

SMA Reflective SPDT GaN High Power PIN Diode Switch from DC to 12 GHz Rated at 25 Watts 100ns Speed

The FMSW1101 is a high power Reflective SPDT PIN Diode Switch that operates from DC to 12 GHz. The module utilizes Gallium Nitride (GaN) and chip-and-wire technology in the manufacturing process that ensures state-of-the-art power performance with excellent power-to-volume ratio that's ideal for broadband high power applications. The 50 ohm reflective design has impressive RF input power handling capability for cold switching up to +44 dBm, and incorporates TTL compatible driver circuitry for accurate logic control. Typical performance includes 1.4 dB insertion loss, 32 dB isolation, 1.6:1 VSWR, and < 100 nsec switching speed. Operational temperature range is -45°C to +85°C and the bias voltage requirement is +5Vdc. The rugged and compact package supports SMA female connectors and is designed to meet a series of environmental conditions including Altitude, Vibration, Humidity, and Shock. Model FMSW1106 is the same switch design but includes an integrated heatsink.

Electrical Specifications

TTL Control Logic

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

Description	Min	Typ	Max	Units
Frequency Range	DC		12	GHz
Impedance		50		Ohms
VSWR		1.6:1	1.8:1	
Insertion Loss		1.4	2	dB
IL Temp. Coefficient		0.003		dB/degC
Isolation	25	35		dB
Switching Time		100	150	ns
P0.1dB		44		dBm
Input IP3		50		dBm
Input Power (CW)			25	Watts
DC Power Dissipation		0.5		Watt
Positive Operating Voltage		5		Vdc
Current @ 5 Vdc		100		mA
Operating Temperature	-45		+85	deg C

Performance by Frequency

Description	F1	F2	F3	F4	F5	Units
Frequency Range	DC to 6	6 to 12				GHz
VSWR, Max	1.8:1	1.8:1				
VSWR, Typ	1.6:1	1.6:1				
Insertion Loss, Max	1.5	2				dB
Insertion Loss, Typ	1.2	1.8				dB
Isolation, Min	30	25				dB
Isolation, Typ	35	28				dB

Electrical Specification Notes:

Internal TTL Driver will become damaged if Negative Voltage is applied



Features:

- Reflective SPDT High Power PIN Diode Switch
- GaN Semiconductor Technology
- Reflective Design
- Frequency Range: DC to 12 GHz
- Insertion Loss: 1.4 dB typ
- Isolation: 32 dB typ
- VSWR: 1.6:1 typ
- Maximum RF Input Power: +44 dBm
- Input IP3: 50 dBm typ
- Switching Speed: 100 nsec typ
- TTL Compatible Driver Circuitry
- 50 Ohm Design
- SMA Female Connectors
- Compact Package Design withstands up to 95% Relative Humidity
- -45°C to +85°C Operating Temperature

Applications:

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

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*Cold Switching: Before changing any TTL signal(s), the RF input power must be blanked or the switch could become 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

Length	1.57 in [39.88 mm]
Width	1.34 in [34.04 mm]
Height	0.37 in [9.4 mm]
Weight	0.6 lbs [272.16 g]
Design	Reflective, SPDT
RF Connector	SMA Female

