

**SPST High Isolation PIN Diode Switch DC to 20 GHz,
 65 dB, 23 dBm, 6 dB Loss and SMA**

FMSW5001 is a Single Pole Single Throw (SPST) Absorptive Switch that covers a wide frequency band from DC to 20 GHz. This general purpose design utilizes GaAs MESFET MMIC technology that has extremely fast switching speed levels of 8.5 nsec. Additional typical performance includes 65 dB Isolation up to 20 GHz, and 3.5 dB Insertion Loss at 10 GHz.

The design also incorporates CMOS driver circuitry that allows a single +5V biased voltage at very low DC current levels. The drop-in package is hermetically sealed with field replaceable SMA connectors. Operating temperature range is -55°C to +85°C. And for added confidence, this rugged package assembly is designed to meet MIL-STD-883 test conditions for Hermeticity and Temperature Cycle.

This High Isolation PIN Diode Switch is part of Fairview Microwave's expanding line of PIN Diode Switch offerings. These parts offer high isolation performance in a very wide Frequency Range coverage and outstanding electrical performance in the band.

Electrical Specifications

Description	Min	Typ	Max	Units
Frequency Range	DC		20	GHz
Insertion Loss		6		dB
Isolation		65		dB
Switching Speed		8.5		ns
Control Input		TTL		
Power Handling		+23		dBm



Features:

- SPST Absorptive Switch Design
- GaAs MESFET MMIC Technology
- Ultra Fast Switching Speed 8.5 nsec typical
- High Isolation 65 dB typical up to 20 GHz
- Low Insertion Loss 3.5 dB typical at 10 GHz
- CMOS Driver Circuit
- Hermetically Sealed Module
- Field Replaceable SMA Connectors
- -55°C to +85°C Operating Temperature
- Designed to meet MIL-STD-883 Conditions

Applications:

- Electronic Warfare
- Electronic Countermeasures
- Microwave Radio
- VSAT
- Radar
- Fiber Optic
- Space Systems
- Test Instrumentation
- Telecom Infrastructure
- Base station Infrastructure

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Performance by Frequency

Description	Frequency	Min.	Typ.	Max.	Units
Insertion Loss	DC - 4 GHz		3	3.5	dB
	DC - 16 GHz		4	5.5	dB
	DC - 20 GHz		6	9	dB
Isolation	DC - 4 GHz	90	100		dB
	DC - 10 GHz	75	80		dB
	DC - 16 GHz	70	70		dB
	DC - 20 GHz	60	65		dB
Return Loss RF1 & RF2	"On State & Off State"				
	DC - 12 GHz		12		dB
	DC - 20 GHz		8		dB
Input Power for 1 dB Compression	0.5 - 20 GHz	+20	+23		dBm
Input Third Order Intercept	0.5 - 10 GHz		+45		dBm
(Two-Tone Input Power = +7 dBm Each Tone)	0.5 - 20 GHz		+43		dBm
Switching Characteristics					
tRISE, tFALL (10/90% RF)	DC - 20 GHz		2.5		ns
tON, tOFF (50% CTL to 10/90% RF)			8.5		ns
Switching Transients	DC - 20 GHz		20		mVpp

Mechanical Specifications

Size

Length	0.89 in [22.61 mm]
Width/Dia.	0.68 in [17.27 mm]
Height	0.235 in [5.97 mm]
Weight	0.086 lbs [39.01 g]

Environmental Specifications By Design

Temperature

Operating Range	-55 to +85 deg C
Storage Range	-65 to +150 deg C

Temperature Cycling
 Hermetic Seal

MIL-STD-883, Method 101C, Cond B
 Gross Leak MIL-STD-883 Method 1014C1/Fine Leak MIL-STD-883, Method 1014A2, 5 x 10-8 atm cc

