

N-Type Reflective SPDT PIN Diode Switch From 20 MHz to 500 MHz Rated at 500 Watt Pulsed (+57 dBm) with Heatsink

FMSW5007



Features

- Reflective SPDT High Power PIN Diode Switch
- Reflective Design
- Frequency Range: 20 MHz to 500 MHz
- Insertion Loss: 0.8 dB max
- Isolation: 35 dB typ
- VSWR: 1.8:1 typ
- 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 FMSW5007 is a single pole double throw (SPDT) PIN diode switch that operates across a wide frequency band from 20 MHz to 500 MHz. The 50 ohm reflective design supports TTL compatible driver circuitry for accurate logic control. Impressive typical performance includes 0.8 dB insertion loss max, 35 dB isolation min, and 38 usec switching speed. 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	20		500	MHz
Impedance		50		Ohms
VSWR		1.5:1	1.8:1	
Insertion Loss			0.8	dB
IL Temperature Coefficient		0.003		
Isolation		35		dB
Switching Time		38		us
0.1dB Compression Point		57		
Power In, Hot Switching (CW)			100	Watts
Input Power (Peak) 1% duty cycle, 1us pulses			500	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	20 to 500					MHz

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	2.05 in [52.07 mm]
Width	1.97 in [50.04 mm]
Height	0.87 in [22.1 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	Wide Band

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 20 MHz to 500 MHz Rated at 500 Watt Pulsed (+57 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 20 MHz to 500 MHz Rated at 500 Watt Pulsed \(+57 dBm\) with Heatsink FMSW5007](#)

URL: <https://www.fairviewmicrowave.com/n-spdt-pin-diode-switch-500-mhz-fmsw5007-p.aspx>

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FMSW5007 CAD Drawing

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