

Absorptive SP4T Ultra-Wideband PIN Diode Switch Operating 100 MHz to 50 GHz, Up to 23 dBm, 100 nsec max and 2.4mm



## PIN Diode Switches Technical Data Sheet

**PE71S1114**

### Features

- Ultra-Wideband SP4T PIN Diode Switch
- 100 MHz to 50 GHz
- 50 Ohm Absorptive Design
- Integrated TTL Driver
- Insertion Loss: 5 dB typ
- Isolation: 55 dB typ
- Switching Speed: < 100 nsec typ
- Maximum RF input Power: +23 dBm
- Dual Bias Voltage: +5Vdc / -15Vdc
- 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 PE71S1114 is a single pole four throw (SP4T) 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 5 dB insertion loss, 55 dB isolation, and < 100 nsec switching speed. The switch requires a dual bias voltage of +5Vdc / -15 Vdc, and has maximum input power handling of up to +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                       |         |         | 3:1     |         |
| Insertion Loss             | 5       | 6.5     |         | dB      |
| IL Temperature Coefficient | 0.003   |         |         | dB/degC |
| Isolation                  | 40      | 55      |         | dB      |
| Switching Time             |         |         | 100     | ns      |
| 0.1dB Compression Point    | +23     |         |         | dBm     |
| RF Input Power (CW)        |         |         | 23      | dBm     |
| DC Power Dissipation       | 0.15    |         |         | Watt    |
| Positive Operating Voltage | 5       |         |         | Vdc     |
| Negative Operating Voltage | -15     |         |         | 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 Ultra-Wideband PIN Diode Switch Operating 100 MHz to 50 GHz, Up to 23 dBm, 100 nsec max and 2.4mm PE71S1114](#)

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|                       |     |           |
|-----------------------|-----|-----------|
| Current @ 5 Vdc       | 120 | mA        |
| Current @ -15Vdc      | 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%/-15V $\pm$ 10% |
|---------|------------------------------|

### Mechanical Specifications

|                           |                                |
|---------------------------|--------------------------------|
| <b>Size</b>               |                                |
| Length                    | 1.23 in [31.24 mm]             |
| Width                     | 0.47 in [11.94 mm]             |
| Height                    | 1.06 in [26.92 mm]             |
| Weight                    | 0.08 lbs [36.29 g]             |
| Design                    | Absorptive, SP4T               |
| RF Input/Output Connector | Field Replaceable 2.4mm Female |

### Environmental Specifications

|                    |  |
|--------------------|--|
| <b>Temperature</b> |  |
| 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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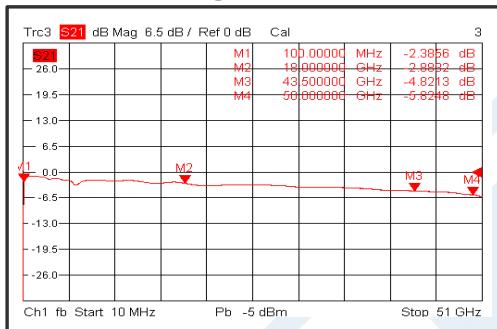


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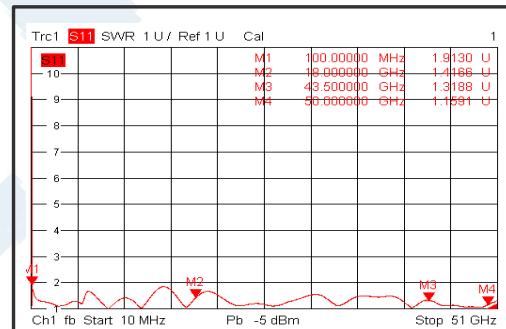
**PE71S1114**

