

SPDT Failsafe DC to 50 GHz Electro-Mechanical Relay Switch, Indicators, TTL, Diodes, 12V, N



FMSW6590

Features

- Single Pole Double Throw
- DC to 18 GHz Frequency Range
- Isolation greater than 60 dB minimum
- 1M Cycle Min Operating Life
- +12 Volt DC
- 100 Watt average Power
- Failsafe Actuator
- TTL Logic Control
- Suppression Diodes
- Indicators
- -25 to +65°C Operating Temperature
- Insertion Loss as low as 0.8 dB Max
- VSWR as low as 1.8:1 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 FMSW6590 is a Single Pole Double Throw (SPDT) electromechanical relay switch that operates across a wide frequency range of DC to 18 GHz and can handle up to 100 Watts of CW input power in a break before make condition. The 50 Ohm design is rated for 1M 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 0.8 dB maximum and isolation greater than 60 dB minimum. The Failsafe actuator requires +12 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 = 12 Vdc)

Switch Type	SPDT
Actuator Type	Failsafe
Switching Sequence	Break Before Make
Actuator Options	Indicators, TTL Logic, Diodes
TTL Control	on: 2.4 to 5 Volts off: 0 to 0.8 Volts
TTL Control Current	450 mA at 5 Volts 450 mA at 0.8 Volts

Description	Min	Typ	Max	Units
Frequency Range	DC		50	GHz
Impedance		50		Ohms
Operating Voltage		12		Volts
Actuating Current @ 12 Volts			450	mA
VSWR			1.8:1	
Insertion Loss			0.8	dB

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Description	Min	Typ	Max	Units
Isolation	60			dB
Input Power (CW)		100		Watts
Switching Time			20	ms

Performance by Frequency

Description	F1	F2	F3	F4	F5	Units
Frequency Range	DC - 3	3 - 8	8 - 12	12 - 18		GHz
VSWR, Max	1.25:1	1.4:1	1.6:1	1.8:1		
Insertion Loss, Max	0.3	0.4	0.5	0.8		dB
Isolation, Min	80	70	65	60		dB

Electrical Specification Notes:
Average Power for Cold Switching (Reference RF Power Rating Table for Cold Switching)

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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	0.38 lbs [172.37 g]
Package Type	Connectorized
Operating Life	1,000,000 Cycles

Connectors

RF Connector Type	N Female
Control Connector	Solder Pin

Mechanical Specification Notes:
Solder Pins: 250°C max/5sec.

Environmental Specifications

Temperature

Operating Range	-25 to +65 deg C
Construction	Splashproof
Shock	MIL-STD-202 Method 213, Condition D (500G Non Operating)
Vibration	MIL-STD-202 Method 214, Condition D (10G RMS Non Operating)

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

Plotted and Other Data

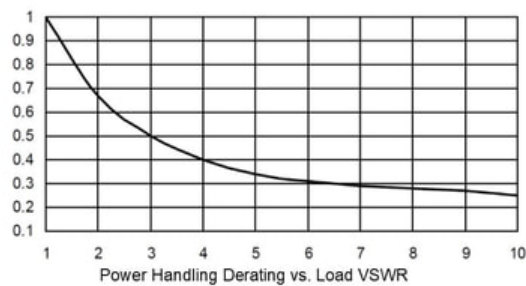
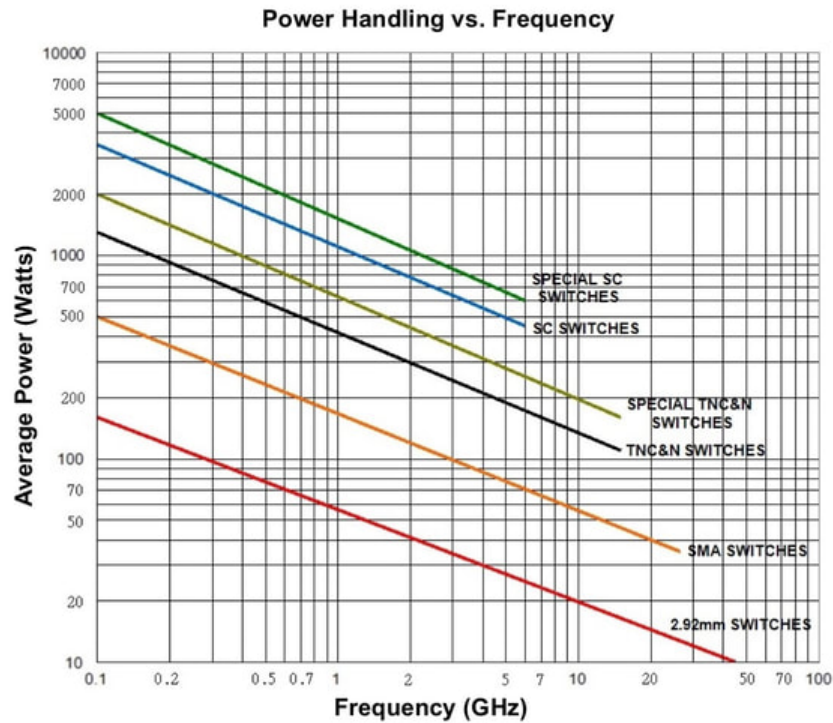
Notes:
Values shown are typical at 25°C.

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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 50 GHz Electro-Mechanical Relay Switch, Indicators, TTL, Diodes, 12V, 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 50 GHz Electro-Mechanical Relay Switch, Indicators, TTL, Diodes, 12V, N FMSW6590](https://www.fairviewmicrowave.com/spdt-failsafe-50-ghz-electro-mechanical-relay-switch-indicators-ttl-12v-n-fmsw6590-p.aspx)

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