

## SPDT Latching Electro-Mechanical Relay Switch From DC to 12.4 GHz, 50 Watts with Indicators, TTL, Diodes, Self Cut Off, N

The FMSW6157 is an SPDT Electromechanical Relay Switch that operates over a wide frequency band from DC to 12.4 GHz and has a rating of 50 Watts input power (CW). Rated for 1M life cycles for high reliability operation, this design uses a Latching Actuator with a break before make configuration, self cut off circuitry, TTL logic driver, position indicators and suppression diodes. The switch exhibits exceptional electrical performance specified from 0.2 dB max for insertion loss and 80 dB min for isolation, and guaranteed over -55°C to +85°C. The assembly requires an operating voltage of +28Vdc. External connectors include solder terminals and N female connectors.

### Electrical Specifications

|                    |   |
|--------------------|---|
| Switch Type        | SPDT, Reflective                            |
| Actuator Type      | Latching                                    |
| Switching Sequence | Break Before Make                           |
| Actuator Options   | Indicators, TTL Logic, Diodes, Self Cut Off |
| TTL Control        | on: 2.4 to 5 Volts<br>off: 0 to 0.8 Volts   |

| Description                       | Min | Typ | Max   | Units |
|-----------------------------------|-----|-----|-------|-------|
| Frequency Range                   | DC  |     | 12.4  | GHz   |
| Impedance                         |     | 50  |       | Ohms  |
| Operating Voltage                 |     | 28  |       | Volts |
| Actuating Current @ 28 Volts      |     | 95  |       | mA    |
| VSWR                              |     |     | 1.6:1 |       |
| Insertion Loss                    |     |     | 0.6   | dB    |
| Isolation                         | 60  |     |       | dB    |
| Input Power (CW)<br>(at 12.4 GHz) |     |     | 50    | Watts |

### Performance by Frequency

| Description         | F1     | F2    | F3       | F4 | F5 | Units |
|---------------------|--------|-------|----------|----|----|-------|
| Frequency Range     | DC - 2 | 2 - 4 | 4 - 12.4 |    |    | GHz   |
| VSWR, Max           | 1.15:1 | 1.2:1 | 1.6:1    |    |    |       |
| Insertion Loss, Max | 0.2    | 0.25  | 0.6      |    |    | dB    |
| Isolation, Min      | 80     | 80    | 60       |    |    | dB    |



### Features:

- Single Pole Double Throw Relay Switch
- DC to 12.4 GHz Frequency Range
- 1M Cycle Operating Life Min
- Latching Actuator
- Self Cut Off, TTL Logic Driver, Position Indicators, Suppression Diodes
- 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

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Mechanical Specifications

|                           |                      |
|---------------------------|----------------------|
| Size                      |                      |
| Length                    | 2.2 in [55.88 mm]    |
| Width/Diameter            | 2.46 in [62.48 mm]   |
| Height                    | 0.9 in [22.86 mm]    |
| Weight                    | 0.53 lbs [240.4 g]   |
| Body Material and Plating | Aluminum             |
| Package Type              | Connectorized Module |
| Operating Life            | 1,000,000 Cycles     |
| Switching Time            | 20 ms Max            |

|   |                            |
|---|----------------------------|
| 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 | -55 to +85 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

