



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

PIN Diode Switches Technical Data Sheet

PE71S1106

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 PE71S1106 is a high power Reflective SPDT PIN Diode Switch that operates from DC to 12 GHz and incorporates and 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

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 with Heatsink PE71S1106](#)



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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

3.4 lbs [1.54 kg]

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

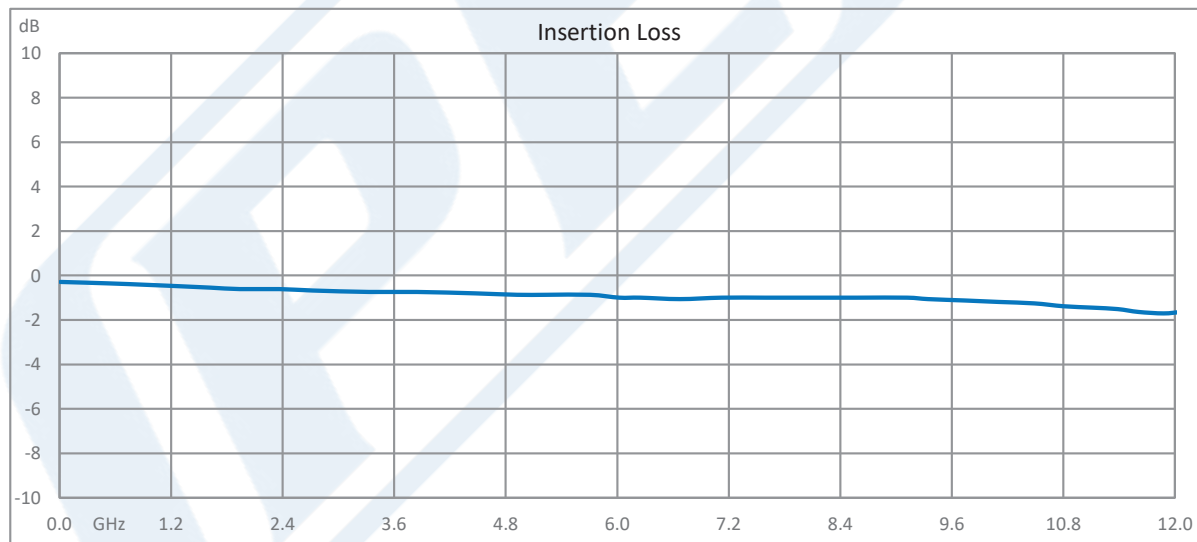
30,000 ft. (Epoxy Sealed Controlled Environment)

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

Plotted and Other Data

Notes:

