



Absorptive SPDT Ultra-Wideband SPDT PIN Diode Switch
 Operating 100 MHz to 50 GHz, Up to 23 dBm, 50 nsec and 2.4mm

PIN Diode Switches Technical Data Sheet

PE71S1113

Features

- Ultra-Wideband SPDT PIN Diode Switch
- 100 MHz to 50 GHz
- 50 Ohm Absorptive Design
- Integrated TTL Driver
- Insertion Loss: 4.5 dB typ
- Isolation: 50 dB typ
- Switching Speed: 50 nsec typ
- Maximum RF input Power: +23 dBm
- Single Bias Voltage: +5Vdc
- Field Replaceable 2.4mm 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 PE71S1113 is a single pole double throw (SPDT) PIN diode switch that operates across an ultra-wideband frequency from 100 MHz to 50 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 4.5 dB insertion loss, 50 dB isolation, and 50 nsec switching speed. The switch requires a +5Vdc bias voltage, and has maximum input power handling of +23 dBm. The rugged and compact package supports field replaceable 2.4mm 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	0.1		50	GHz
Impedance		50		Ohms
VSWR		2:1	3:1	
Insertion Loss		4.5	7.5	dB
IL Temperature Coefficient		0.003		dB/degC
Isolation	40	50		dB
Switching Time		50	100	ns
0.1dB Compression Point		+23		dBm
Input IP3		45		dBm
RF Input Power (CW)			23	dBm
DC Power Dissipation		0.8		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 Ultra-Wideband SPDT PIN Diode Switch Operating 100 MHz to 50 GHz, Up to 23 dBm, 50 nsec and 2.4mm PE71S1113](#)



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Negative Operating Voltage	-5	Vdc
Current @ 5 Vdc	100	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

Biassing	+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	0.05 lbs [22.68 g]
Design	Absorptive, SPDT
RF Input/Output Connector	Field Replaceable 2.4mm 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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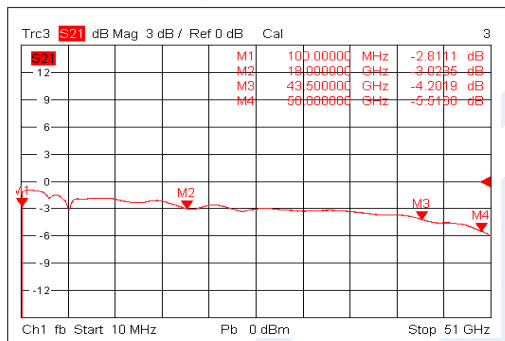
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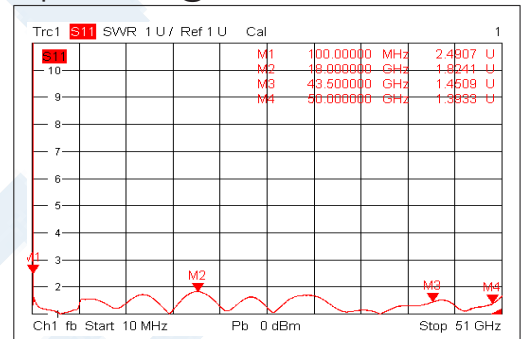
PE71S1113

