



Reflective SPDT Wideband PIN Diode Switch Operating from 52 GHz to 72 GHz Up to 20 dBm, 100 nsec max and 1.85mm

PIN Diode Switches Technical Data Sheet

PE71S1111

Features

- Wideband mm-Wave SPDT PIN Diode Switch
- 52 GHz to 72 GHz
- 50 Ohm Reflective Design
- Integrated TTL Driver
- Insertion Loss: 4.5 dB typ
- Isolation: 37 dB typ
- Switching Speed: < 100 nsec typ
- Maximum RF input Power: +20 dBm
- Dual Bias Voltage: +5Vdc / -5Vdc
- Field Replaceable 1.85mm Female RF Connectors
- Operational Temperature Range -40°C to +85°C
- Rugged and Compact Aluminum Gold Plated Package Design
- Guaranteed Environmental Test Conditions Altitude, Vibration, Humidity, Shock

Applications

- Test & Measurement
- 5G Communication
- Military Electronic Systems
- Wireless Infrastructure
- Fiber Optics
- Research & Development

Description

The PE71S1111 is a single pole double throw (SPDT) PIN diode switch that operates across a wide mm-Wave frequency band from 52 GHz to 72 GHz. The 50 ohm reflective design supports TTL compatible driver circuitry for accurate logic control. Impressive typical performance includes 4.5 dB insertion loss, 37 dB isolation, and < 100 nsec switching speed. The switch requires a dual bias voltage of +5Vdc / -5Vdc, and has maximum input power handling of up to +20 dBm. The rugged and compact package supports field replaceable 1.85mm female RF connectors and solder terminal pins for DC bias voltage and TTL control. The switch is designed for high reliability with a wide operational temperature range of -40°C to +85°C, and meets a series of environmental test conditions including Altitude, Vibration, Humidity, and Shock.

Electrical Specifications (@ +25°C)

TTL Control

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

Description	Minimum	Typical	Maximum	Units
Frequency Range	52		72	GHz
Impedance		50		Ohms
VSWR		2.2:1	3:1	
Insertion Loss		4.5	6	dB
IL Temperature Coefficient		0.003		dB/degC
Isolation	30	37		dB
Switching Time			100	ns
0.1dB Compression Point			+20	dBm
Input IP3		50		dBm
RF Input Power (CW)			20	dBm
DC Power Dissipation		0.3		Watt
Positive Operating Voltage		5		Vdc
Negative Operating Voltage		-5		Vdc

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Current @ 5 Vdc	50	mA
Current @ -5Vdc	20	mA
Operating Temperature	-40	+85 deg C

Electrical Specification Notes:

TTL pins cannot be connected to the negative voltage otherwise the internal driver will be damaged.

Absolute Maximum Ratings

Biasing Voltage	+5V ± 10% / -5V ± 10%
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Mechanical Specifications

Size

Length	0.94 in [23.88 mm]
Width	0.47 in [11.94 mm]
Height	0.67 in [17.02 mm]
Weight	0.04 lbs [18.14 g]
Design	Reflective, SPDT
RF Input/Output Connector	Field Replaceable 1.85mm Female

Environmental Specifications

Temperature

Operating Range	-40 to +85 deg C
Storage Range	-50 to +105 deg C
Humidity	100% RH at 35°C, 95% RH at 40°C
Shock	20G for 11msec half sinewave, 3 axis both directions
Vibration	25g RMA (15 degrees 2KHz) endurance, 1 hour per axis
Altitude	30,000 ft

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

Plotted and Other Data

Notes:

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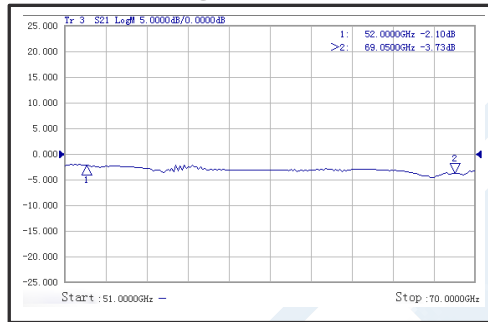
Reflective SPDT Wideband PIN Diode Switch Operating from 52 GHz to 72 GHz Up to 20 dBm, 100 nsec max and 1.85mm

