PASTERNACK
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Reflective SPDT GaN High Power PIN Diode Switch Operating from 500 MHz to 6 GHz Up to 100 Watts (+50 dBm), 100ns and N

PIN Diode Switches Technical Data Sheet PE71S1103

Features

- Reflective SPDT High Power PIN Diode Switch
- GaN Semiconductor Technology
- Reflective Design
- Frequency Range: 500 MHz to 18 GHz
- Insertion Loss: 1.2 dB typ
- Isolation: 45 dB typ
- VSWR: 1.2:1 typ
- Maximum RF Input Power: +50 dBm
- Input IP3: 55 dBm typ
- Switching Speed: 100 nsec typ
- TTL Compatible Driver Circuitry
- 50 Ohm Design
- N Female Connectors
- Compact Package Design withstands up to 95% Relative Humidity
- -45°C to +85°C Operating Temperature

Applications

- Aerospace & Defense
- Microwvae Radio
- Military & Commercial
- Communication
- VSAT
- SATCOM
- Test & Measuurement
- Wireless Infrastructure
- Fiber Optics

Description

The PE71S1103 is a high power Reflective SPDT PIN Diode Switch that operates from 500 MHz 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 +50 dBm, and incorporates TTL compatible driver circuitry for accurate logic control. Typical performance includes 1.2 dB insertion loss, 45 dB isolation, 1.2:1 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 N female connectors and is designed to meet a series of environmental conditions including Altitude, Vibration, Humidity, and Shock. Model PE71S1108 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	0.5		6	GHz
Impedance		50		Ohms
VSWR		1.2:1	1.6:1	
Insertion Loss		1.2	1.5	dB
IL Temperature Coefficient		0.003		dB/degC
Isolation	35	45		dB
Switching Time		100	250	ns
0.1dB Compression Point			+50	dBm
Input IP3		55		dBm
RF Input Power (CW)*			100	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 500 MHz to 6 GHz Up to 100 Watts (+50 dBm), 100ns and N PE71S1103

Pasternack Enterprises, Inc. • P.O. Box 16759, Irvine, CA 92623
Phone: (866) 727-8376 or (949) 261-1920 • **Fax:** (949) 261-7451
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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	0.5 to 3	3 to 6				GHz
VSWR, Max	1.6:1	1.6:1				
VSWR, Typ	1.4:1	1.4:1				
Insertion Loss, Max	1.3	1.5				dB
Insertion Loss, Typ	1.1	1.3				dB
Isolation, Min	40	35				dB
Isolation, Typ	48	38				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	1.46 in [37.08 mm]
Width	1.26 in [32 mm]
Height	0.75 in [19.05 mm]
Weight	0.25 lbs [113.4 g]
Design	Reflective, SPDT
RF Connector	N Female

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Environmental Specifications

Temperature

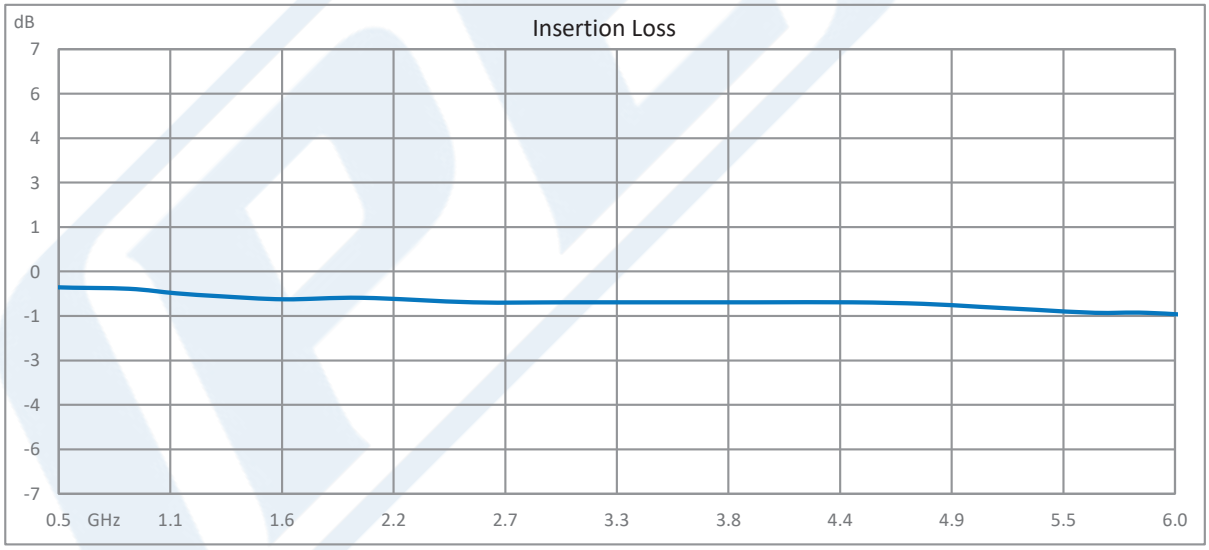
Operating Range	-45 to +85 deg C
Storage Range	-55 to +125 deg C
Humidity	100% RH @ 35°C, 95% RH @ 40°C
Shock	20G for 11ms Half Sinewave, 3 axis both directions
Vibration	25g RMS (15° 2KHz) endurance, 1 hr per axis
Altitude	30,000 ft. (Epoxy Sealed Controlled Environment)