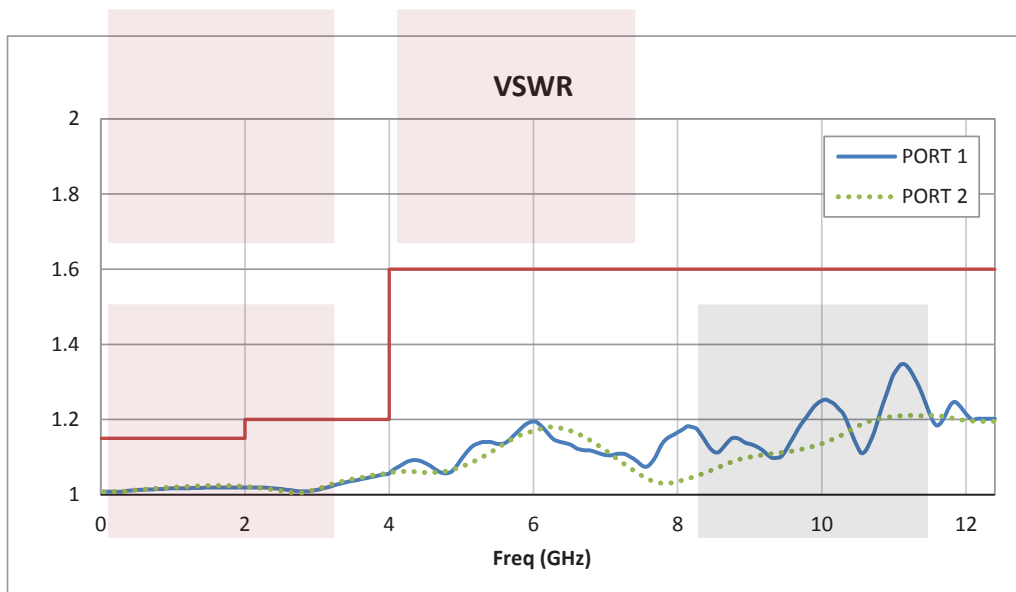
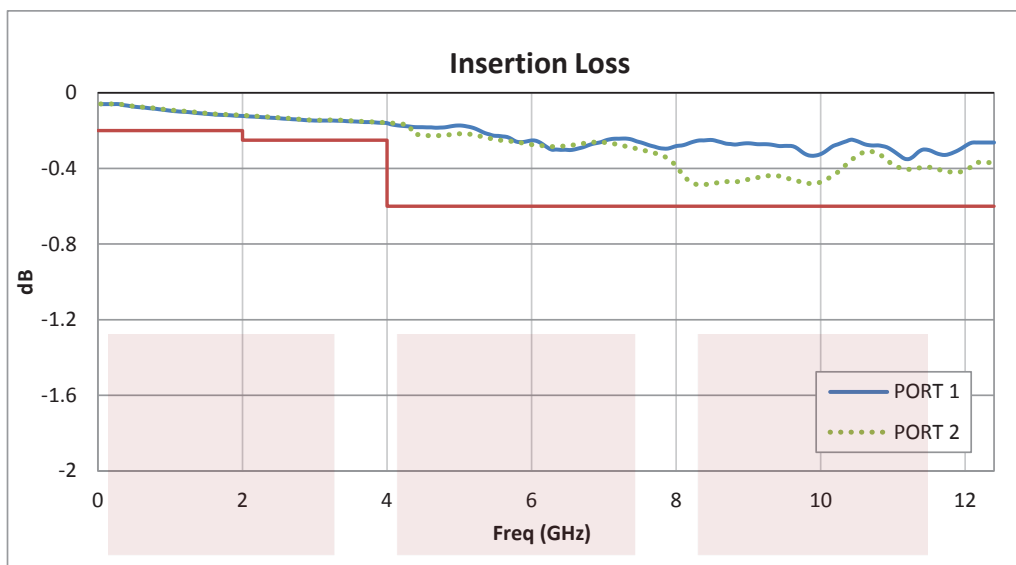
Compliance Certifications (visit [www.FairviewMicrowave.com](http://www.FairviewMicrowave.com) for current document)

