

## SP6T Normally Open Electro-Mechanical Relay Switch From DC to 10 GHz, 50 Watts, N

The FMSW6186 is an SP6T Electromechanical Relay Switch that operates over a wide frequency band from DC to 10 GHz and has a rating of 50 Watts input power (CW). Rated for 1M life cycles for high reliability operation, this design uses a Normally Open Actuator with a break before make configuration. The switch exhibits exceptional electrical performance specified from 0.25 dB max for insertion loss and 80 dB min for isolation, and guaranteed over -25°C to +65°C. The assembly requires an operating voltage of +12Vdc. External connectors include solder terminals and N female connectors.

### Electrical Specifications

|                    |                   |
|--------------------|-------------------|
| Switch Type        | SP6T, Reflective  |
| Actuator Type      | Normally Open     |
| Switching Sequence | Break Before Make |

| Description                     | Min | Typ | Max   | Units |
|---------------------------------|-----|-----|-------|-------|
| Frequency Range                 | DC  |     | 10    | GHz   |
| Impedance                       |     | 50  |       | Ohms  |
| Operating Voltage               |     | 12  |       | Volts |
| Actuating Current @ 12 Volts    |     | 255 |       | mA    |
| VSWR                            |     |     | 1.6:1 |       |
| Insertion Loss                  |     |     | 0.6   | dB    |
| Isolation                       | 60  |     |       | dB    |
| Input Power (CW)<br>(at 10 GHz) |     |     | 50    | Watts |

### Performance by Frequency

| Description         | F1     | F2    | F3     | F4 | F5 | Units |
|---------------------|--------|-------|--------|----|----|-------|
| Frequency Range     | DC - 4 | 4 - 8 | 8 - 10 |    |    | GHz   |
| VSWR, Max           | 1.25:1 | 1.4:1 | 1.6:1  |    |    |       |
| Insertion Loss, Max | 0.25   | 0.4   | 0.6    |    |    | dB    |
| Isolation, Min      | 80     | 70    | 60     |    |    | dB    |

### Mechanical Specifications

|                           |                      |
|---------------------------|----------------------|
| Size                      |                      |
| Length                    | 2.3 in [58.42 mm]    |
| Width/Diameter            | 2.47 in [62.74 mm]   |
| Height                    | 2.47 in [62.74 mm]   |
| Weight                    | 1.156 lbs [524.35 g] |
| Body Material and Plating | Aluminum             |
| Package Type              | Connectorized Module |
| Operating Life            | 1,000,000 Cycles     |
| Switching Time            | 50 ms Max            |



### Features:

- Single Pole Six Throw Relay Switch
- DC to 10 GHz Frequency Range
- 1M Cycle Operating Life Min
- Normally Open Actuator
- Insertion Loss 0.6 dB max
- Isolation 60 dB min
- 50 Watts Avg Power Max
- Switching Sequence Break Before Make

### Applications:

- Test & Measurement
- Communications System
- Instrumentation

Fairview Microwave  
1130 Junction Dr. #100  
Allen, TX 75013  
Tel: 1-800-715-4396 / (972) 649-6678  
Fax: (972) 649-6689  
[www.fairviewmicrowave.com](http://www.fairviewmicrowave.com)  
[sales@fairviewmicrowave.com](mailto:sales@fairviewmicrowave.com)

**Connectors**

|                                         |                            |
|-----------------------------------------|----------------------------|
| RF Connector Type                       | N Female                   |
| RF Connector Contact Material & Plating | Beryllium Copper, Gold     |
| RF Connector Body Material & Plating    | Passivated Stainless Steel |
| Control Connector                       | Solder Pin                 |

**Environmental Specifications**

**Temperature**

|                 |                                                                                                      |
|-----------------|------------------------------------------------------------------------------------------------------|
| Operating Range | -25 to +65 deg C                                                                                     |
| ESD Sensitivity | ESD Sensitive Material. Transport material in Approved ESD bags. Handle in approved ESD Workstation. |



