

## SP6T Electromechanical Relay Normally Open Switch, DC to 26.5 GHz, 2M Lifecycles, 20W, 28V, SMA, Solder Pins

The FMSW6487 is a Single Pole Six Throw (SP6T) electromechanical relay switch that operates across a wide frequency range from DC to 26.5 GHz and can handle up to 20 Watts of average power in a break before make condition. The 50 Ohm design is rated for 2M lifecycles and features a Normally Open Actuator where the selected position remains active with constant voltage, all positions are open when voltage is removed. Impressive typical performance includes 0.4 dB insertion loss and isolation greater than 70 dB. This switch requires +28Vdc bias voltage and operates over a temperature range of -25°C to +65°C. The rugged and compact package assembly supports SMA 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 SP6T  
Actuator Type Normally Open

| Description                       | Min | Typ   | Max   | Units |
|-----------------------------------|-----|-------|-------|-------|
| Frequency Range                   | DC  |       | 26.5  | GHz   |
| Operating Voltage                 |     | +28   |       | Volts |
| Actuating Current @ +28 Volts     |     |       | 140   | mA    |
| VSWR                              |     | 1.3:1 | 1.8:1 |       |
| Insertion Loss                    |     | 0.4   | 0.8   | dB    |
| Isolation                         | 50  | 70    |       | dB    |
| Input Power (CW)<br>(at 26.5 GHz) |     |       | 20    | Watts |

### Performance by Frequency

| Description         | F1     | F2     | F3      | F4        | F5 | Units |
|---------------------|--------|--------|---------|-----------|----|-------|
| Frequency Range     | DC - 6 | 6 - 12 | 12 - 18 | 18 - 26.5 |    | GHz   |
| VSWR, Max           | 1.25:1 | 1.4:1  | 1.5:1   | 1.8:1     |    |       |
| Insertion Loss, Max | 0.2    | 0.4    | 0.5     | 0.8       |    | dB    |
| Isolation, Min      | 70     | 60     | 60      | 50        |    | 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 0.4 lbs [181.44 g]

### Connectors

RF Connector Type SMA Female



### Features:

- Single Pole Six Throw (SP6T) Electromechanical Relay Switch
- DC to 26.5 GHz Frequency Range
- Normally Open Actuator
- 2M Lifecycle Rating
- Insertion Loss 0.4 dB typ
- Isolation > 70 dB typ
- VSWR as low as 1.25:1 max
- +28 Volt DC Bias
- Solder Terminal Pins for DC Control
- SMA Female Connectors
- -25°C to +65°C Operating Temperature
- Up to 20 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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**Environmental Specifications**

