



Absorptive SP4T Wideband PIN Diode Switch Operating
 500 MHz to 43.5 GHz, Up to 23 dBm, 80 nsec max and 2.92mm

PIN Diode Switches Technical Data Sheet

PE71S1116

Features

- Wideband SP4T PIN Diode Switch
- 500 MHz to 43.5 GHz
- 50 Ohm Absorptive Design
- Integrated TTL Driver
- Insertion Loss: 4.5 dB typ
- Isolation: 57 dB typ
- Switching Speed: < 80 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 PE71S1116 is a single pole four throw (SP4T) 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 4.5 dB insertion loss, 57 dB isolation, and < 80 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		2.3:1	3:1	
Insertion Loss		4.5	6	dB
IL Temperature Coefficient		0.003		dB/degC
Isolation	45	57		dB
Switching Time			80	ns
0.1dB Compression Point		+23		dBm
RF Input Power (CW)			23	dBm
DC Power Dissipation		0.8		Watt
Positive Operating Voltage		5		Vdc
Negative 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 SP4T Wideband PIN Diode Switch Operating 500 MHz to 43.5 GHz, Up to 23 dBm, 80 nsec max and 2.92mm PE71S1116](#)



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Current @ 5 Vdc		150	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±10%/-5V±10%
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Mechanical Specifications

Size

Length	1.23 in [31.24 mm]
Width	0.47 in [11.94 mm]
Height	1.06 in [26.92 mm]
Weight	0.06 lbs [27.22 g]
Design	Absorptive, SP4T
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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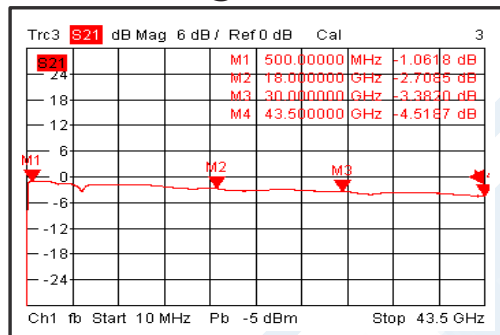
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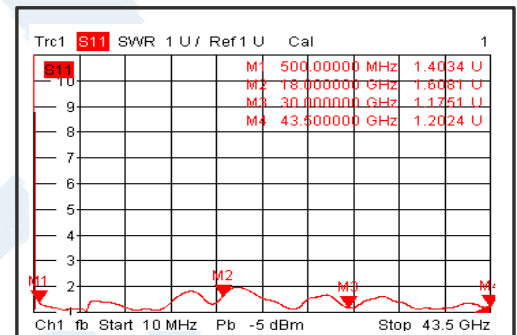
PE71S1116

Typical Performance Data

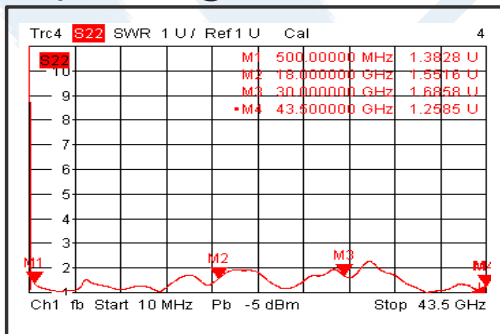
Insertion Loss @+25°C



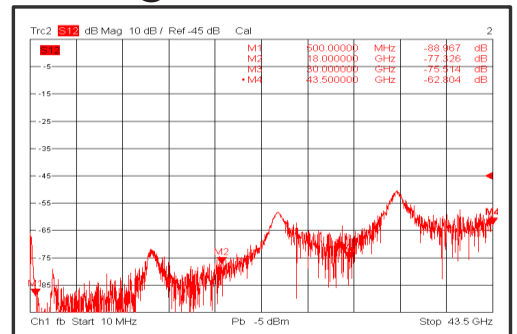
Input VSWR @+25°C



Output VSWR @+25°C



Isolation @+25°C



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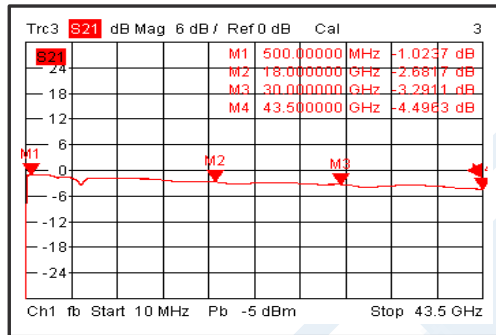


