

## SP6T, IP64 Rated Electromechanical Relay Normally Open Switch, DC to 18GHz, 90W, TTL, Diodes, 28VDC, SMA

The FMSW6535 is a Ruggedized SP6T 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. Additional features include TTL Control Logic, and suppression diodes which limit voltage spikes or reverse current. Impressive typical performance includes 0.2 dB insertion loss and isolation greater than 80 dB. This switch requires +28 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.



### Features:

- Single Pole Four Throw (SP6T) Electromechanical Relay Switch
- IP64 Level 1 Rated
- DC to 18 GHz Frequency Range
- Normally Open Actuator
- TTL
- Suppression Diodes
- 2M Lifecycle Rating
- Insertion Loss 0.2 dB typ
- Isolation > 80 dB typ
- VSWR as low as 1.25:1 max
- +28 Volt DC Bias
- 15 Pin D-SUB Connector for Command Control functions
- 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

### Electrical Specifications (TA = +25°C, DC Voltage = 28 Vdc)

Switch Type	SP6T
Actuator Type	Normally Open
Actuator Options	Diodes, TTL Logic
TTL Control	on: 2.4 to 5 Volts off: 0 to 0.8 Volts

Description	Min	Typ	Max	Units
Frequency Range	DC		18	GHz
Impedance		50		Ohms
Operating Voltage	26	28	30	Volts
Actuating Current @ 28 Volts			140	mA
VSWR		1.1:1	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

### Applications:

- Aerospace & Defense
- Test & Measurement
- Microwave Radio Systems
- Military & Commercial Communication Systems
- Research & Development
- SATCOM
- Wireless Communications
- Enterprise
- IoT

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**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	0.132 lbs [59.87 g]

**Connectors**

RF Connector Type	SMA Female
Control Connector	D-Subminiature

**Environmental Specifications**

**Temperature**

Operating Range	-54 to +85 deg C
Storage Range	-55 to +100 deg C

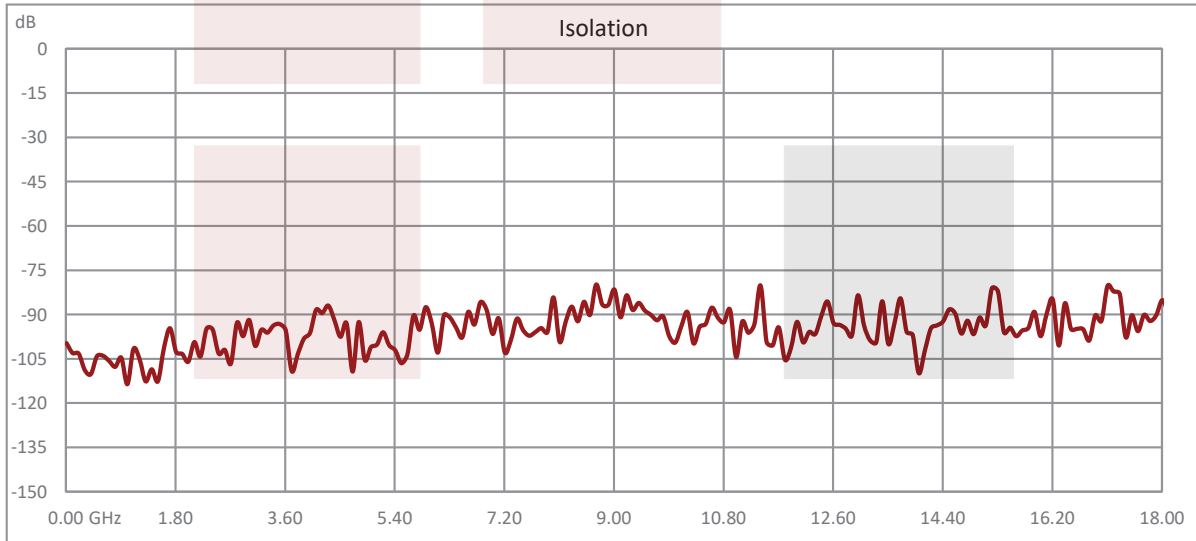
Ingress Protection (IP) Rating	IP64
Shock	MIL-STD-202 Method 213, Condition D, 500 G (non oper)
Vibration	MIL-STD-202 Method 204, Condition D, 10G RMS (non oper)