**Temperature**

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

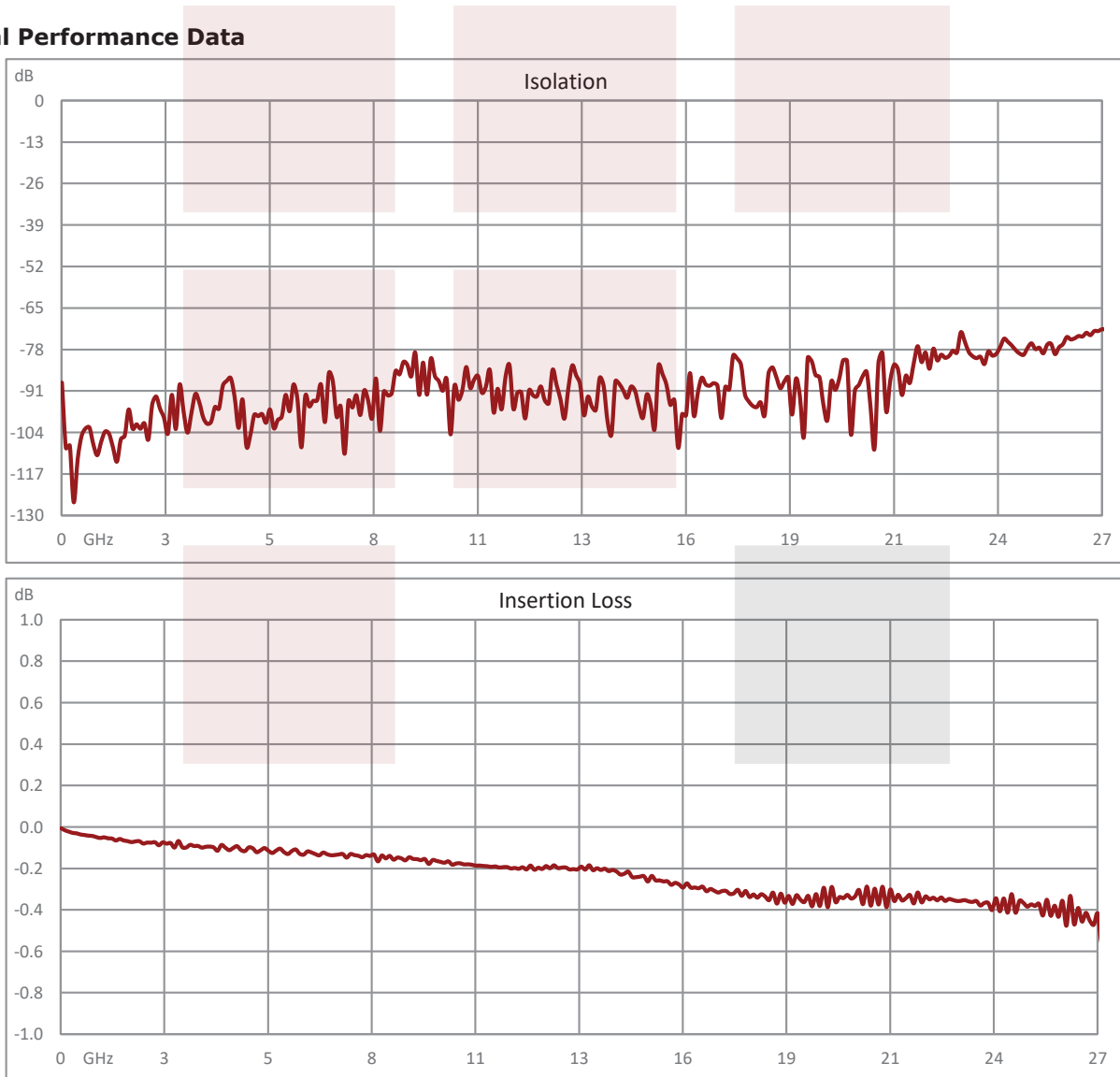
Shock MIL-STD-202 Method 213, Condition D, 500G (non oper)  
Vibration MIL-STD-202 Method 204, Condition D, 10G RMS (non oper)

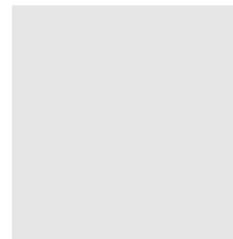
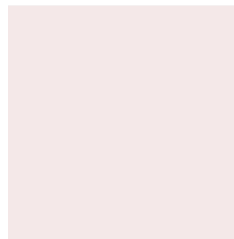
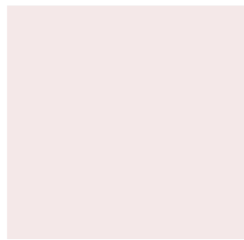
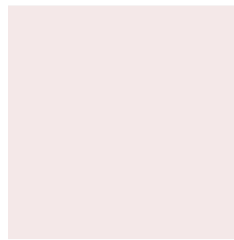
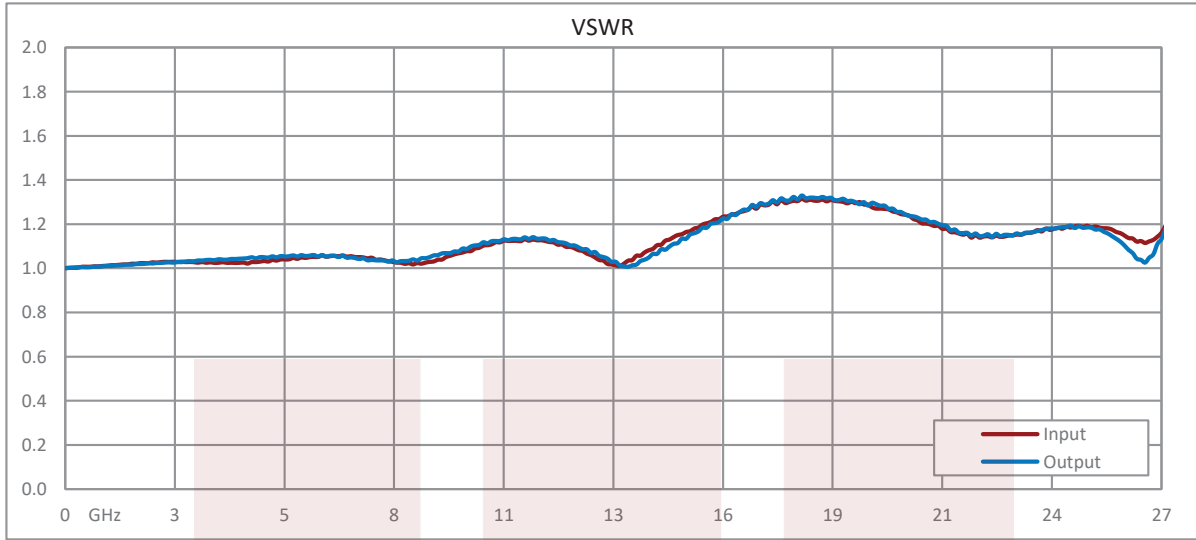
**Compliance Certifications** (see [product page](#) for current document)