Typical Performance Data



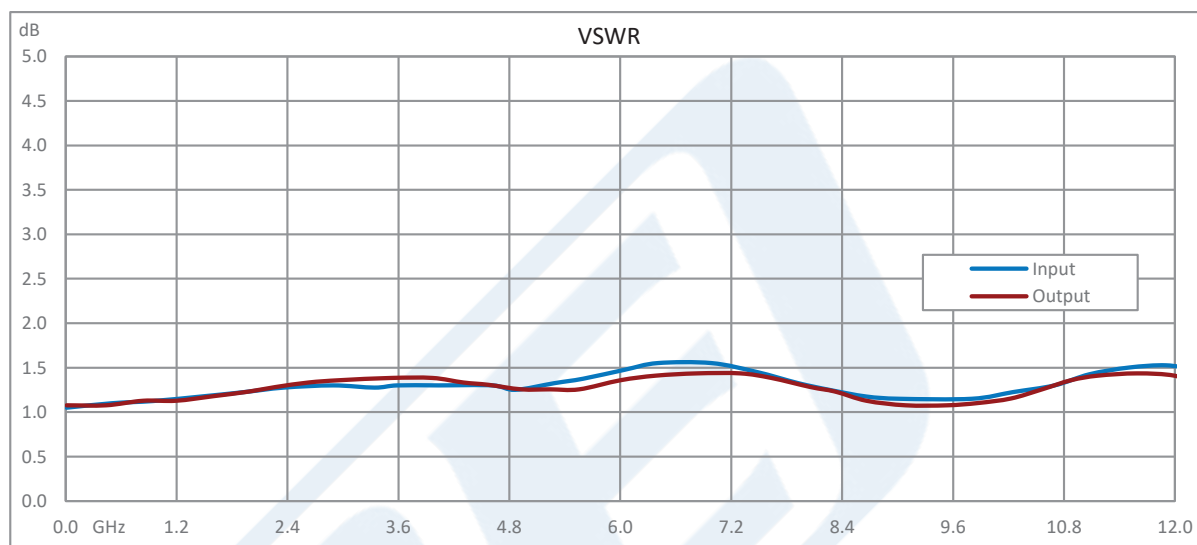
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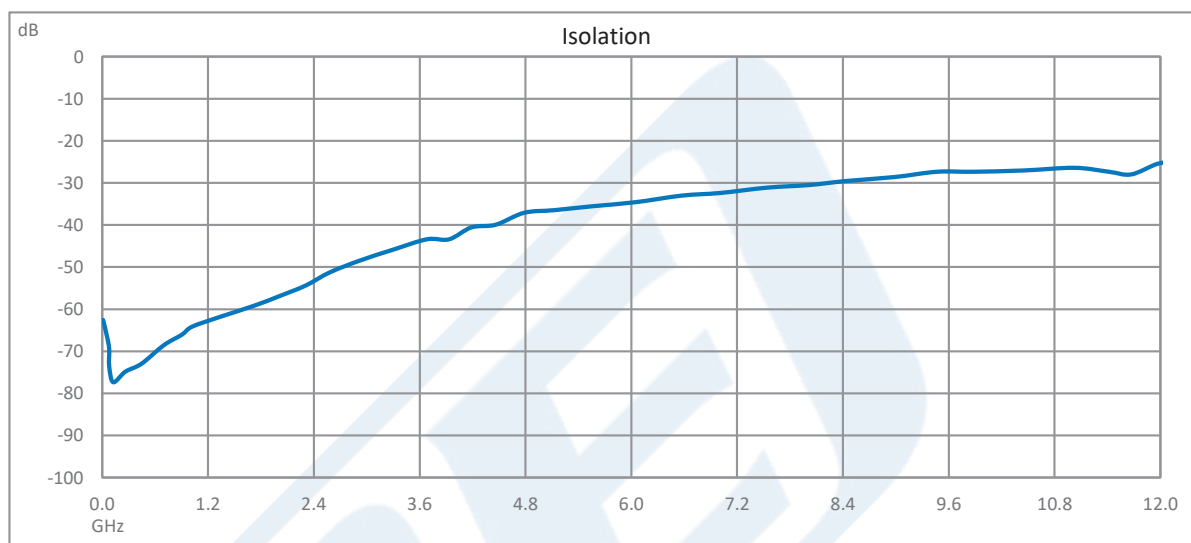
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Reflective SPDT GaN High Power PIN Diode Switch Operating from DC to 12 GHz Up to 25 Watts (+44 dBm), 100ns and SMA with Heatsink from Pasternack Enterprises has same day shipment for domestic and International orders. Our RF, microwave and millimeter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