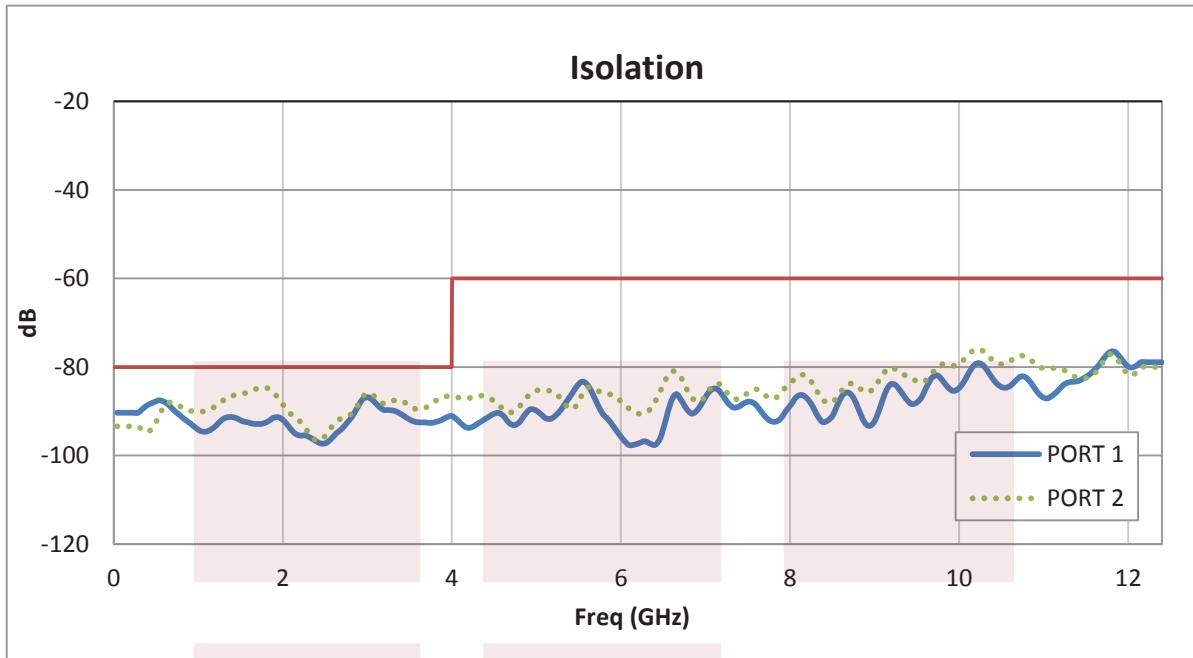
Not RoHS Compliant

Plotted and Other Data

Notes:

**Typical Performance Data**



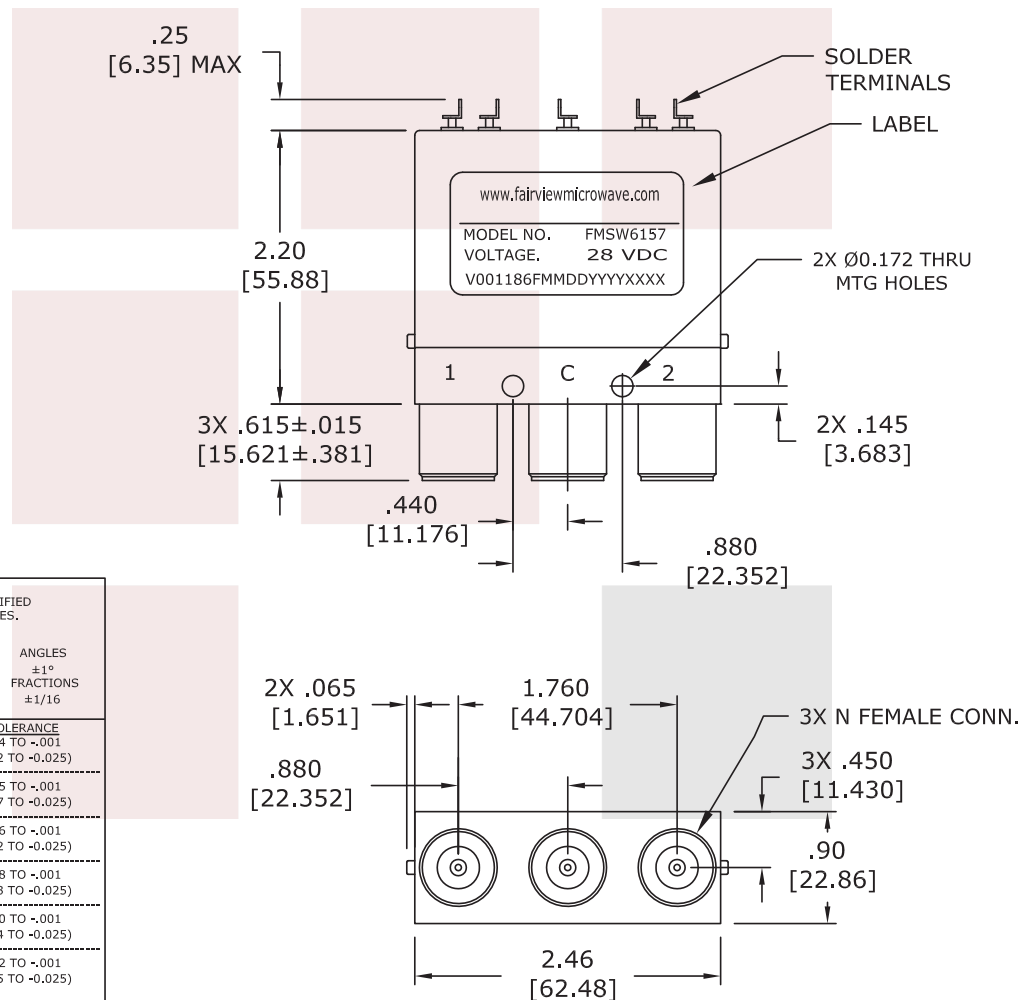
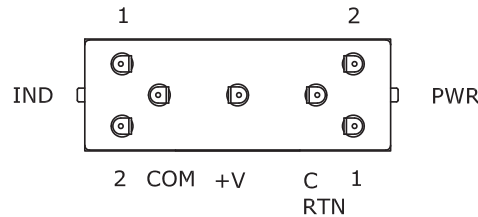