**Plotted and Other Data**

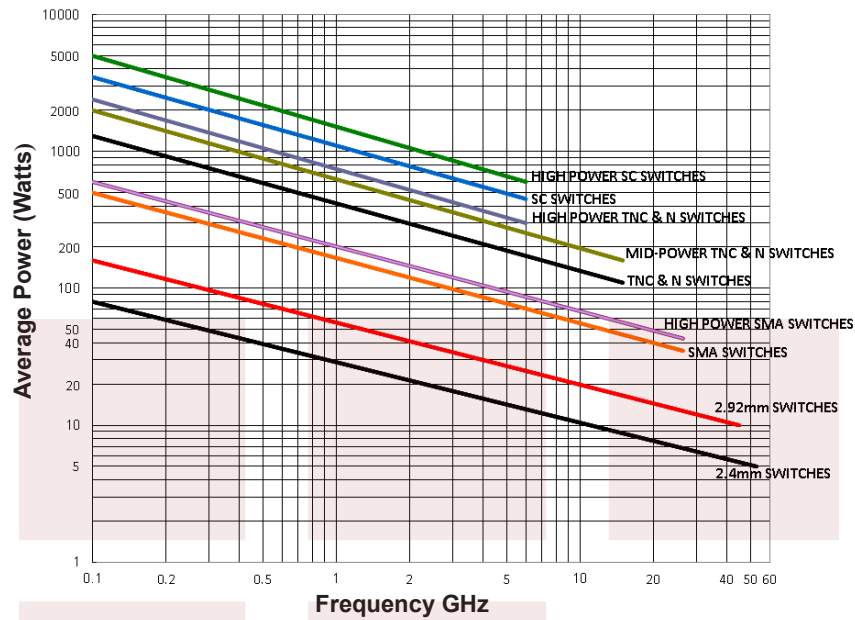
Notes:

**Typical Performance Data**





**Power Handling vs. Frequency**



**Power Handling De-rating vs. Load VSWR**



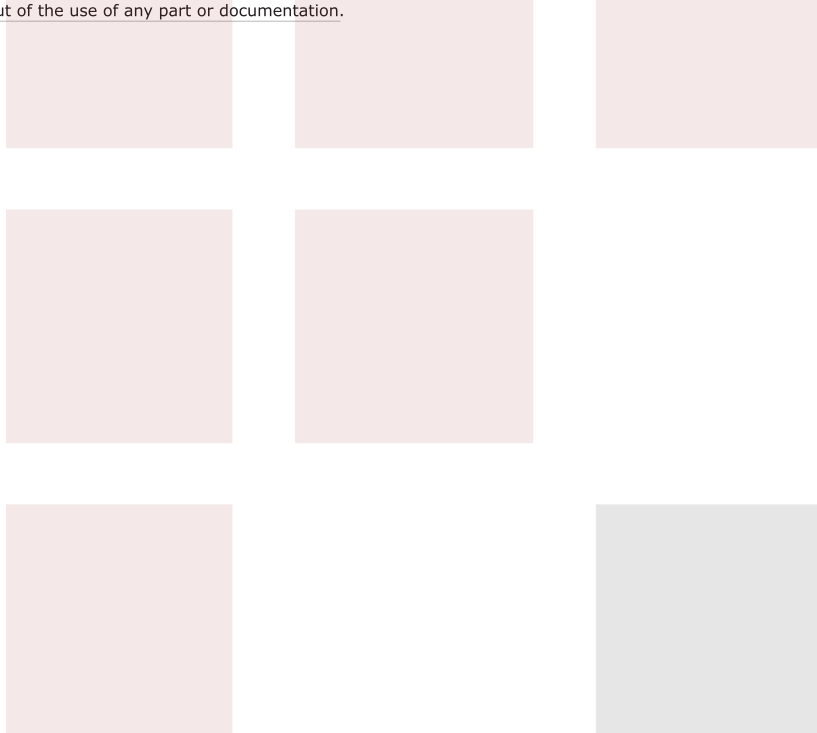
Power Handling Chart and Derating Curves based on the following Test and Environmental Conditions:  
 Ambient temperature: 20-25°C  
 Altitude: Sea Level to 1,000 feet  
 Relative Humidity: 50-55%  
 Load VSWR: ≤ 1.20:1  
 Operation: Cold Switching

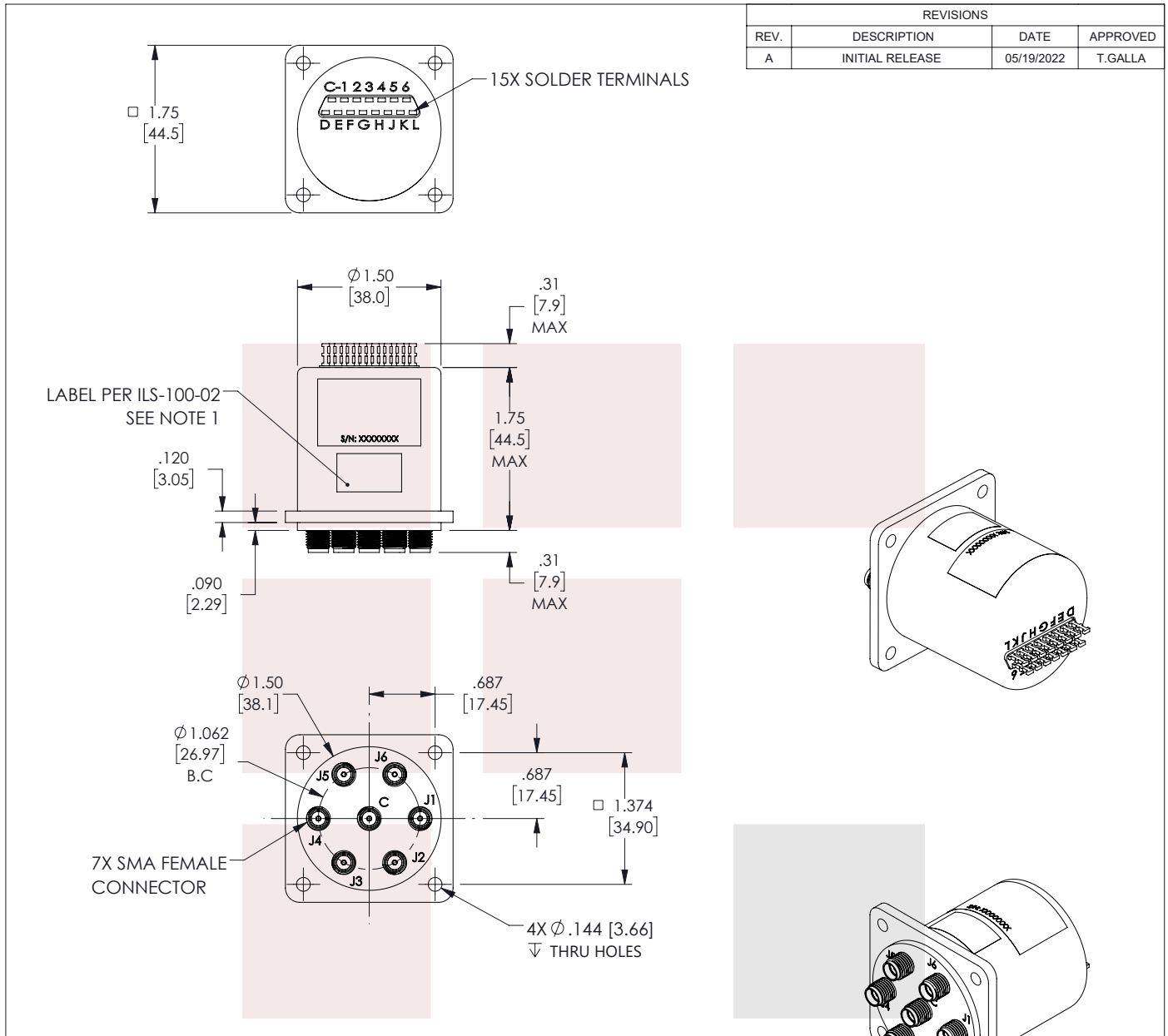
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For additional information on this product, please click the following link: [SP6T Electromechanical Relay Normally Open Switch, DC to 26.5 GHz, 2M Lifecycles, 20W, 28V, SMA, Solder Pins FMSW6487](#)