Environmental Specifications

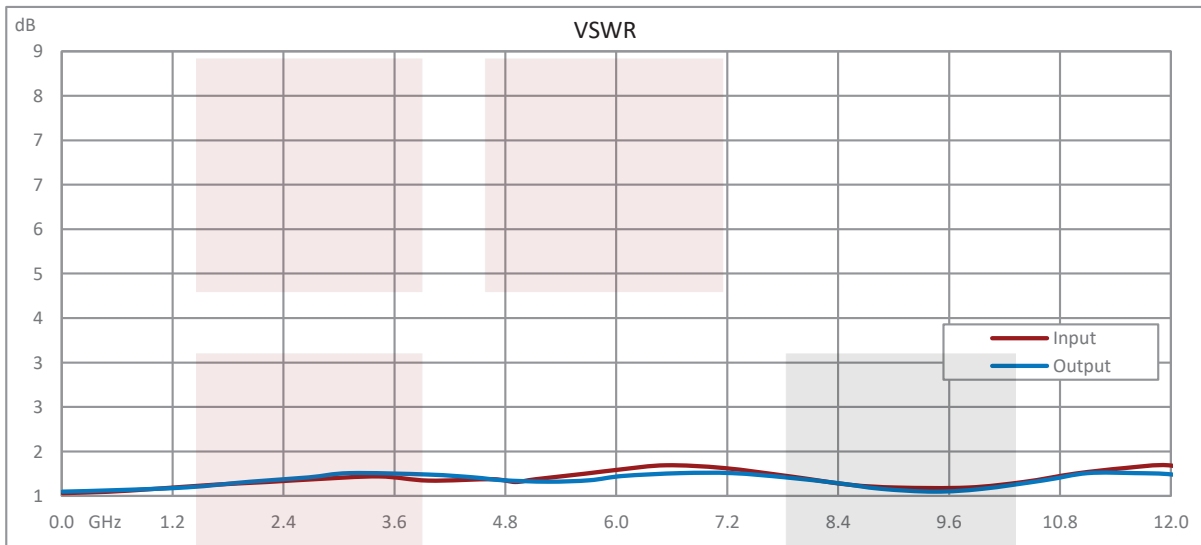
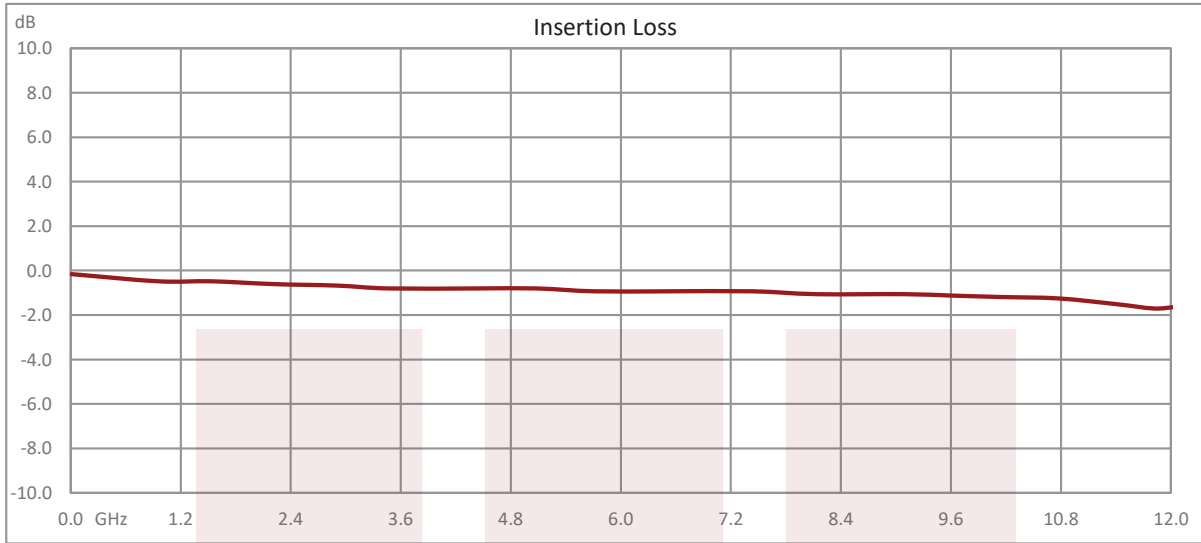
Temperature	
Operating Range	-45 to +85 deg C
Storage Range	-55 to +125 deg C
Humidity	100% RH @ 35°C, 95% RH @ 40°C
Shock	20G for 11ms Half Sinewave, 3 axis both directions
Vibration	25g RMS (15° 2KHz) endurance, 1 hr per axis
Altitude	30,000 ft. (Epoxy Sealed Controlled Environment)

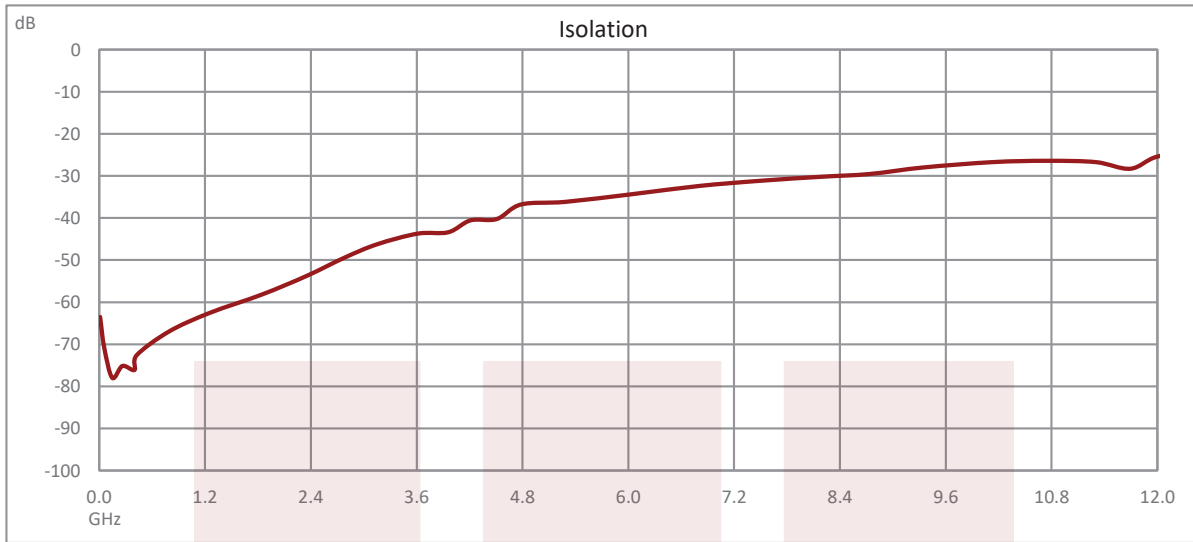
Compliance Certifications (see [product page](#) for current document)

Plotted and Other Data

Notes:

Typical Performance Data





SMA Reflective SPDT GaN High Power PIN Diode Switch from DC to 12 GHz Rated at 25 Watts 100ns Speed 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 SPDT GaN High Power PIN Diode Switch from DC to 12 GHz Rated at 25 Watts 100ns Speed FMSW1101](#)

URL: <https://www.fairviewmicrowave.com/sma-spdt-pin-diode-switch-12-ghz-25-watts-fmsw1101-p.aspx>

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