



Absorptive SPDT Wideband PIN Diode Switch Operating
 500 MHz to 43.5 GHz, Up to 23 dBm, 100 nsec max and 2.92mm

PIN Diode Switches Technical Data Sheet

PE71S1115

Features

- Wideband SPDT PIN Diode Switch
- 500 MHz to 43.5 GHz
- 50 Ohm Absorptive Design
- Integrated TTL Driver
- Insertion Loss: 4 dB typ
- Isolation: 60 dB typ
- Switching Speed: < 100 nsec typ
- Maximum RF input Power: +23 dBm
- Dual Bias Voltage: +5Vdc / -5Vdc
- Field Replaceable 2.92mm 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 PE71S1115 is a single pole double throw (SPDT) PIN diode switch that operates across a wide frequency band from 500 MHz to 43.5 GHz. The 50 ohm absorptive design is terminated in 50 ohms when switched in the isolation (off) state, and supports TTL compatible driver circuitry for accurate logic control. Impressive typical performance includes 4 dB insertion loss, 60 dB isolation, and < 100 nsec switching speed. The switch requires a dual bias voltage of +5Vdc / -5 Vdc, and has maximum input power handling of up to +23 dBm. The rugged and compact package supports field replaceable 2.92mm 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	0.5		43.5	GHz
Impedance		50		Ohms
VSWR			2.8:1	
Insertion Loss		4	5.2	dB
IL Temperature Coefficient		0.003		dB/degC
Isolation	45	60		dB
Switching Time			100	ns
0.1dB Compression Point		+23		dBm
Input IP3		42		dBm
RF Input Power (CW)			23	dBm
DC Power Dissipation		0.6		Watt
Positive Operating Voltage		5		Vdc

Click the following link (or enter part number in "SEARCH" on website) to obtain additional part information including price, inventory and certifications: [Absorptive SPDT Wideband PIN Diode Switch Operating 500 MHz to 43.5 GHz, Up to 23 dBm, 100 nsec max and 2.92mm PE71S1115](#)



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Negative Operating Voltage	-5	Vdc
Current @ 5 Vdc	110	mA
Current @ -5Vdc	50	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	+5V $\pm$ 10%/-5V $\pm$ 10%
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Mechanical Specifications

Size

Length	1.02 in [25.91 mm]
Width	0.49 in [12.45 mm]
Height	0.71 in [18.03 mm]
Weight	0.04 lbs [18.14 g]
Design	Absorptive, SPDT
RF Input/Output Connector	Field Replaceable 2.92mm 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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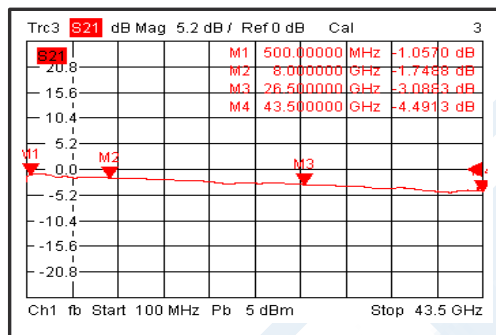
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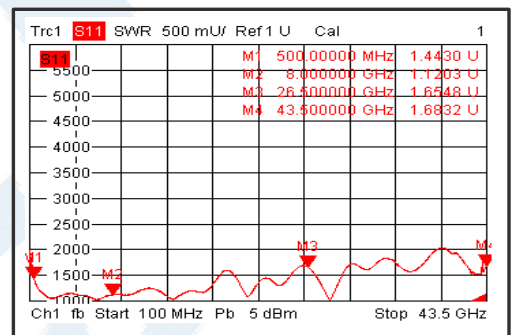
PE71S1115

