

SPDT Electromechanical Relay Latching Switch, Self Cut-Off, DC to 26.5 GHz, 90W, 5M Lifecycles, 28V, Indicators, TTL, Supression Diodes, SMA

The FMSW6442 is a Single Pole Double Throw (SP2T) electromechanical relay switch that operates across a wide frequency range of DC to 26.5 GHz and can handle up to 90W of average power in a break before make condition. The 50 Ohm design is rated for 5 million lifecycles and features a Latching Self Cut-Off Actuator that magnetically latches in place after the control voltage is removed. For power sensitive applications, this is the best actuator option. Additional features include TTL control logic, suppression diodes which limit voltage spikes or reverse current, and indicators. Impressive typical performance includes 0.3 dB insertion loss and isolation greater than 80 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 command control functions. And for highly reliable operation, the model is guaranteed to meet MIL-STD-202 environmental test conditions for shock and random vibration.

Electrical Specifications

| | |
|--------------------|---|
| Switch Type | SPDT |
| Actuator Type | Latching |
| Switching Sequence | Break Before Make |
| Actuator Options | Self Cut Off, Indicators, TTL Logic |
| TTL Control | on: 2.4 to 5.5 Volts off: 0 to 0.8 Volts |

| Description | Min | Typ | Max | Units |
|------------------------------|-----|-------|-------|-------|
| Frequency Range | DC | | 26.5 | GHz |
| Impedance | | 50 | | Ohms |
| Operating Voltage | 26 | 28 | 30 | Volts |
| Actuating Current @ 28 Volts | | | 65 | mA |
| VSWR | | 1.3:1 | 1.7:1 | |
| Insertion Loss | | 0.3 | 0.6 | dB |
| Isolation | 50 | 80 | | dB |
| Switching Time | | | 20 | ms |

Performance by Frequency

| Description | F1 | F2 | F3 | F4 | F5 | Units |
|---------------------|--------|--------|---------|-----------|----|-------|
| Frequency Range | DC - 6 | 6 - 12 | 12 - 18 | 18 - 26.5 | | GHz |
| VSWR, Max | 1.2:1 | 1.3:1 | 1.4:1 | 1.7:1 | | |
| Insertion Loss, Max | 0.15 | 0.25 | 0.35 | 0.6 | | dB |
| Isolation, Min | 80 | 70 | 60 | 50 | | dB |



Features:

- Single Pole Double Throw Electromechanical Relay Switch
- DC to 26.5 GHz Frequency Range
- Latching Actuator with Self Cut-Off
- TTL Logic Control
- Suppression Diodes
- Indicators
- 5M Lifecycle Rating
- TTL Logic Control
- Suppression Diodes
- Indicators
- Insertion Loss 0.3 dB typ
- Isolation > 80 dB typ
- VSWR as low as 1.2:1 max
- +28 Volt DC Bias
- Solder Terminal Pins for DC Command Control
- SMA Female Connectors
- -25°C to +65°C Operating Temperature
- Up to 90 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

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sales@fairviewmicrowave.com

Mechanical Specifications

Size

| | |
|----------------|--------------------|
| Length | 1.8 in [45.72 mm] |
| Width/Diameter | 1.5 in [38.1 mm] |
| Height | 0.52 in [13.21 mm] |
| Finish | NICKEL |
| Package Type | Connectorized |
| Operating Life | 5,000,000 Cycles |

Connectors

| | |
|-------------------|------------|
| RF Connector Type | SMA Female |
|-------------------|------------|

