

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

The FMSW1106 is a high power Reflective SPDT PIN Diode Switch that operates from DC to 12 GHz and incorporates an integrated heatsink to ensure optimum thermal dissipation for highly reliable operation. 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 1.2 dB insertion loss, 35 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.

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	1.67 lbs [757.5 g]
Design	Reflective, SPDT
RF Connector	SMA Female

Environmental Specifications

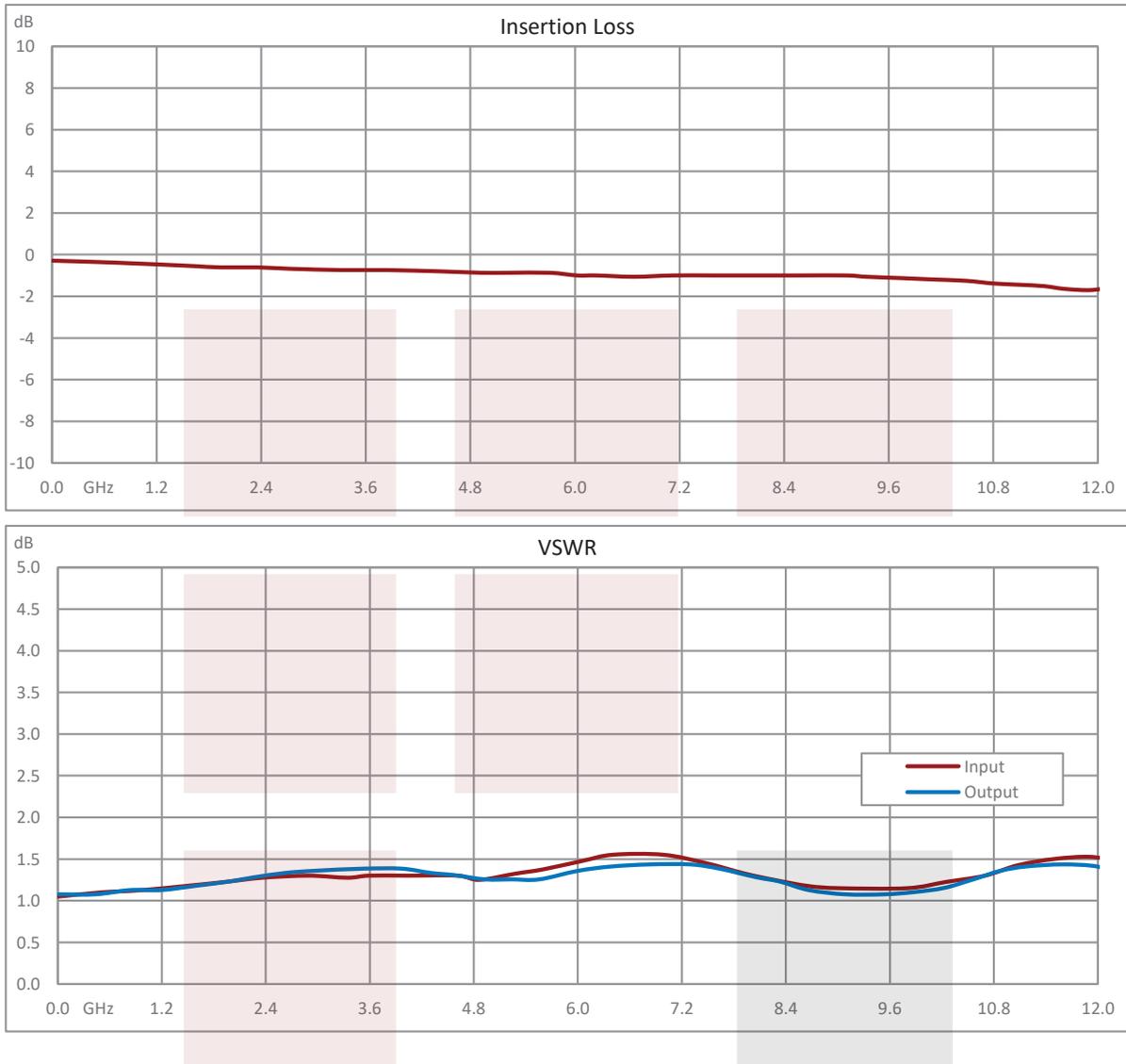
Temperature	
Operating Range	-45 to +85 deg C
Storage Range	-55 to +125 deg C
Humidity	100% RH @ 35°C, 95% RH @ 40°C
Shock	20G for 11ms Half Sinewave, 3 axis both directions
Vibration	25g RMS (15° 2KHz) endurance, 1 hr per axis
Altitude	30,000 ft. (Epoxy Sealed Controlled Environment)