ESD Sensitivity

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



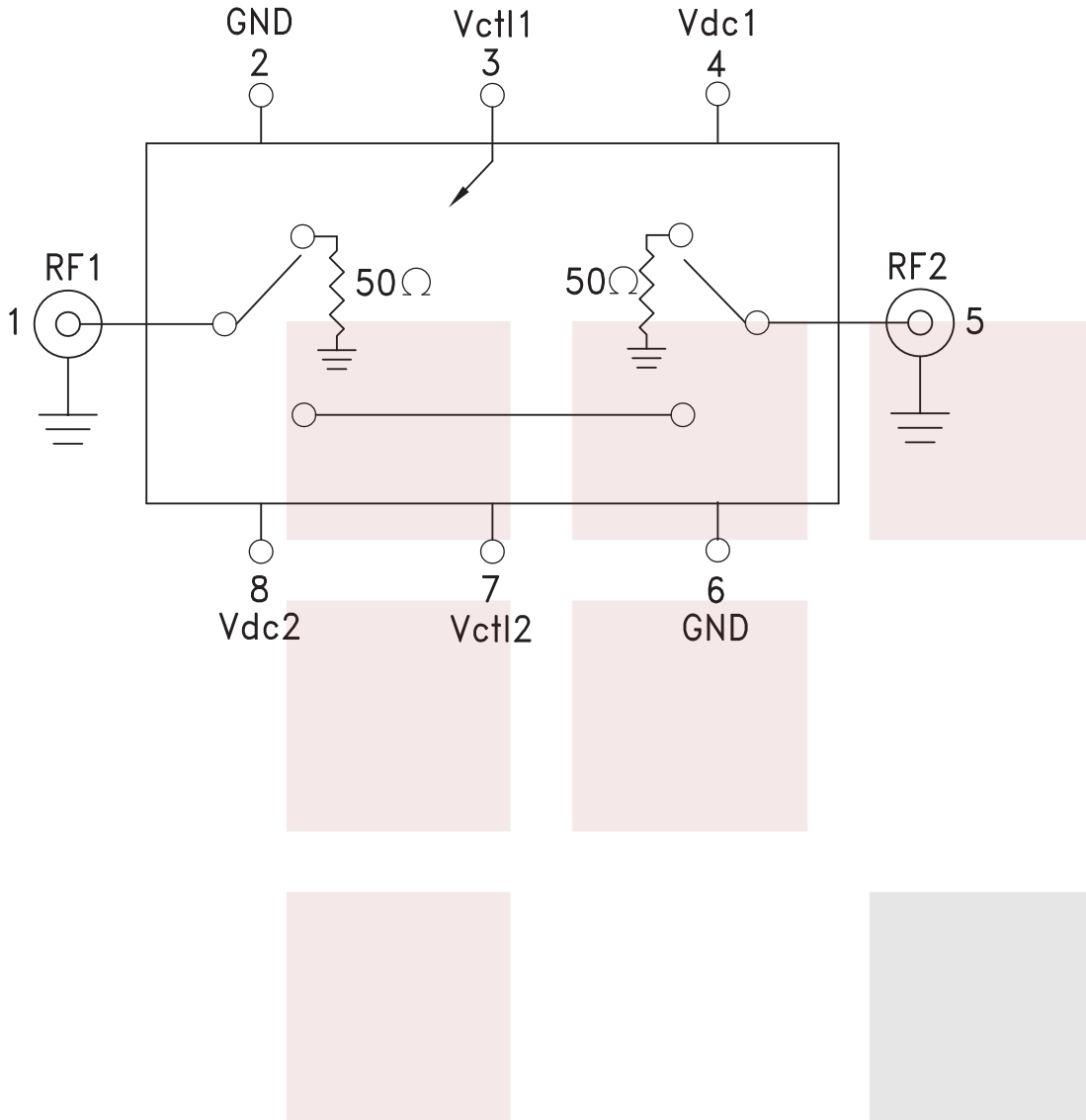
Compliance Certifications (see [product page](#) for current document)

Plotted and Other Data

Notes:

