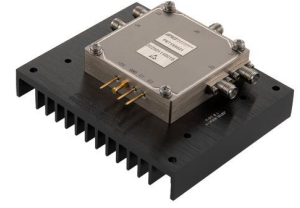


SMA Reflective SP4T PIN Diode Switch From 0.5 GHz to 6 GHz Rated at 130 Watt Pulsed (+51 dBm) and Hermetically Sealed with Heatsink



FMSW5021

Features

- Reflective SP4T High Power PIN Diode Switch
- Reflective Design
- Frequency Range: 0.5 GHz to 6 GHz
- Insertion Loss: 2.9 dB max
- Isolation: 33 dB typ
- VSWR: 1.8:1 max
- Maximum RF Input Power: 130 Watt
- Input IP3: +50 dBm typ
- Switching Speed: 300 nsec
- TTL Compatible Driver Circuitry
- 50 Ohm Design
- SMA 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 FMSW5021 is a single pole four throw (SP4T) PIN diode switch that operates across a wide frequency band from 500 MHz to 6 GHz. The 50 ohm reflective design supports TTL compatible driver circuitry for accurate logic control. Impressive typical performance includes 2.9 dB insertion loss max, 33 dB isolation min, and 300 nsec switching speed max. The switch requires a bias voltage of +5Vdc, and has maximum input power handling of up to 130 W. The rugged and compact package supports field replaceable SMA 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.

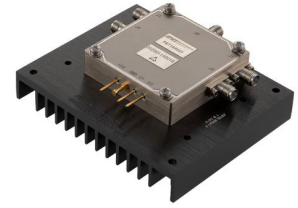
Electrical Specifications

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	0.5		6	GHz
Impedance		50		Ohms
Insertion Loss			2.9	dB
IL Temperature Coefficient		0.003		
Isolation	33			dB
Switching Time		300		ns
0.1dB Compression Point		47		
Input IP3		50		dBm
Power In, Hot Switching (CW)			51.2	Watts
DC Power Dissipation		2		Watt
Positive Operating Voltage		5		Vdc
Current @ 5 Vdc		200		mA
Operating Temperature	-40		85	deg C

SMA Reflective SP4T PIN Diode Switch From
0.5 GHz to 6 GHz Rated at 130 Watt Pulsed
(+51 dBm) and Hermetically Sealed with Heatsink



FMSW5021

Performance by Frequency

Description	F1	F2	F3	F4	F5	Units
Frequency Range	0.5 to 3	3 to 6				GHz
Insertion Loss, Max	2	2.9				dB
Insertion Loss, Typ	1.8	2.8				dB
Isolation, Min	35	33				dB
Isolation, Typ	45	40				dB

Electrical Specification Notes:

1. If the device operates in high power state, recommend keeping case temperature lower than 60 degrees C.
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	1.97 in [50.04 mm]
Width	1.97 in [50.04 mm]
Height	0.47 in [11.94 mm]
Weight	0.05 lbs [22.68 g]
Body Material and Plating	Aluminum, Nickel

Configuration

Design	Reflective, SP4T
RF Input/Output Connector	SMA Female
Band Type	Wideband

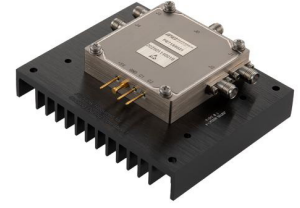
Environmental Specifications

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

SMA Reflective SP4T PIN Diode Switch From 0.5 GHz to 6 GHz Rated at 130 Watt Pulsed (+51 dBm) and Hermetically Sealed with Heatsink

FMSW5021



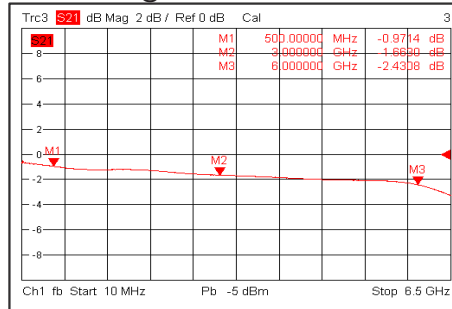
Compliance Certifications (see [product page](#) for current document)

Plotted and Other Data

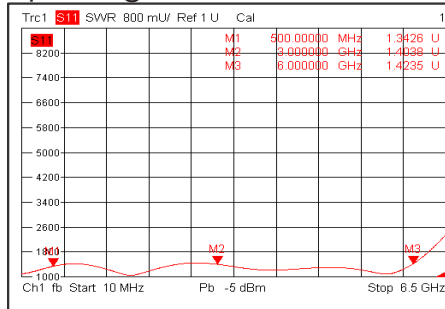
Notes:

