

## SPDT Failsafe DC to 18 GHz Electro-Mechanical Relay Switch, up to 240W, 12V, SMA

The SEMS-4051-SPDT-SMA is an SPDT Electromechanical Relay Switch that operates over a wide frequency band from DC to 18GHz with up to 240 Watts of input power (CW) handling capability. Rated for 10M life cycles for high reliability operation, this design uses a Failsafe Actuator with a break before make configuration. The switch exhibits exceptional electrical performance specified from 0.2 dB max for insertion loss and from 80 dB min for isolation, and guaranteed over -40°C to +85°C. The assembly requires an operating voltage of +12Vdc and is certified as RoHS and REACH compliant. External connectors include solder terminals and SMA female connectors.



### Electrical Specifications

Switch Type	SPDT
Actuator Type	Failsafe
Switching Sequence	Break before Make

Description	Min	Typ	Max	Units
Frequency Range	DC		18	GHz
Impedance		50		Ohms
Operating Voltage	10.2	12	13	Volts
Actuating Set Current @ 12 Volts		250		mA
VSWR		1.2:1	1.5:1	
Insertion Loss		0.2	0.5	dB
Isolation	60	80		dB
Input Power (CW)			100	Watts
Switching Time			10	ms

### Performance by Frequency

Description	F1	F2	F3	F4	F5	Units
Frequency Range	DC - 3	3 - 8	8 - 12.4	12.4 - 18		GHz
VSWR, Max	1.2:1	1.3:1	1.4:1	1.5:1		
Insertion Loss, Max	0.2	0.3	0.4	0.5		dB
Isolation, Min	80	70	60	60		dB
Power In, Max (CW)	240	150	120	100		Watts

Electrical Specification Notes:  
Average Power and Actuating Current values at 25°C.

### Mechanical Specifications

<b>Size</b>	
Length	1.5 in [38.1 mm]
Width/Diameter	1.5 in [38.1 mm]
Height	0.5 in [12.7 mm]
Weight	0.1685 lbs [76.43 g]
Package Type	Connectorized
Operating Life	10,000,000 Cycles

### Features:

- Single Pole Double Throw Relay Switch
- DC to 18 GHz Frequency Range
- 10M Cycle Operating Life Min
- 100 Watt Avg Power Max
- -40 to +85 Deg C Operating Temperature
- Insertion Loss 0.5 dB Max
- VSWR 1.5:1 Max

### Applications:

- General Purpose High Performance Relay Switch
- Military Communications
- Communications Systems
- Test & Measurement

Fairview Microwave  
301 Leora Ln., Suite 100  
Lewisville, TX 75056  
Tel: 1-800-715-4396 / (972) 649-6678  
Fax: (972) 649-6689  
[www.fairviewmicrowave.com](http://www.fairviewmicrowave.com)  
[sales@fairviewmicrowave.com](mailto:sales@fairviewmicrowave.com)

**Connectors**

RF Connector Type	SMA Female
RF Connector Specification	MIL C 39012
Control Connector	Solder Pin

Mechanical Specification Notes:  
Solder Pins: 250°C max/30sec.

**Environmental Specifications**

**Temperature**

Operating Range	-40 to +85 deg C
Storage Range	-55 to +85 deg C

Construction	Splashproof
Shock	MIL-STD-202, Method 213B, Cond.C
Vibration	MIL-STD-202, Method 204D, Cond.D

