

Reflective SPDT GaN High Power PIN Diode Switch Operating from DC to 18 GHz Up to 10 Watts (+40 dBm), 50ns and SMA with Heatsink

PIN Diode Switches Technical Data Sheet

PE71S1107

Features

- Reflective SPDT High Power PIN Diode Switch
- GaN Semiconductor Technology
- Reflective Design
- Frequency Range: DC to 18 GHz
- Insertion Loss: 1.3 dB typ
- Isolation: 35 dB typ
- VSWR: 1.6:1 typ
- Maximum RF Input Power: +40 dBm
- Input IP3: 55 dBm typ
- Switching Speed: 50 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
- Communication
- VSAT
- SATCOM
- Test & Measurement
- Wireless Infrastructure
- Fiber Optics

Description

The PE71S1107 is a high power Reflective SPDT PIN Diode Switch that operates from DC to 18 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 +40 dBm, and incorporates TTL compatible driver circuitry for accurate logic control. Typical performance includes 1.3 dB insertion loss, 35 dB isolation, 1.6:1 VSWR, and 50 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.

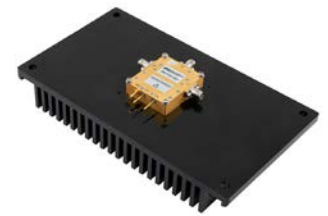
Electrical Specifications

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		18	GHz
Impedance		50		Ohms
VSWR		1.6:1	2:1	
Insertion Loss		1.3	2.3	dB
IL Temperature Coefficient		0.003		dB/degC
Isolation	23	35		dB
Switching Time		50	100	ns
0.1dB Compression Point		+40		dBm
Input IP3		55		dBm
RF Input Power (CW)*			10	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 18 GHz Up to 10 Watts \(+40 dBm\), 50ns and SMA with Heatsink PE71S1107](#)



Reflective SPDT GaN High Power PIN Diode Switch
 Operating from DC to 18 GHz Up to 10 Watts
 (+40 dBm), 50ns and SMA with Heatsink

PIN Diode Switches Technical Data Sheet

PE71S1107

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	12 to 18			GHz
VSWR, Max	1.3:1	1.8:1	2:1			
VSWR, Typ	1.15:1	1.6:1	1.6:1			
Insertion Loss, Max	1.3	1.8	2.3			dB
Insertion Loss, Typ	0.8	1.3	1.7			dB
Isolation, Min	40	30	23			dB
Isolation, Typ	45	35	25			dB

Electrical Specification Notes:

Note that below 100 Mhz the power handling capability is reduced by 6 dB and the noise figure will increase above 1L 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



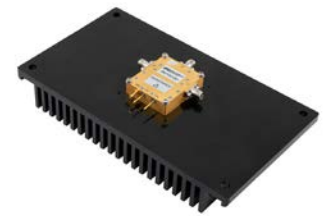
ESD Sensitive Material,
 Transport material in
 Approved ESD bags.
 Handle only in approved
 ESD Workstation.

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

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 18 GHz Up to 10 Watts \(+40 dBm\), 50ns and SMA with Heatsink PE71S1107](#)



Reflective SPDT GaN High Power PIN Diode Switch
Operating from DC to 18 GHz Up to 10 Watts
(+40 dBm), 50ns and SMA with Heatsink

PIN Diode Switches Technical Data Sheet

PE71S1107

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

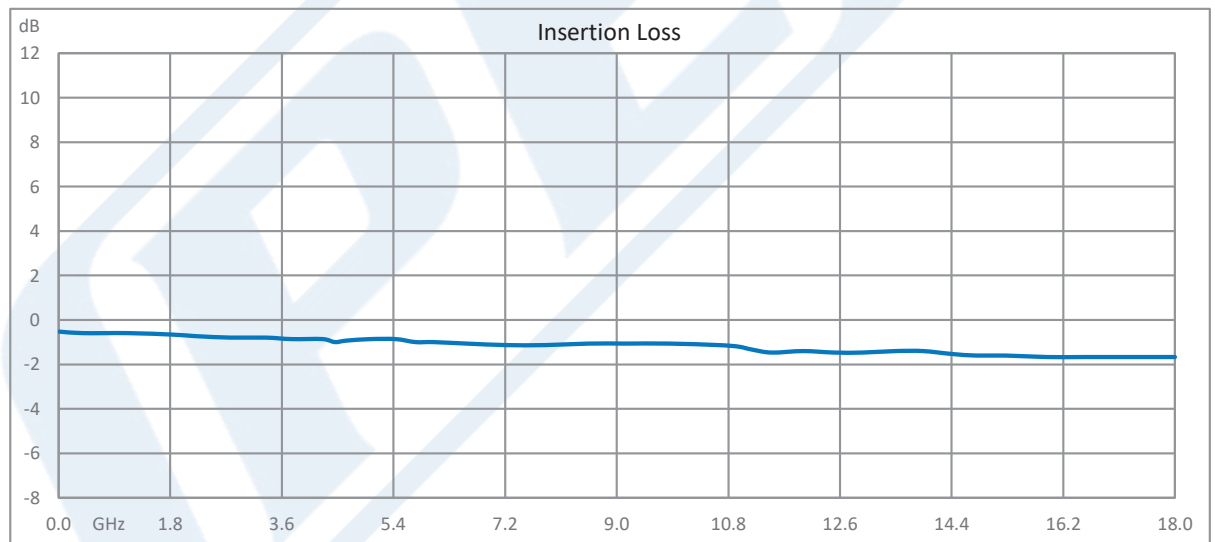
30,000 ft. (Epoxy Sealed Controlled Environment)

