

**SPDT, Electromechanical Relay Failsafe Switch,  
 DC to 53GHz, 28VDC, Solder Terminal, 2.4mm**

The FMSW8010 is a Single Pole Double Throw (SPDT) electromechanical relay switch that operates across an ultra wide frequency range from DC to 53 GHz and can handle up to 3 Watts of Average Power in a break before make condition. The 50 Ohm design is rated for 1 million lifecycles and features a Failsafe Actuator. Impressive typical performance includes 0.6 dB insertion loss and isolation greater than 80 dB. This switch requires +28 Vdc bias voltage and operates over a temperature range of -25°C to +65°C. The rugged and compact package assembly supports 2.4mm female connectors and solder terminal pins 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 = 28 Vdc)

Switch Type SPDT  
 Actuator Type Failsafe

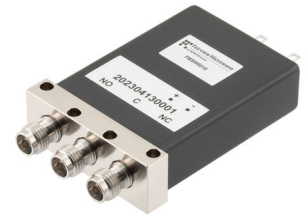
| Description                  | Min | Typ   | Max   | Units |
|------------------------------|-----|-------|-------|-------|
| Frequency Range              | DC  |       | 53    | GHz   |
| Operating Voltage            | 26  | 28    | 30    | Volts |
| Actuating Current @ 28 Volts |     |       | 90    | mA    |
| VSWR                         |     | 1.4:1 | 2.2:1 |       |
| Insertion Loss               |     | 0.6   | 1.2   | dB    |
| Isolation                    | 50  | 80    |       | dB    |
| Input Power                  |     |       | 3     | Watts |
| Switching Time               |     |       | 20    | ms    |

**Performance by Frequency**

| Description         | F1     | F2     | F3        | F4        | F5      | Units |
|---------------------|--------|--------|-----------|-----------|---------|-------|
| Frequency Range     | DC - 6 | 6 - 18 | 18 - 26.5 | 26.5 - 40 | 40 - 50 | GHz   |
| VSWR, Max           | 1.2:1  | 1.3:1  | 1.6:1     | 1.6:1     | 1.8:1   |       |
| Insertion Loss, Max | 0.2    | 0.3    | 0.6       | 0.6       | 0.8     | dB    |
| Isolation, Min      | 80     | 70     | 70        | 70        | 50      | dB    |

**Performance by Frequency**

| Description         | F6      | F7 | F8 | F9 | F10 | Units |
|---------------------|---------|----|----|----|-----|-------|
| Frequency Range     | 50 - 53 |    |    |    |     | GHz   |
| VSWR, Max           | 2.2:1   |    |    |    |     |       |
| Insertion Loss, Max | 1.2     |    |    |    |     | dB    |
| Isolation, Min      | 50      |    |    |    |     | dB    |


**Features:**

- Single Pole Double Throw (SPDT) Electromechanical Relay Switch
- DC to 53 GHz Frequency Range
- Failsafe Actuator
- 1M Lifecycle Rating
- Insertion Loss 0.6 dB typ
- Isolation > 80 dB typ
- VSWR as low as 1.2:1 max
- Solder Terminal Pins for DC Control
- +28 Volt DC Bias
- 2.4mm Female Connectors
- -25°C to +65°C Operating Temperature
- Up to 3 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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**Mechanical Specifications**

**Size**

|                |                     |
|----------------|---------------------|
| Length         | 1.95 in [49.53 mm]  |
| Width/Diameter | 2.75 in [69.85 mm]  |
| Height         | 0.92 in [23.37 mm]  |
| Weight         | 0.115 lbs [52.16 g] |
| Finish         | Electroless Nickel  |

**Connectors**

|                   |                  |
|-------------------|------------------|
| RF Connector Type | 2.4mm Female     |
| Control Connector | Solder Terminals |

**Environmental Specifications**

**Temperature**

|                 |                   |
|-----------------|-------------------|
| Operating Range | -25 to +65 deg C  |
| Storage Range   | -55 to +100 deg C |