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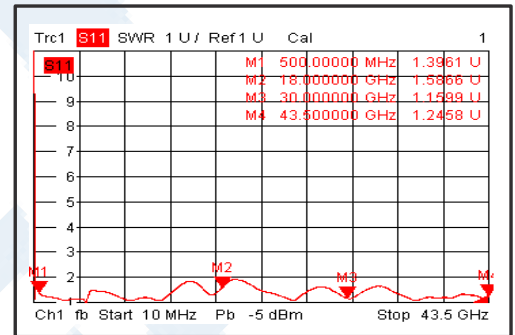
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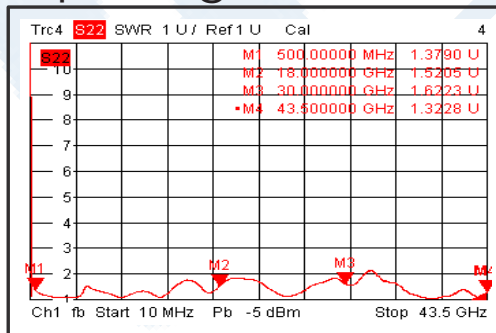
Insertion Loss @-40°C



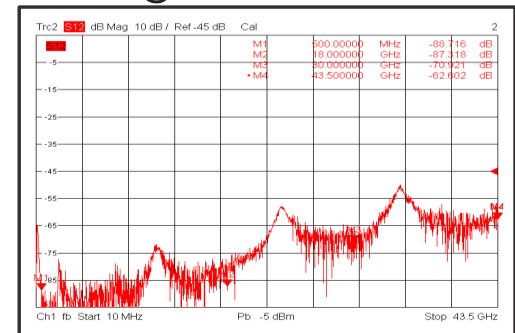
Input VSWR @-40°C



Output VSWR @-40°C



Isolation @-40°C



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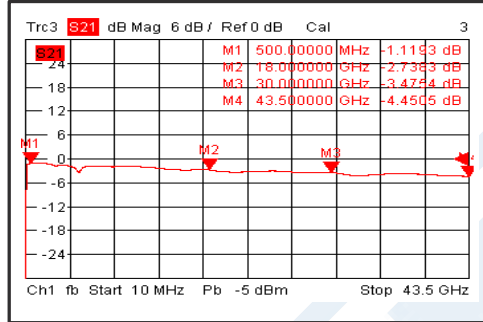


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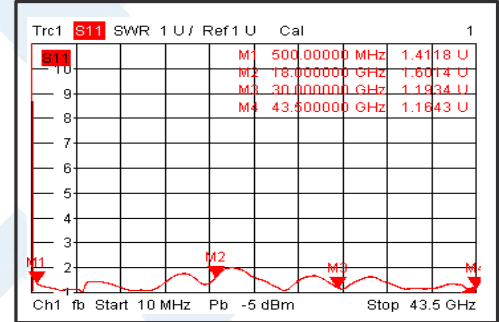
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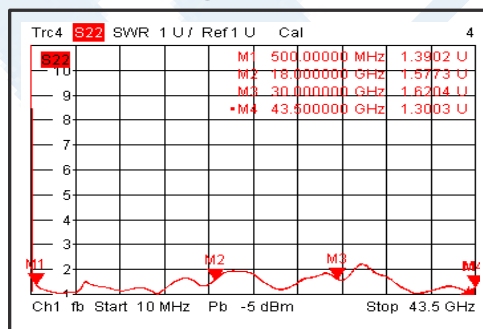
Insertion Loss @+85°C