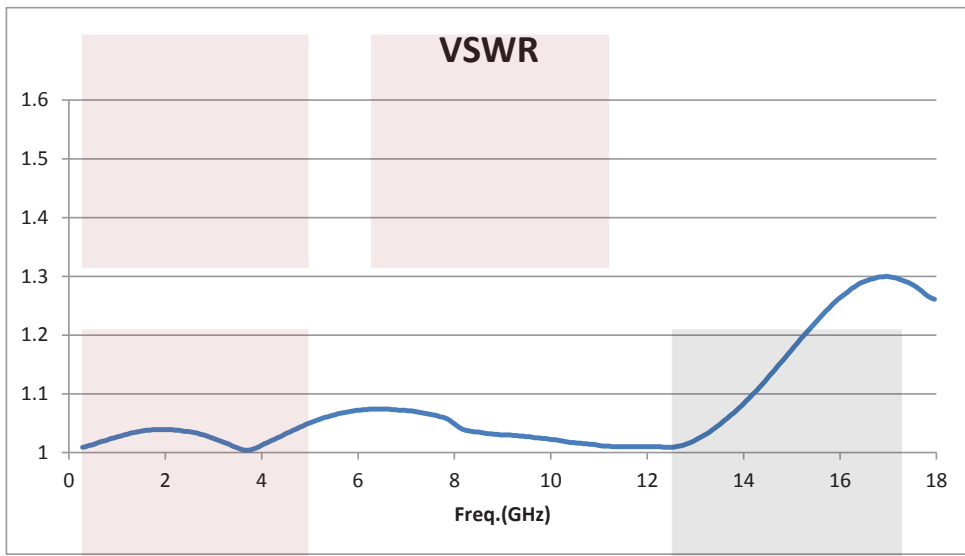
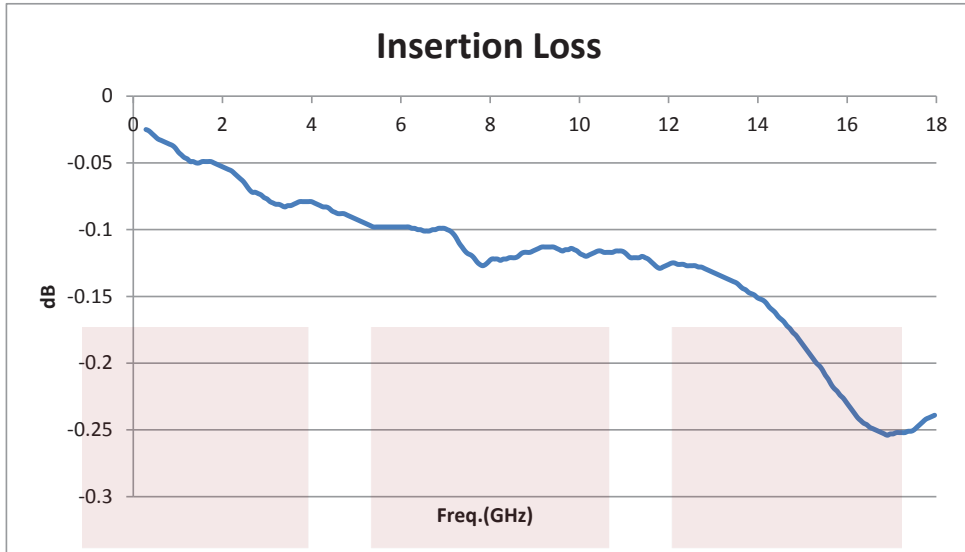
Environmental Specification Notes:  
Environmental specifications are guaranteed but not tested.

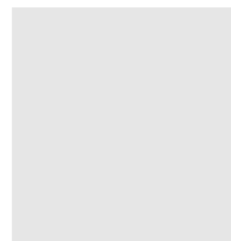
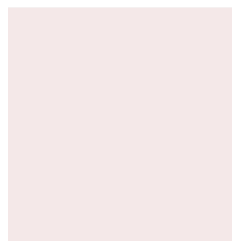
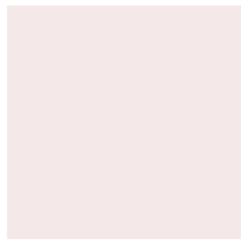
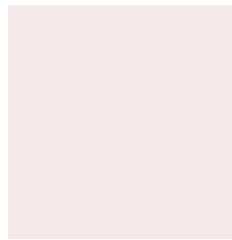
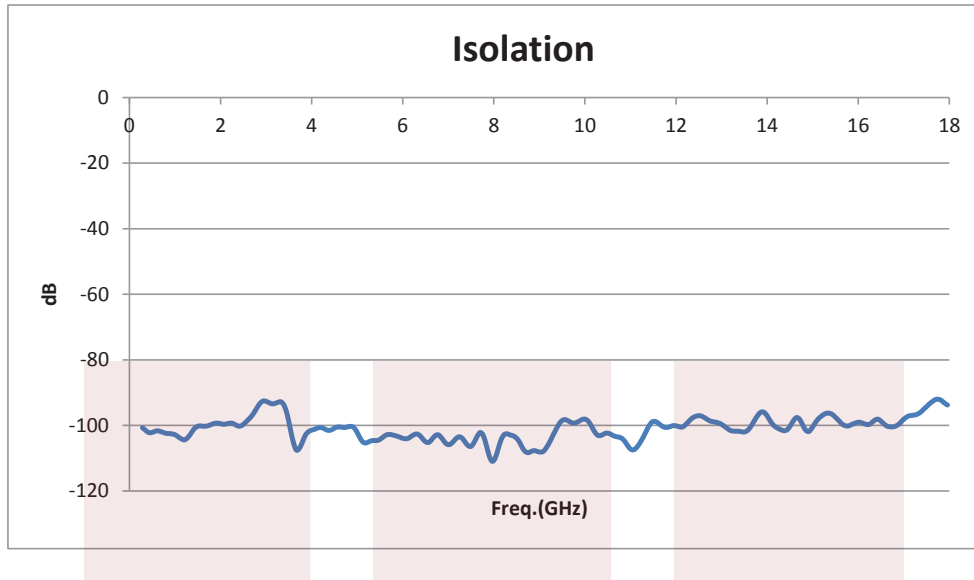
**Compliance Certifications** (see [product page](#) for current document)

**Plotted and Other Data**

Notes:  
• Values shown are typical at 25°C.

