



## Reflective SP2T GaN High Power PIN Diode Switch Operating from DC to 6 GHz Up to 40 Watts (+46 dBm), < 100ns and SMA

### PIN Diode Switches Technical Data Sheet

PE71S1100

#### Features

- Reflective SPDT High Power PIN Diode Switch
- GaN Semiconductor Technology
- Reflective Design
- Frequency Range: DC to 6 GHz
- Insertion Loss: 0.9 dB typ
- Isolation: 33 dB typ
- VSWR: 1.3:1 typ
- Maximum RF Input Power: +46 dBm
- Input IP3: 55 dBm typ
- Switching Speed: < 100 nsec
- 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 PE71S1100 is a high power Reflective SPDT PIN Diode Switch that operates from DC to 6 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 +46 dBm, and incorporates TTL compatible driver circuitry for accurate logic control. Typical performance includes 0.9 dB insertion loss, 33 dB isolation, 1.3:1 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 PE71S1105 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		6	GHz
Impedance		50		Ohms
VSWR		1.3:1	1.5:1	
Insertion Loss		0.9	1.3	dB
IL Temperature Coefficient		0.003		dB/degC
Isolation	25	33		dB
Switching Time			100	ns
0.1dB Compression Point		+46		dBm
Input IP3		55		dBm
RF Input Power (CW)*			40	Watts
DC Power Dissipation		0.7		Watt

Click the following link (or enter part number in "SEARCH" on website) to obtain additional part information including price, inventory and certifications: [Reflective SP2T GaN High Power PIN Diode Switch Operating from DC to 6 GHz Up to 40 Watts \(+46 dBm\), < 100ns and SMA PE71S1100](#)



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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 3	3 to 6				GHz
VSWR, Max	1.3:1	1.5:1				
VSWR, Typ	1.2:1	1.3:1				
Insertion Loss, Max	1	1.3				dB
Insertion Loss, Typ	0.8	1.1				dB
Isolation, Min	33	25				dB
Isolation, Typ	37	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

0.25 lbs [113.4 g]

Design

Reflective, SP2T

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

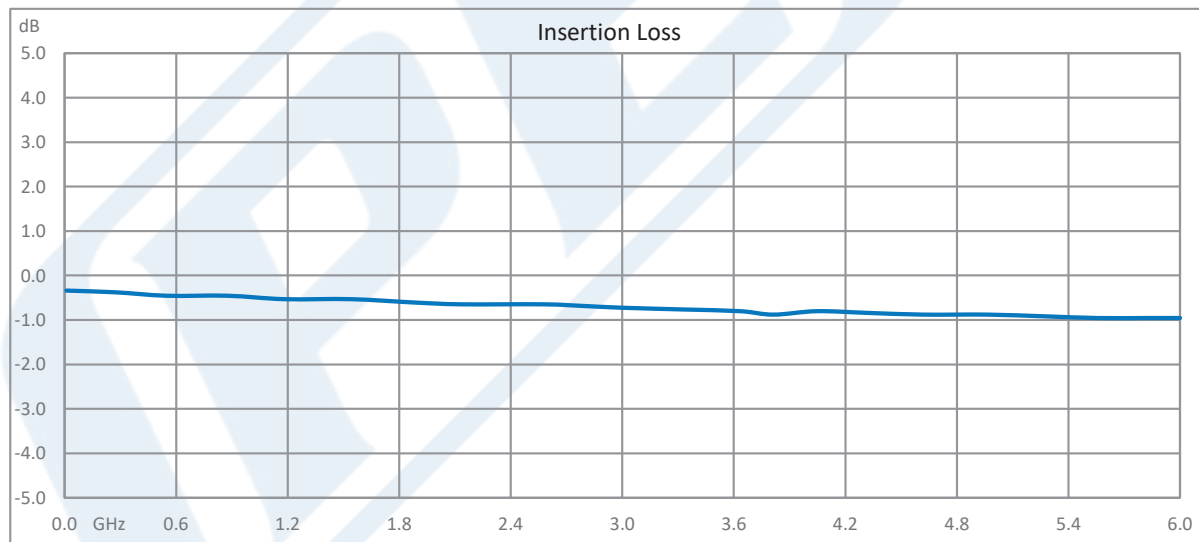
30,000 ft. (Epoxy Sealed Controlled Environment)

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

### Plotted and Other Data

Notes:

#### Typical Performance Data



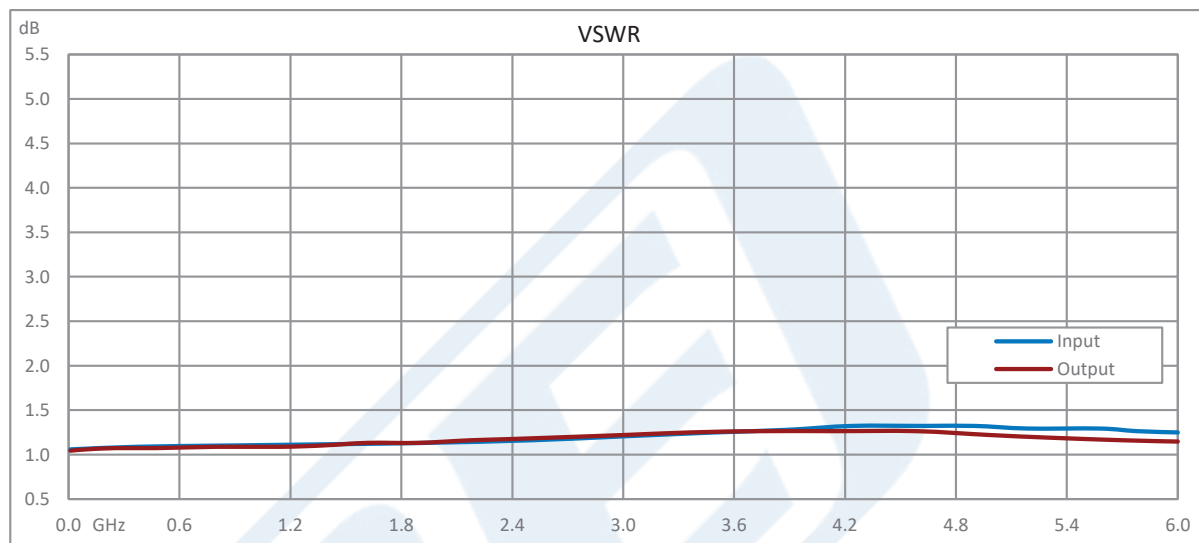
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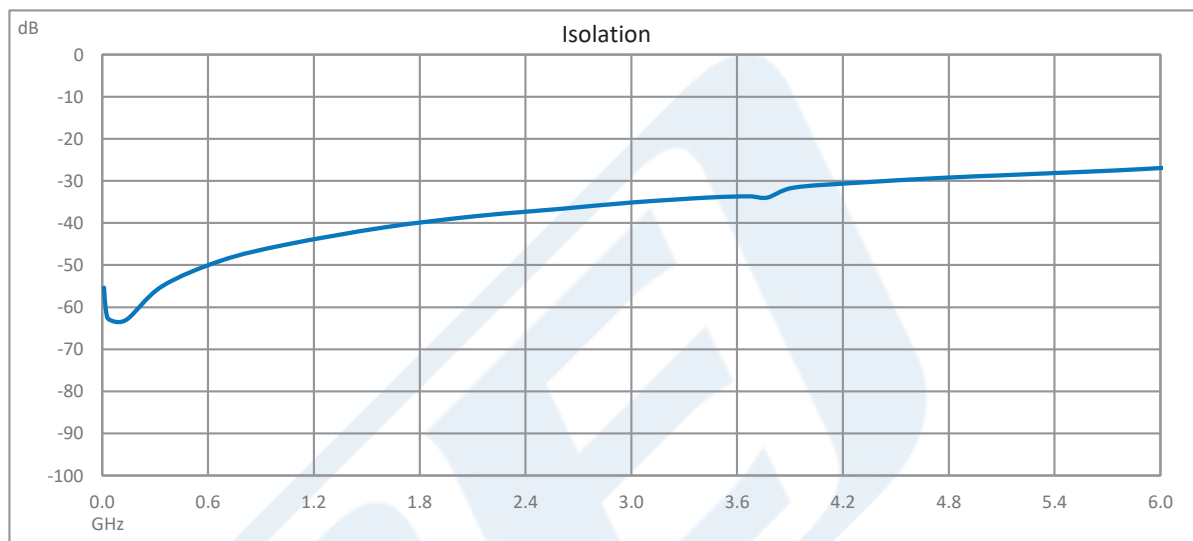
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Reflective SP2T GaN High Power PIN Diode Switch Operating from DC to 6 GHz Up to 40 Watts (+46 dBm), < 100ns and SMA from Pasternack Enterprises has same day shipment for domestic and International orders. Our RF, microwave and millimeter wave products maintain a 99.4% availability and are part of the broadest selection in the industry.