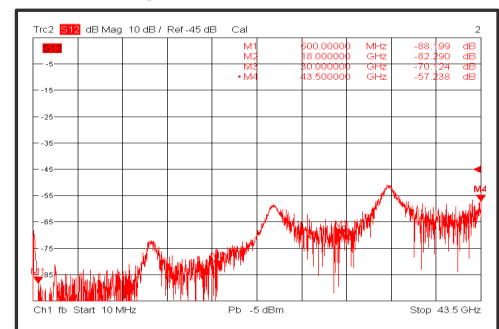
Input VSWR @+85°C



Output VSWR @+85°C



Isolation @+85°C



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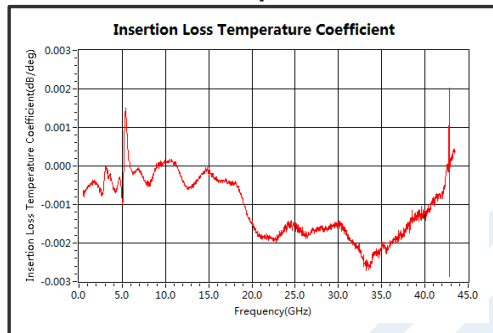


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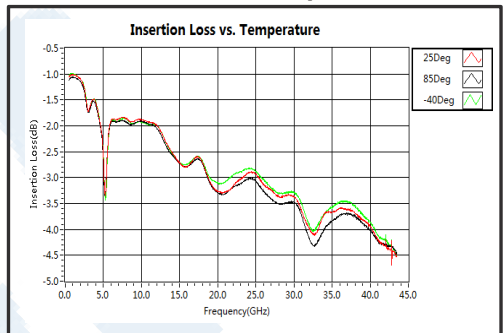
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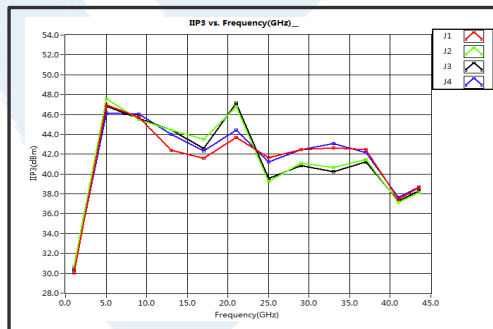
Insertion Loss Temperature Coefficient



Insertion Loss vs. Temperature



IIP3



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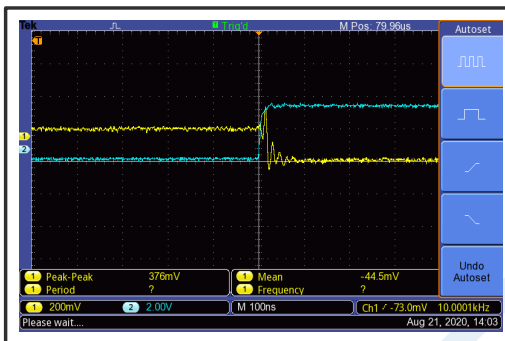


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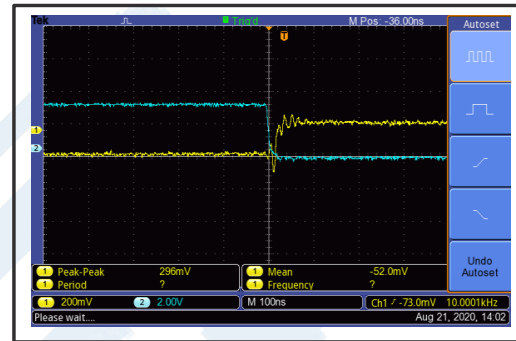
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Switching Speed



Switching Speed



Absorptive SP4T Wideband PIN Diode Switch Operating 500 MHz to 43.5 GHz, Up to 23 dBm, 80 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:

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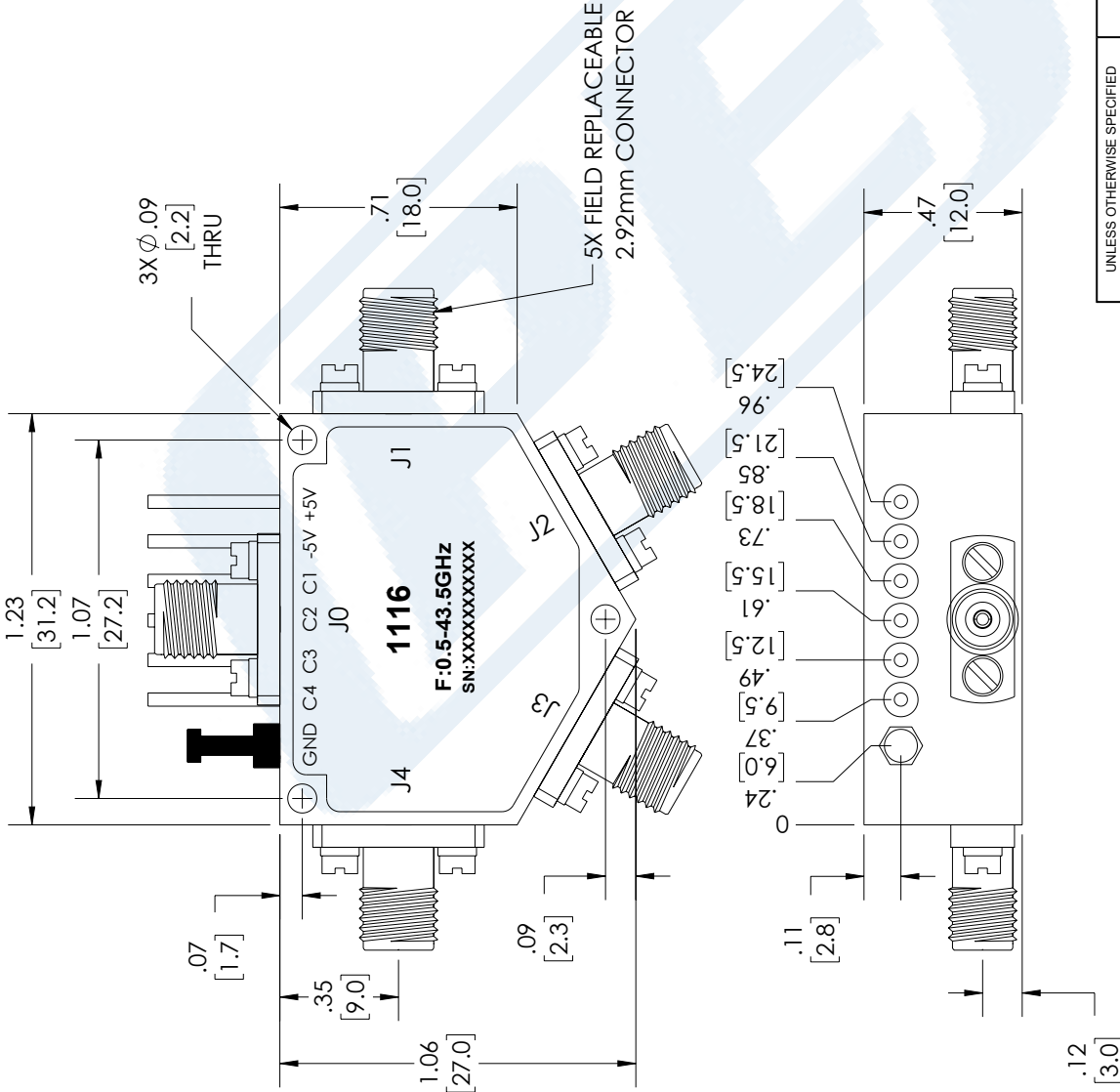
PE71S1116 CAD Drawing

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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
C4	C3	C2	C1		
1	1	1	1		OFF
1	1	1	0		J0-J1
1	1	0	1		J0-J2
1	0	1	1		J0-J3
0	1	1	1		J0-J4
0	0	0	0		Not Used



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

TOLERANCES:
 .X = ±.2 [5] FRACTIONS
 .XX = ±.02 [.5] ± 1/32
 .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

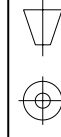
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DESCRIPTION

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SIZE A CAGE CODE 53919 DRAWN BY BPUCHASKI ITEM NO. PE71S1116 REV A



INTERPRET ALL DIMENSIONS AND TOLERANCES PER ASME Y14.5

SCALE NONE SHEET 1 OF 1