Compliance Certifications (see product page for current document)

Plotted and Other Data

Notes:

Typical Performance Data



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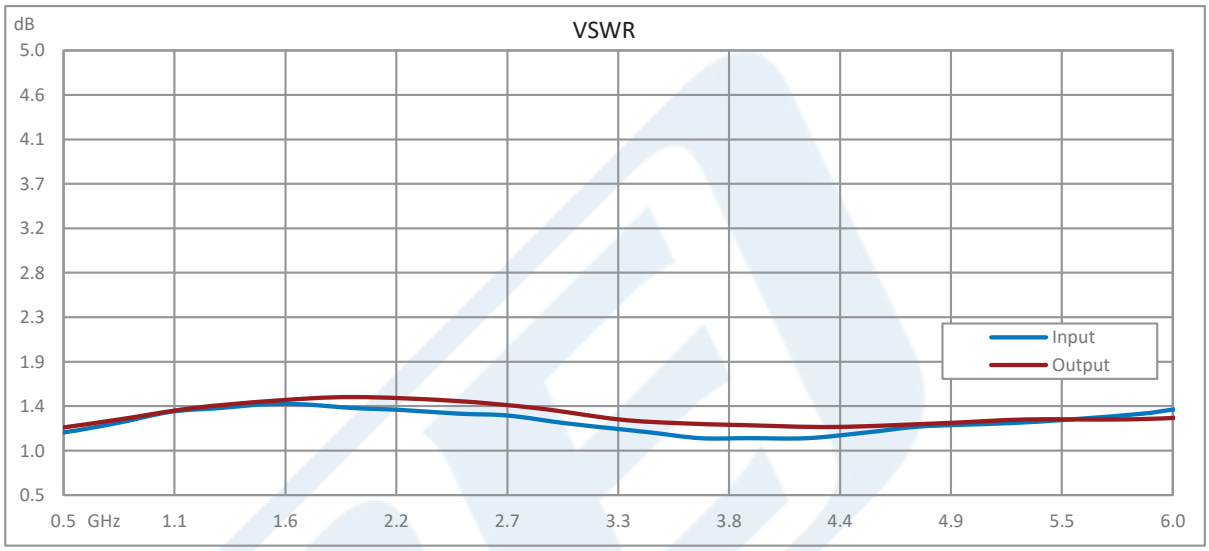

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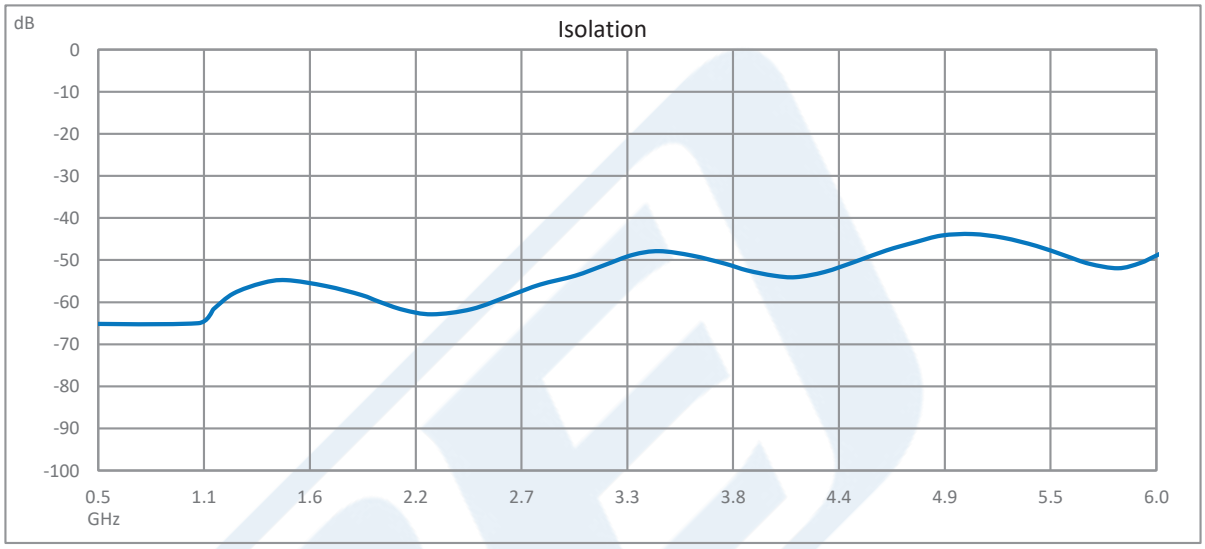

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URL: https://www.pasternack.com/spdt-pin-diode-switch-6-ghz-100-watts-n-pe71s1103-p.aspx