### Typical Performance Data

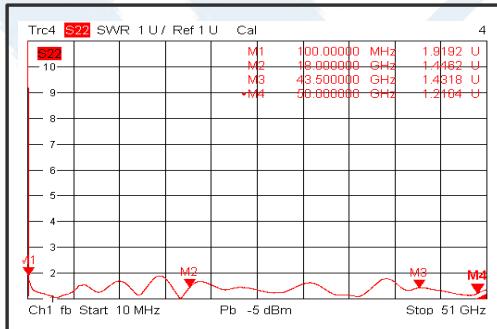
#### Insertion Loss @+25°C



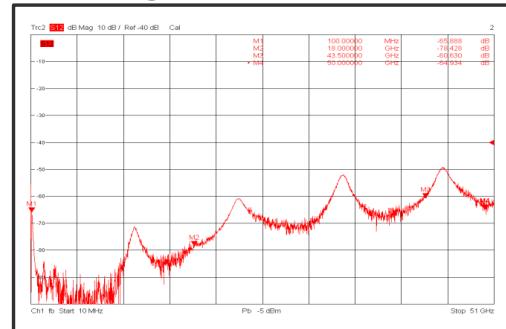
#### Input VSWR @+25°C



#### Output VSWR @+25°C



#### Isolation @+25°C



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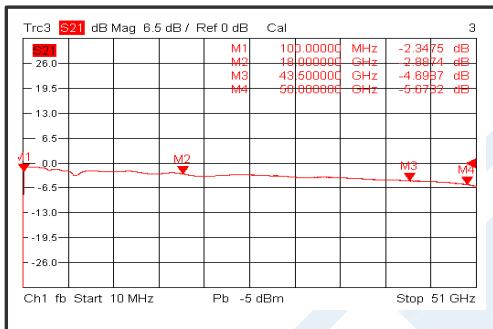
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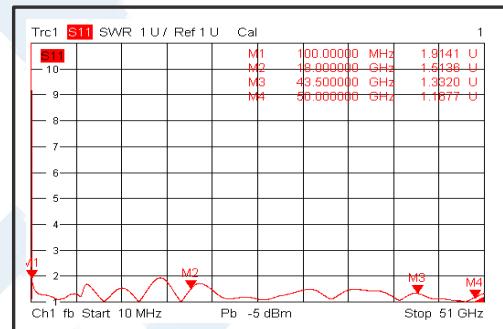
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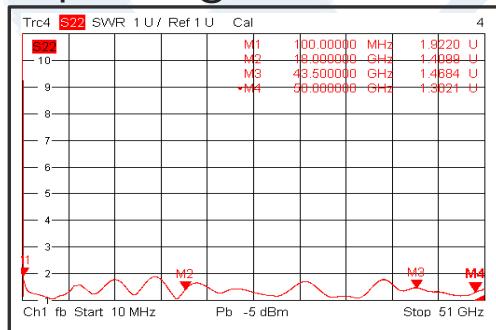
### Insertion Loss @-40°C



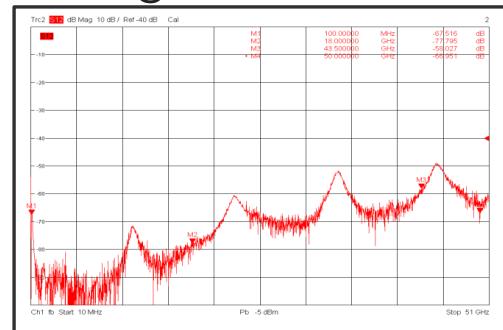
### Input VSWR @-40°C



### Output VSWR @-40°C



### Isolation @-40°C



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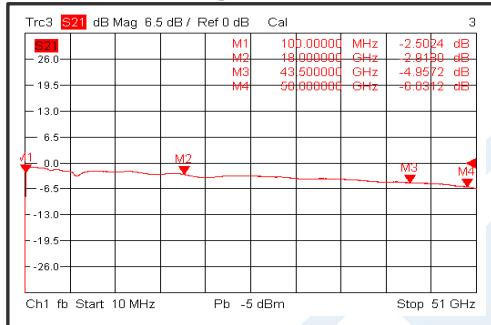
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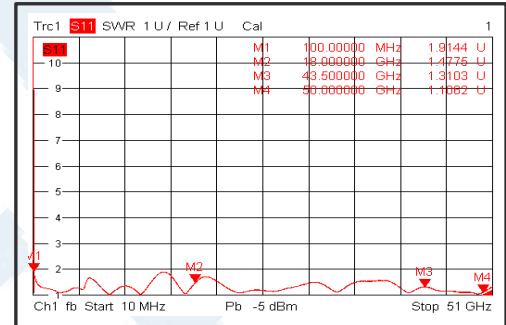
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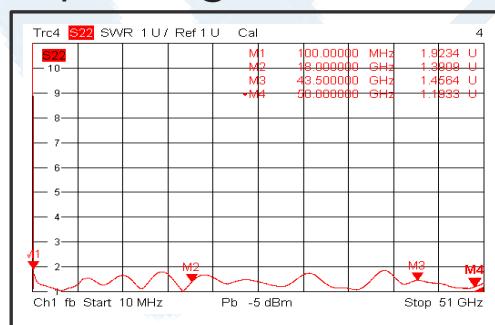
### Insertion Loss @+85°C