**Typical Performance Data**



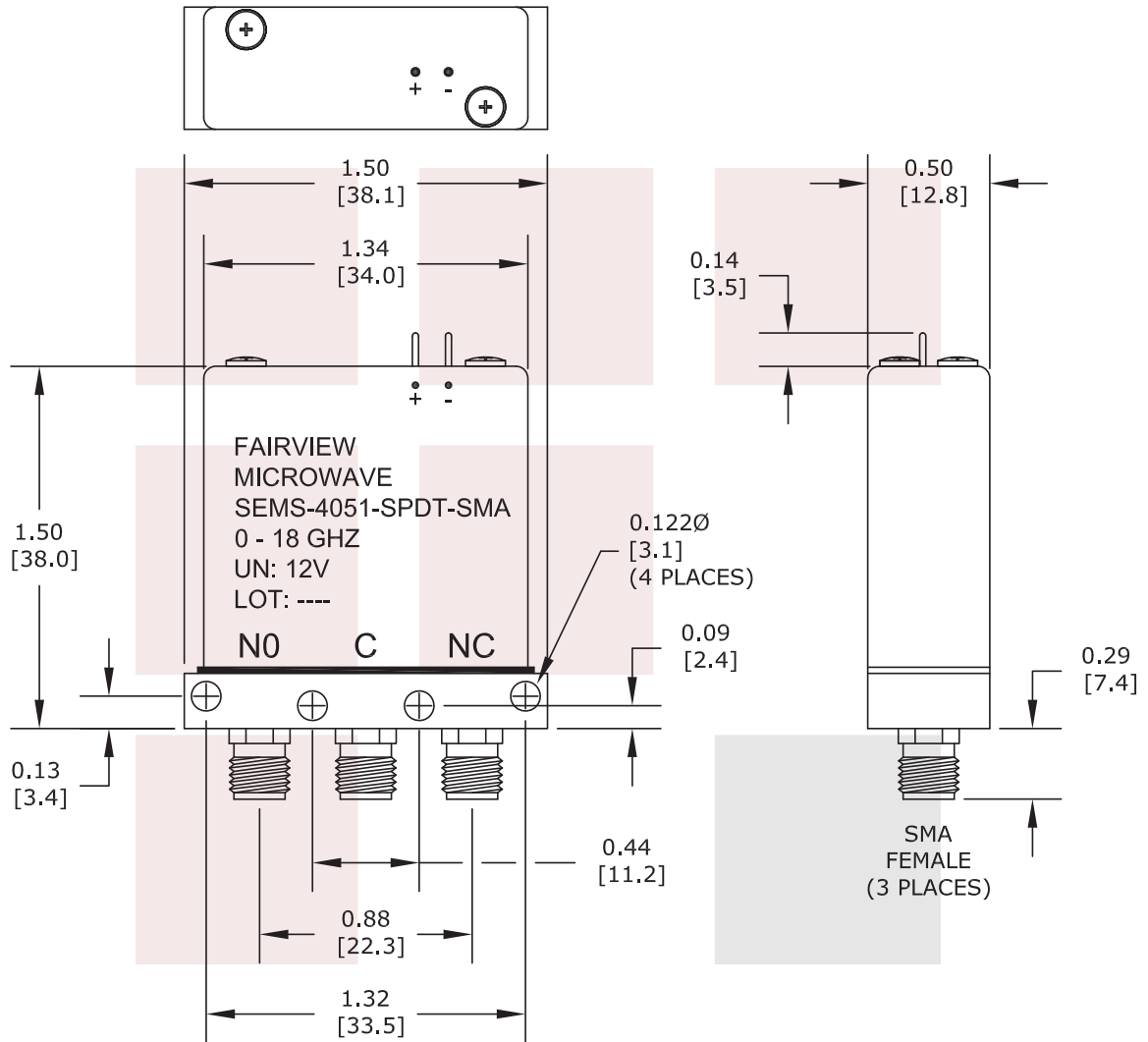


SPDT Failsafe DC to 18 GHz Electro-Mechanical Relay Switch, up to 240W, 12V, SMA from Fairview Microwave is in-stock and available to ship same-day. All of our RF/microwave products are available off-the-shelf from our ISO 9001:2008 certified facilities in Lewisville, Texas. Fairview Microwave is RF on-demand.