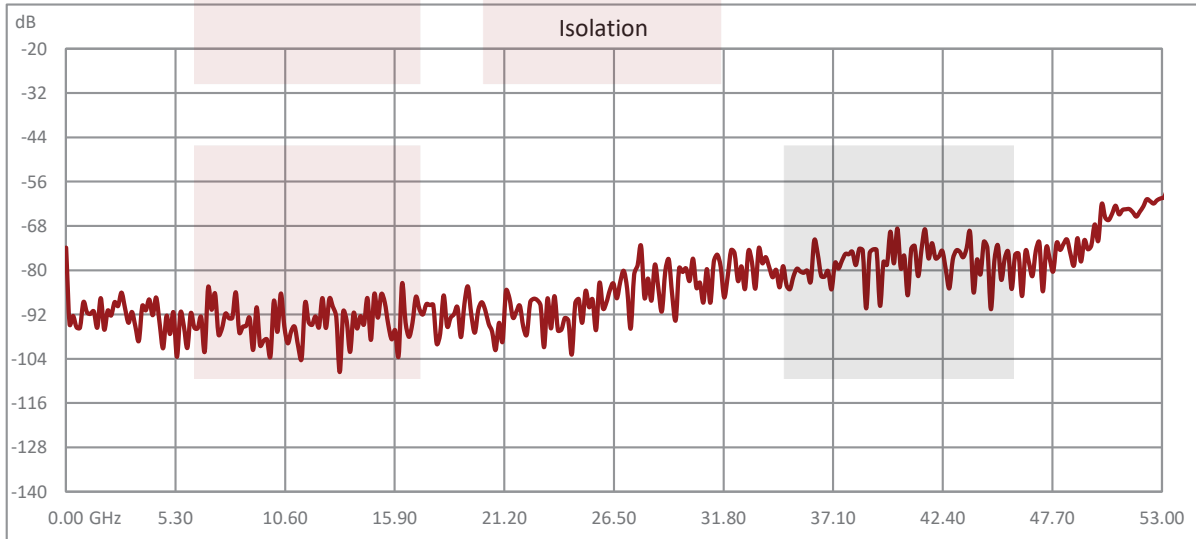
|           |  |
|-----------|--|
| Shock     | MIL-STD-202 Method 213, Condition D, 500G (non operational)    |
| Vibration | MIL-STD-202 Method 204, Condition D, 10G RMS (non operational) |