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

Plotted and Other Data

Notes:

Typical Performance Data



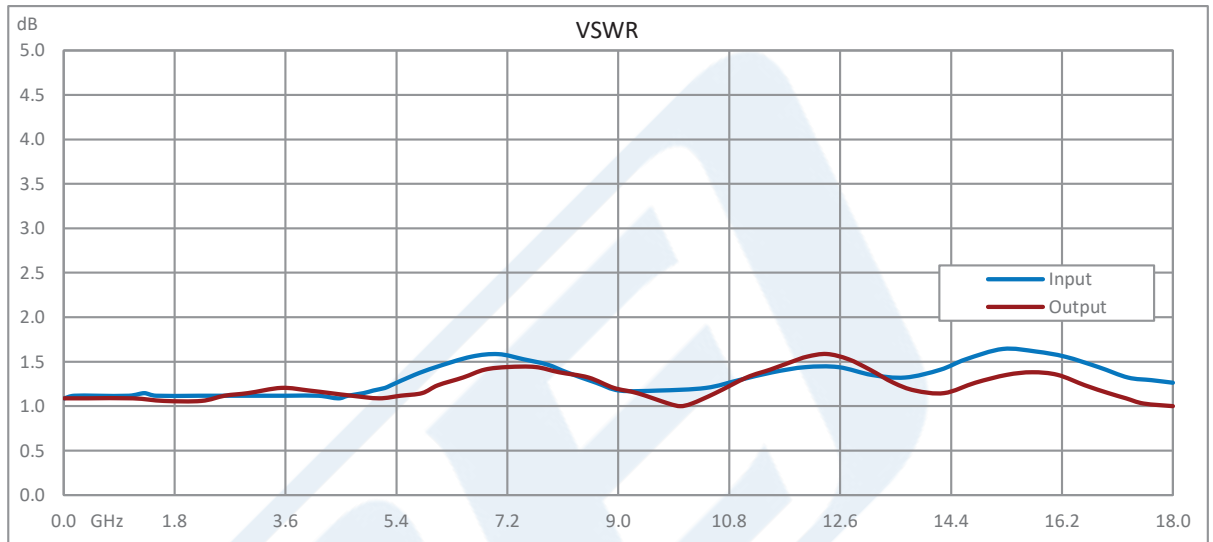
Click the following link (or enter part number in "SEARCH" on website) to obtain additional part information including price, inventory and certifications: [Reflective SPDT GaN High Power PIN Diode Switch Operating from DC to 18 GHz Up to 10 Watts \(+40 dBm\), 50ns and SMA with Heatsink PE71S1107](#)



Reflective SPDT GaN High Power PIN Diode Switch
Operating from DC to 18 GHz Up to 10 Watts
(+40 dBm), 50ns and SMA with Heatsink