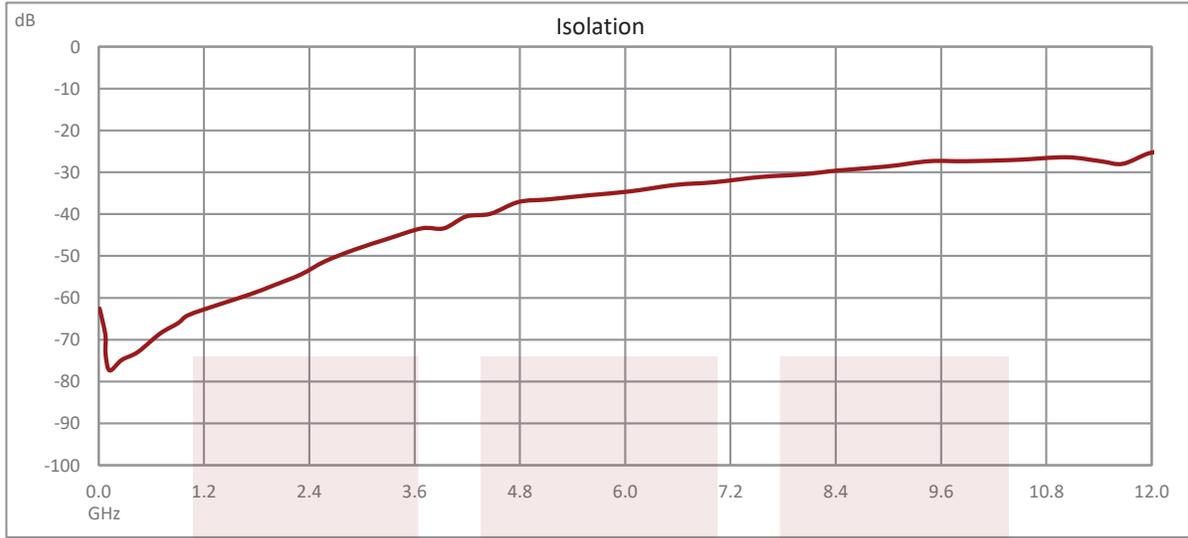
Compliance Certifications (see [product page](#) for current document)

Plotted and Other Data

Notes:

Typical Performance Data





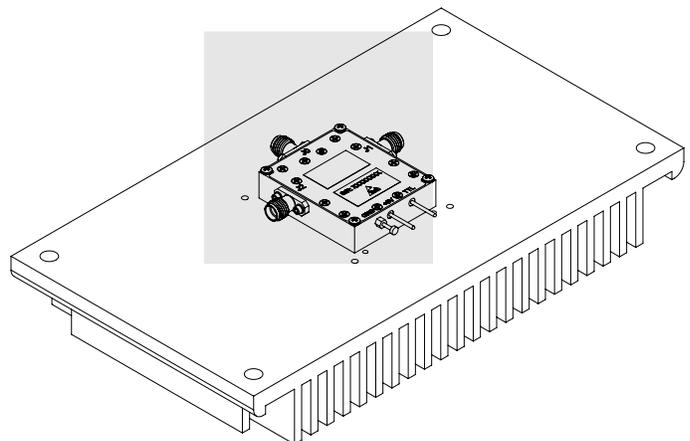
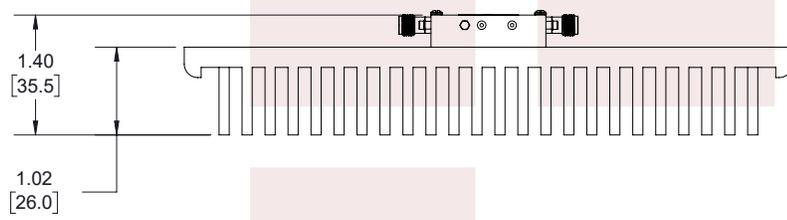
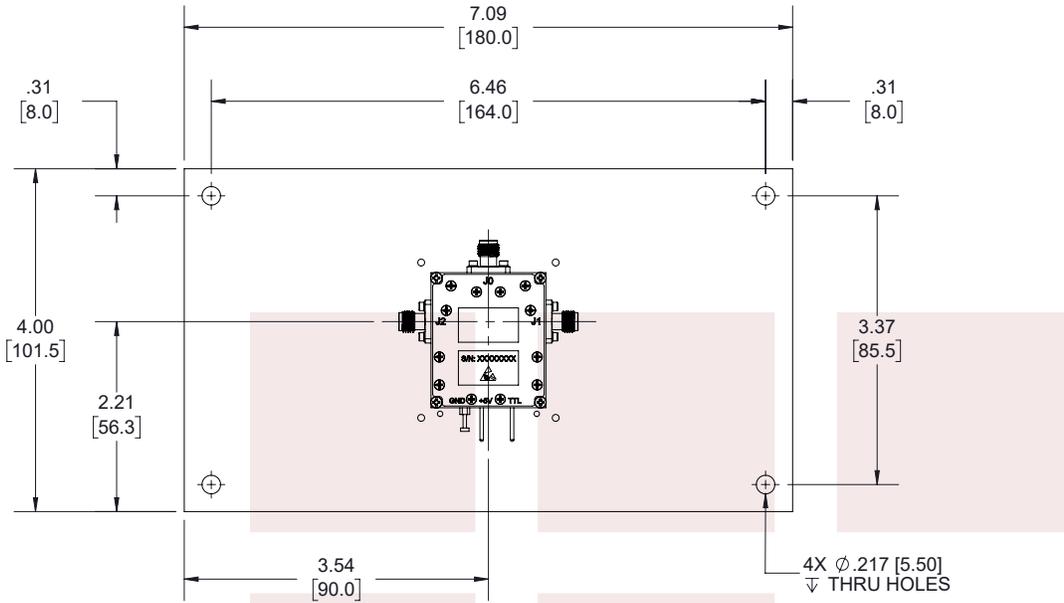
SMA Reflective SPDT GaN High Power PIN Diode Switch from DC to 12 GHz Rated at 25 Watts 100ns Speed with Heatsink from Fairview Microwave is in-stock and available to ship same-day. All of our RF/microwave products are available off-the-shelf from our ISO 9001:2008 certified facilities in Lewisville, Texas. Fairview Microwave is RF on-demand.

For additional information on this product, please click the following link: [SMA Reflective SPDT GaN High Power PIN Diode Switch from DC to 12 GHz Rated at 25 Watts 100ns Speed with Heatsink FMSW1106](#)

URL: <https://www.fairviewmicrowave.com/sma-spdt-pin-diode-switch-12-ghz-25-watts-fmsw1106-p.aspx>

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REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
A	INITIAL RELEASE	8/17/2020	T.GALLA



LABEL



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TITLE
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UNLESS OTHERWISE SPECIFIED LEADING DIMENSIONS ARE INCHES
DIMENSIONS IN [] ARE MILLIMETERS

TOLERANCES:		CABLE LENGTH (L) TOLERANCES:	
.X = ±.2 [5.08]	FRACTIONS ± 1/32	L ≤ 12 [305] = +1 [25] / -0	
.XX = ±.02 [.51]	ANGLES ± 1°	12 [305] < L ≤ 60 [1524] = +2 [51] / -0	
.XXX = ±.005 [.13]		60 [1524] < L ≤ 120 [3048] = +4 [102] / -0	
		120 [3048] < L ≤ 300 [7620] = +6 [152] / -0	
		300 [7620] < L = +5%L / -0	