Environmental Specification Notes:  
 Designed to Meet MIL-DTL-3928

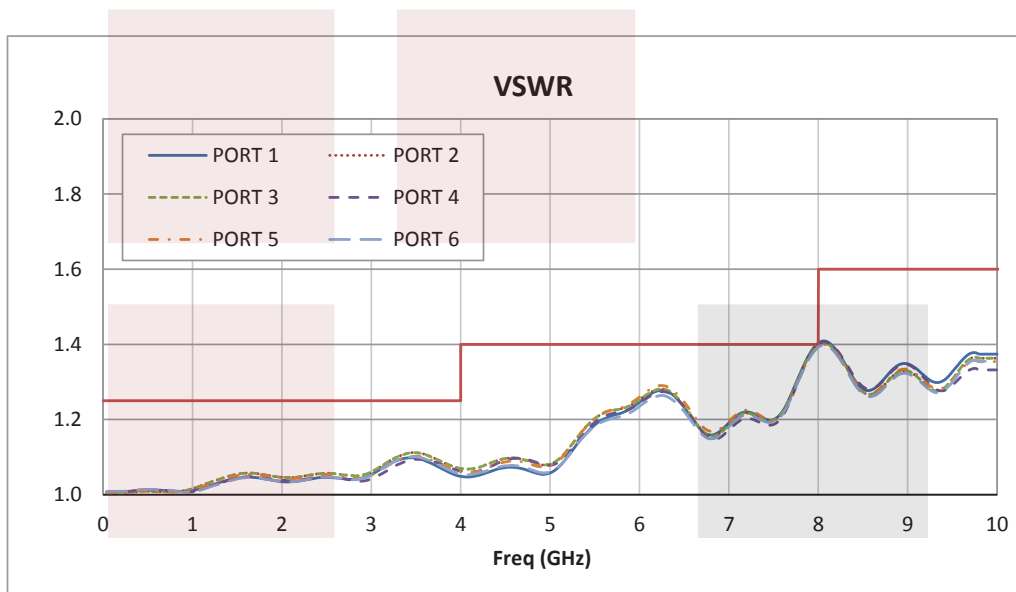
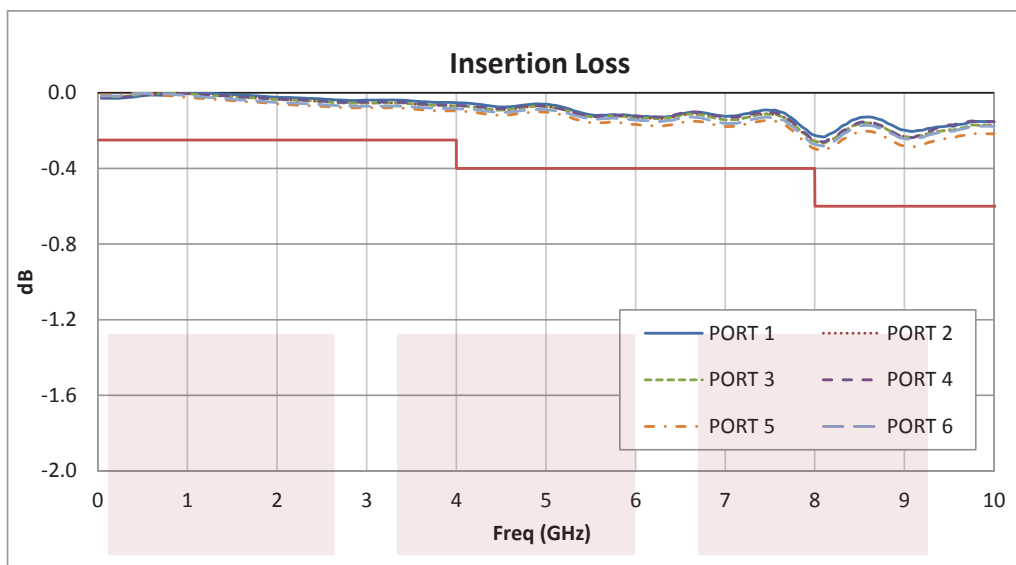
**Compliance Certifications** (visit [www.FairviewMicrowave.com](http://www.FairviewMicrowave.com) for current document)