Typical Performance Data

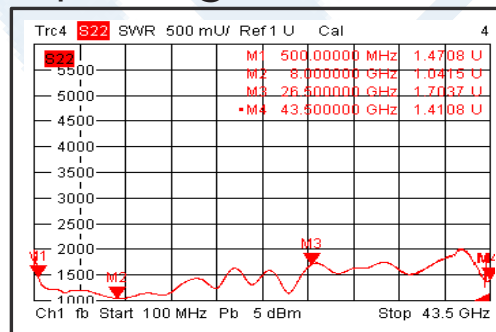
Insertion Loss @+25°C



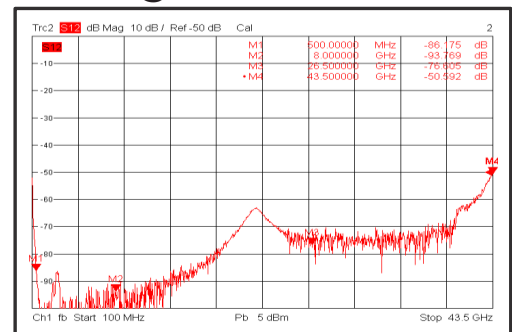
Input VSWR @+25°C



Output VSWR @+25°C



Isolation @+25°C



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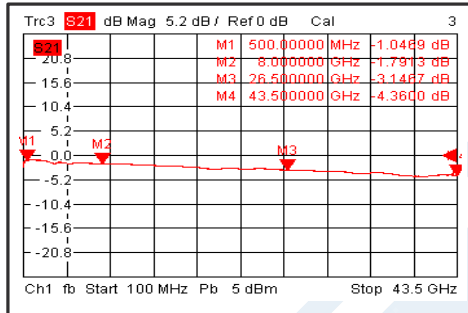


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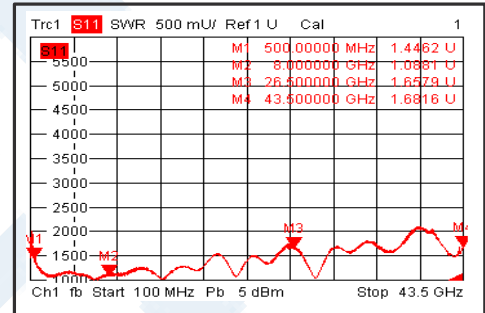
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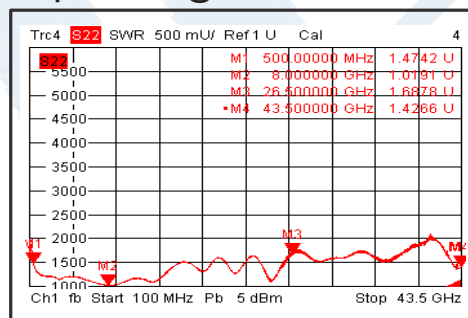
Insertion Loss @-40°C



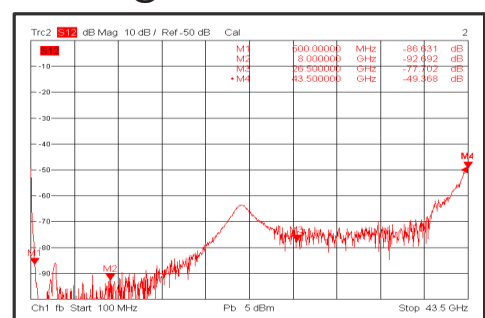
Input VSWR @-40°C



Output VSWR @-40°C



Isolation @-40°C



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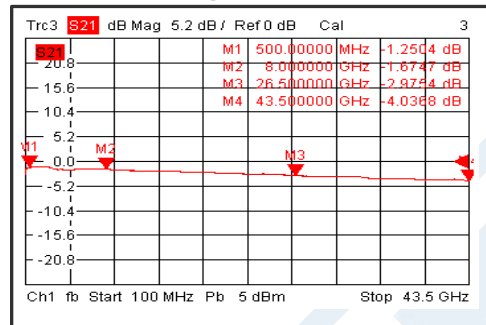


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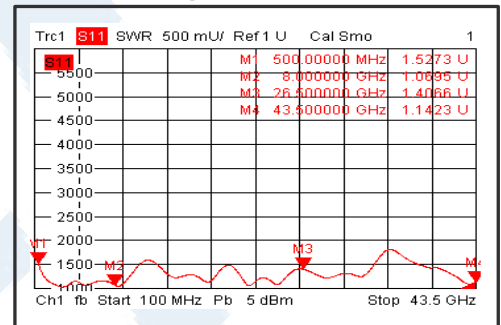
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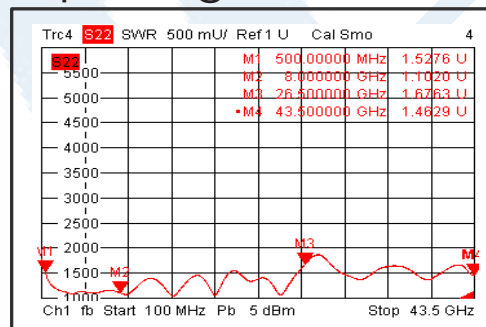
Insertion Loss @+85°C