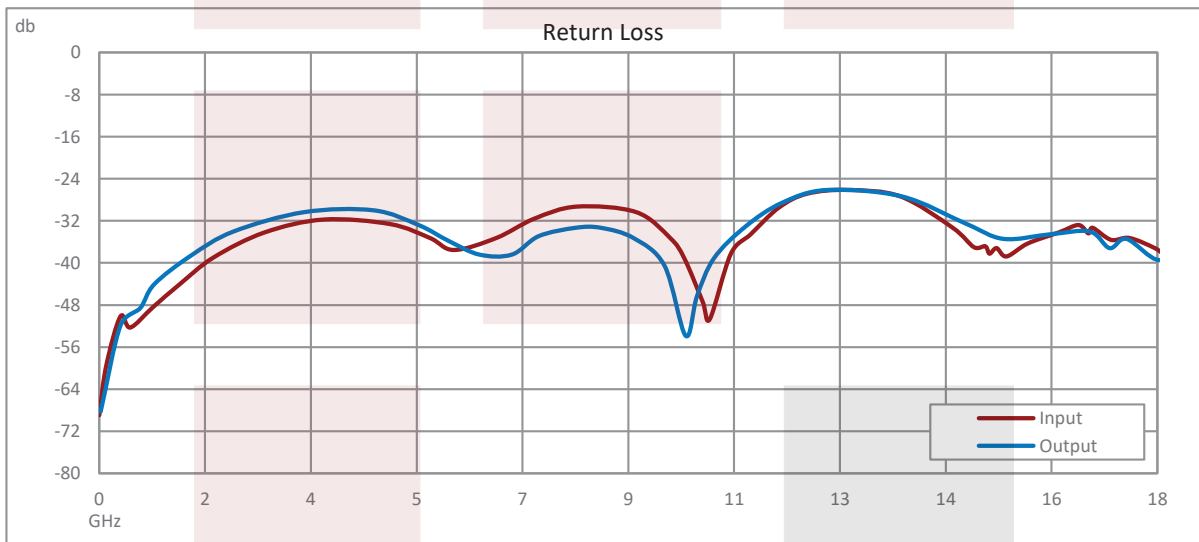
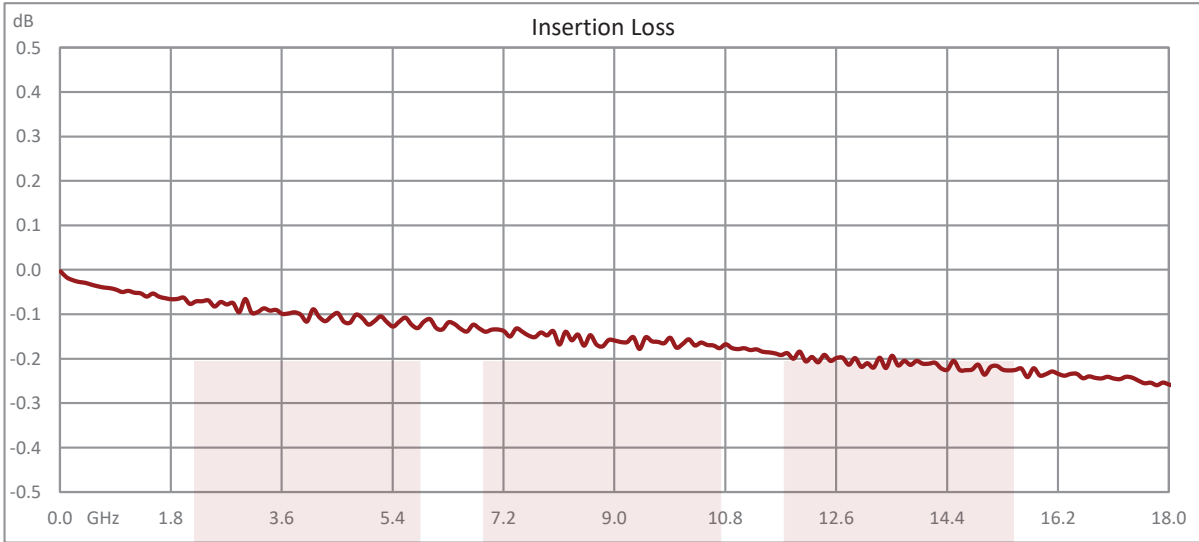
**Compliance Certifications** (see [product page](#) for current document)

