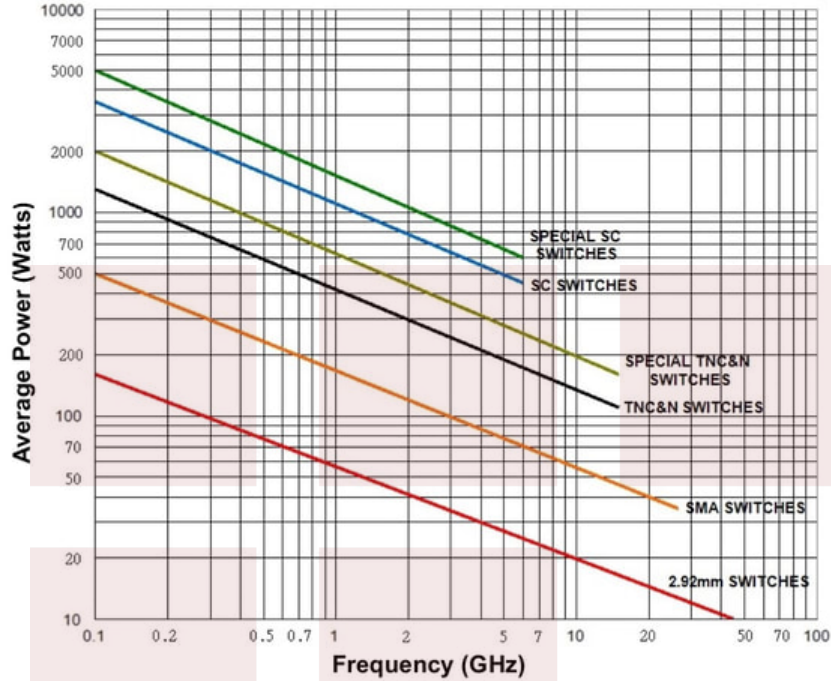
**Typical Performance Data**





**Power Handling vs. Frequency**

**Power Handling vs. Frequency**



Power handling chart and derating curves based on the following conditions:

- Ambient temperature: 40°C or less
- Altitude: Sea level
- Load VSWR: 1.20:1 Maximum
- Relative Humidity: 40-50%
- Cold switching: RF signal off