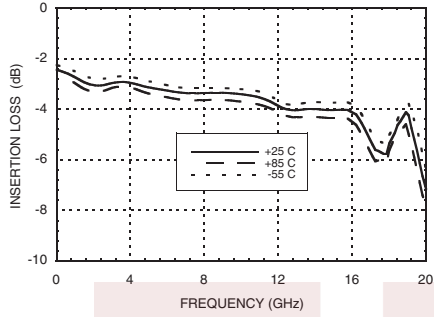
- Values at +25 °C, sea level

Functional Block Diagram

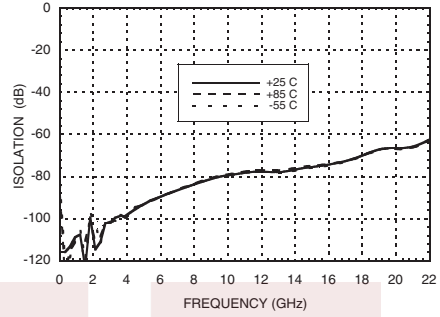


Typical Performance Data

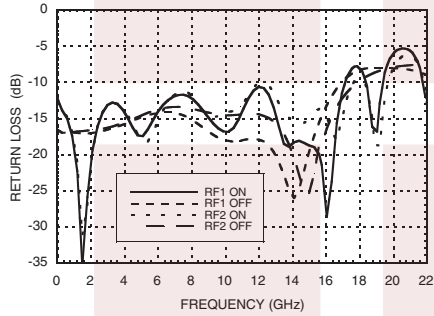
Insertion Loss



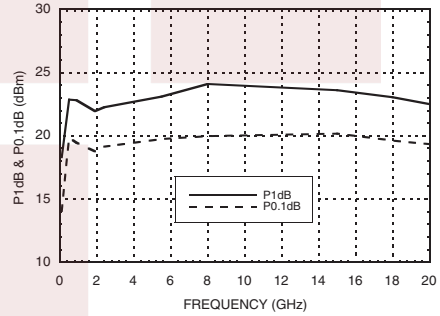
Isolation



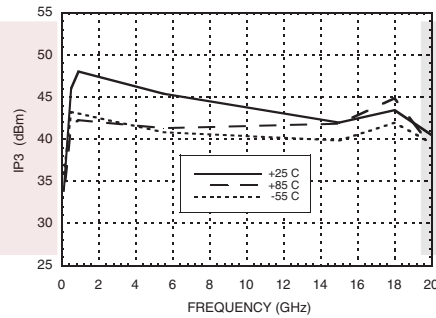
Return Loss



Input P0.1dB & P1dB Compression Point



Input Third Order Intercept Point

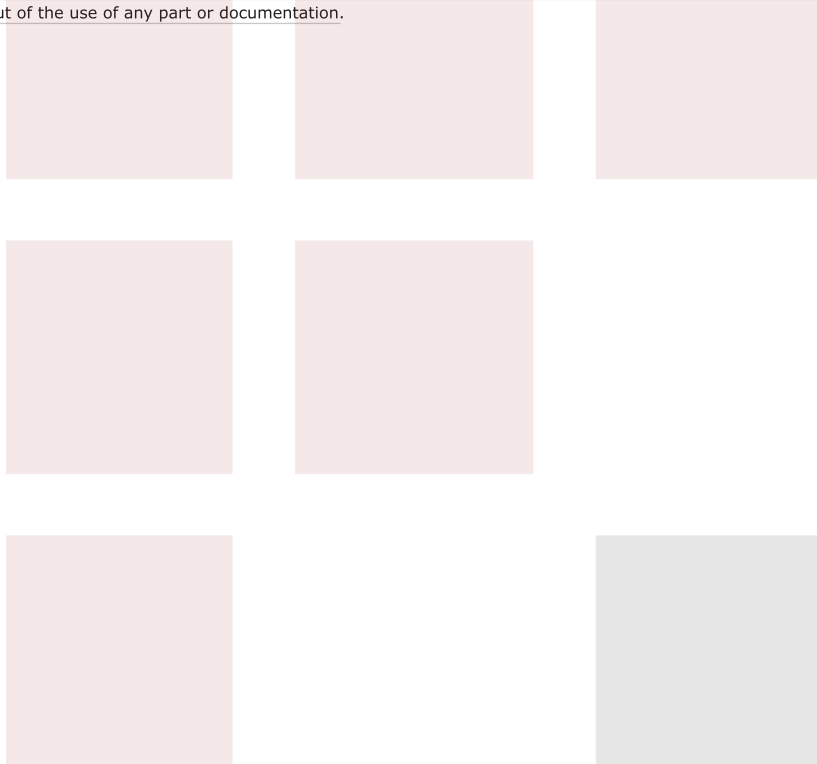


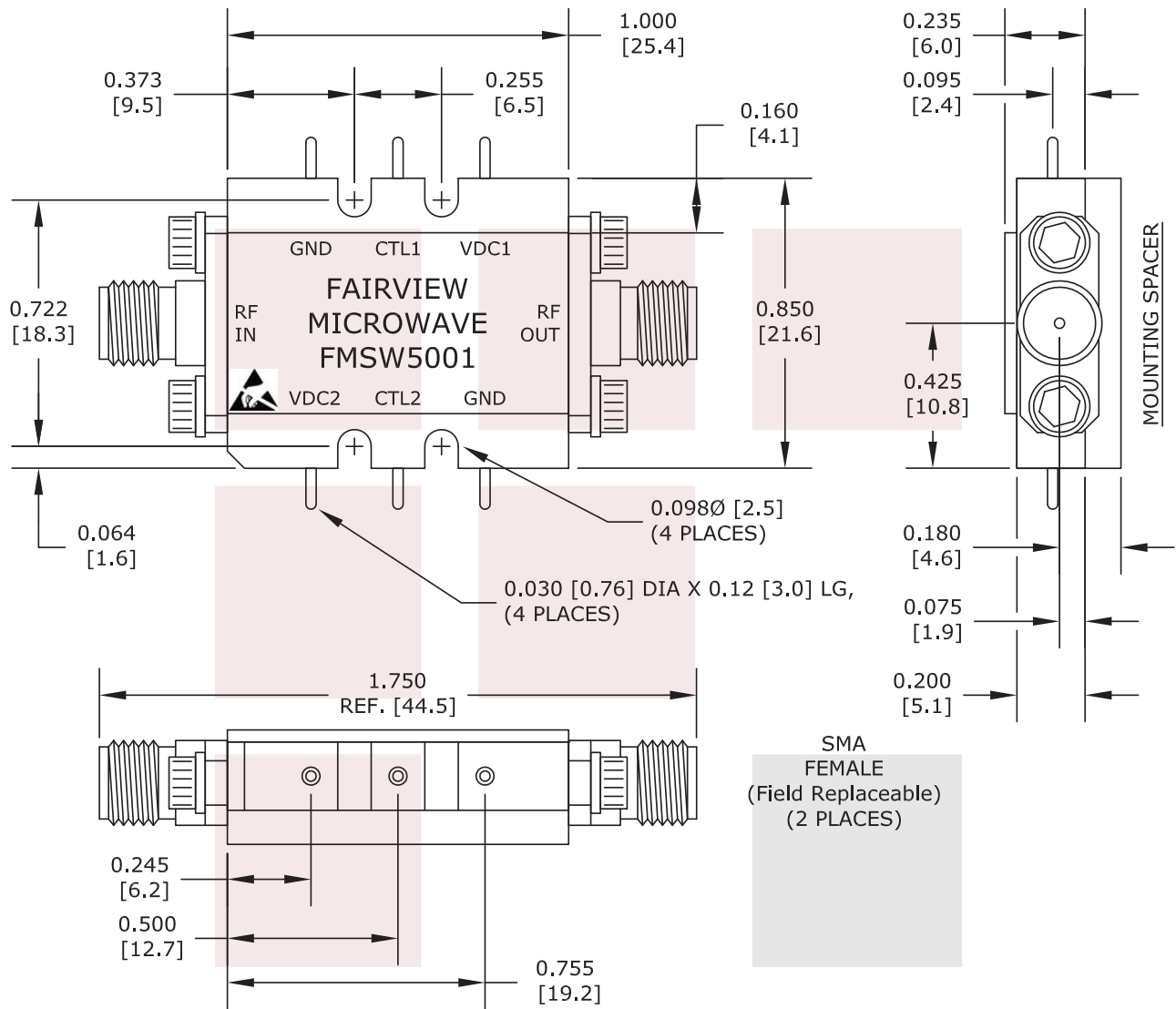
SPST High Isolation PIN Diode Switch DC to 20 GHz, 65 dB, 23 dBm, 6 dB Loss and SMA from Fairview Microwave is in-stock and available to ship same-day. All of our RF/microwave products are available off-the-shelf from our ISO 9001:2008 certified facilities in Allen, Texas. Fairview Microwave is RF on-demand.

For additional information on this product, please click the following link: [SPST High Isolation PIN Diode Switch DC to 20 GHz, 65 dB, 23 dBm, 6 dB Loss and SMA FMSW5001](#)

URL: <https://www.fairviewmicrowave.com/high-isolation-pin-diode-switch-20-ghz-65db-6db-fmsw5001-p.aspx>

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TITLE SPST High Isolation PIN Diode Switch DC to 20 GHz, 65 dB, 23 dBm, 6 dB Loss and SMA		DWG NO FMSW5001		CAGE CODE 3FKR5	
CAD FILE	071416	SHEET	SCALE	N/A	SIZE A 2233