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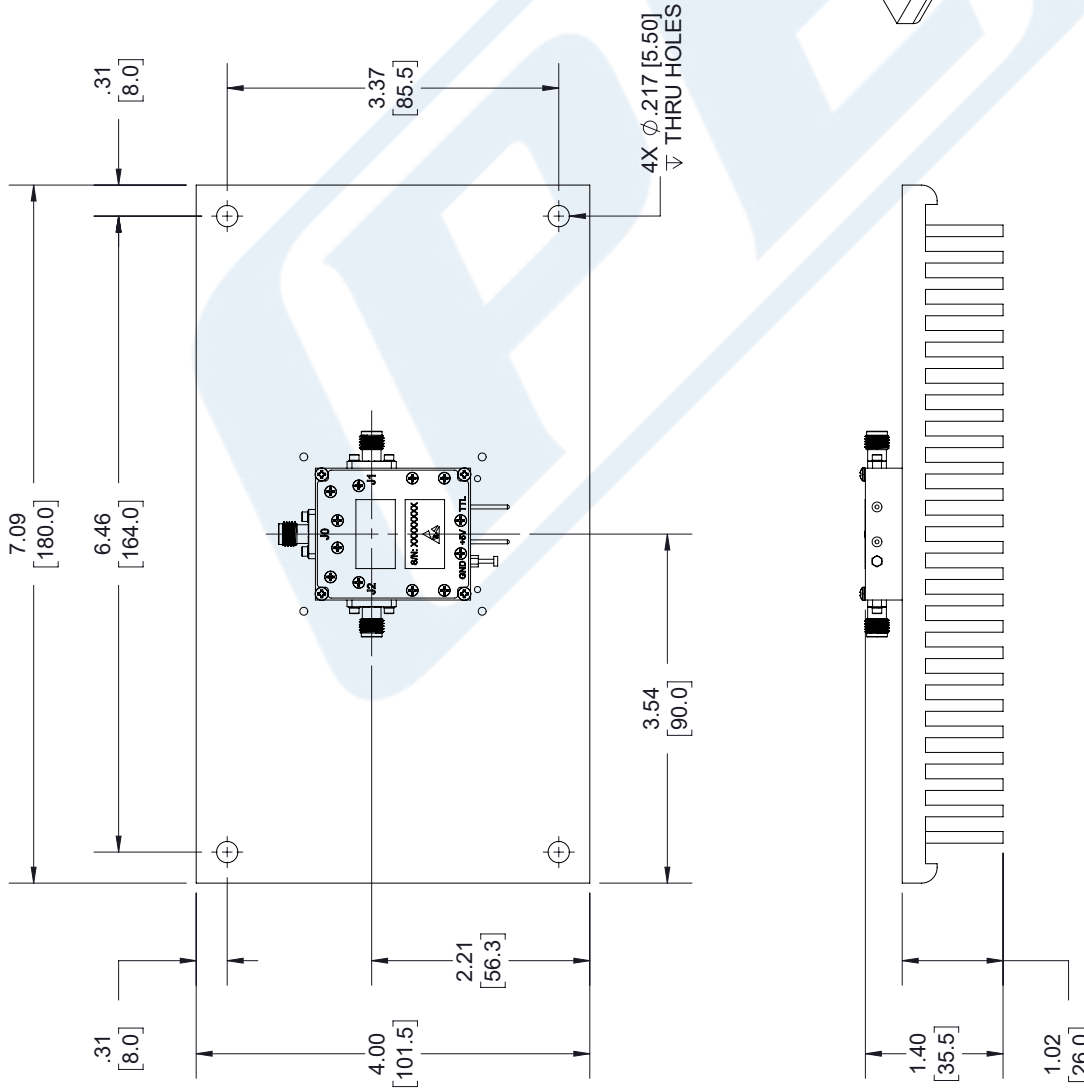
URL: <https://www.pasternack.com/spdt-pin-diode-switch-12-ghz-25-watts-sma-pe71s1106-p.aspx>

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PE71S1106 CAD Drawing

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



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

TOLERANCES:

.X = ±.2	[.08]	FRACTIONS
.XX = ±.02	[.51]	± 1/32
.XXX = ±.005	[.13]	ANGLES ± 1°

CABLE LENGTH (L) TOLERANCES:

L ≤ 12 [305]	= +1 [25] / -0
12 [305] < L ≤ 60 [1524]	= +2 [51] / -0
60 [1524] < L ≤ 120 [3048]	= +4 [102] / -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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SHEET 1 OF 2

SCALE N/A

SIZE CAGE CODE DRAWN BY ITEM NO.

A 53919 K.DANG PE71S1106

REV A



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