

SPDT Failsafe DC to 12.4 GHz Electro-Mechanical Relay Switch, Indicators, TTL, Diodes, 200W, 2M Lifecycles, 12V, N



FMSW6616

Features

- Single Pole Double Throw
- DC to 12 GHz Frequency Range
- Isolation greater than 60 dB minimum
- 2M Cycle Min Operating Life
- +12 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 FMSW6616 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 +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	Make Before Break
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		12.4	GHz
Impedance		50		Ohms
Operating Voltage		12		Volts
Actuating Current @ 12 Volts			450	mA
450mA max @ 12Vdc 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) (Average Power for Cold Switching (Reference 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

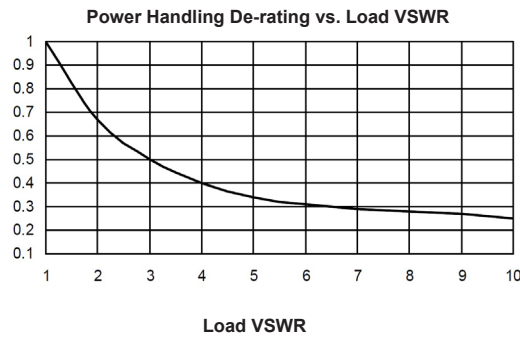
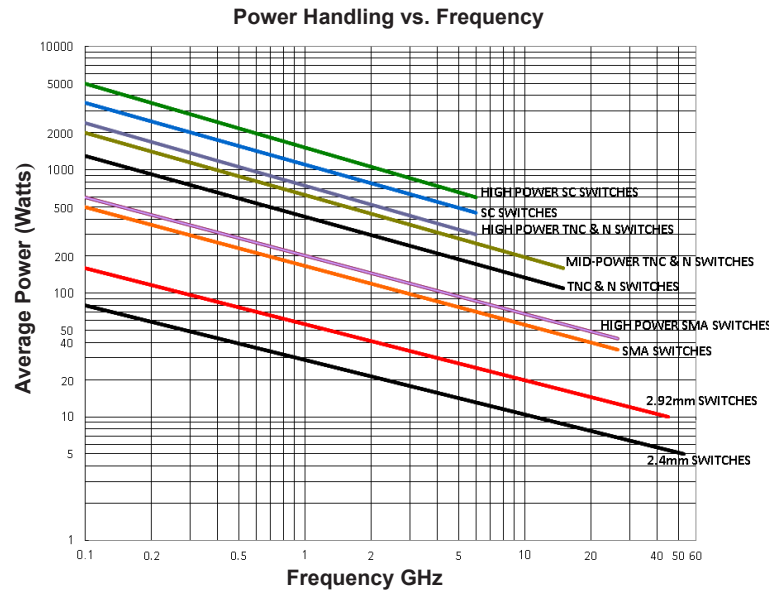
Notes:

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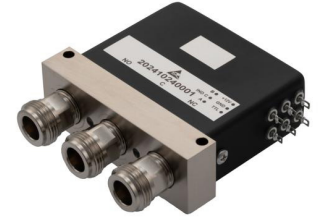
FMSW6616

Typical Performance Data



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: $\leq 1.20:1$
Operation: Cold Switching

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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, 200W, 2M Lifecycles, 12V, N FMSW6616](https://www.fairviewmicrowave.com/spdt-failsafe-12.4-ghz-electro-mechanical-relay-switch-indicators-ttl-12v-n-fmsw6616-p.aspx)

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FMSW6616 CAD Drawing

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