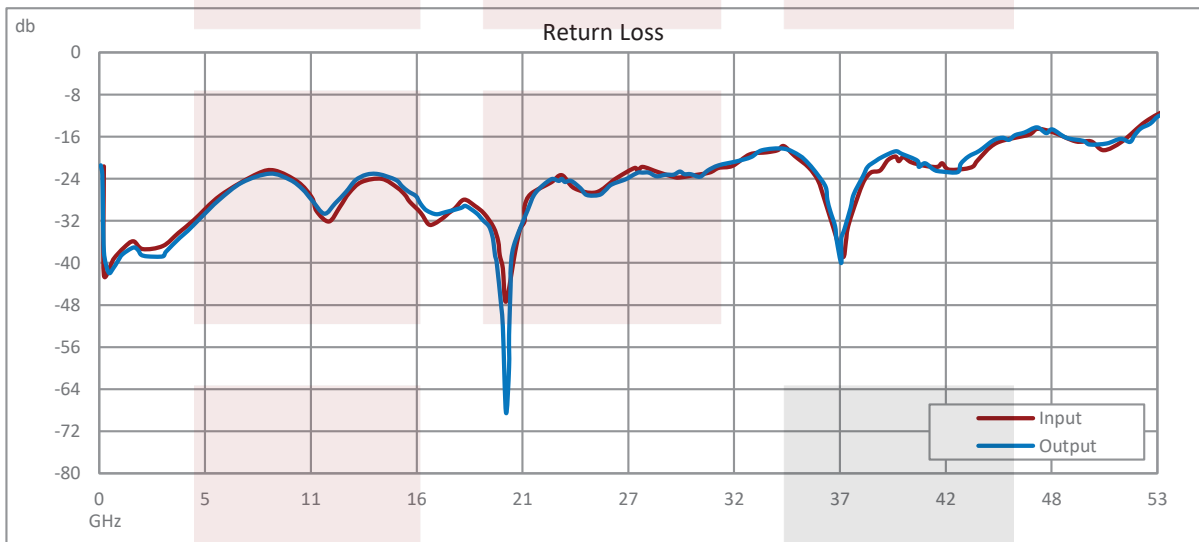
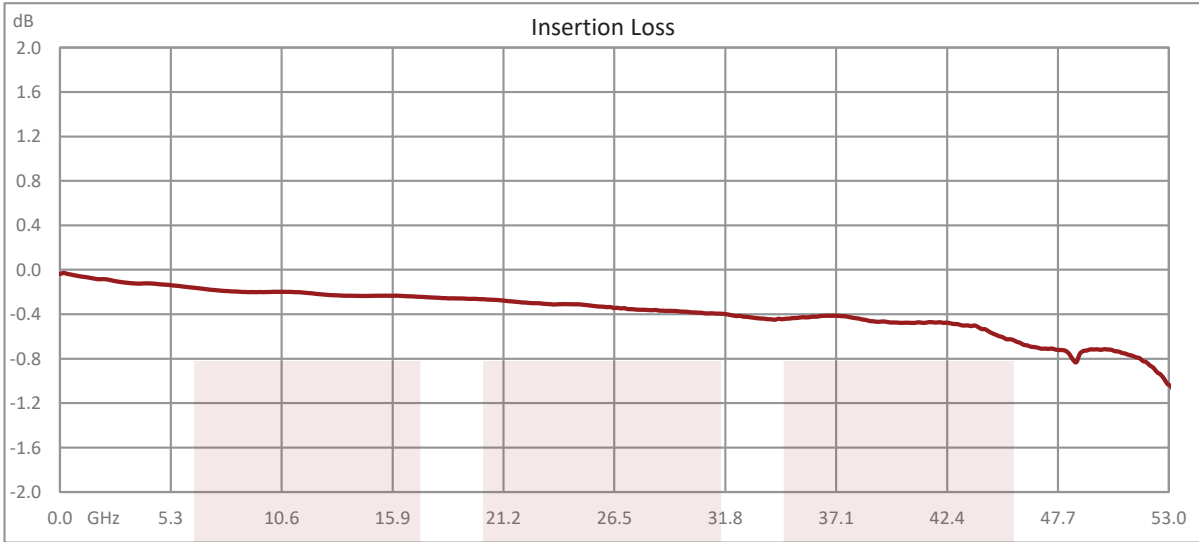
**Compliance Certifications** (see [product page](#) for current document)

**Plotted and Other Data**

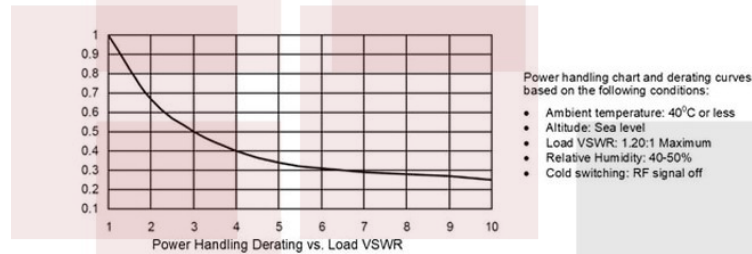
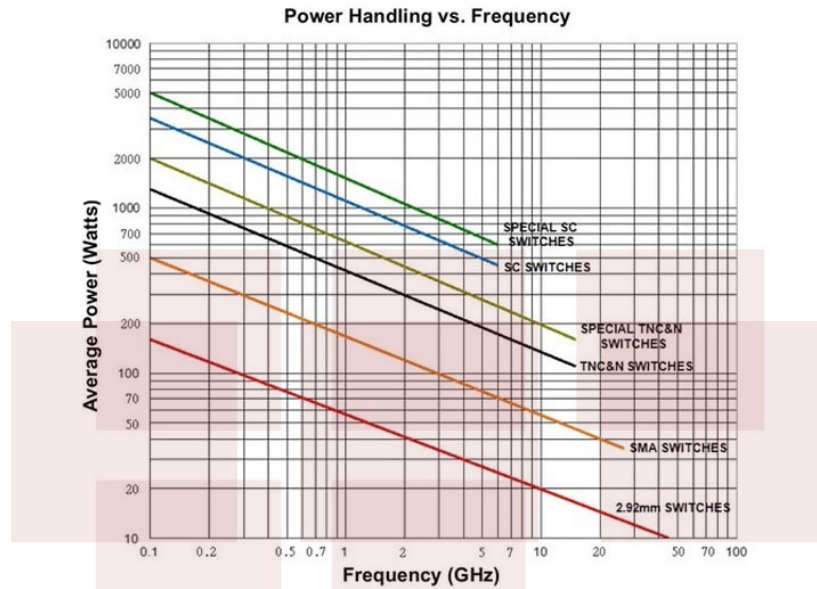
Notes:

**Typical Performance Data**





**Power Handling vs. Frequency**



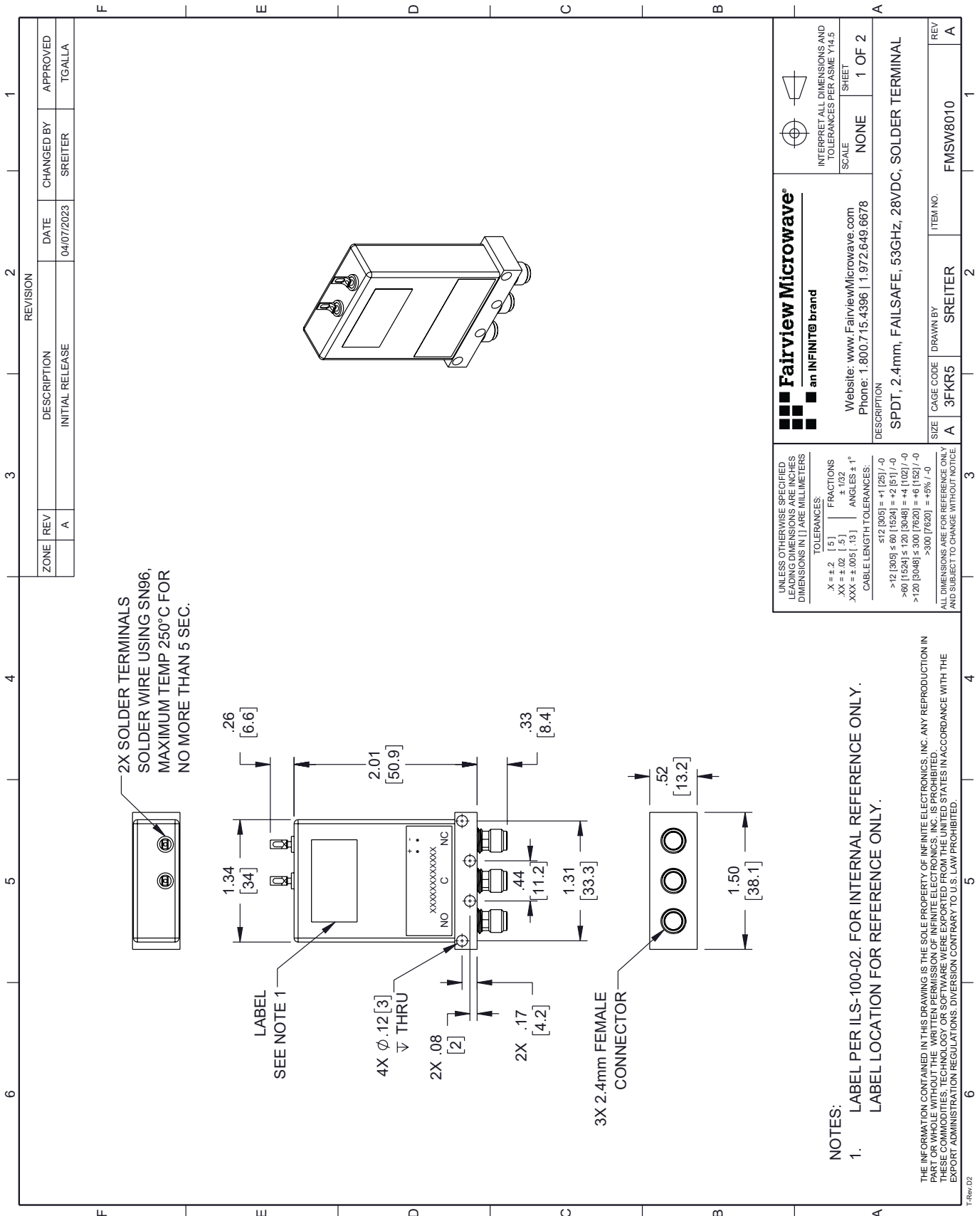
Note: specifications subject to change without notice