Note: specifications subject to change without notice

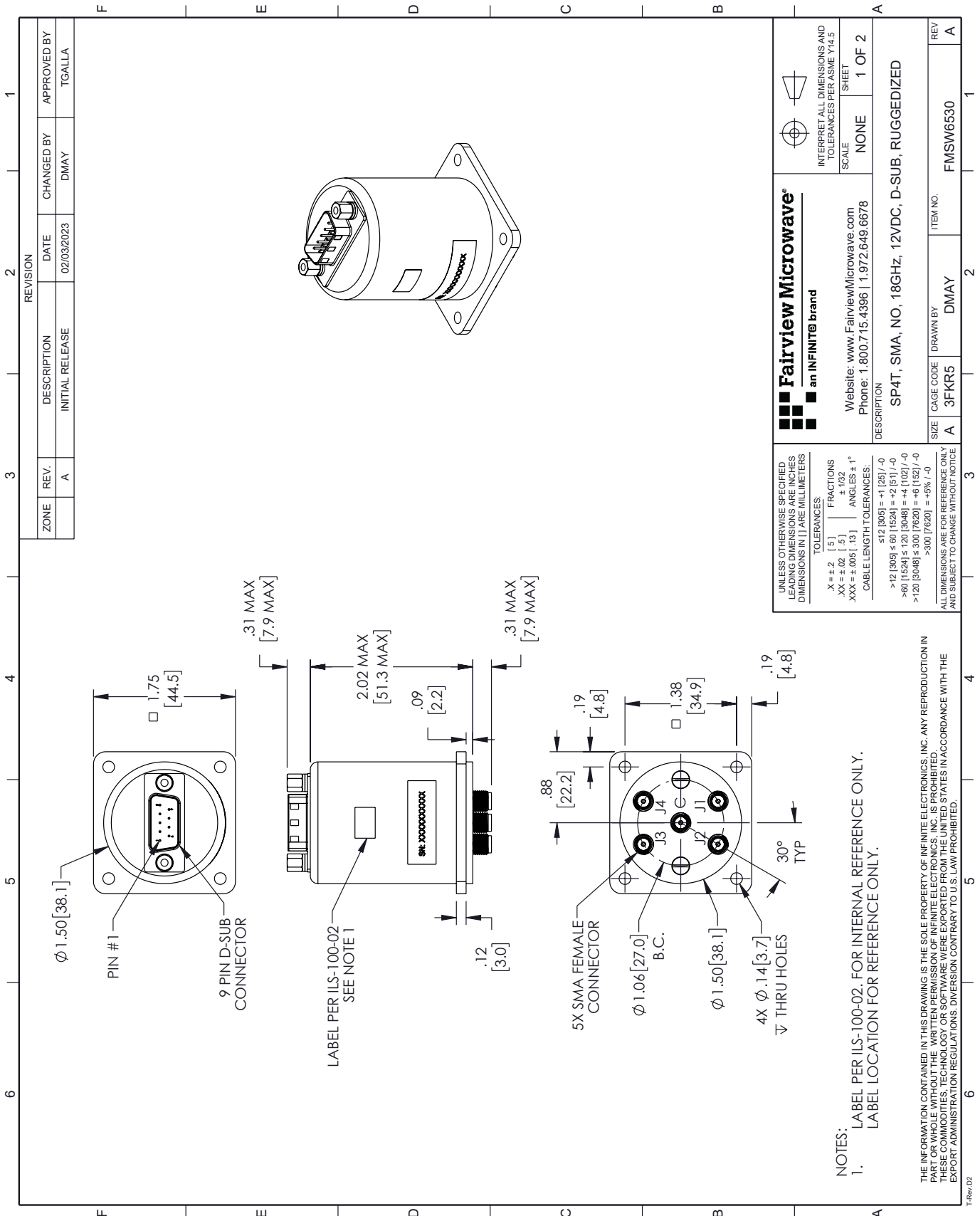
SP4T, IP64 Rated Electromechanical Relay Normally Open Switch, Terminated, DC to 18GHz, 90W, 12VDC, SMA from Fairview Microwave is in-stock and available to ship same-day. All of our RF/microwave products are available off-the-shelf from our ISO 9001:2008 certified facilities in Lewisville, Texas. Fairview Microwave is RF on-demand.