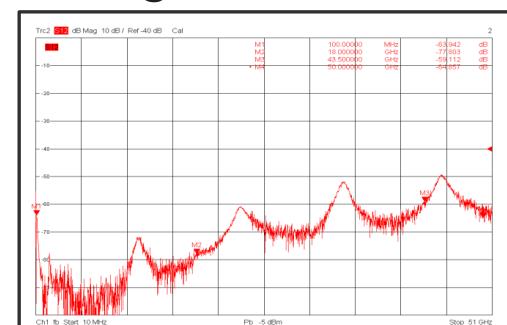
### Input VSWR @+85°C



### Output VSWR @+85°C



### Isolation @+85°C



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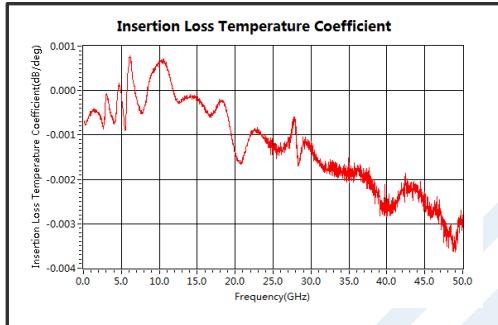
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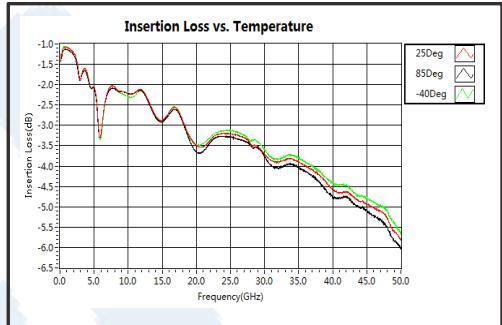
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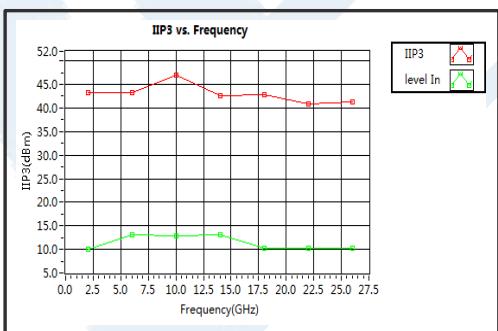
### Insertion Loss Temperature Coefficient



### Insertion Loss vs. Temperature



### IIP3



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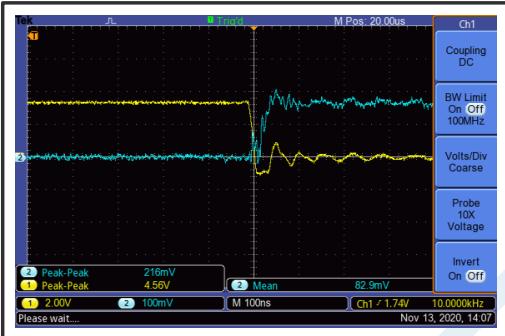
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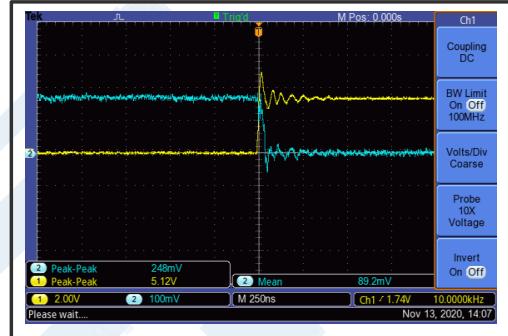
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### Switching Speed



### Switching Speed



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URL:

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# PE71S1114 CAD Drawing

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