PIN Diode Switches Technical Data Sheet

PE71S1107



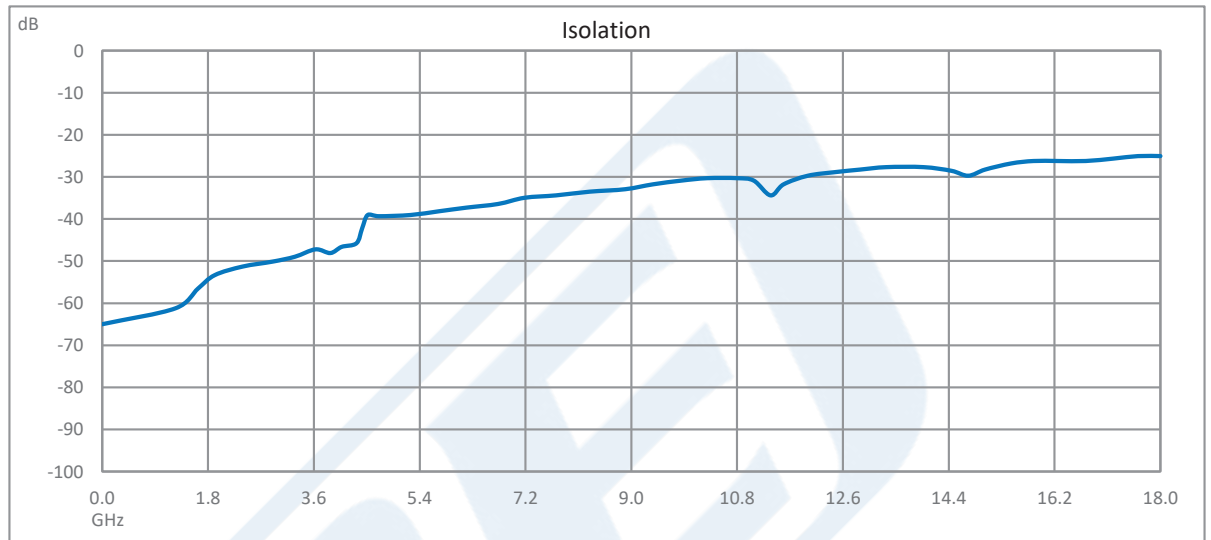
Click the following link (or enter part number in "SEARCH" on website) to obtain additional part information including price, inventory and certifications: [Reflective SPDT GaN High Power PIN Diode Switch Operating from DC to 18 GHz Up to 10 Watts \(+40 dBm\), 50ns and SMA with Heatsink PE71S1107](#)



Reflective SPDT GaN High Power PIN Diode Switch
Operating from DC to 18 GHz Up to 10 Watts
(+40 dBm), 50ns and SMA with Heatsink

PIN Diode Switches Technical Data Sheet

PE71S1107



Reflective SPDT GaN High Power PIN Diode Switch Operating from DC to 18 GHz Up to 10 Watts (+40 dBm), 50ns 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.

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 18 GHz Up to 10 Watts \(+40 dBm\), 50ns and SMA with Heatsink PE71S1107](https://www.pasternack.com/spdt-pin-diode-switch-18-ghz-10-watts-sma-pe71s1107-p.aspx)

URL: <https://www.pasternack.com/spdt-pin-diode-switch-18-ghz-10-watts-sma-pe71s1107-p.aspx>