**Plotted and Other Data**

Notes:

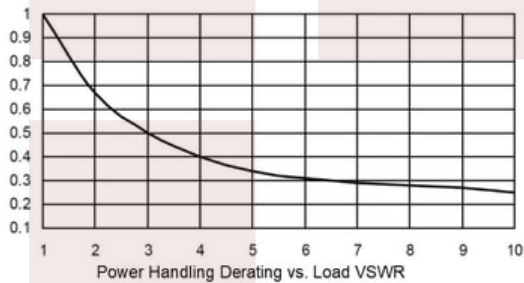
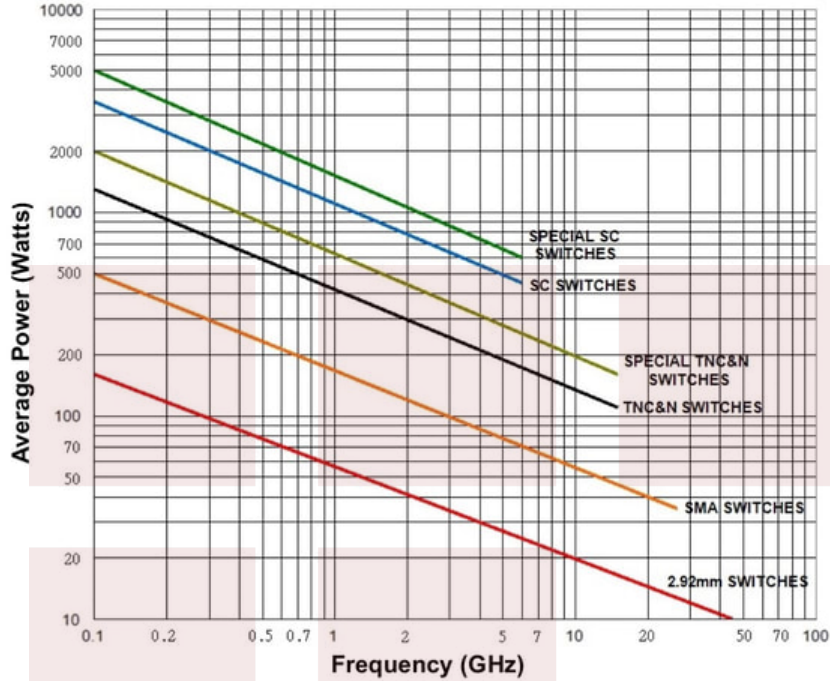
**Typical Performance Data**





