

Reflective SP4T PIN Diode Switch Operating From 100 MHz to 520 MHz Up to 100 Watt (+50 dBm) and Field Replaceable SMA with Heatsink



PE71S5008

Features

- Reflective SP4T High Power PIN Diode Switch
- Reflective Design
- Frequency Range: 100 MHz to 520 MHz
- Insertion Loss: 0.8 dB max
- Isolation: 65 dB typ
- VSWR: 1.5:1 typ
- Maximum RF Input Power: 100 Watt
- Input IP3: +50 dBm typ
- Switching Speed: 1.2 usec
- TTL Compatible Driver Circuitry
- 50 Ohm Design
- SMA Female Connectors
- Compact Package Design withstands up to 95% Relative Humidity
- -40°C to +60°C Operating Temperature

Applications

- Aerospace & Defense
- Microwave Radio
- Military & Commercial Communication
- VSAT
- SATCOM
- Test & Measurement
- Wireless Infrastructure
- Fiber Optics

Description

The PE71S5008 is a single pole four throw (SP4T) PIN diode switch that operates across a wide frequency band from 100 MHz to 520 MHz. The 50 ohm reflective design supports TTL compatible driver circuitry for accurate logic control. Impressive typical performance includes 0.8 dB insertion loss max, 50 dB isolation min, and 1.2 usec switching speed. The switch requires a dual bias voltage of +5Vdc/-28V, and has maximum input power handling of up to 100 W. The rugged and compact package supports field replaceable SMA 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 +60°C, and meets a series of environmental test conditions including Altitude, Vibration, Humidity, and Shock.

Electrical Specifications

TTL Control Logic

Off/Isolation: "0" 0 to 0.8 V

On/Low Loss: "1" 2.8 to 5 V

| Description | Min | Typ | Max | Units |
|------------------------------|-----|-------|-------|-------|
| Frequency Range | 100 | | 520 | MHz |
| Impedance | | 50 | | Ohms |
| VSWR | | 1.3:1 | 1.5:1 | |
| Insertion Loss | | 0.35 | 0.8 | dB |
| IL Temperature Coefficient | | 0.003 | | |
| Isolation | 50 | 65 | | dB |
| Switching Time | | 500 | 1.2 | ps |
| 0.1dB Compression Point | | 49 | | |
| Input IP3 | | 50 | | dBm |
| Power In, Hot Switching (CW) | | | 100 | Watts |
| DC Power Dissipation | | 1.3 | | Watt |
| Positive Operating Voltage | | 5 | | Vdc |
| Negative Operating Voltage | | -28 | | Vdc |
| Current @ 5 Vdc | | 250 | | mA |

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Electrical Specifications

| | |
|-----------------------|--|
| TTL Control Logic | Off/Isolation: "0" 0 to 0.8 V On/Low Loss: "1" 2.8 to 5 V |
| Current @ -28Vdc | 120 mA |
| Operating Temperature | -40 to 60 deg C |

Performance by Frequency

| Description | F1 | F2 | F3 | F4 | F5 | Units |
|-----------------|------------|----|----|----|----|-------|
| Frequency Range | 100 to 520 | | | | | MHz |

Electrical Specification Notes:

1. TTL pins cannot be connected to the negative voltage otherwise the internal driver will be damaged.
2. If the device operates in high power state, case temperature must be lower than 60 degrees C.
3. Cold Switching: Before changing any TTL signal(s), the RF input power must be blanked or the switch could be damaged.

Absolute Maximum Rating

| Parameter | Rating |
|---------------------|------------------|
| Biassing | +5V±10%/-28V±10% |
| TTL Control Voltage | 0~0.8V/2.8~5V |



ESD Sensitive Material,
Transport material in
Approved ESD bags.
Handle only in approved
ESD Workstation.

