



Reflective SPDT GaN High Power PIN Diode Switch Operating from DC to 12 GHz Up to 25 Watts (+44 dBm), 100ns and SMA

PIN Diode Switches Technical Data Sheet

PE71S1101

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

Description

The PE71S1101 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 PE71S1106 is the same switch design but includes an integrated heatsink.

Electrical Specifications

TTL Control

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

Description	Minimum	Typical	Maximum	Units
Frequency Range	DC		12	GHz
Impedance		50		Ohms
VSWR		1.6:1	1.8:1	
Insertion Loss		1.4	2	dB
IL Temperature Coefficient		0.003		dB/degC
Isolation	25	35		dB
Switching Time		100	150	ns
0.1dB Compression Point		+44		dBm
Input IP3		50		dBm
RF Input Power (CW)*			25	Watts
DC Power Dissipation		0.5		Watt

Click the following link (or enter part number in "SEARCH" on website) to obtain additional part information including price, inventory and certifications: [Reflective SPDT GaN High Power PIN Diode Switch Operating from DC to 12 GHz Up to 25 Watts \(+44 dBm\), 100ns and SMA PE71S1101](#)



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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

*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

Size

Length

1.57 in [39.88 mm]

Width

1.34 in [34.04 mm]

Height

0.37 in [9.4 mm]

Weight

0.3 lbs [136.08 g]

Design

Reflective, SPDT

RF Connector

SMA Female

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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

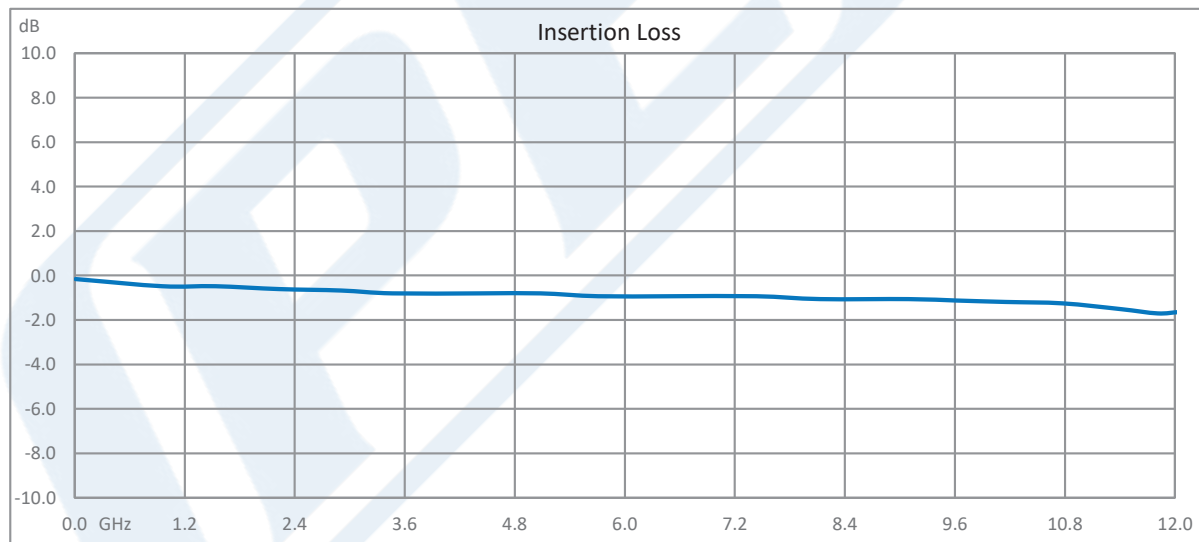
30,000 ft. (Epoxy Sealed Controlled Environment)

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

Plotted and Other Data

Notes:

Typical Performance Data



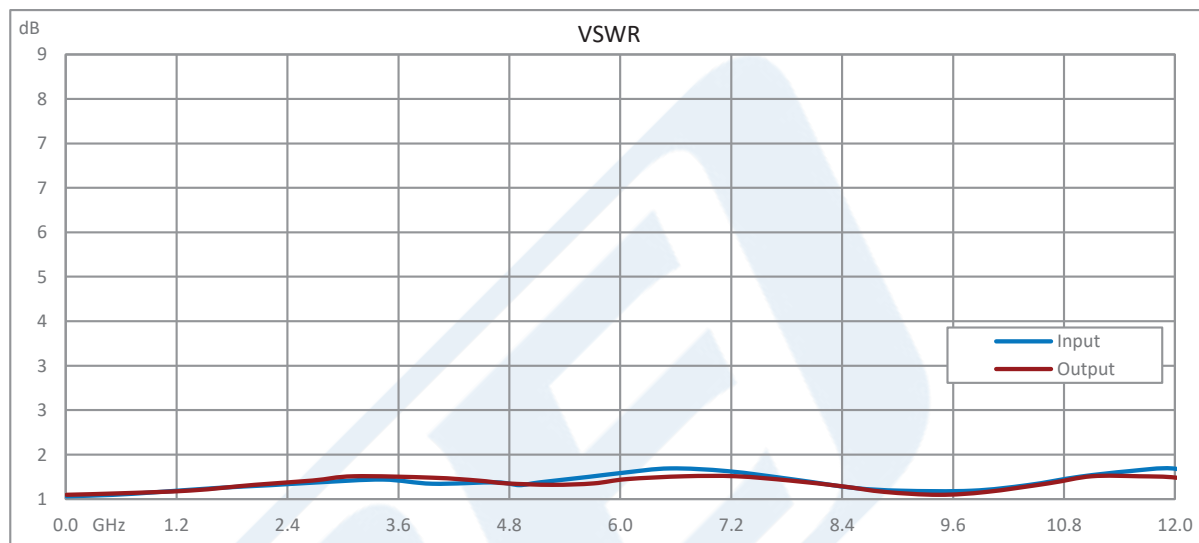
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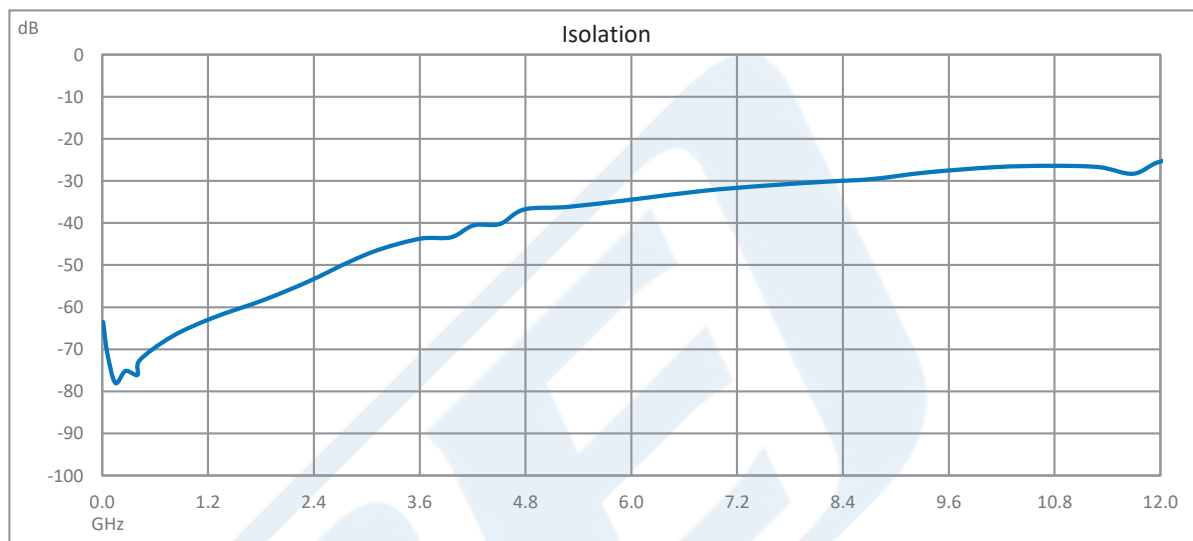
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Reflective SPDT GaN High Power PIN Diode Switch Operating from DC to 12 GHz Up to 25 Watts (+44 dBm), 100ns and SMA from Pasternack Enterprises has same day shipment for domestic and International orders. Our RF, microwave and millimeter wave products maintain a 99.4% availability and are part of the broadest selection in the industry.