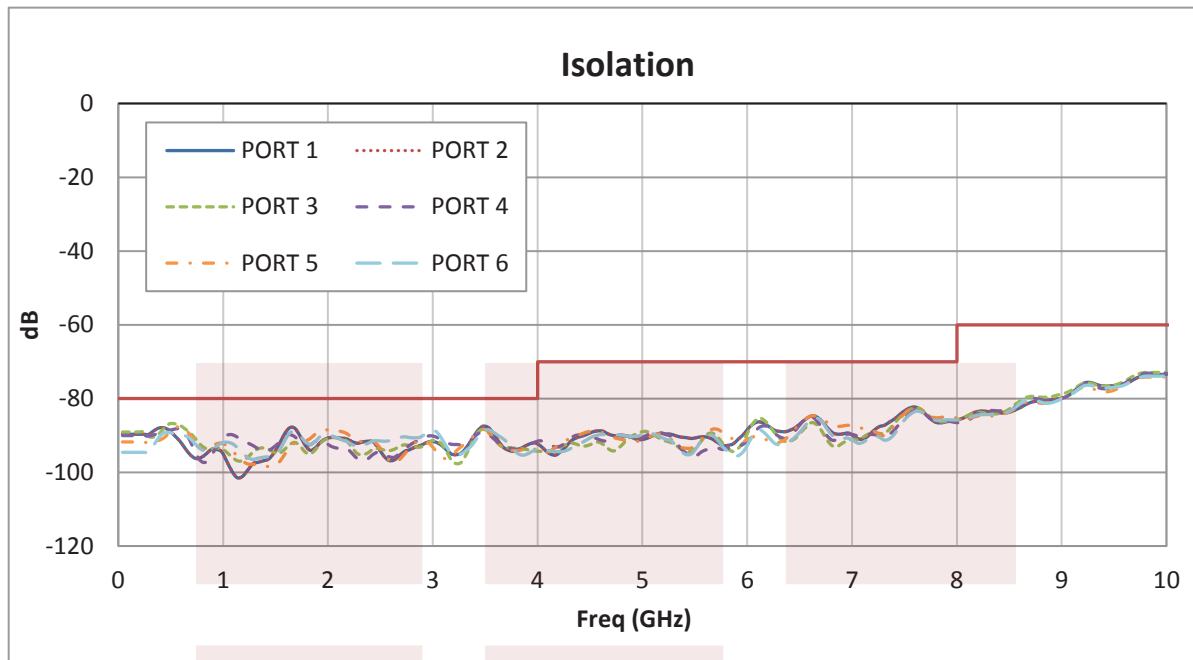
Not RoHS Compliant

**Plotted and Other Data**

Notes:

**Typical Performance Data**



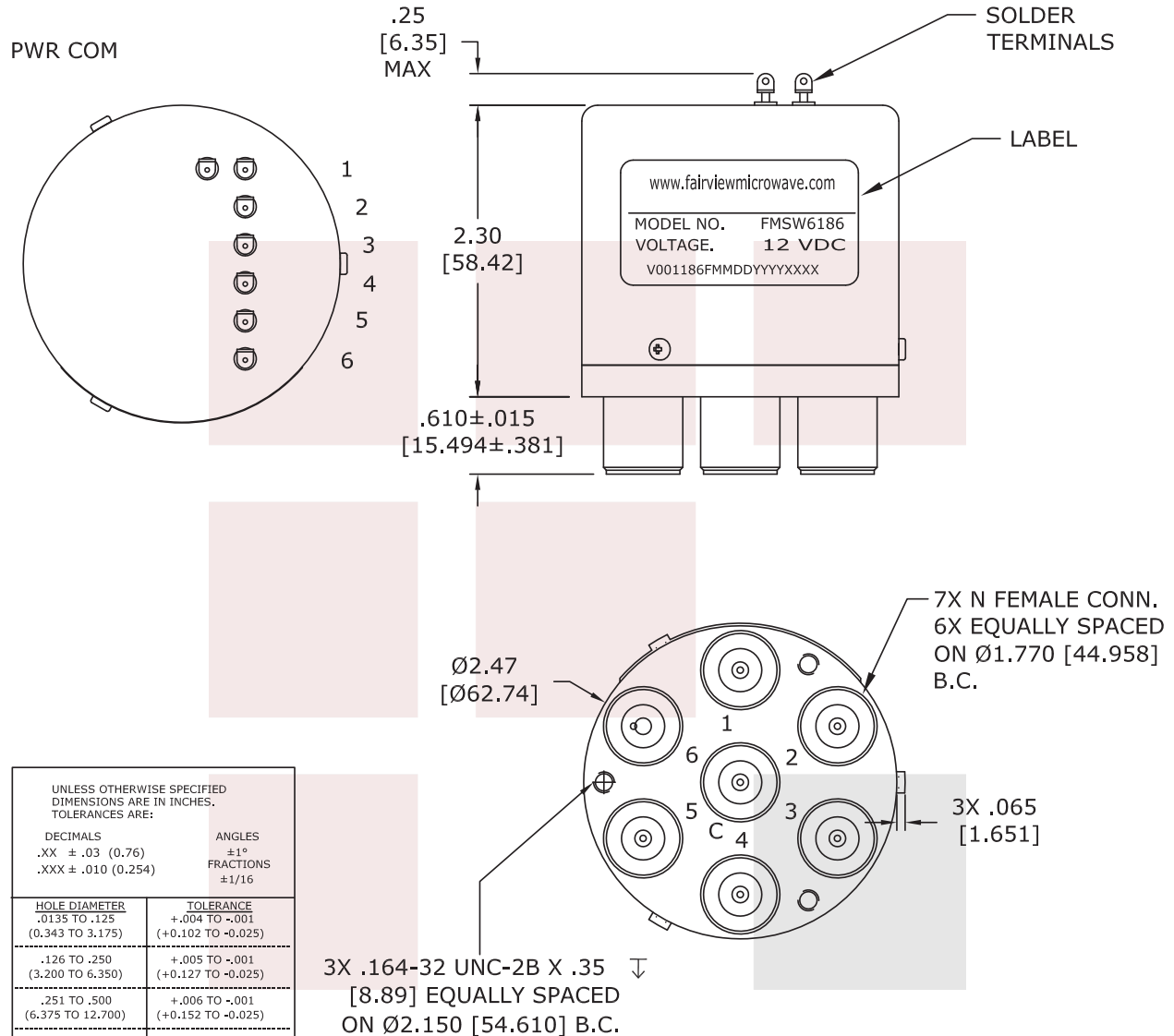


SP6T Normally Open Electro-Mechanical Relay Switch From DC to 10 GHz, 50 Watts, N from Fairview Microwave is in-stock and available to ship same-day. All of our RF/microwave products are available off-the-shelf from our ISO 9001:2008 certified facilities in Allen, Texas. Fairview Microwave is RF on-demand.

For additional information on this product, please click the following link: [SP6T Normally Open Electro-Mechanical Relay Switch From DC to 10 GHz, 50 Watts, N FMSW6186](http://www.fairviewmicrowave.com/sp6t-normally-open-electro-mechanical-relay-switch-fmsw6186-p.aspx)