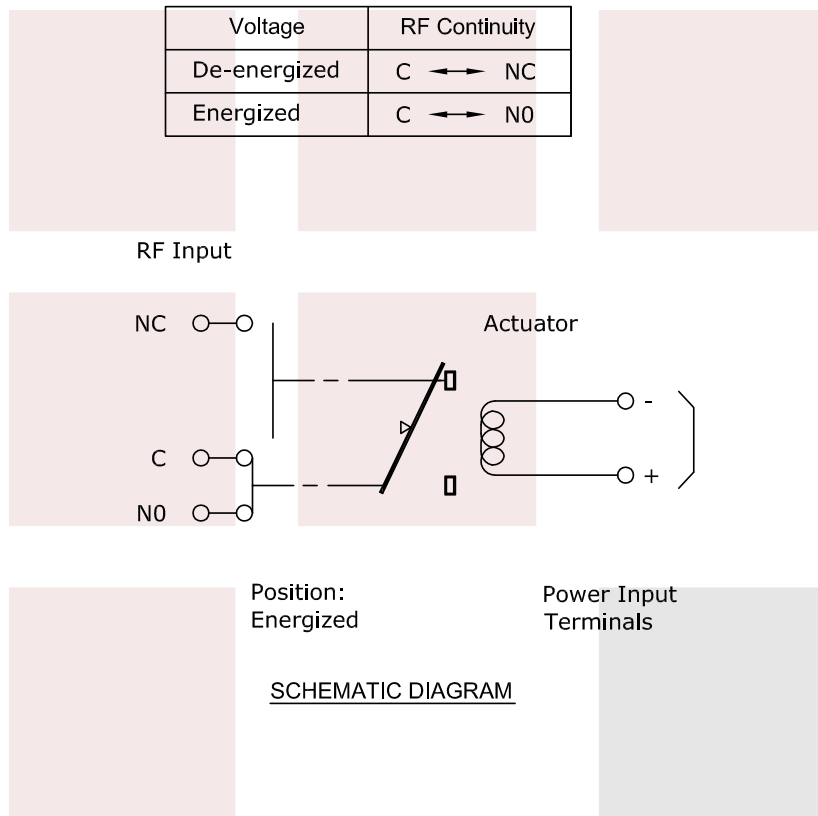
For additional information on this product, please click the following link: [SPDT Failsafe DC to 18 GHz Electro-Mechanical Relay Switch, up to 240W, 12V, SMA SEMS-4051-SPDT-SMA](#)

URL: <https://www.fairviewmicrowave.com/spdt-failsafe-electro-mechanical-relay-switch-sems-4051-spdt-sma-p.aspx>

The information contained in this document is accurate to the best of our knowledge and representative of the part described herein. It may be necessary to make modifications to the part and/or the documentation of the part, in order to implement improvements. Fairview Microwave reserves the right to make such changes as required. Unless otherwise stated, all specifications are nominal. Fairview Microwave does not make any representation or warranty regarding the suitability of the part described herein for any particular purpose, and Fairview Microwave does not assume any liability arising out of the use of any part or documentation.



<b>FAIRVIEW MICROWAVE INC.</b> ALLEN, TX 75013 WWW.FAIRVIEWMICROWAVE.COM		NOTES: 1. UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE NOMINAL. 2. ALL SPECIFICATIONS ARE SUBJECT TO CHANGE WITHOUT NOTICE AT ANY TIME. 3. DIMENSIONS ARE IN INCHES [mm].			
TITLE SPDT Failsafe DC to 18 GHz Electro-Mechanical Relay Switch, up to 240W, 12V, SMA		DWG NO SEMS-4051-SPDT-SMA		CAGE CODE 3FKR5	
CAD FILE	092614	SHEET	SCALE	N/A	SIZE A 150



<b>FAIRVIEW MICROWAVE INC.</b> ALLEN, TX 75013 WWW.FAIRVIEWMICROWAVE.COM		NOTES: 1. UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE NOMINAL. 2. ALL SPECIFICATIONS ARE SUBJECT TO CHANGE WITHOUT NOTICE AT ANY TIME. 3. DIMENSIONS ARE IN INCHES [mm].			
TITLE SPDT Failsafe DC to 18 GHz Electro-Mechanical Relay Switch, up to 240W, 12V, SMA		DWG NO SEMS-4051-SPDT-SMA		CAGE CODE 3FKR5	
CAD FILE	092614	SHEET	SCALE	N/A	SIZE A 150