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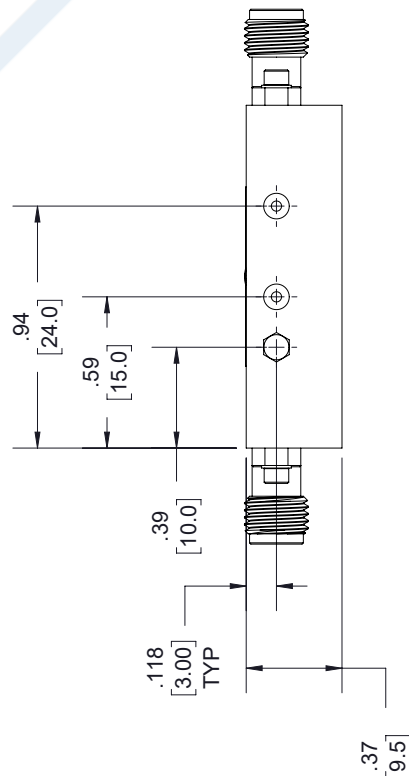
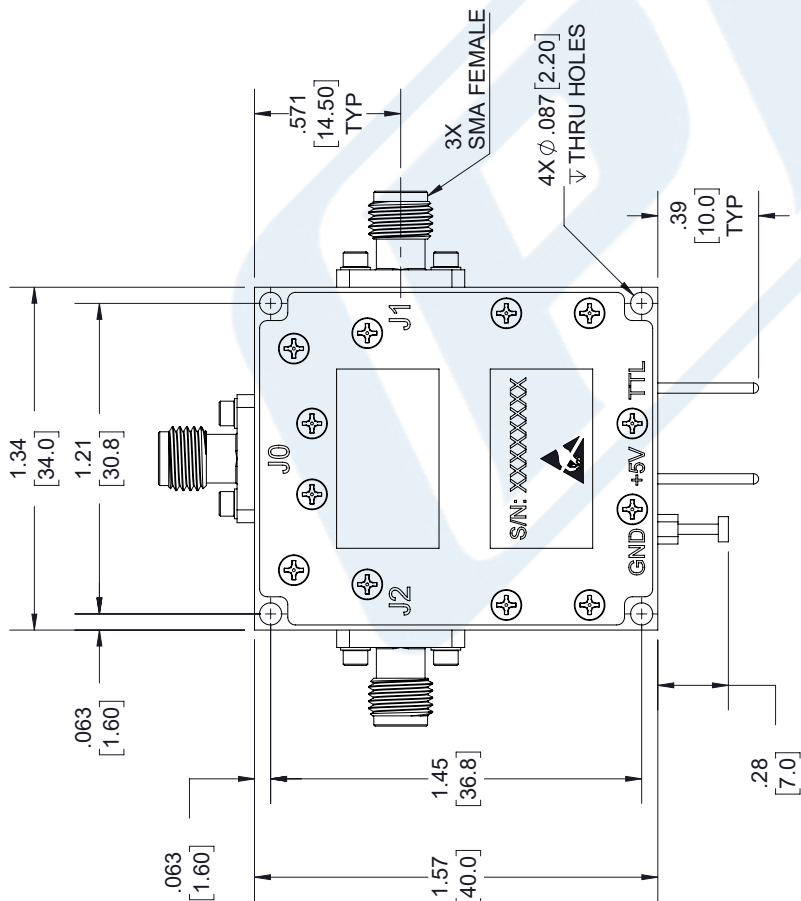
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PE71S1101 CAD Drawing

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



LABEL



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

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

TOLERANCES:
 .X = ± .2 [5.08]
 .XX = ± .02 [.51]
 .XXX = ± .005 [.13]
 ANGLES ± 1°
 CABLE LENGTH (L) TOLERANCES:
 L ≤ 12 [305] = ± 1 [25] / -0
 12 [305] < L ≤ 60 [1524] = ± 1 [51] / -0
 60 [1524] < L ≤ 120 [3048] = ± 1 [102] / -0
 120 [3048] < L ≤ 300 [7620] = ± 1 [152] / -0
 300 [7620] < L = +5% / -0
 ALL DIMENSIONS SHOWN
 ARE FOR REFERENCE ONLY.



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SHEET 1 OF 1
SCALE N/A

REV A



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