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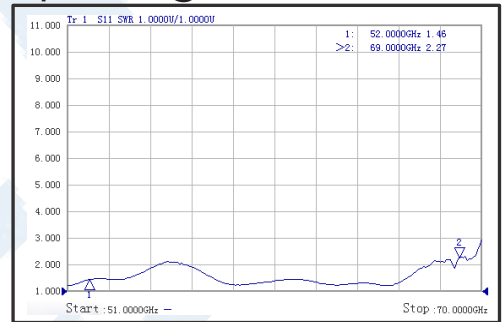
PE71S1111

Typical Performance Data

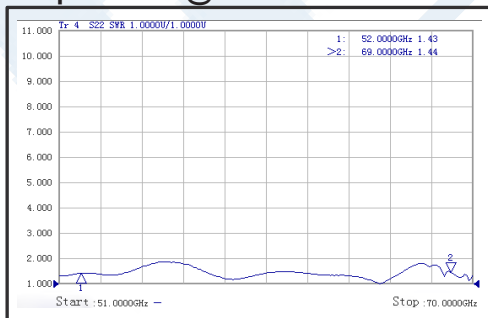
Insertion Loss@+25°C



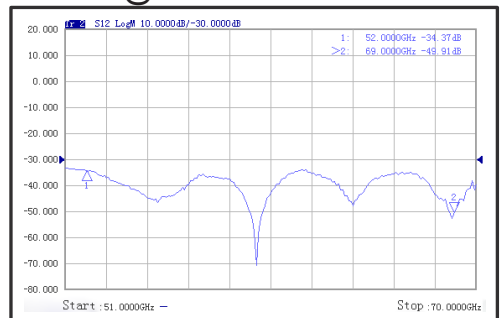
Input VSWR@+25°C



Output VSWR@+25°C



Isolation@+25°C



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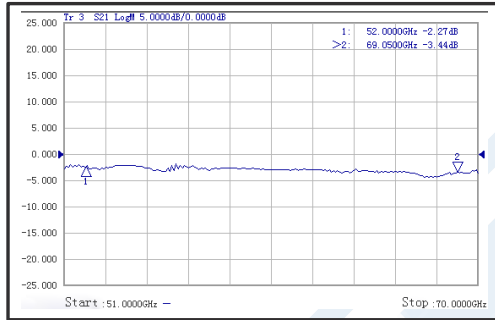


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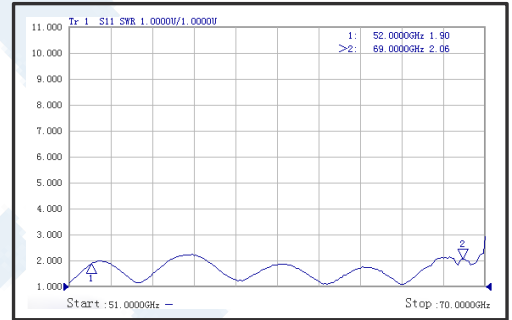
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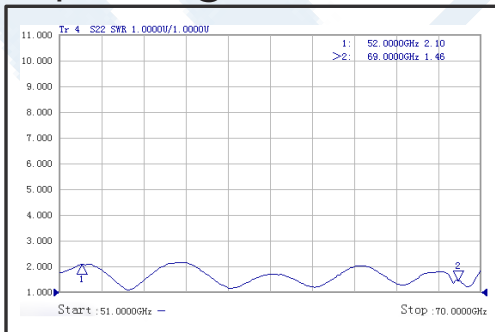
Insertion Loss @-40°C