URL: <https://www.fairviewmicrowave.com/sp6t-normally-open-26.5-ghz-electro-mechanical-relay-switch-20w-28v-sma-fmsw6487-p.aspx>

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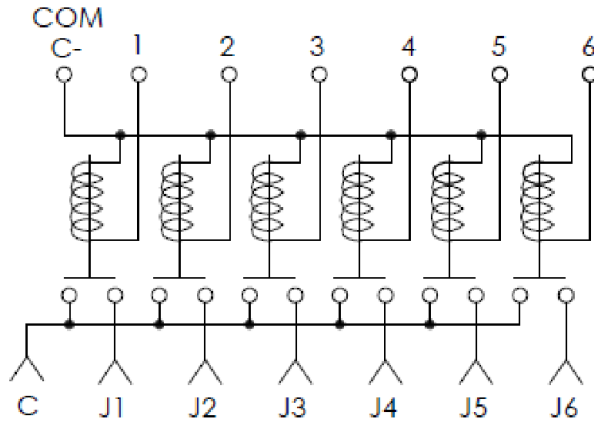
| REVISIONS |                 |            |          |
|-----------|-----------------|------------|----------|
| REV.      | DESCRIPTION     | DATE       | APPROVED |
| A         | INITIAL RELEASE | 05/19/2022 | T.GALLA  |

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| SIZE<br>A   | CAGE CODE<br>3FKR5  | DRAWN BY<br>KGLEBOVA | ITEM NO.<br>FMSW6487  | REV<br>A |

T-Rev.D



RF POSITION  
**SCHEMATIC**

TRUTH TABLE/PIN ASSIGNMENT :  
PIN ASSIGNMENT

| TERMINALS<br>PIN ASSIGNMENT | RF PATH |     |     |     |     |     |
|-----------------------------|---------|-----|-----|-----|-----|-----|
|                             | J1      | J2  | J3  | J4  | J5  | J6  |
| 1                           | ON      | OFF | OFF | OFF | OFF | OFF |
| 2                           | OFF     | ON  | OFF | OFF | OFF | OFF |
| 3                           | OFF     | OFF | ON  | OFF | OFF | OFF |
| 4                           | OFF     | OFF | OFF | ON  | OFF | OFF |
| 5                           | OFF     | OFF | OFF | OFF | ON  | OFF |
| 6                           | OFF     | OFF | OFF | OFF | OFF | ON  |



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| SIZE A  | CAGE CODE 3FKR5   | DRAWN BY KGLEBOVA   | ITEM NO. FMSW6487   | REV A   |

T-Rev.D