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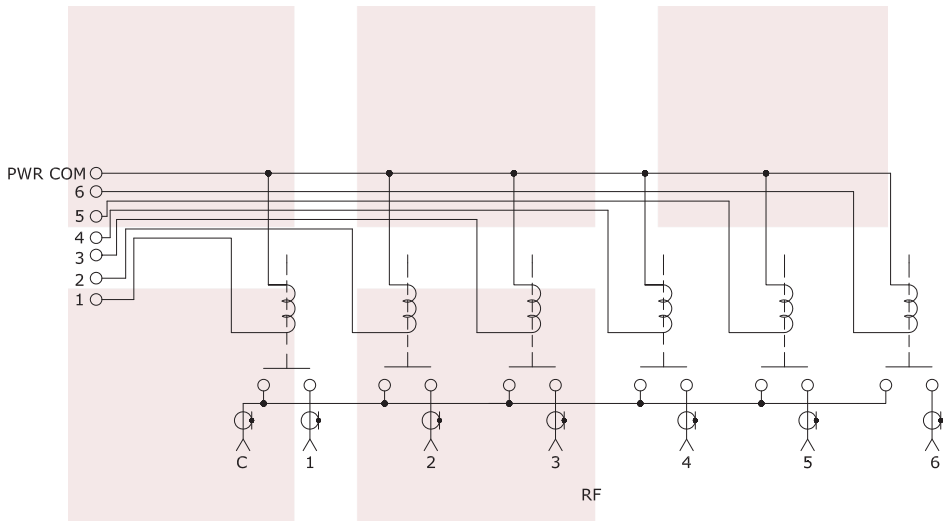
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| UNLESS OTHERWISE SPECIFIED<br>DIMENSIONS ARE IN INCHES.<br>TOLERANCES ARE: |                                                   |
|----------------------------------------------------------------------------|---------------------------------------------------|
| DECIMALS<br>.XX ± .03 (0.76)<br>.XXX ± .010 (0.254)                        | ANGLES<br>±1°<br>FRACTIONS<br>±1/16               |
| HOLE DIAMETER<br>.0135 TO .125<br>(0.343 TO 3.175)                         | TOLERANCE<br>+.004 TO -.001<br>(+.0102 TO -0.025) |
| .126 TO .250<br>(3.200 TO 6.350)                                           | +.005 TO -.001<br>(+.0127 TO -0.025)              |
| .251 TO .500<br>(6.375 TO 12.700)                                          | +.006 TO -.001<br>(+.0152 TO -0.025)              |
| .501 TO .750<br>(12.725 TO 19.050)                                         | +.008 TO -.001<br>(+.0203 TO -0.025)              |
| .751 TO 1.000<br>(19.075 TO 25.400)                                        | +.010 TO -.001<br>(+.0254 TO -0.025)              |
| 1.001 TO 2.000<br>(25.425 TO 50.800)                                       | +.012 TO -.001<br>(+.0305 TO -0.025)              |

\* THESE DIMENSIONS AND TOLERANCES  
SUPERSEDE NOTE #1 ON TITLE BLOCK.

|                                                                                               |        |                                                                                                                                                                                     |       |                    |             |
|-----------------------------------------------------------------------------------------------|--------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|--------------------|-------------|
| <b>FAIRVIEW MICROWAVE INC.</b><br>ALLEN, TX 75013 WWW.FAIRVIEWMICROWAVE.COM                   |        | NOTES:<br>1. UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE NOMINAL.<br>2. ALL SPECIFICATIONS ARE SUBJECT TO CHANGE WITHOUT NOTICE AT ANY TIME.<br>3. DIMENSIONS ARE IN INCHES [mm]. |       |                    |             |
| TITLE<br>SP6T Normally Open Electro-Mechanical Relay Switch<br>From DC to 10 GHz, 50 Watts, N |        | DWG NO<br>FMSW6186                                                                                                                                                                  |       | CAGE CODE<br>3FKR5 |             |
| CAD FILE                                                                                      | 050815 | SHEET                                                                                                                                                                               | SCALE | N/A                | SIZE A 2233 |



SCHEMATIC NORMALLY OPEN SHOWN IN DE-ENERGIZED POSITION

|                                                                                               |  |  |                                                                                                                                                                                     |        |           |       |     |
|-----------------------------------------------------------------------------------------------|--|--|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|-----------|-------|-----|
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|                                                                                               |  |  | FMSW6186                                                                                                                                                                            |        | 3FKR5     |       |     |
|                                                                                               |  |  | CAD FILE                                                                                                                                                                            | 050815 | SHEET     | SCALE | N/A |