Typical Performance Data

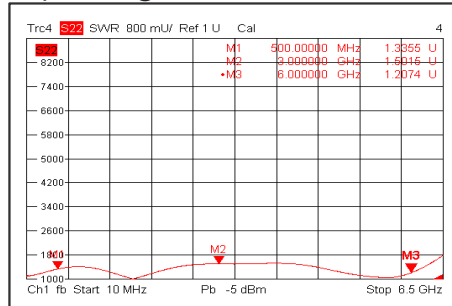
Insertion Loss @+25°C



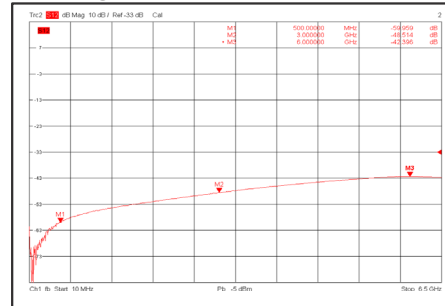
Input VSWR @+25°C



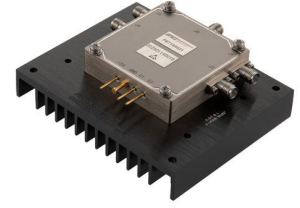
Output VSWR @+25°C



Isolation @+25°C

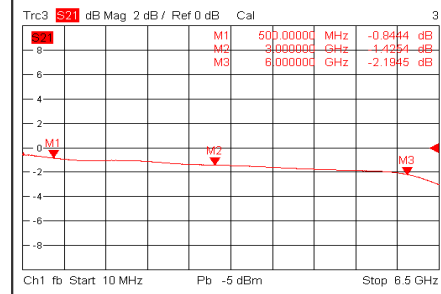


SMA Reflective SP4T PIN Diode Switch From
0.5 GHz to 6 GHz Rated at 130 Watt Pulsed
(+51 dBm) and Hermetically Sealed with Heatsink

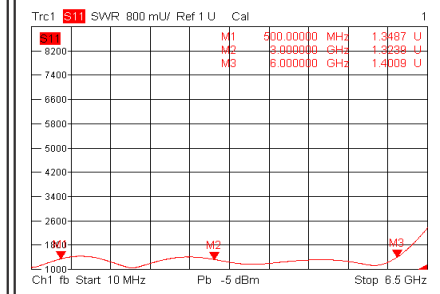


FMSW5021

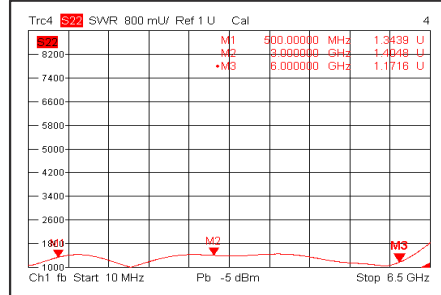
Insertion Loss @-40°C



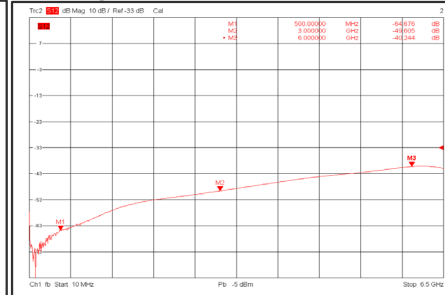
Input VSWR @-40°C



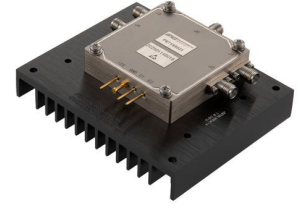
Output VSWR @-40°C



Isolation @-40°C

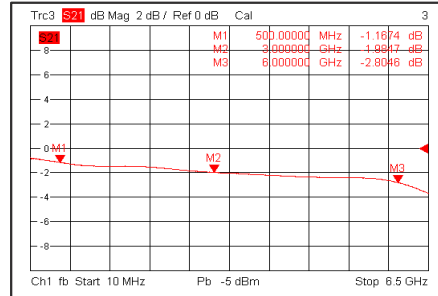


SMA Reflective SP4T PIN Diode Switch From
0.5 GHz to 6 GHz Rated at 130 Watt Pulsed
(+51 dBm) and Hermetically Sealed with Heatsink