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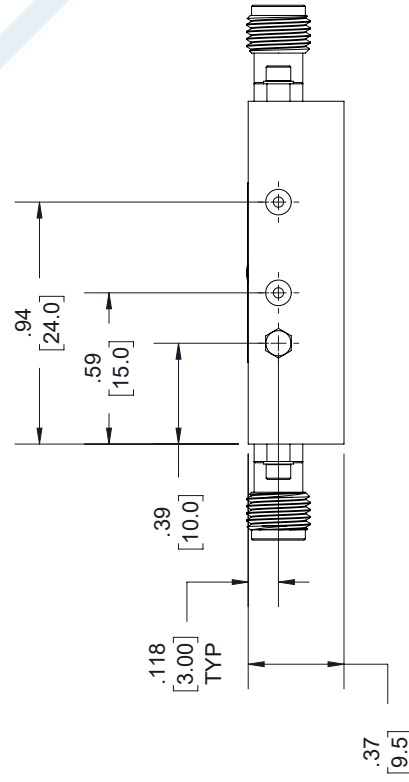
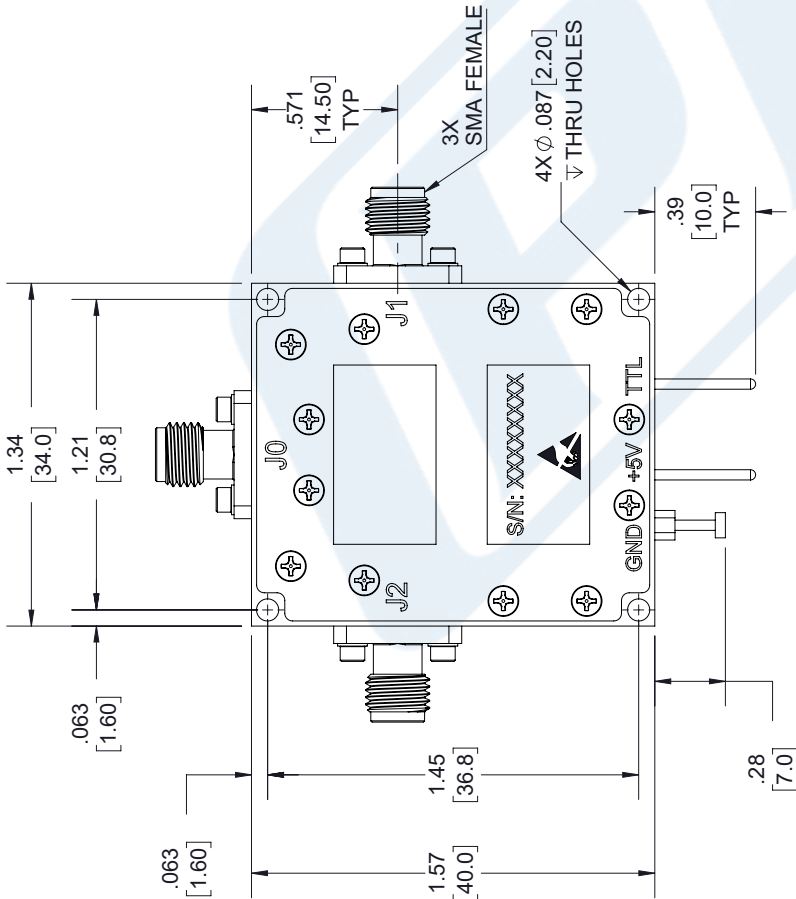
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# PE71S1100 CAD Drawing

Reflective SP2T GaN High Power PIN Diode Switch Operating from  
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REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
A	INITIAL RELEASE	8/17/2020	T. GALLA



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] = ± 4 [102] / -0  
 60 [1524] < L ≤ 120 [3048] = ± 6 [152] / -0  
 120 [3048] < L ≤ 300 [7620] = ± 6 [152] / -0  
 300 [7620] < L = +5% / -0

ALL DIMENSIONS SHOWN  
ARE FOR REFERENCE ONLY.

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Pasternack Enterprises, Inc.  
P.O. Box 16759, Irvine, CA 92623.  
Phone: 1.949.261.1920 | 1.866.727.8376  
Fax: 1.949.261.7451  
Website: www.pasternack.com  
E-mail: sales@pasternack.com

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SHEET 1 OF 1  
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LABEL

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