**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

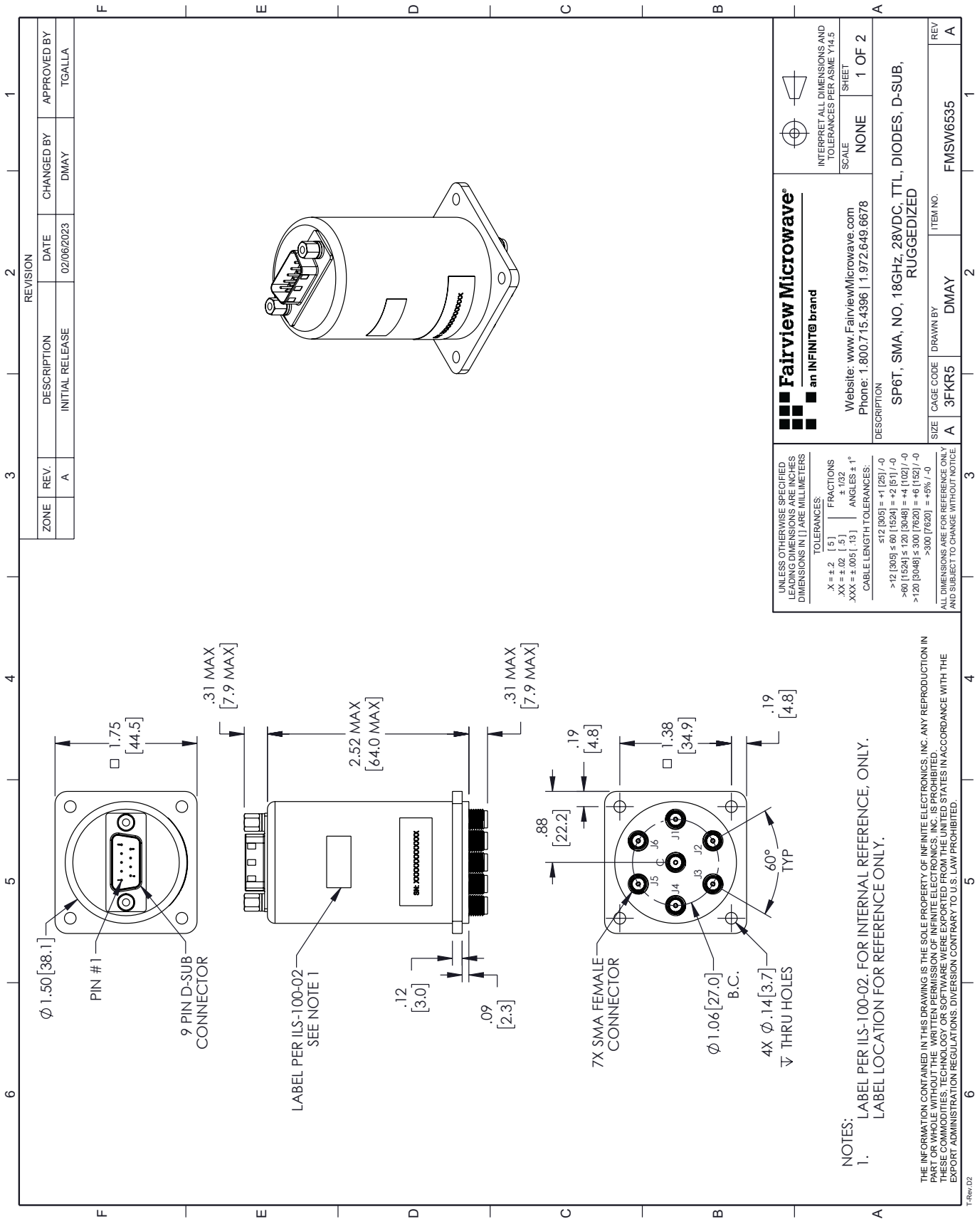
SP6T, IP64 Rated Electromechanical Relay Normally Open Switch, DC to 18GHz, 90W, TTL, Diodes, 28VDC, SMA from Fairview Microwave is in-stock and available to ship same-day. All of our RF/microwave products are available off-the-shelf from our ISO 9001:2008 certified facilities in Lewisville, Texas. Fairview Microwave is RF on-demand.