Environmental Specifications

Temperature

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

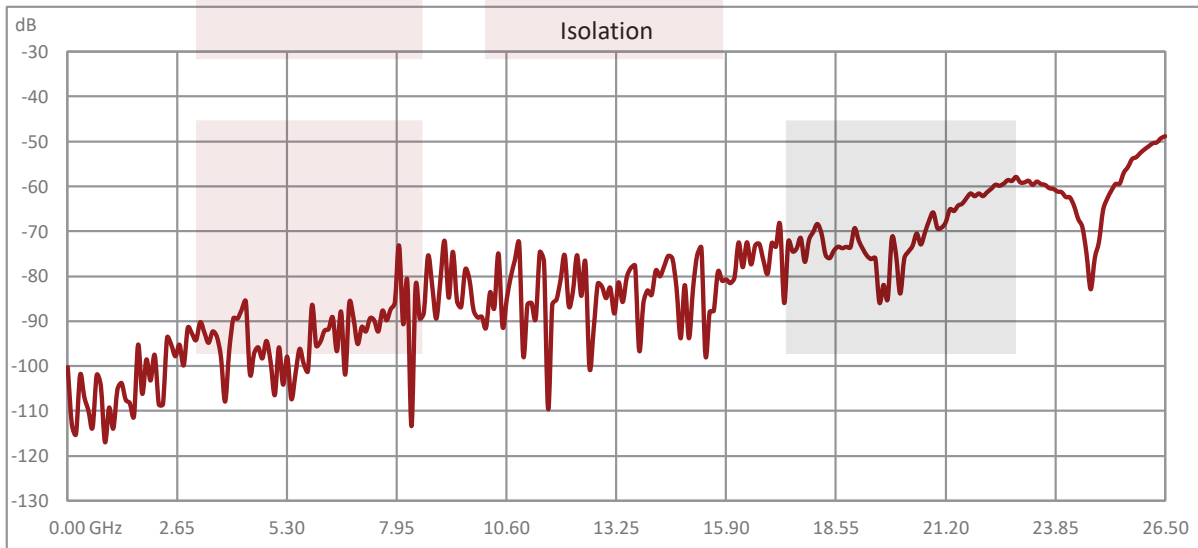
| | |
|-----------|---|
| Humidity | Moisture resistant or immersion sealing available |
| Shock | MIL-STD-202 Method 213, Condition D, 500G (non oper) |
| Vibration | MIL-STD-202 Method 214, Condition D, 10G RMS (non oper) |