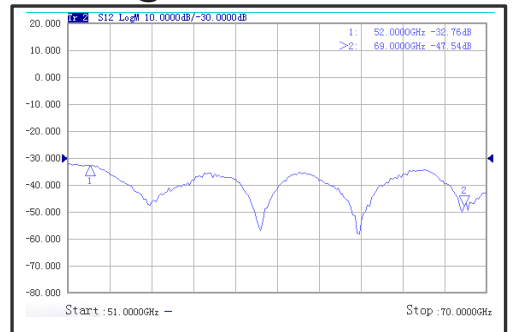
Input VSWR @-40°C



Output VSWR @-40°C



Isolation @-40°C



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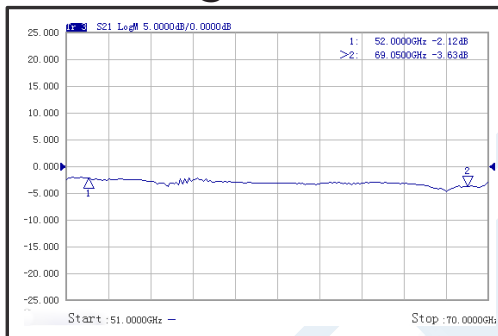


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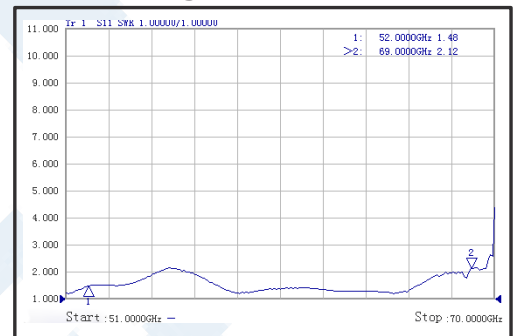
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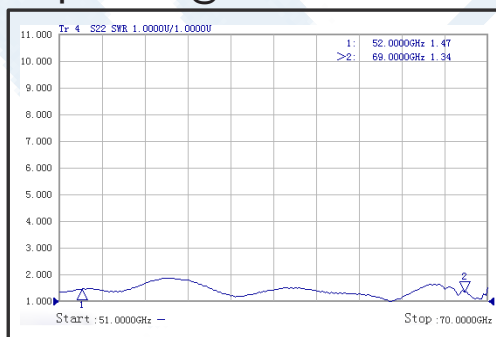
Insertion Loss@+85°C



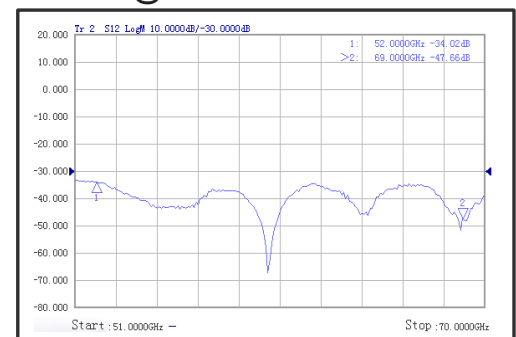
Input VSWR@+85°C



Output VSWR@+85°C



Isolation@+85°C



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URL:

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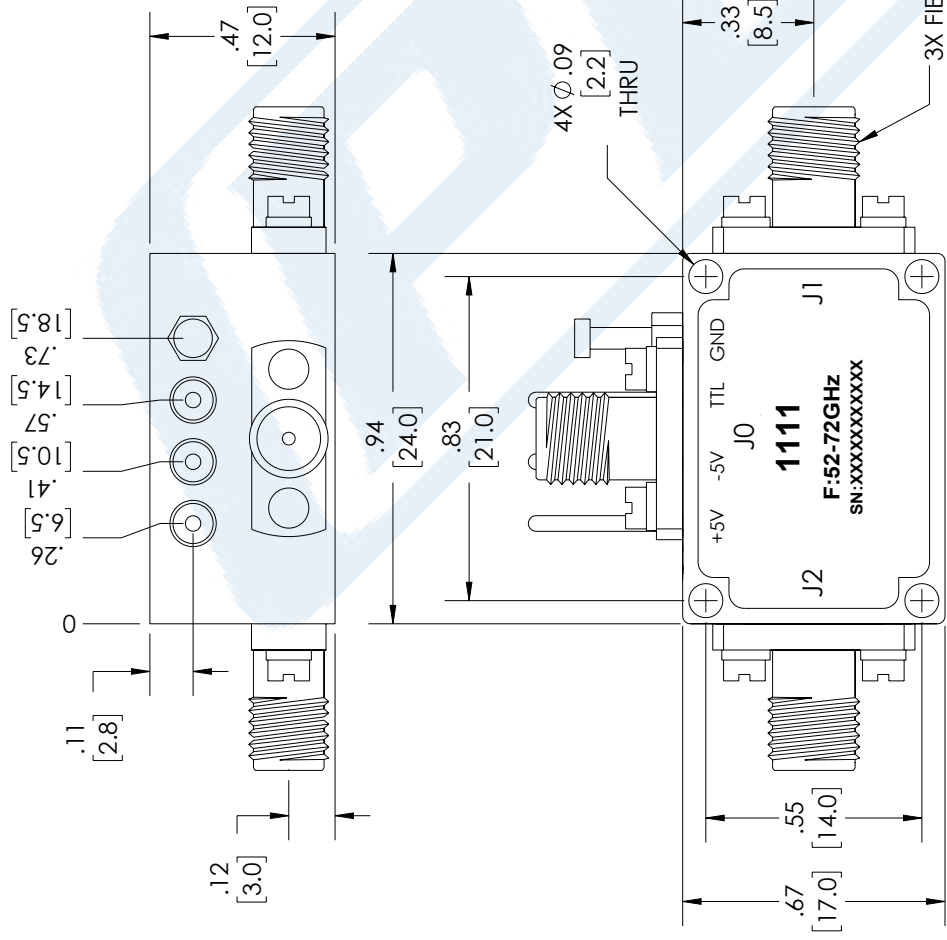
PE71S1111 CAD Drawing

Reflective SPDT Wideband PIN Diode Switch Operating from 52 GHz to 72 GHz Up to 20 dBm, 100 nsec max and 1.85mm

F E D C B A

1 2 3 4 5 6

ZONE	REV.	DESCRIPTION	DATE	CHANGED BY	APPROVED BY
	A	INITIAL RELEASE	03/30/2023	BPUCHASKI	TGALLA



TRUTH TABLE

TTL Control Voltage THRESHOLD	Low(0)=0~0.8V
Control Input TTL	High(1)=2.8~5V
	Signal Path State
0	J0-J1
1	J0-J2

3X FIELD REPLACEABLE
1.85mm CONNECTOR

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

TOLERANCES:

X = ±.2 [5] | FRACTIONS ± 1/32

.XX = ±.02 [.5] | ANGLES ± 1°

.XXX = ±.005 [.13]

CABLE LENGTH TOLERANCES:

≤12 [305] = +1 [25] / -0

>12 [305] ≤ 60 [1524] = +2 [51] / -0

>60 [1524] ≤ 120 [3048] = +4 [102] / -0

>120 [3048] ≤ 300 [7620] = +6 [152] / -0

>300 [7620] = +5% / -0

ALL DIMENSIONS ARE FOR REFERENCE ONLY AND SUBJECT TO CHANGE WITHOUT NOTICE



Website: www.Pasternack.com
Phone: 1.866.727.8376 | 1.949.261.1920

DESCRIPTION
Reflective SPDT Wideband PIN Diode Switch Operating from 52 GHz to 72 GHz Up to 20 dBm, 100 nsec max and 1.85mm

SCALE	NONE	SHEET	1 OF 1
INTERPRET ALL DIMENSIONS AND TOLERANCES PER ASME Y14.5			
SIZE	A	CAGE CODE	53919
DRAWN BY	BPUCHASKI	ITEM NO.	PE71S1111
REV	A		

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