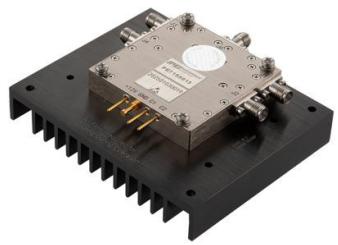


## Reflective SP4T PIN Diode Switch Operating From 10 MHz to 18 GHz Up to 10 Watt (+40 dBm) and Field Replaceable SMA with Heatsink



### PE71S5013

#### Features

- Reflective SP4T High Power PIN Diode Switch
- Reflective Design
- Frequency Range: 10 MHz to 18 GHz
- Insertion Loss: 4 dB max
- Isolation: 22 dB min
- VSWR: 2:1 max
- Maximum RF Input Power: 10 Watt
- Input IP3: +48 dBm typ
- Switching Speed: 500 nsec
- TTL Compatible Driver Circuitry
- 50 Ohm Design
- SMA Female Connectors
- Compact Package Design withstands up to 95% Relative Humidity
- -40°C to +85°C Operating Temperature

#### Applications

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

#### Description

The PE71S5013 is a single pole four throw (SP4T) PIN diode switch that operates across a wide frequency band from 10 MHz to 18 GHz. The 50 ohm reflective design supports TTL compatible driver circuitry for accurate logic control. Impressive typical performance includes 4 dB insertion loss max, 22 dB isolation min, and 500 nsec switching speed. The switch requires a bias voltage of +12Vdc, and has maximum input power handling of up to 10 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 +85°C, and meets a series of environmental test conditions including Altitude, Vibration, Humidity, and Shock.

#### Electrical Specifications

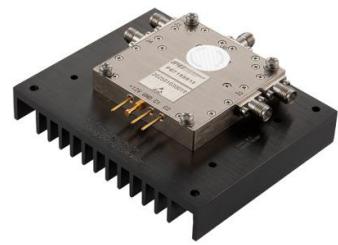
TTL Control Logic

Off/Isolation: "0" 0 to 0.8 V

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

Description	Min	Typ	Max	Units
Frequency Range	0.01		18	GHz
Impedance		50		Ohms
VSWR		1.7:1	2:01	
Insertion Loss			4	dB
Isolation	22			dB
Switching Time		500		ns
0.1dB Compression Point		40		
Input IP3		48		dBm
Power In, Hot Switching (CW)			40	Watts
DC Power Dissipation		1.5		Watt
Positive Operating Voltage		12		Vdc
Current @ 12 Vdc		150		mA
Operating Temperature	-40		85	deg C

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## PE715013

### Performance by Frequency

Description	F1	F2	F3	F4	F5	Units
Frequency Range	0.01 to 6	6 to 12	12 to 18			GHz
Insertion Loss, Max	2.5	3	4			dB
Insertion Loss, Typ	1.9	2.5	3.6			dB
Isolation, Min	30	25	22			dB
Isolation, Typ	40	30	24			dB

### 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, recommend keeping case temperature 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.
4. DC blocks required. Input and output ports must not be connected to DC ground or any DC voltage or the switch will be damaged.

### Absolute Maximum Rating

Parameter	Rating
Biassing	+12V±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	1.97 in [50.04 mm]
Width	1.97 in [50.04 mm]
Height	0.37 in [9.4 mm]
Weight	0.05 lbs [22.68 g]
Body Material and Plating	Aluminum, Nickel

#### Configuration

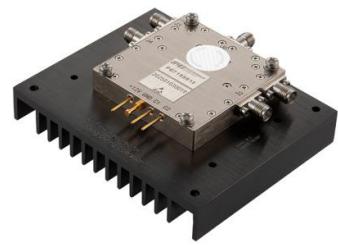
Design	Reflective, SP4T
RF Input/Output Connector	SMA Female
Band Type	Ultra-Wideband

### 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 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)? 60,000 ft. 1.0psi min

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## PE71S5013

Hermetic Seal

Optional

**Compliance Certifications** (see product page for current document)

### Plotted and Other Data

Notes:

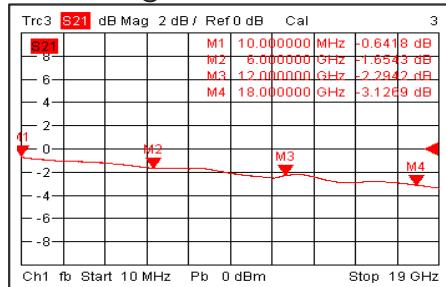
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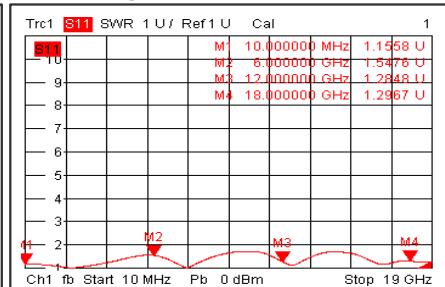
**PE715013**

Typical Performance Data

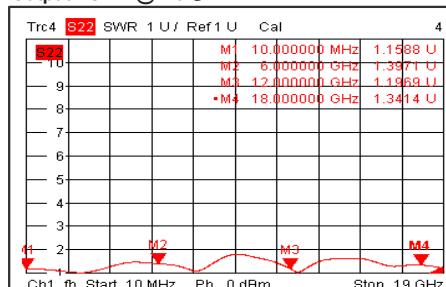
Insertion Loss @+25°C



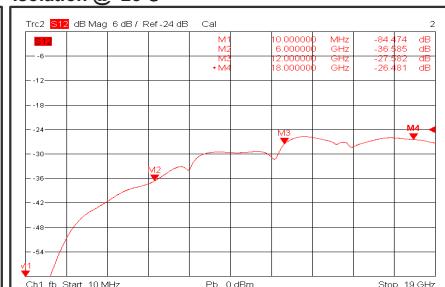
Input VSWR @+25°C



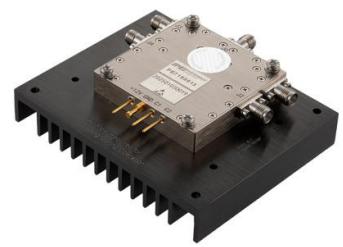
Output VSWR @+25°C



Isolation @+25°C

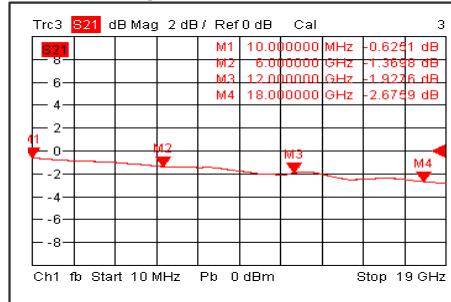


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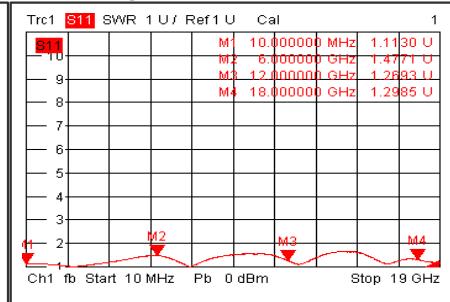


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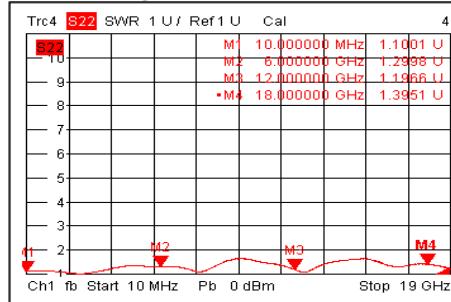
Insertion Loss @-40°C