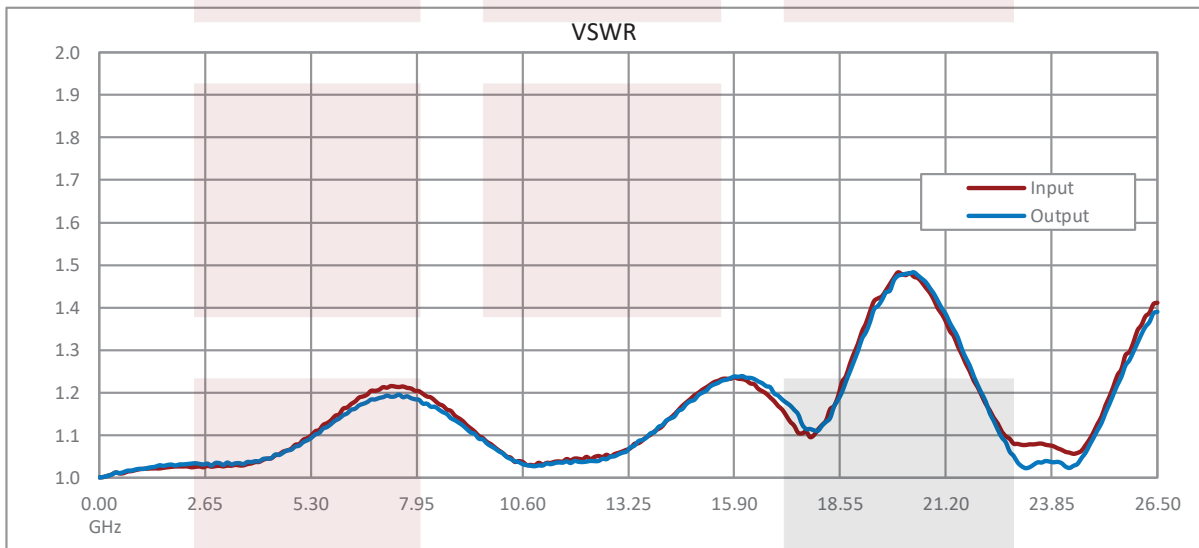
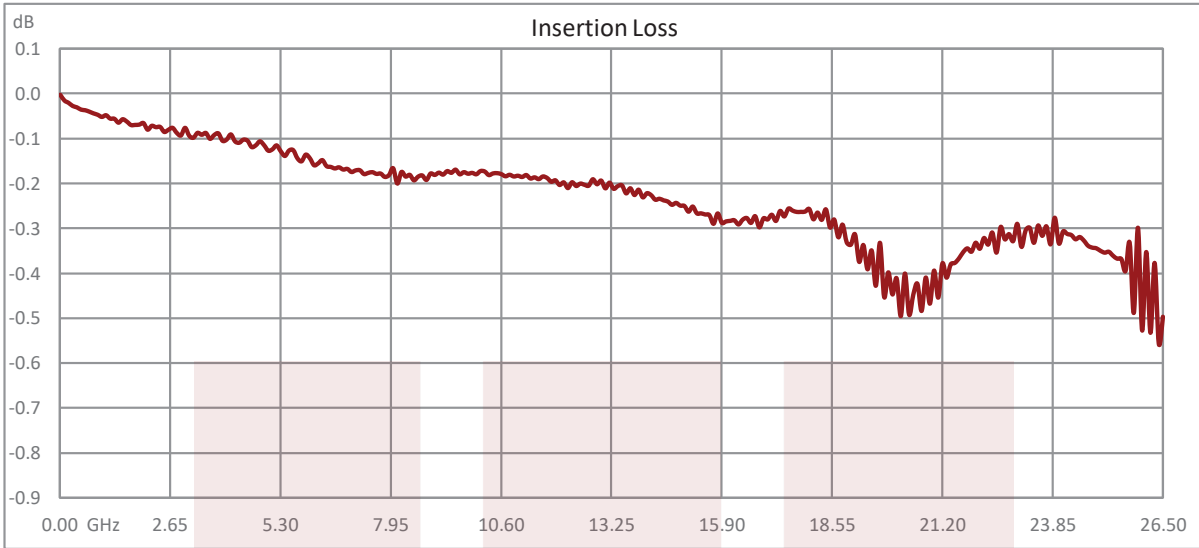
Compliance Certifications (see [product page](#) for current document)

Plotted and Other Data

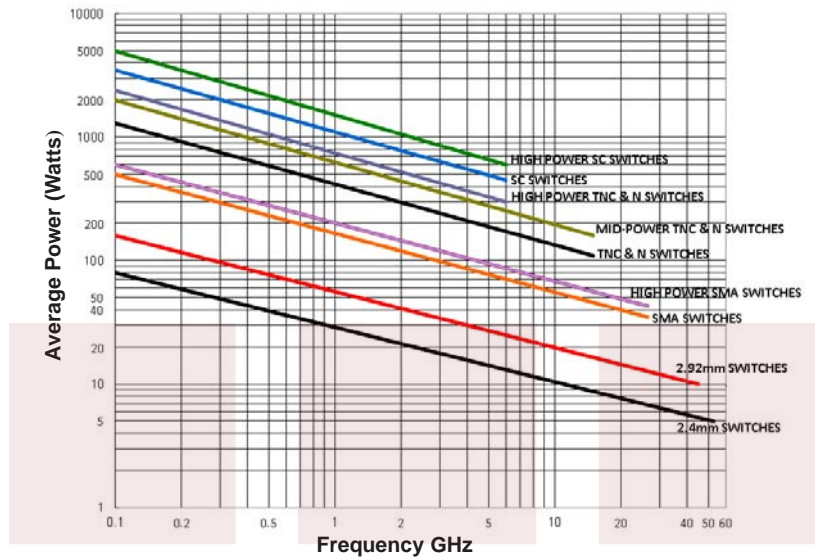
Notes:

Typical Performance Data

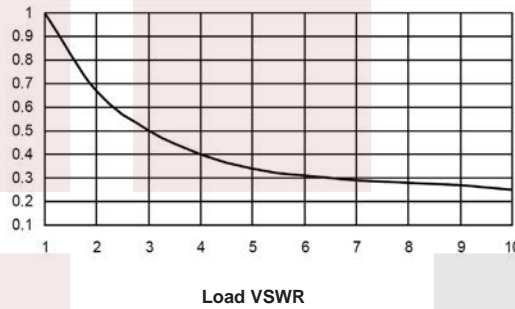




Power Handling vs. Frequency



Power Handling De-rating vs. Load VSWR



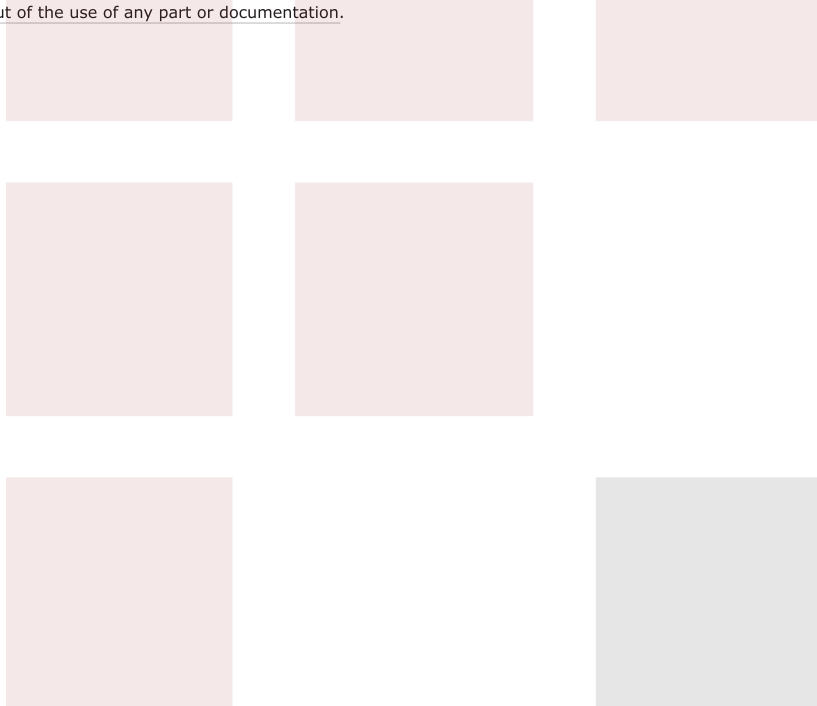
Power Handling Chart and Derating Curves based on the following Test and Environmental Conditions:
 Ambient temperature: 20 - 25°C
 Altitude: Sea Level to 1,000 feet
 Relative Humidity: 50 - 55%
 Load VSWR: ≤ 1.20:1
 Operation: Cold Switching

SPDT Electromechanical Relay Latching Switch, Self Cut-Off, DC to 26.5 GHz, 90W, 5M Lifecycles, 28V, Indicators, TTL, Supression Diodes, SMA 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.