Typical Performance Data

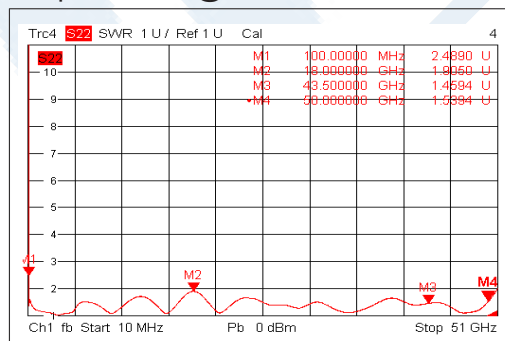
Insertion Loss @+25°C



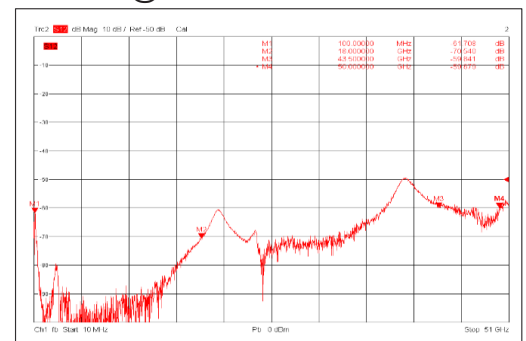
Input VSWR @+25°C



Output VSWR @+25°C



Isolation @+25°C



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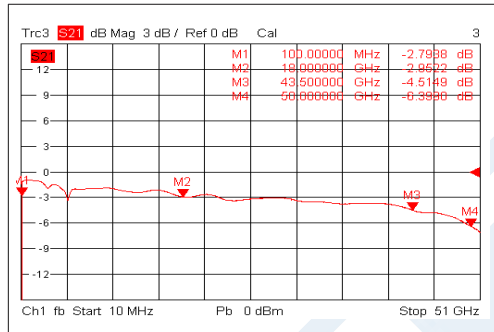


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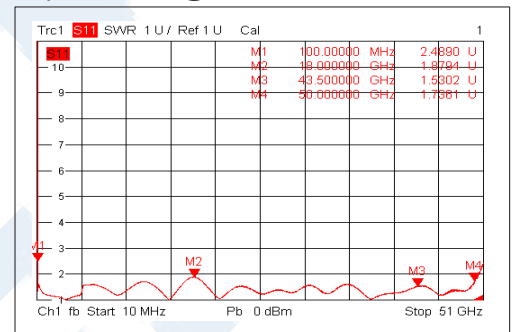
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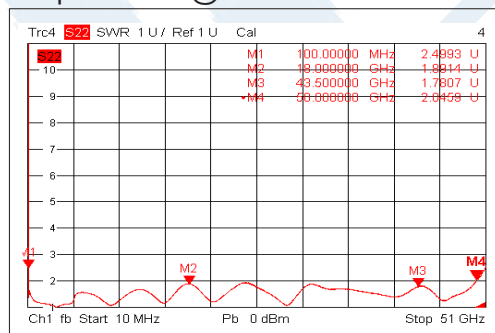
Insertion Loss @-40°C



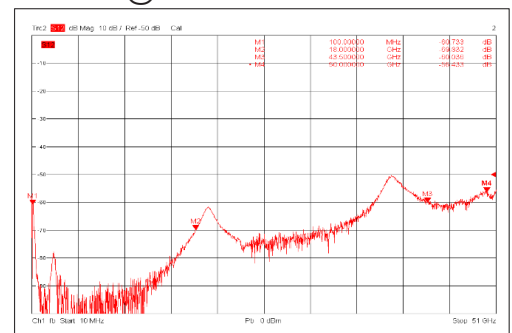
Input VSWR @-40°C



Output VSWR @-40°C



Isolation @-40°C



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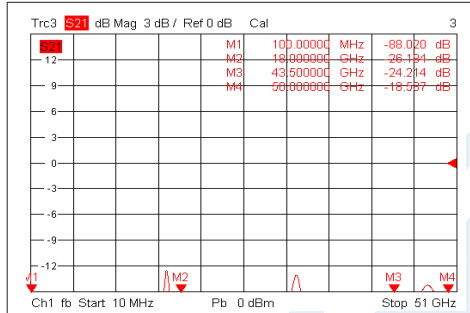


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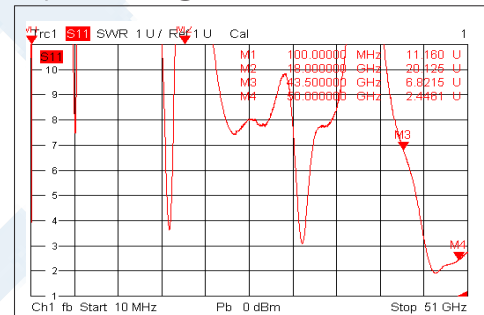
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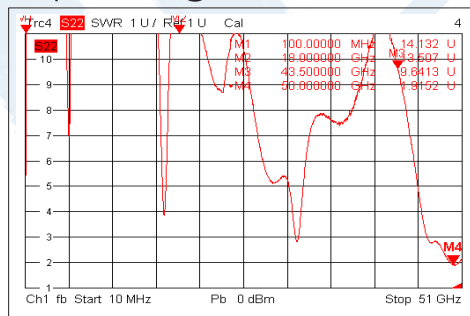
Insertion Loss @+85°C