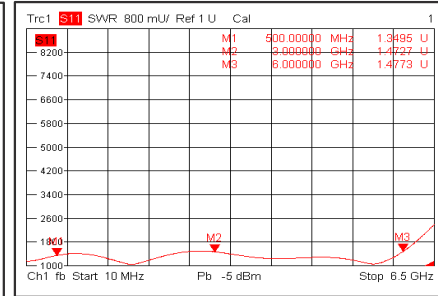


FMSW5021

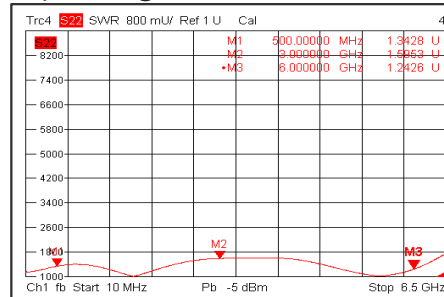
Insertion Loss @+85°C



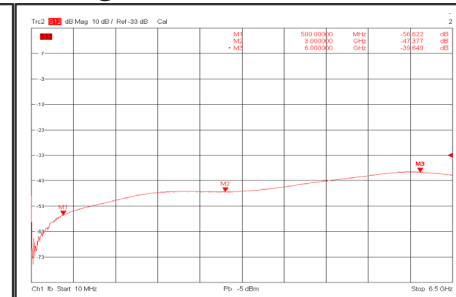
Input VSWR @+85°C



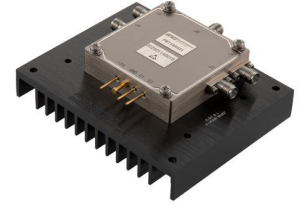
Output VSWR @+85°C



Isolation @+85°C

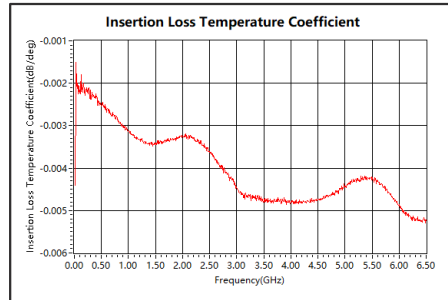


SMA Reflective SP4T PIN Diode Switch From
0.5 GHz to 6 GHz Rated at 130 Watt Pulsed
(+51 dBm) and Hermetically Sealed with Heatsink

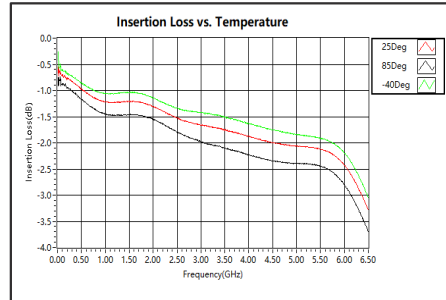


FMSW5021

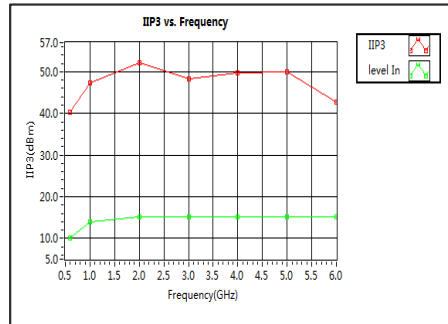
Insertion Loss Temperature Coefficient



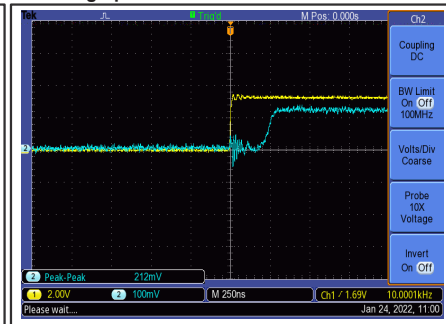
Insertion Loss vs. Temperature



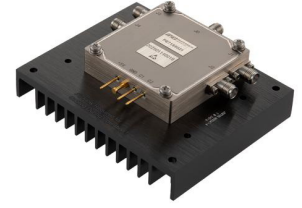
IIP3



Switching Speed



SMA Reflective SP4T PIN Diode Switch From 0.5 GHz to 6 GHz Rated at 130 Watt Pulsed (+51 dBm) and Hermetically Sealed with Heatsink



FMSW5021

SMA Reflective SP4T PIN Diode Switch From 0.5 GHz to 6 GHz Rated at 130 Watt Pulsed (+51 dBm) and Hermetically Sealed 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: [SMA Reflective SP4T PIN Diode Switch From 0.5 GHz to 6 GHz Rated at 130 Watt Pulsed \(+51 dBm\) and Hermetically Sealed with Heatsink FMSW5021](https://www.fairviewmicrowave.com/sma-sp4t-pin-diode-switch-6-ghz-fmsw5021-p.aspx)

URL: <https://www.fairviewmicrowave.com/sma-sp4t-pin-diode-switch-6-ghz-fmsw5021-p.aspx>

The information contained within 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 liability arising out of the use of any part or document.

SMA Reflective SP4T PIN Diode Switch From 0.5 GHz to 6 GHz Rated at 130 Watt Pulsed (+51 dBm) and Hermetically Sealed with Heatsink