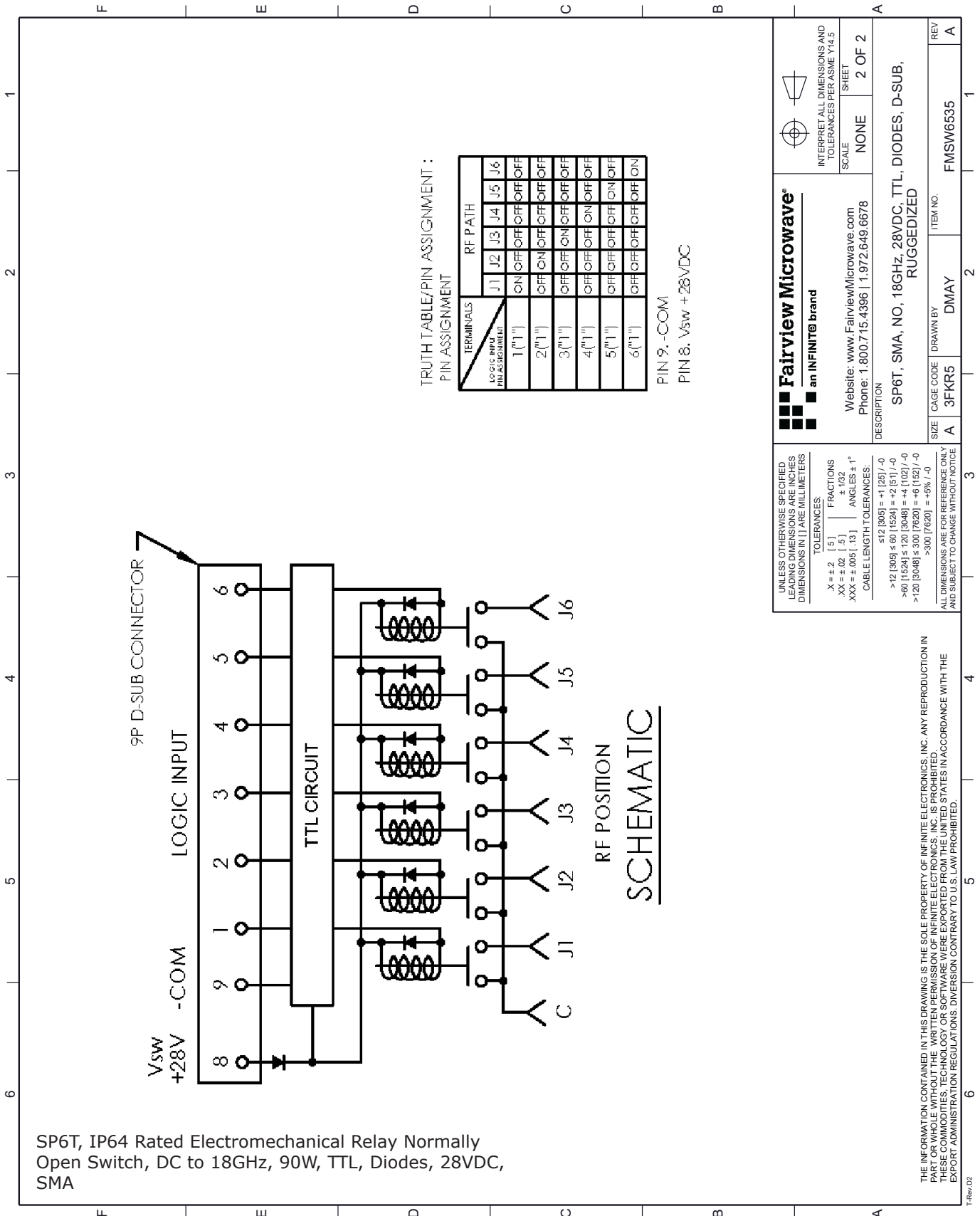
For additional information on this product, please click the following link: [SP6T, IP64 Rated Electromechanical Relay Normally Open Switch, DC to 18GHz, 90W, TTL, Diodes, 28VDC, SMA FMSW6535](#)

URL: <https://www.fairviewmicrowave.com/sp6t-normally-open-18-ghz-electro-mechanical-relay-switch-diodes-ttl-sma-fmsw6535-p.aspx>

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TRUTH TABLE/PIN ASSIGNMENT:  
PIN ASSIGNMENT

TERMINALS Logic Input Pin Assignment	RF PATH					
	J1	J2	J3	J4	J5	J6
1 ("1")	ON	OFF	OFF	OFF	OFF	OFF
2 ("1")	OFF	ON	OFF	OFF	OFF	OFF
3 ("1")	OFF	OFF	ON	OFF	OFF	OFF
4 ("1")	OFF	OFF	OFF	ON	OFF	OFF
5 ("1")	OFF	OFF	OFF	OFF	ON	OFF
6 ("1")	OFF	OFF	OFF	OFF	OFF	ON

PIN 9, -COM  
PIN 8, Vsw + 28VDC

<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 SCALE NONE</p>
<p>DESCRIPTION SP6T, SMA, NO, 18GHz, 28VDC, TTL, DIODES, D-SUB, RUGGEDIZED</p>		<p>2 OF 2</p>
<p>SIZE A</p>	<p>CAGE CODE A 3FKR5</p>	<p>ITEM NO. FMSW6535</p>
<p>UNLESS OTHERWISE SPECIFIED LEADING DIMENSIONS ARE IN INCHES DIMENSIONS IN [ ] ARE MILLIMETERS</p> <p>TOLERANCES:  .X ± .2 [ .5 ] FRACTIONS  .XX ± .02 [ .5 ] ± .132 ANGLES ± 1°  .XXX ± .005 [ .13 ]  CABLE LENGTH TOLERANCES:  &gt;12 [ 305 ] ≤ 60 [ 1524 ] = +1 [ 25 ] / -0  &gt;60 [ 1524 ] ≤ 120 [ 3048 ] = +4 [ 102 ] / -0  &gt;120 [ 3048 ] ≤ 300 [ 7620 ] = +6 [ 152 ] / -0  &gt;300 [ 7620 ] = +5% / -0</p> <p>ALL DIMENSIONS ARE FOR REFERENCE ONLY AND SUBJECT TO CHANGE WITHOUT NOTICE</p>		

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