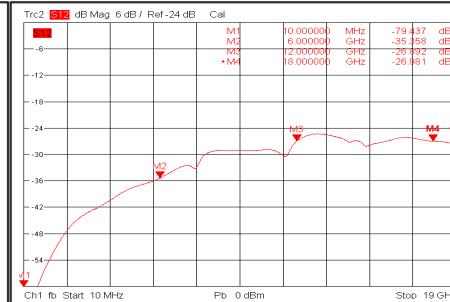
Input VSWR @-40°C



Output VSWR @-40°C



Isolation @-40°C

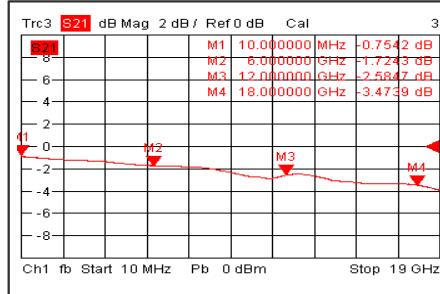


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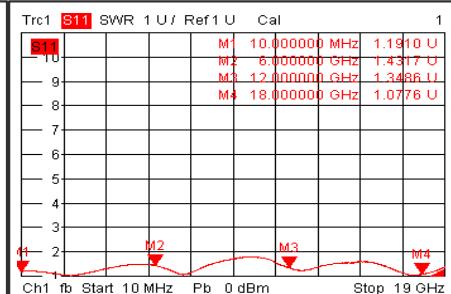


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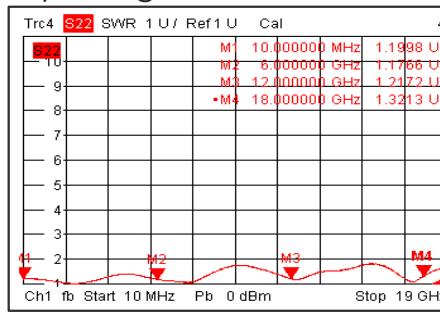
Insertion Loss @+85°C



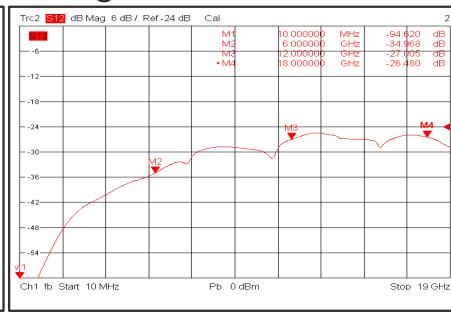
Input VSWR @+85°C



Output VSWR @+85°C



Isolation @+85°C

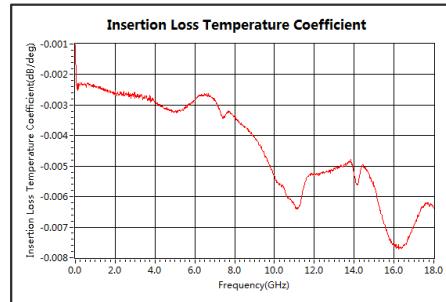


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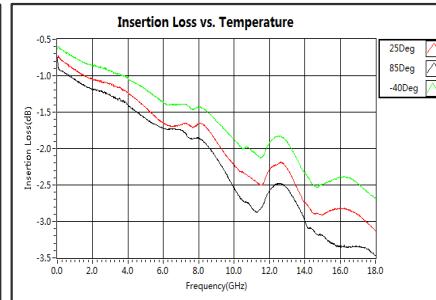


**PE71S5013**

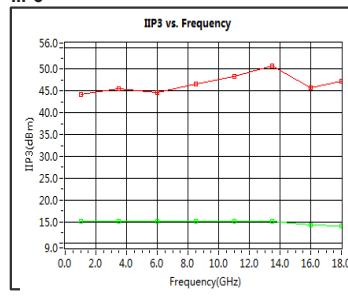
Insertion Loss Temperature Coefficient



Insertion Loss vs. Temperature



IIP3



Switching Speed



Reflective SP4T PIN Diode Switch Operating From 10 MHz to 18 GHz Up to 10 Watt (+40 dBm) and Field Replaceable SMA with Heatsink



## PE71S5013

Reflective SP4T PIN Diode Switch Operating From 10 MHz to 18 GHz Up to 10 Watt (+40 dBm) and Field Replaceable SMA with Heatsink 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.

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 10 MHz to 18 GHz Up to 10 Watt \(+40 dBm\) and Field Replaceable SMA with Heatsink PE71S5013](#)

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

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# PE71S5013 CAD Drawing

Reflective SP4T PIN Diode Switch Operating From 10 MHz to 18 GHz Up to 10 Watt (+40 dBm) and Field Replaceable SMA with Heatsink