Mechanical Specifications

| Size | |
|---------------------------|--------------------|
| Length | 1.56 in [39.62 mm] |
| Width | 1.36 in [34.54 mm] |
| Height | 0.77 in [19.56 mm] |
| Weight | 0.05 lbs [22.68 g] |
| Body Material and Plating | Aluminum, Gold |

Configuration

| | |
|---------------------------|------------------|
| Design | Reflective, SP4T |
| RF Input/Output Connector | SMA Female |
| Band Type | Wide Band |

Environmental Specifications

| Temperature | |
|-----------------|------------------|
| Operating Range | -40 to 60 deg C |
| Storage Range | -50 to 105 deg C |

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| | |
|---------------|---|
| Humidity | 100% RH at 35°C, 95%RH at 40°C |
| Shock | 20G for 11msec half sine wave, 3 axis both directions |
| Vibration | 25g RMS (15 degrees 2KHz) endurance, 1 hour per axis |
| Altitude | 30,000 ft. (Epoxy Sealed Controlled environment)? |
| Hermetic Seal | 60,000 ft. 1.0psi min Optional |

Compliance Certifications (see product page for current document)

Plotted and Other Data

Notes:

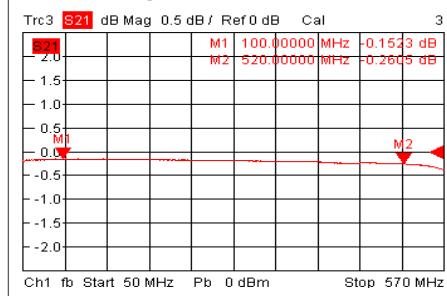
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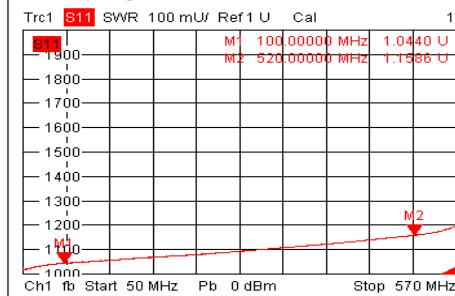
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Typical Performance Data

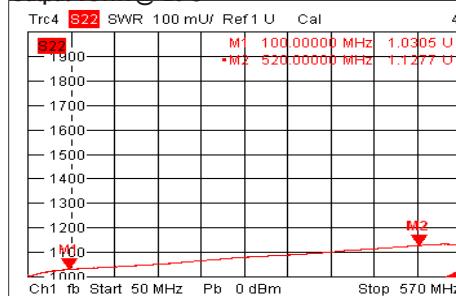
Insertion Loss @+25°C



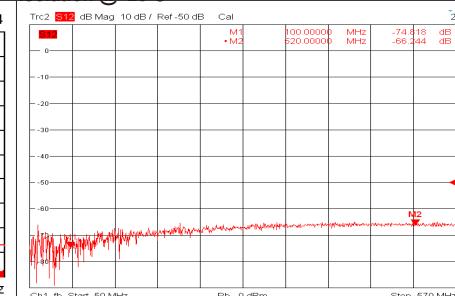
Input VSWR @+25°C



Output VSWR @+25°C



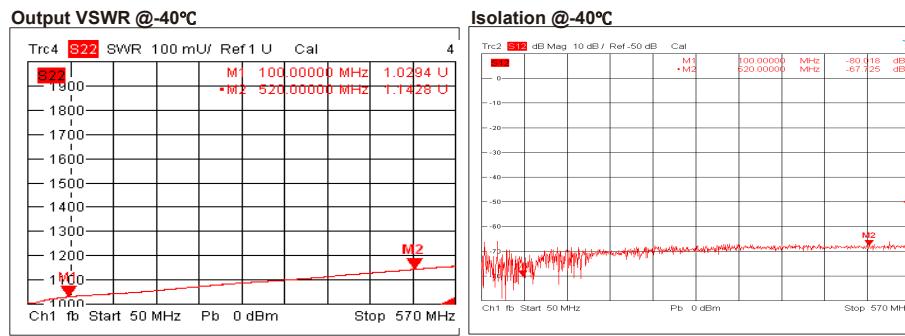
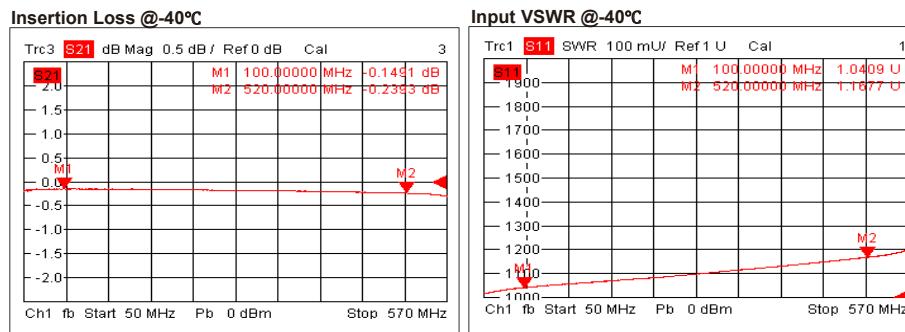
Isolation @+25°C



