

## SPDT Failsafe DC to 12.4 GHz Electro-Mechanical Relay Switch, Indicators, TTL, Diodes, 10W, 2M Lifecycles, 28V, N



### FMSW6612

#### Features

- Single Pole Double Throw
- DC to 12 GHz Frequency Range
- Isolation greater than 60 dB minimum
- 2M Cycle Min Operating Life
- +28 Volt DC
- 200 Watt average Power
- Failsafe Actuator
- TTL Logic Control
- Suppression Diodes
- Indicators
- -25 to +65°C Operating Temperature
- Insertion Loss as low as 0.5 dB Max
- VSWR as low as 1.5:1 max
- N-Type Female RF connectors
- Solder Terminals for DC Control
- Hot Switching Capability - Consult Factory
- S-Parameter Data available upon request

#### Applications

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

#### Description

The FMSW6612 is a Single Pole Double Throw (SPDT) electromechanical relay switch that operates across a wide frequency range of DC to 12 GHz and can handle up to 200 Watts of CW input power in a break before make condition. The 50 Ohm design is rated for 2M life cycles for high reliability operation and features a Failsafe actuator, which returns the actuator to its default position when power is removed, ensuring the system remains in a known and safe state. Additional features include TTL control logic, suppression diodes which limit voltage spikes or reverse current, and indicators. Impressive performance includes insertion loss less than 0.5 dB maximum and isolation greater than 60 dB minimum. The Failsafe actuator requires +28 Vdc bias voltage, and operates over a temperature range of -25°C to +65°C. The rugged and compact package assembly supports N-Type Female connectors and terminal solder 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                                  |
| Switching Sequence  | Make Before Break                         |
| Actuator Options    | Indicators, TTL Logic, Diodes             |
| TTL Control         | on: 2.4 to 5 Volts<br>off: 0 to 0.8 Volts |
| TTL Control Current | 220 mA at 5 Volts<br>220 mA at 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 |     |     | 220  | mA    |
| 220mA max @ 28Vdc and 20°C   |     |     |      |       |

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| Description                                                                                                    | Min | Typ | Max   | Units |
|----------------------------------------------------------------------------------------------------------------|-----|-----|-------|-------|
| VSWR                                                                                                           |     |     | 1.5:1 |       |
| Insertion Loss                                                                                                 |     |     | 0.5   |       |
| Isolation                                                                                                      | 60  |     |       | dB    |
| Input Power (CW)<br>(Average Power for Cold Switching (Reference<br>RF Power Rating Table for Cold Switching)) |     | 200 |       | Watts |
| Switching Time                                                                                                 |     | 20  |       | ms    |

**Performance by Frequency**

| Description         | F1     | F2    | F3    | F4       | F5 | Units |
|---------------------|--------|-------|-------|----------|----|-------|
| Frequency Range     | DC - 1 | 1 - 4 | 4 - 8 | 8 - 12.4 |    | GHz   |
| VSWR, Max           | 1.25:1 | 1.3:1 | 1.4:1 | 1.5:1    |    |       |
| Insertion Loss, Max | 0.3    | 0.4   | 0.4   | 0.5      |    | dB    |
| Isolation, Min      | 90     | 80    | 70    | 60       |    | dB    |

**Mechanical Specifications**

**Size**

|                |                      |
|----------------|----------------------|
| Length         | 2.75 in [69.85 mm]   |
| Width/Diameter | 2.36 in [59.94 mm]   |
| Height         | 0.92 in [23.37 mm]   |
| Weight         | 0.379 lbs [171.91 g] |
| Finish         | Electroless Nickel   |
| Package Type   | Connectorized        |
| Operating Life | 2,000,000 Cycles     |

**Connectors**

|                   |                  |
|-------------------|------------------|
| RF Connector Type | N Female         |
| Control Connector | Solder Terminals |

**Environmental Specifications**

**Temperature**

|                 |                                                              |
|-----------------|--------------------------------------------------------------|
| Operating Range | -25 to +65 deg C                                             |
| Shock           | MIL-STD-202 Method 213, Condition D (500G Non Operating)     |
| Vibration       | MIL-STD-202 Method 214, Condition D (100G RMS Non Operating) |

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

**Plotted and Other Data**

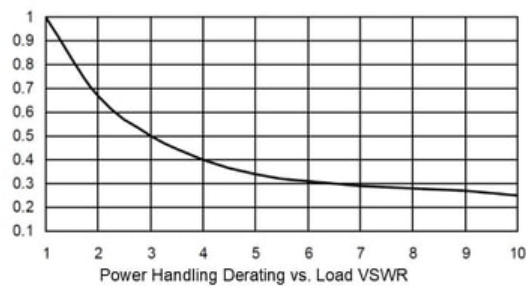
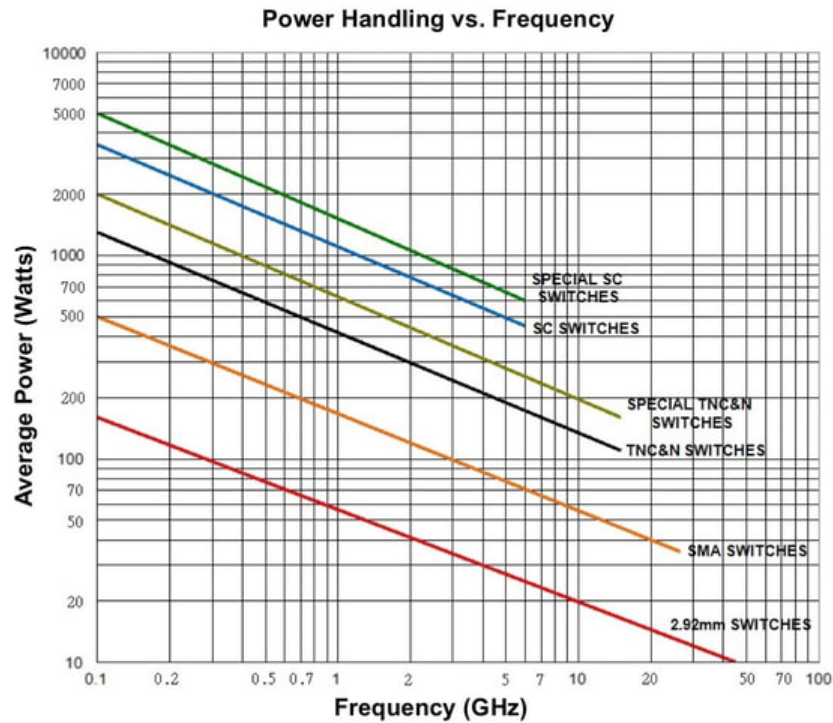
Notes:

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### Typical Performance Data



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

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SPDT Failsafe DC to 12.4 GHz Electro-Mechanical Relay Switch, Indicators, TTL, Diodes, 10W, 2M Lifecycles, 28V, 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 Lewisville, Texas. Fairview Microwave is RF on-demand.

For additional information on this product, please click the following link: [SPDT Failsafe DC to 12.4 GHz Electro-Mechanical Relay Switch, Indicators, TTL, Diodes, 10W, 2M Lifecycles, 28V, N FMSW6612](https://www.fairviewmicrowave.com/spdt-failsafe-12.4-ghz-electro-mechanical-relay-switch-indicators-ttl-28v-n-fmsw6612-p.aspx)

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FMSW6612 CAD Drawing

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