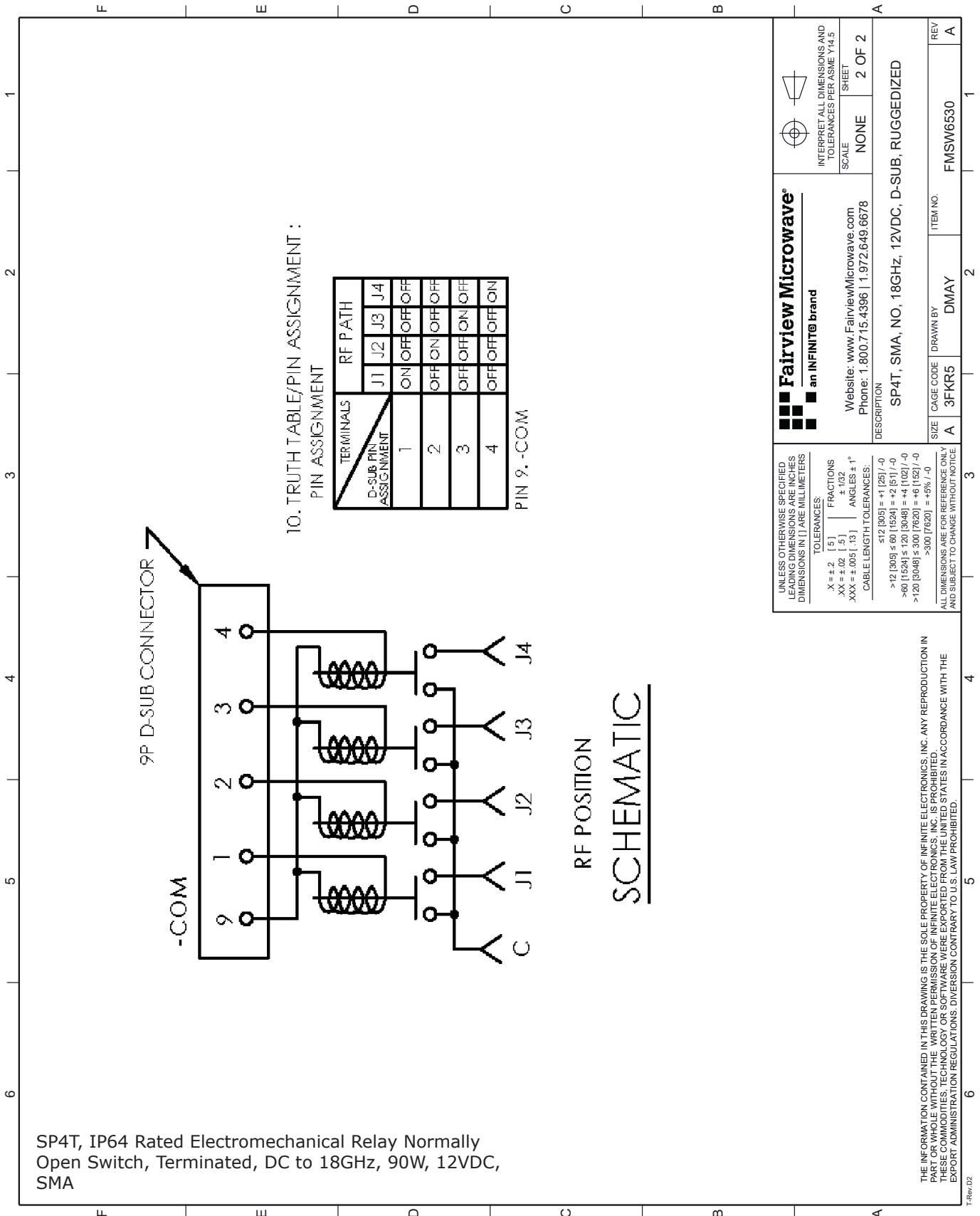
For additional information on this product, please click the following link: [SP4T, IP64 Rated Electromechanical Relay Normally Open Switch, Terminated, DC to 18GHz, 90W, 12VDC, SMA FMSW6530](#)

URL: <https://www.fairviewmicrowave.com/sp4t-normally-open-18-ghz-electro-mechanical-relay-switch-sma-fmsw6530-p.aspx>

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10. TRUTH TABLE/PIN ASSIGNMENT :

PIN ASSIGNMENT

TERMINALS	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 9: -COM

<p><b>Fairview Microwave®</b> an INFINITE® brand</p> <p>Website: <a href="http://www.FairviewMicrowave.com">www.FairviewMicrowave.com</a> Phone: 1.800.715.4396   1.972.649.6678</p>	<p>INTERPRET ALL DIMENSIONS AND TOLERANCES PER ASME Y14.5 SHEET</p>
	<p>SCALE: NONE</p> <p>SHEET: 2 OF 2</p>
<p>DESCRIPTION: SP4T, SMA, NO., 18GHz, 12VDC, D-SUB, RUGGEDIZED</p>	
<p>SIZE: A</p> <p>CAGE CODE: 3FKR5</p> <p>DRAWN BY: DMAY</p>	<p>ITEM NO.: FMSW6530</p> <p>REV: A</p>

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

TOLERANCES:

.X ± .2	[ .5 ]	FRACTIONS
.XX ± .02	[ .5 ]	± 1/32
.XXX ± .005	[ .13 ]	ANGLES ± 1°

CABLE LENGTH TOLERANCES:

≤ 12 [305]	± .125 [ -0 ]
> 12 [305] ≤ 60 [1524]	± .25 [ -0 ]
> 60 [1524] ≤ 120 [3048]	± .5 [ -0 ]
> 120 [3048] ≤ 300 [7620]	± 1.0 [ -0 ]
> 300 [7620]	± 2.0 [ -0 ]

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

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