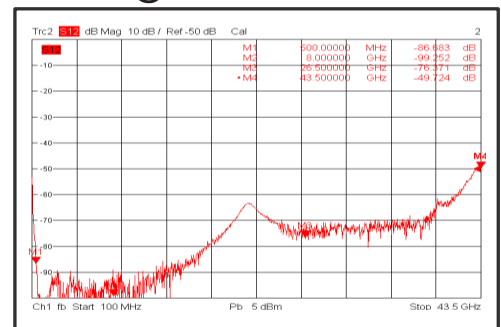
Input VSWR @+85°C



Output VSWR @+85°C



Isolation @+85°C



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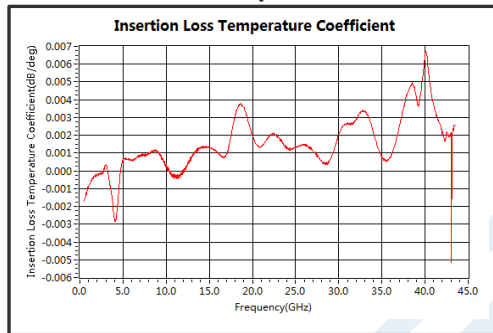


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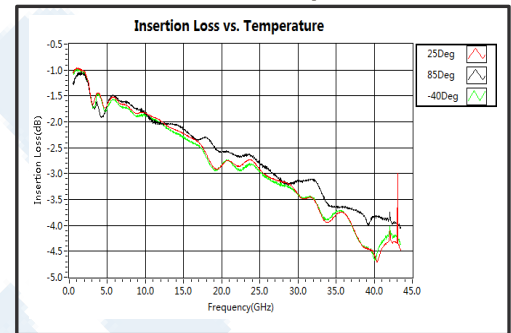
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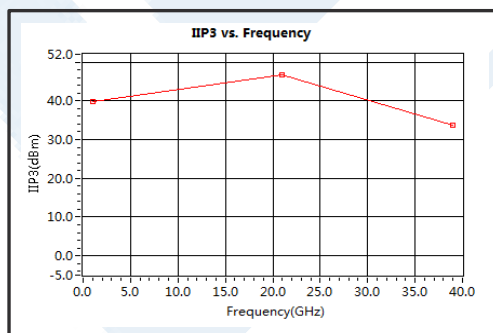
Insertion Loss Temperature Coefficient



Insertion Loss vs. Temperature



IIP3



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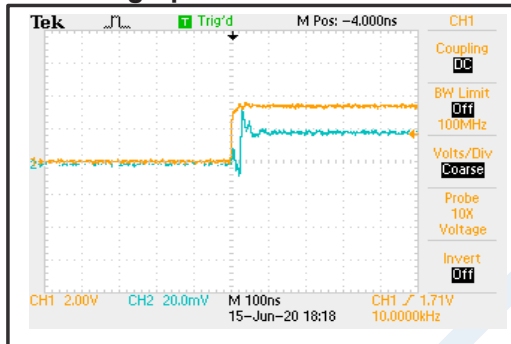


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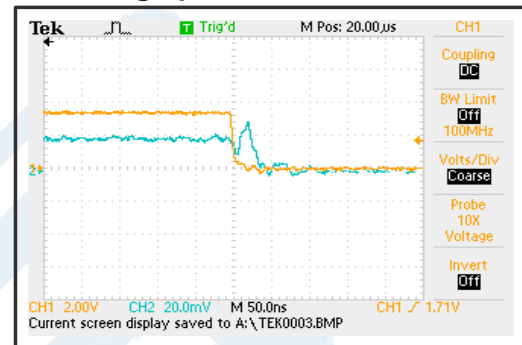
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Switching Speed