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For additional information on this product, please click the following link: [SPDT Latching Electro-Mechanical Relay Switch From DC to 12.4 GHz, 50 Watts with Indicators, TTL, Diodes, Self Cut Off, N FMSW6157](http://www.fairviewmicrowave.com/spdt-latching-electro-mechanical-relay-switch-indicators-ttl-self-cut-off-fm-sw6157-p.aspx)

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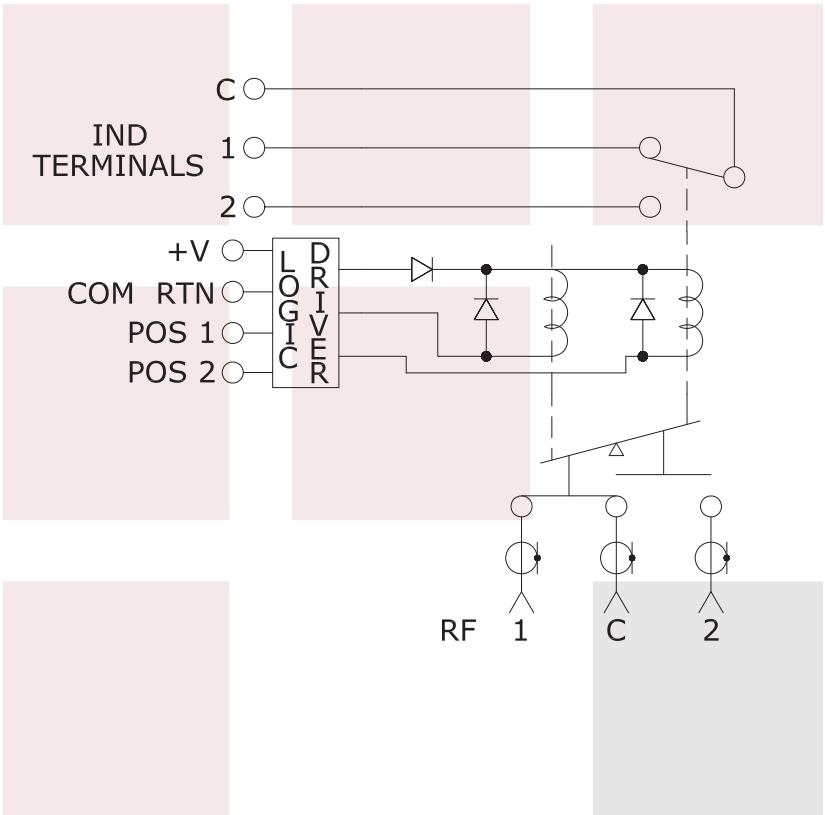
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| UNLESS OTHERWISE SPECIFIED<br>DIMENSIONS ARE IN INCHES.<br>TOLERANCES ARE: |                                      |
|--|--------------------------------------|
| DECIMALS   | ANGLES                               |
| .XX ± .03 (0.76)   | ±1°                                  |
| .XXX ± .010 (0.254)  | FRACTIONS<br>±1/16                   |
| HOLE DIAMETER  | TOLERANCE                            |
| .0135 TO .125<br>(0.343 TO 3.175)  | +.004 TO -.001<br>(+0.102 TO -0.025) |
| .126 TO .250<br>(3.200 TO 6.350)   | +.005 TO -.001<br>(+0.127 TO -0.025) |
| .251 TO .500<br>(6.375 TO 12.700)  | +.006 TO -.001<br>(+0.152 TO -0.025) |
| .501 TO .750<br>(12.725 TO 19.050)   | +.008 TO -.001<br>(+0.203 TO -0.025) |
| .751 TO 1.000<br>(19.075 TO 25.400)  | +.010 TO -.001<br>(+0.254 TO -0.025) |
| 1.001 TO 2.000<br>(25.425 TO 50.800)                                       | +.012 TO -.001<br>(+0.305 TO -0.025) |

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

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| TITLE   |  | DWG NO  |       | CAGE CODE |      |
| SPDT Latching Electro-Mechanical Relay Switch<br>From DC to 12.4 GHz, 50 Watts with Indicators, TTL,<br>Diodes, Self Cut Off, N |  | FMSW6157  |       | 3FKR5     |      |
| CAD FILE  |  | 051515  | SHEET | SCALE     | N/A  |
|   |  |   |       | SIZE      | A    |
|   |  |   |       |           | 2233 |



|  |                                       |  |                                 |                              |                             |
|--|---------------------------------------|--|---------------------------------|------------------------------|-----------------------------|
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|  | <div>CAD FILE</div> <div>051515</div> | <div>SHEET</div> <div></div>   | <div>SCALE</div> <div>N/A</div> | <div>SIZE</div> <div>A</div> | <div></div> <div>2233</div> |