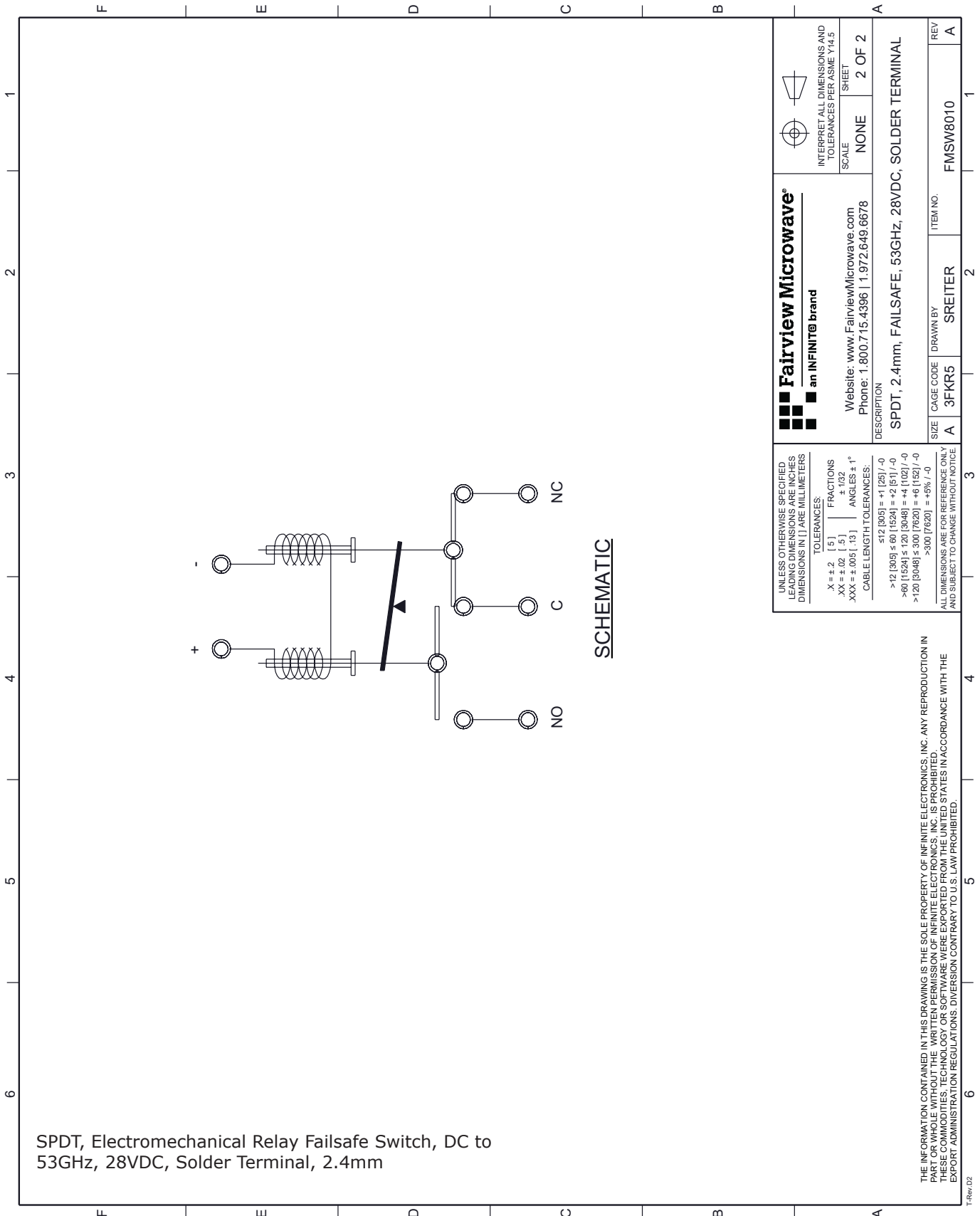
SPDT, Electromechanical Relay Failsafe Switch, DC to 53GHz, 28VDC, Solder Terminal, 2.4mm from Fairview Microwave is in-stock and available to ship same-day. All of our RF/microwave products are available off-the-shelf from our ISO 9001:2008 certified facilities in Lewisville, Texas. Fairview Microwave is RF on-demand.