Switching Speed



Absorptive SPDT Wideband PIN Diode Switch Operating 500 MHz to 43.5 GHz, Up to 23 dBm, 100 nsec max and 2.92mm 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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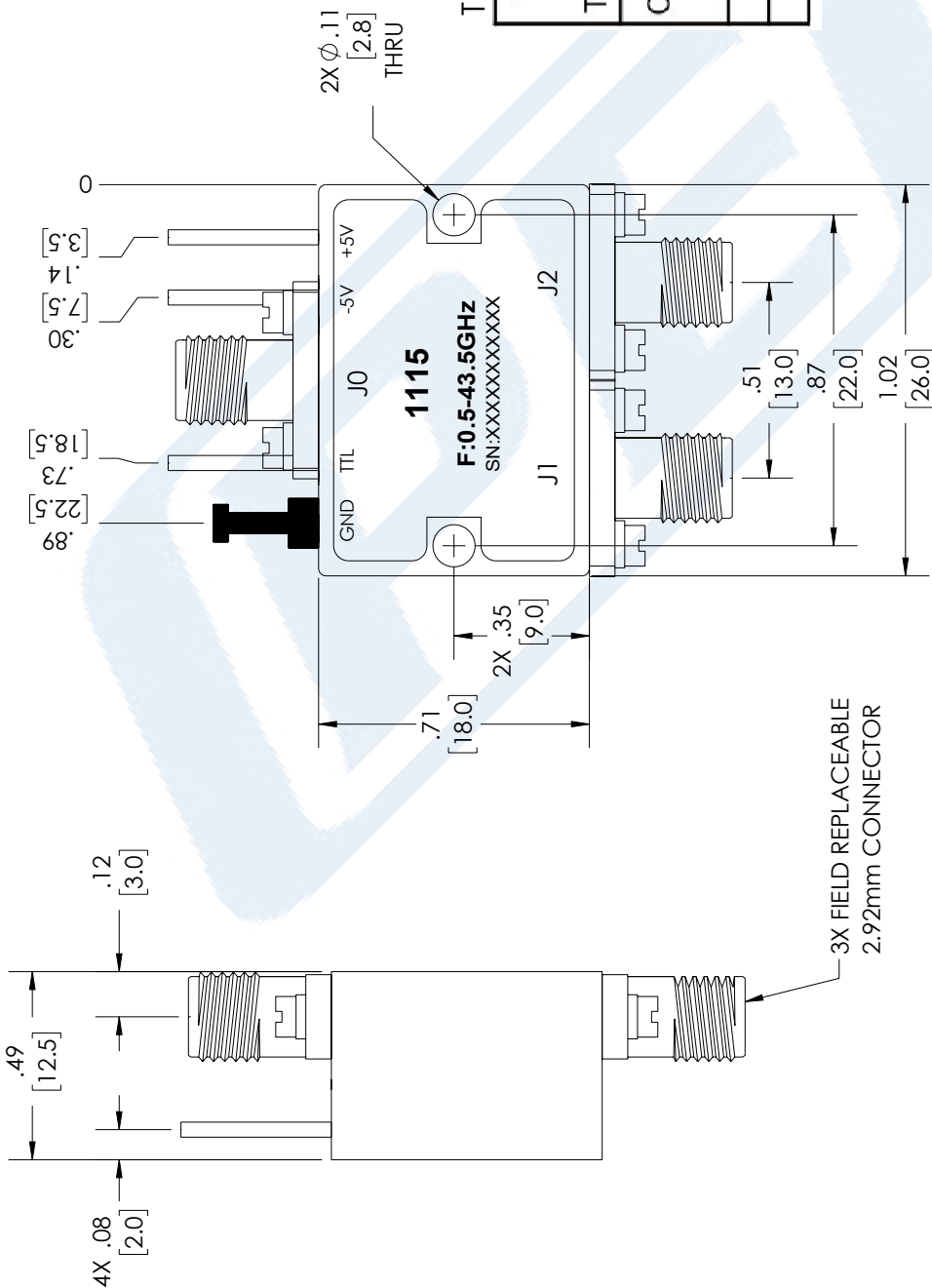
URL:

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.

PE71S1115 CAD Drawing

Absorptive SPDT Wideband PIN Diode Switch Operating 500 MHz to 43.5 GHz, Up to 23 dBm, 100 nsec max and 2.92mm

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 High(1)=2.8~5V
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] FRACTIONS
.XX = ± .02 [.5]
.XXX = ± .005 [.13] ANGLES ± 1°
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

PE PASTERNAK
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Website: www.Pasternack.com
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DESCRIPTION

Absorptive SPDT Ultra-Wideband PIN Diode Switch Operating 500 MHz to 43.5 GHz, Up to 23 dBm, 100 nsec max and 2.92mm

SCALE NONE
SHEET 1 OF 1

INTERPRET ALL DIMENSIONS AND TOLERANCES PER ASME Y14.5

ITEM NO. PE71S1115
DRAWN BY BPUCHASKI
CAGE CODE A 53919

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