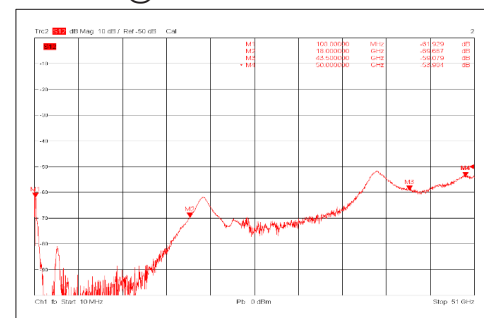
Input VSWR @+85°C



Output VSWR @+85°C



Isolation @+85°C



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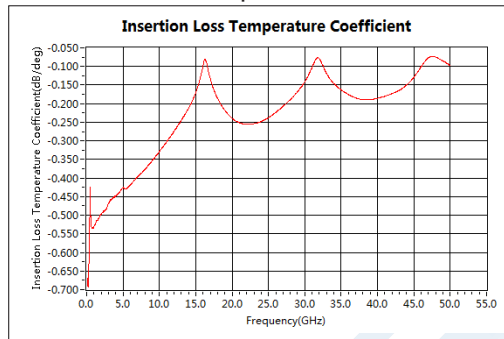


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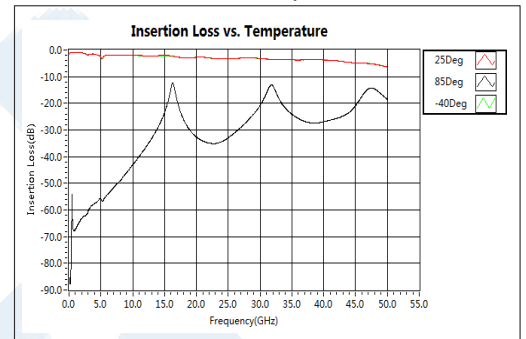
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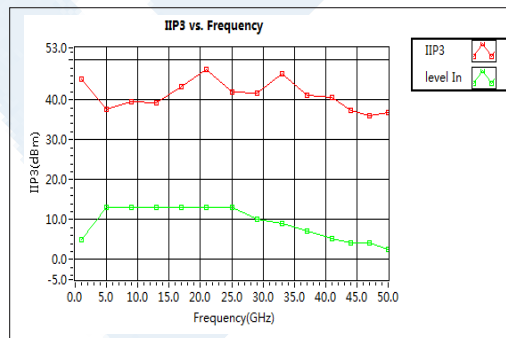
Insertion Loss Temperature Coefficient



Insertion Loss vs. Temperature



IIP3



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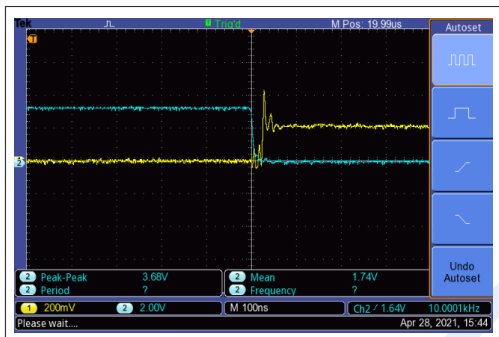


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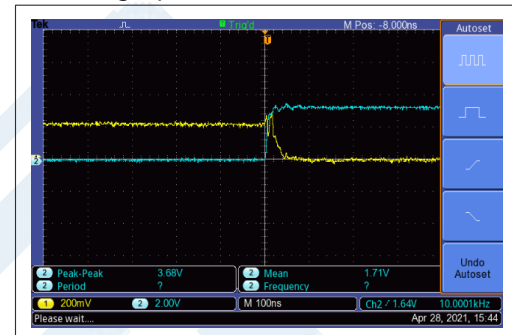
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Switching Speed



Switching Speed



Absorptive SPDT Ultra-Wideband SPDT PIN Diode Switch Operating 100 MHz to 50 GHz, Up to 23 dBm, 50 nsec and 2.4mm 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:

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PE71S1113 CAD Drawing

Absorptive SPDT Ultra-Wideband SPDT PIN Diode Switch Operating
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F E D C B A

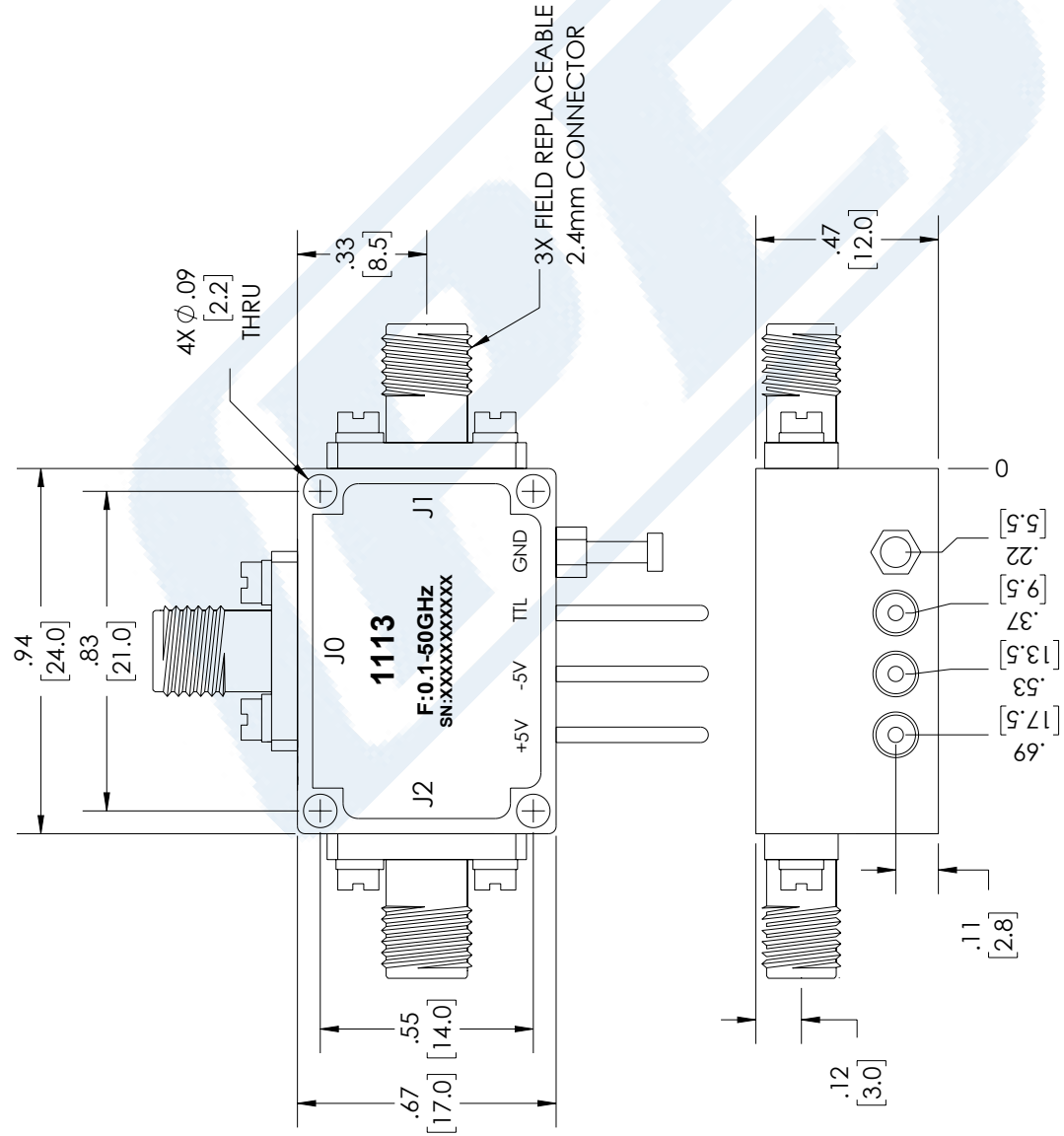
1 2 3 4 5 6

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

REVISION

TRUTH TABLE

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



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
 Absorptive SPDT Ultra-Wideband SPDT PIN Diode Switch Operating
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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.	PE71S1113
REV	A		

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