For additional information on this product, please click the following link: [SPDT, Electromechanical Relay Failsafe Switch, DC to 53GHz, 28VDC, Solder Terminal, 2.4mm FMSW8010](https://www.fairviewmicrowave.com/spdt-failsafe-53-ghz-electro-mechanical-relay-switch-28v-2.4mm-fmsw8010-p.aspx)

URL: <https://www.fairviewmicrowave.com/spdt-failsafe-53-ghz-electro-mechanical-relay-switch-28v-2.4mm-fmsw8010-p.aspx>

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SPDT, Electromechanical Relay Failsafe Switch, DC to 53GHz, 28VDC, Solder Terminal, 2.4mm

|   |  |   |
|---|--|---|
| <p><b>Fairview Microwave</b><br/>an INFINIT<sup>®</sup> brand</p> <p>Website: <a href="http://www.FairviewMicrowave.com">www.FairviewMicrowave.com</a><br/>Phone: 1.800.715.4396   1.972.649.6678</p> |  | <p>INTERPRET ALL DIMENSIONS AND TOLERANCES PER ASME Y14.5</p>                             |
|   | <p>SCALE: NONE</p>   | <p>SHEET: 2 OF 2</p>  |
| <p>DESCRIPTION: SPDT, 2.4mm, FAILSAFE, 53GHz, 28VDC, SOLDER TERMINAL</p>  |  |   |
| <p>UNLESS OTHERWISE SPECIFIED, LEADING DIMENSIONS ARE IN INCHES AND DIMENSIONS IN [ ] ARE MILLIMETERS</p>   | <p>TOLERANCES:</p> <p>.X = ±.2 [ .5 ]     FRACTIONS ± 1/32</p> <p>.XX = ±.02 [ .5 ]     ANGLES ± 1°</p> <p>.XXX = ±.005 [ .13 ]</p> <p>CABLE LENGTH TOLERANCES:</p> <p>≤12 [305] = +1 [25] / -0</p> <p>&gt;12 [305] ≤ 60 [1524] = +2 [51] / -0</p> <p>&gt;60 [1524] ≤ 120 [3048] = +4 [102] / -0</p> <p>&gt;120 [3048] ≤ 300 [7620] = +6 [152] / -0</p> <p>&gt;300 [7620] = +5% / -0</p> | <p>SIZE: A</p> <p>CAGE CODE: 3FKR5</p> <p>DRAWN BY: SREITER</p> <p>ITEM NO.: FMSW8010</p> |
| <p>ALL DIMENSIONS ARE FOR REFERENCE ONLY AND SUBJECT TO CHANGE WITHOUT NOTICE</p>   |  |   |

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