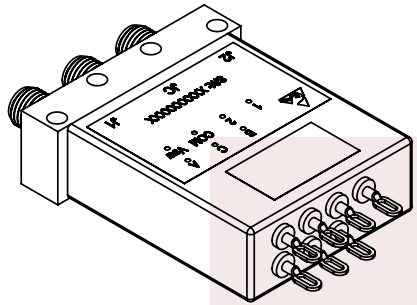
For additional information on this product, please click the following link: [SPDT Electromechanical Relay Latching Switch, Self Cut-Off, DC to 26.5 GHz, 90W, 5M Lifecycles, 28V, Indicators, TTL, Supression Diodes, SMA FMSW6442](#)

URL: <https://www.fairviewmicrowave.com/spdt-latching-26.5-ghz-electro-mechanical-relay-switch-indicators-ttl-28v-sma-fmsw6442-p.aspx>

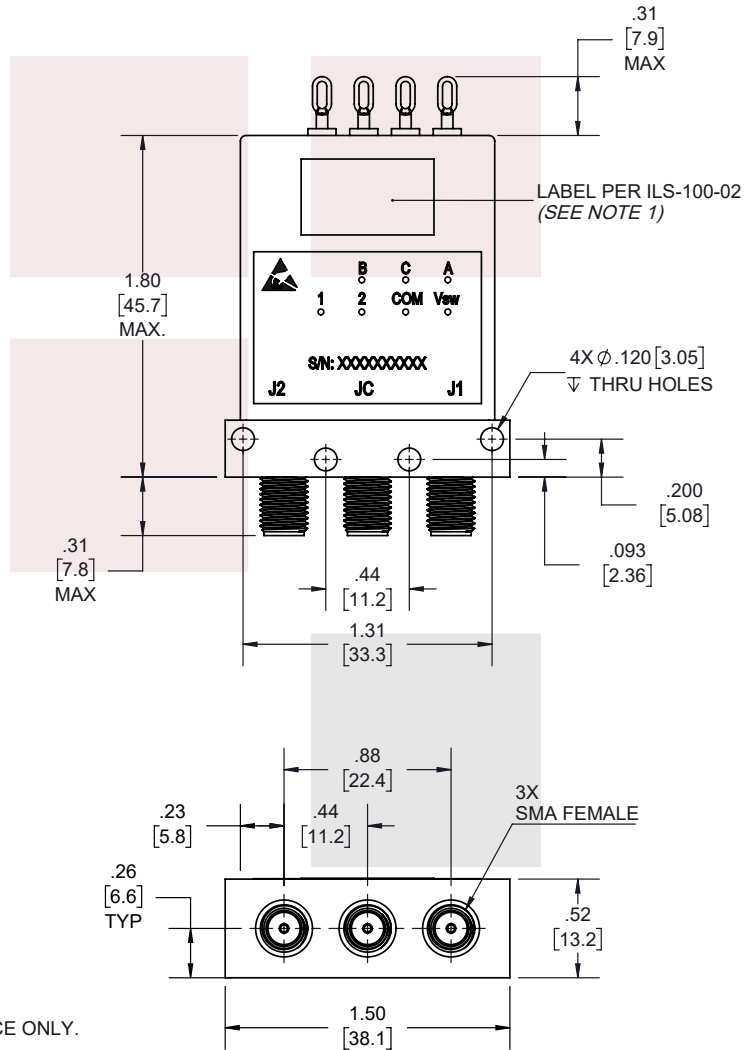
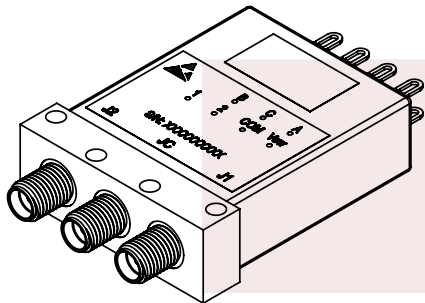
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| REVISIONS | | | |
|-----------|-----------------|------------|----------|
| REV. | DESCRIPTION | DATE | APPROVED |
| A | INITIAL RELEASE | 11/12/2020 | T.GALLA |



7X SOLDER TERMINALS,
SOLDER WIRE USING SN96
MAXIMUM TEMP 250 °C FOR
NO MORE THAN 5 SEC.