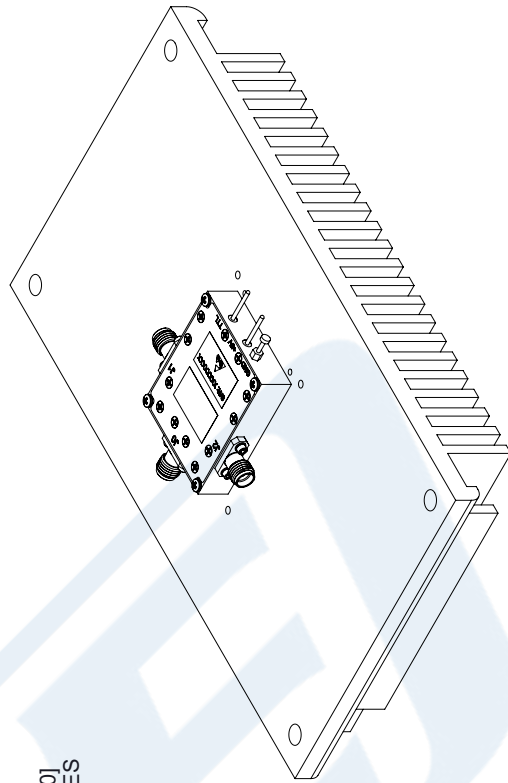
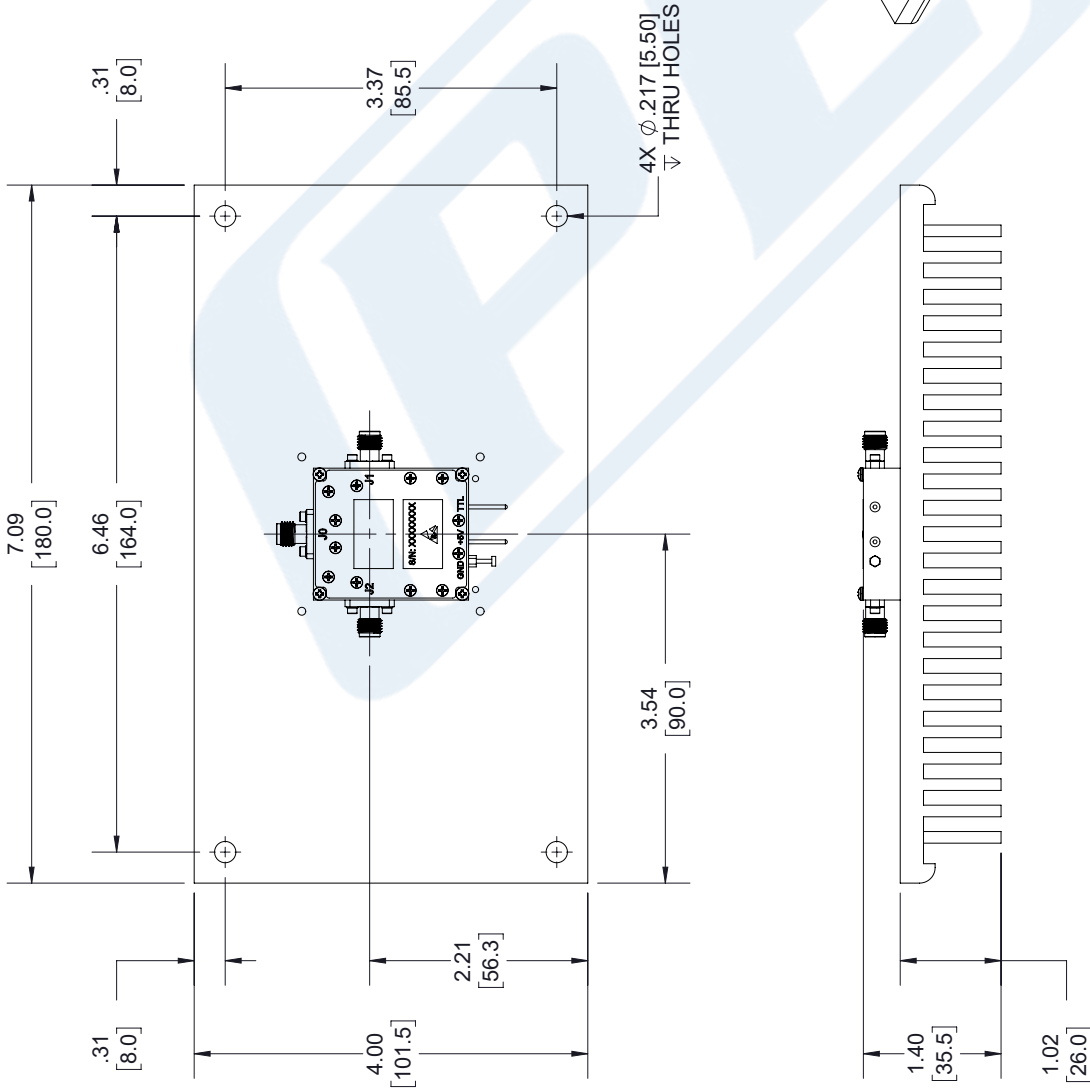
The information contained in this document is accurate to the best of our knowledge and representative of the part described herein. It may be necessary to make modifications to the part and/or the documentation of the part, in order to implement improvements. Pasternack reserves the right to make such changes as required. Unless otherwise stated, all specifications are nominal. Pasternack does not make any representation or warranty regarding the suitability of the part described herein for any particular purpose, and Pasternack does not assume any liability arising out of the use of any part or documentation.

PE71S1107 CAD Drawing

Reflective SPDT GaN High Power PIN Diode Switch Operating from DC to 18 GHz Up to 10 Watts (+40 dBm), 50ns and SMA with Heatsink

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

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% L / -0

ALL DIMENSIONS SHOWN ARE FOR REFERENCE ONLY.

THIRD-ANGLE PROJECTION

THE INFORMATION AND DESIGN IN THIS DOCUMENT IS THE PROPERTY OF PASTERNAK CORPORATION ALL RIGHTS RESERVED.

SHEET 1 OF 2

SCALE N/A

PE PASTERNAK
an INFINITI[®] brand

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

ITEM NO. PE71S1107

SIZE A CAGE CODE 53919 DRAWN BY K.DANG

LABEL

PE PASTERNAK
an INFINITI[®] brand

PE71S1107

THESE COMMODITIES, TECHNOLOGY OR SOFTWARE WERE EXPORTED FROM THE UNITED STATES IN ACCORDANCE WITH THE EXPORT ADMINISTRATION REGULATIONS. DIVERSION CONTRARY TO U.S. LAW PROHIBITED.