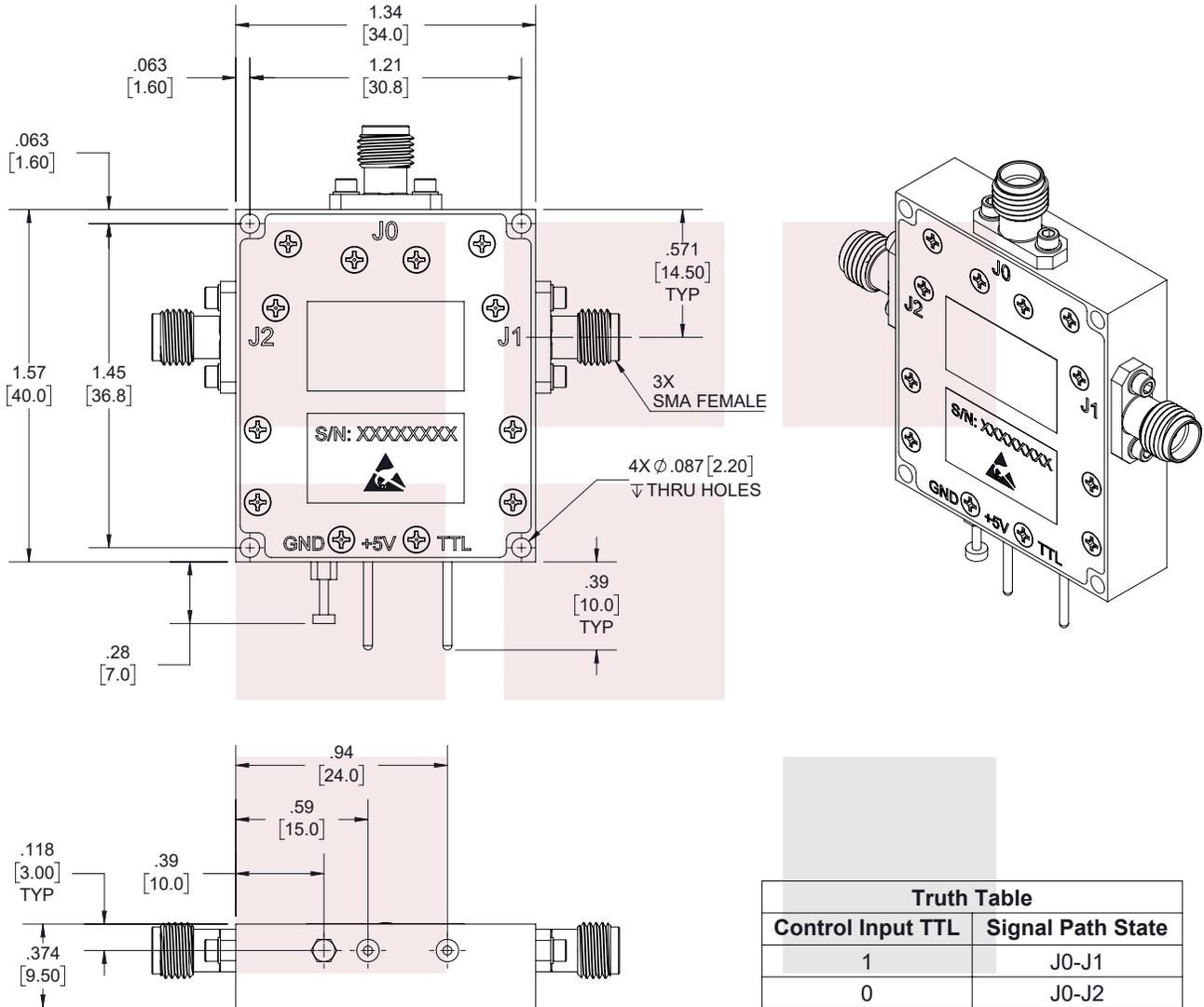
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SIZE A	CAGE CODE 3FKR5	DRAWN BY K.DANG	ITEM NO. FMSW1106	REV A

SHEET	1	OF	2
SCALE	N/A		

T-Rev.D

SWITCH DETAIL



Truth Table	
Control Input TTL	Signal Path State
1	J0-J1
0	J0-J2

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SCALE N/A

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