NOTES:
1. LABEL PER ILS-100-02. FOR INTERNAL REFERENCE ONLY.
LABEL LOCATION FOR REFERENCE ONLY.

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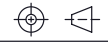
TITLE
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UNLESS OTHERWISE SPECIFIED LEADING DIMENSIONS ARE INCHES
DIMENSIONS IN [] ARE MILLIMETERS

TOLERANCES: CABLE LENGTH (L) TOLERANCES:

| | | |
|--------------------|-------------|---|
| .X = ±.2 [5.08] | FRACTIONS | L ≤ 12 [305] = +1 [25] / -0 |
| .XX = ±.02 [.51] | ± 1/32 | 12 [305] < L ≤ 60 [1524] = +2 [51] / -0 |
| .XXX = ±.005 [.13] | ANGLES ± 1° | 60 [1524] < L ≤ 120 [3048] = +4 [102] / -0 |
| | | 120 [3048] < L ≤ 300 [7620] = +6 [152] / -0 |
| | | 300 [7620] < L = +5%L / -0 |

THIRD-ANGLE PROJECTION



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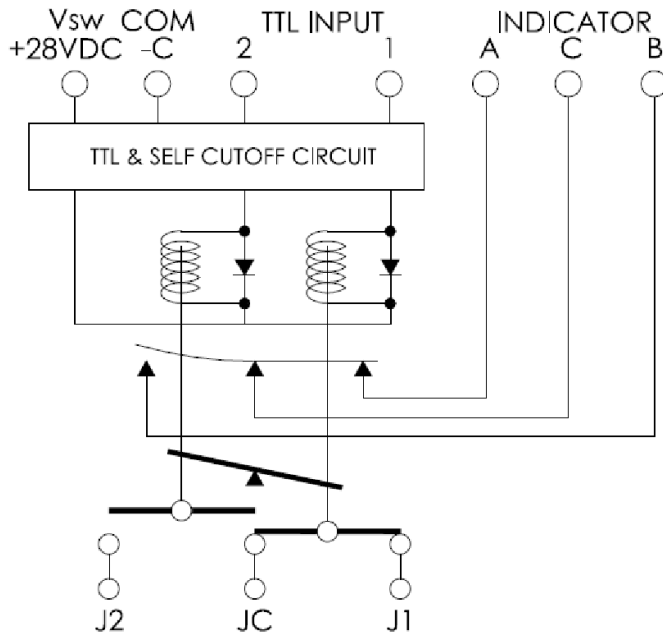
SHEET 1 OF 2

ALL DIMENSIONS SHOWN ARE FOR REFERENCE ONLY.

SCALE N/A

| | | | | |
|-----------|--------------------|--------------------|----------------------|----------|
| SIZE A | CAGE CODE 3FKR5 | DRAWN BY K.DANG | ITEM NO. FMSW6442 | REV A |
|-----------|--------------------|--------------------|----------------------|----------|

T-Rev.D



SCHMATIC

| OPERATIONAL LOGIC TABLE | | | | | |
|-------------------------|---|-----------|-----|-----------|-----|
| TERMINALS | | RF PORTS | | INDICATOR | |
| 1 | 2 | J1 | J2 | A-C | B-C |
| 0 | 0 | NO CHANGE | | NO CHANGE | |
| 0 | 1 | OFF | ON | OFF | ON |
| 1 | 0 | ON | OFF | ON | OFF |
| 1 | 1 | FORBIDDEN | | FORBIDDEN | |

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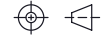
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THIRD-ANGLE PROJECTION



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SHEET 2 OF 2

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SCALE

N/A

| | | | | |
|-----------|--------------------|--------------------|----------------------|----------|
| SIZE A | CAGE CODE 3FKR5 | DRAWN BY K.DANG | ITEM NO. FMSW6442 | REV A |
|-----------|--------------------|--------------------|----------------------|----------|

T-Rev.D