

N-Type Reflective SPDT PIN Diode Switch From 1 GHz to 2 GHz Rated at 70 Watt (+48.45 dBm) with Heatsink



FMSW5020

Features

- Reflective SPDT High Power PIN Diode Switch
- Reflective Design
- Frequency Range: 1 GHz to 2 GHz
- Insertion Loss: 1 dB max
- Isolation: 35 dB typ
- VSWR: 1.8:1 max
- Maximum RF Input Power: 100 Watt
- Input IP3: +45 dBm typ
- Switching Speed: 38 usec
- TTL Compatible Driver Circuitry
- 50 Ohm Design
- N-Type Female Connectors
- Compact Package Design withstands up to 95% Relative Humidity
- -40°C to +85°C Operating Temperature

Applications

- Aerospace & Defense
- Microwave Radio
- Military & Commercial Communication
- VSAT
- SATCOM
- Test & Measurement
- Wireless Infrastructure
- Fiber Optics

Description

The FMSW5020 is a single pole double throw (SPDT) PIN diode switch that operates across a wide frequency band from 1 GHz to 2 GHz. The 50 ohm reflective design supports TTL compatible driver circuitry for accurate logic control. Impressive typical performance includes 1 dB insertion loss max, 35 dB isolation typ, and 38 usec switching speed max. The switch requires a bias voltage of +5Vdc, and has maximum input power handling of up to 100 W. The rugged and compact package supports field replaceable N-Type female RF connectors and solder terminal pins for DC bias voltage and TTL control. The switch is designed for high reliability with a wide operational temperature range of -40°C to +85°C, and meets a series of environmental test conditions including Altitude, Vibration, Humidity, and Shock.

Electrical Specifications

TTL Control Logic

Off/Isolation: "0" 0 to 0.8 V
On/Low Loss: "1" 2.8 to 5 V

Description	Min	Typ	Max	Units
Frequency Range	1		2	GHz
Impedance		50		Ohms
VSWR		1.5:1	1.8:1	
Insertion Loss		0.5	1	dB
IL Temperature Coefficient		0.003		
Isolation		35		dB
Switching Time		38		us
0.1dB Compression Point		50		
Input IP3		45		dBm
Input Power (Peak) 12% duty cycle, 30us pulses			600	Watts
DC Power Dissipation		0.25		Watt
Positive Operating Voltage		5		Vdc
Current @ 5 Vdc		50		mA

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Electrical Specifications

TTL Control Logic

Off/Isolation: "0" 0 to 0.8 V
On/Low Loss: "1" 2.8 to 5 V

Description	Min	Typ	Max	Units
Operating Temperature	-40		85	deg C

Performance by Frequency

Description	F1	F2	F3	F4	F5	Units
Frequency Range	1 to 2					GHz

Electrical Specification Notes:

1. TTL pins cannot be connected to the negative voltage otherwise the internal driver will be damaged.
2. Cold Switching: Before changing any TTL signal(s), the RF input power must be blanked or the switch could be damaged.

Absolute Maximum Rating

Parameter	Rating
Biasing	+5V±10%
TTL Control Voltage	0~0.8V/2.8~5V



ESD Sensitive Material,
Transport material in
Approved ESD bags.
Handle only in approved
ESD Workstation.

Mechanical Specifications

Size

Length	2.8 in [71.12 mm]
Width	2.36 in [59.94 mm]
Height	0.75 in [19.05 mm]
Weight	0.05 lbs [22.68 g]
Body Material and Plating	Copper, Nickel

Configuration

Design	Reflective, SPDT
RF Input/Output Connector	N Female
Band Type	Wideband

Environmental Specifications

Temperature

Operating Range	-40 to 85 deg C
Storage Range	-50 to -105 deg C
Humidity	100% RH at 35°C, 95%RH at 40°C
Shock	20G for 11msec half sine wave, 3 axis both directions
Vibration	25g RMS (15 degrees 2KHz) endurance, 1 hour per axis

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Altitude	30,000 ft. (Epoxy Sealed Controlled environment)? 60,000 ft. 1.0psi min
Hermetic Seal	Optional

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

Plotted and Other Data

Notes:

N-Type Reflective SPDT PIN Diode Switch From 1 GHz to 2 GHz Rated at 70 Watt (+48.45 dBm) with Heatsink 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: [N-Type Reflective SPDT PIN Diode Switch From 1 GHz to 2 GHz Rated at 70 Watt \(+48.45 dBm\) with Heatsink FMSW5020](#)

URL: <https://www.fairviewmicrowave.com/n-spdt-pin-diode-switch-2-ghz-fmsw5020-p.aspx>

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