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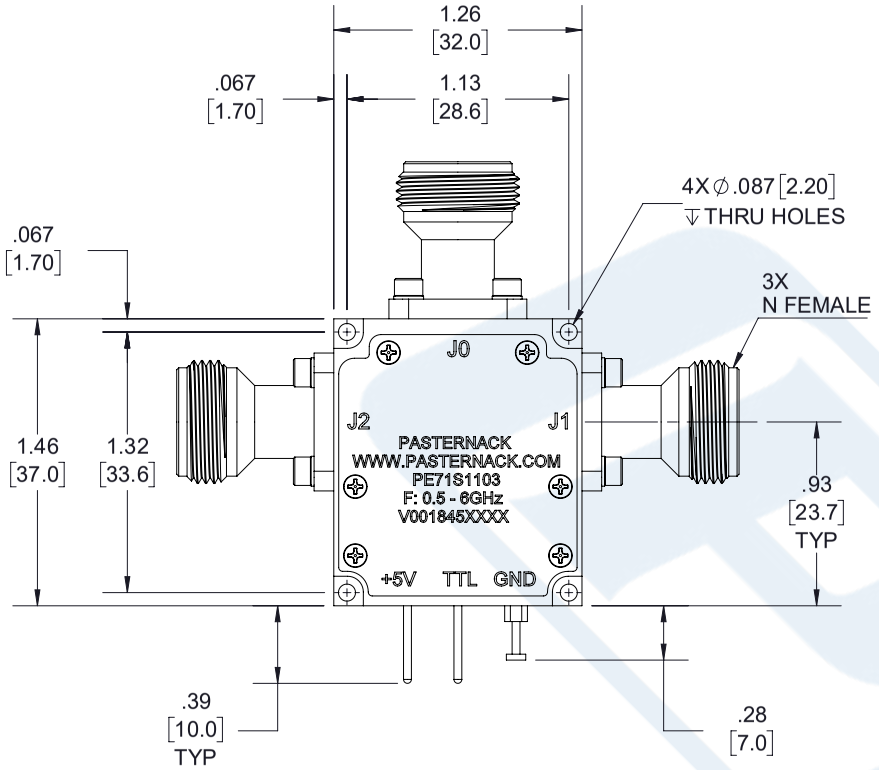
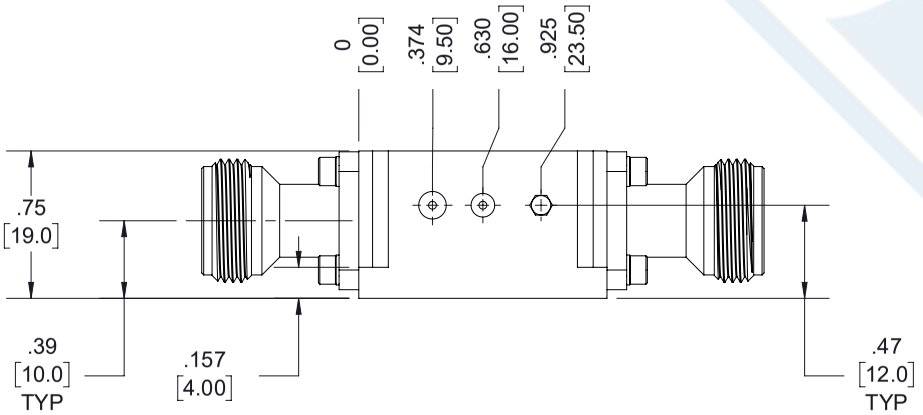
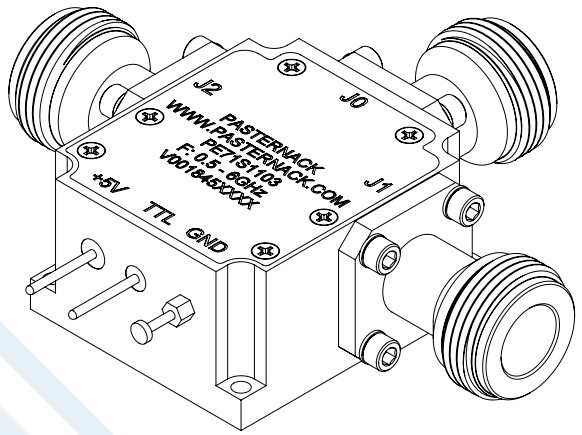
PE71S1103 CAD Drawing

Reflective SPDT GaN High Power PIN Diode Switch Operating from 500 MHz to 6 GHz Up to 100 Watts (+50 dBm), 100ns and N

REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
A	INITIAL RELEASE	7/16/2020	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]	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%L / -0

ALL DIMENSIONS SHOWN
ARE FOR REFERENCE ONLY.

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THIRD-ANGLE PROJECTION

SHEET	OF
1	1

SCALE N/A

SIZE	CAGE CODE	DRAWN BY	ITEM NO.	REV
A	53919	K.DANG	PE71S1103	A