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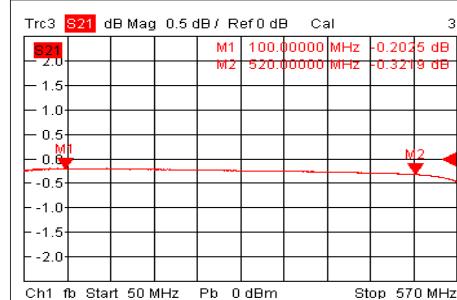


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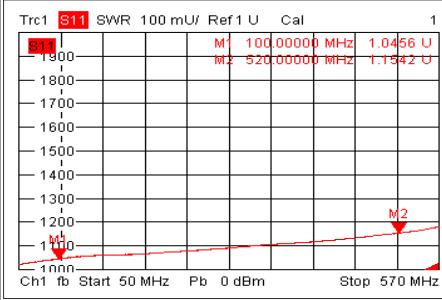


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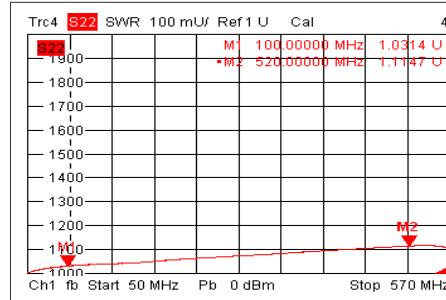
Insertion Loss @+60°C



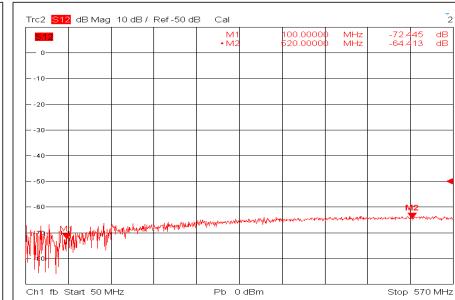
Input VSWR @+60°C



Output VSWR @+60°C



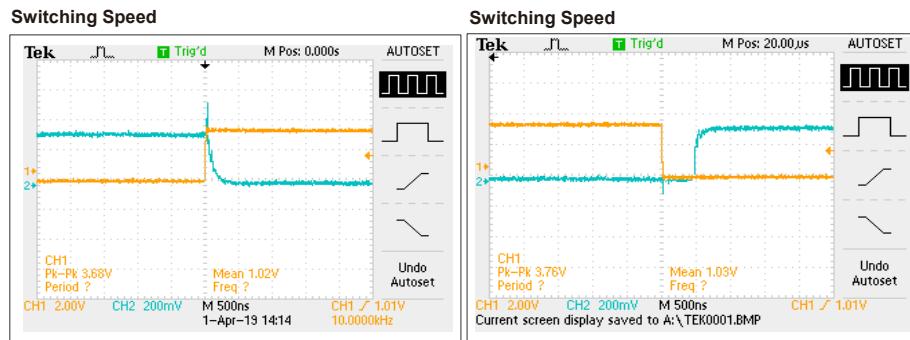
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Click the following link (or enter part number in "SEARCH" on website) to obtain additional part information including price, inventory and certifications: [Reflective SP4T PIN Diode Switch Operating From 100 MHz to 520 MHz Up to 100 Watt \(+50 dBm\) and Field Replaceable SMA with Heatsink PE71S5008](#)

URL: <https://www.pasternack.com/absorptive-sp12t-pin-diode-switch-20-ghz-27-dbm-sma-pe71s2034-p.aspx>

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PE71S5008 CAD Drawing

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