

Absorptive SPDT Broadband PIN Diode Switch Operating 18 GHz to 40 GHz, Up to 23 dBm, 50 nsec max and 2.92mm

The PE71S1117 is a single pole double throw (SPDT) PIN diode switch that operates across a broadband frequency from 18 GHz to 40 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 3.5 dB insertion loss, 60 dB isolation, and < 50 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 Logic

Off/Isolation: 0 to 0.8 V
 On/Low Loss: 2.8 to 5 V

Description	Min	Typ	Max	Units
Frequency Range	18		40	GHz
Impedance		50		Ohms
VSWR		2.5:1	3:1	
Insertion Loss		3.5	4.5	dB
IL Temp. Coefficient		0.003		dB/degC
Isolation	45	60		dB
Switching Time			50	ns
P0.1dB		23		dBm
Input IP3		40		dBm
Input Power (CW)			23	dBm
DC Power Dissipation		0.5		Watts
Positive Operating Voltage		5		Vdc
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

Biasing	+5V ± 10% / -5V ± 10%
---------	-----------------------

Mechanical Specifications

Length	0.94 in [23.88 mm]
Width	0.47 in [11.94 mm]
Height	0.67 in [17.02 mm]



Features:

- Broadband SPDT PIN Diode Switch
- 18 GHz to 40 GHz
- 50 Ohm Absorptive Design
- Integrated TTL Driver
- Insertion Loss: 3.5 dB typ
- Isolation: 60 dB typ
- Switching Speed: < 50 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

Fairview Microwave
 301 Leora Ln., Suite 100
 Lewisville, TX 75056
 Tel: 1-800-715-4396 / (972) 649-6678
 Fax: (972) 649-6689
www.fairviewmicrowave.com
sales@fairviewmicrowave.com

Weight	0.04 lbs [18.14 g]
Design	Absorptive, SPDT
RF Input/Output Connector	Field Replaceable 2.92mm Female

Environmental Specifications

Temperature

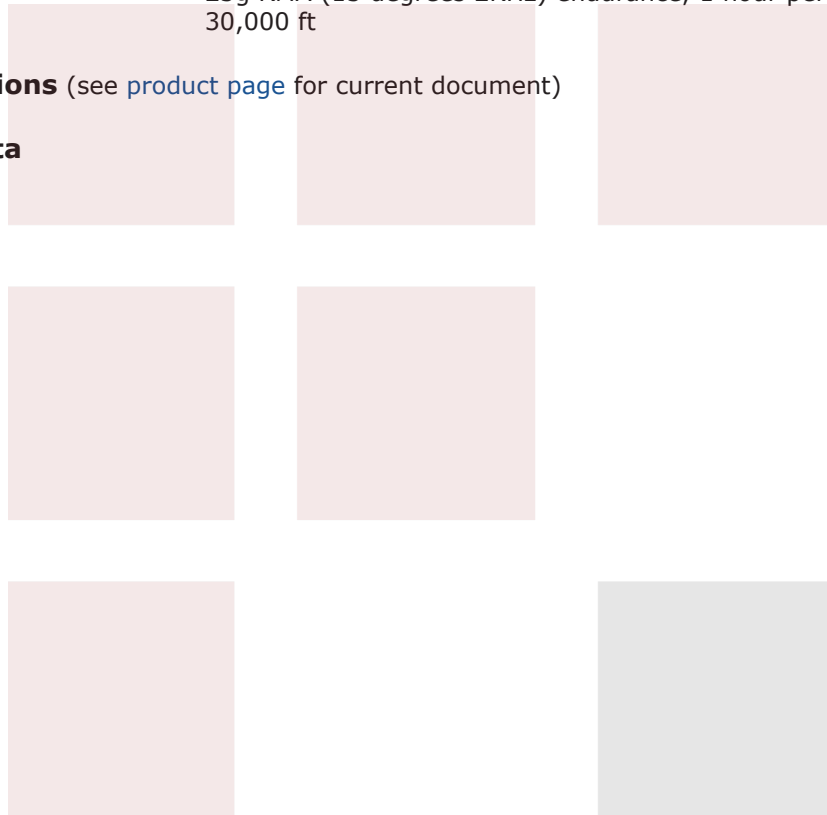
Operating Range	-40 to +85 deg C
Storage Range	-50 to +105 deg C

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)

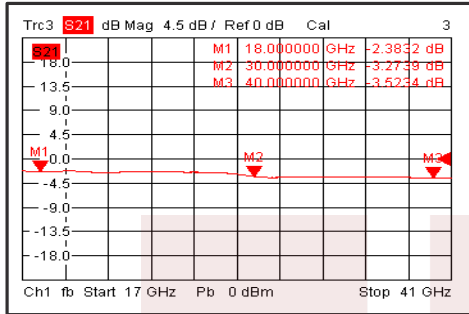
Plotted and Other Data

Notes:

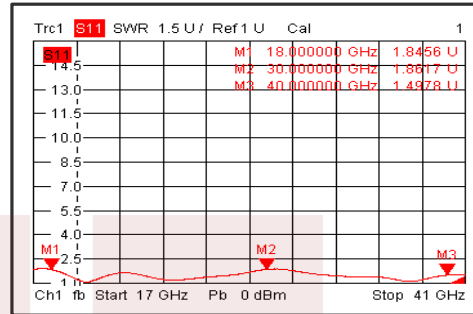


Typical Performance Data

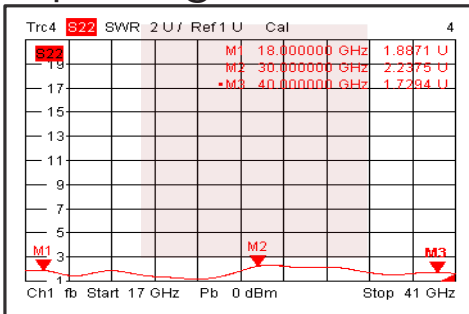
Insertion Loss @+25°C



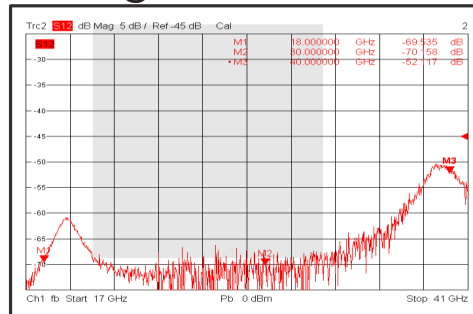
Input VSWR @+25°C



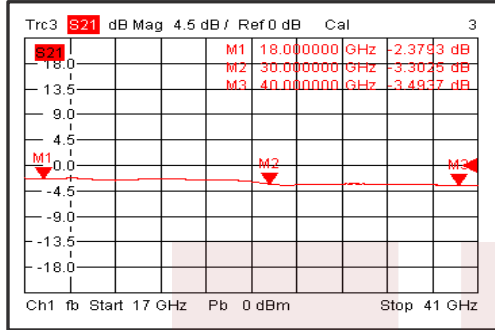
Output VSWR @+25°C



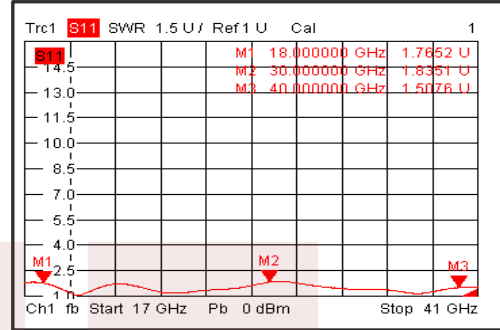
Isolation @+25°C



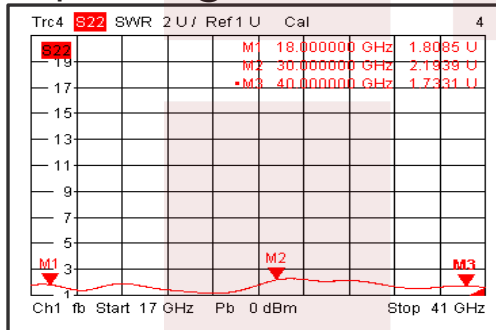
Insertion Loss @-40°C



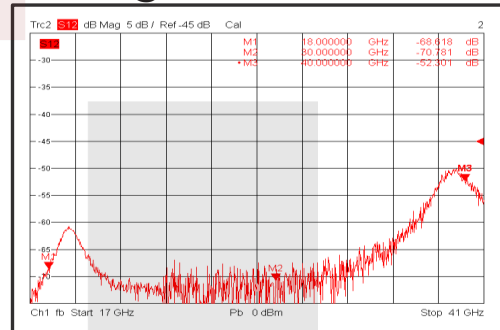
Input VSWR @-40°C



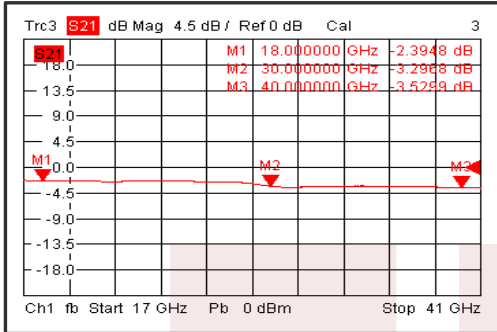
Output VSWR @-40°C



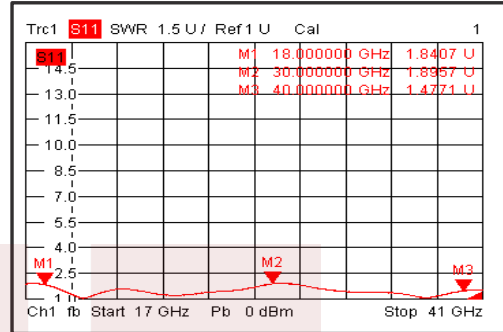
Isolation @-40°C



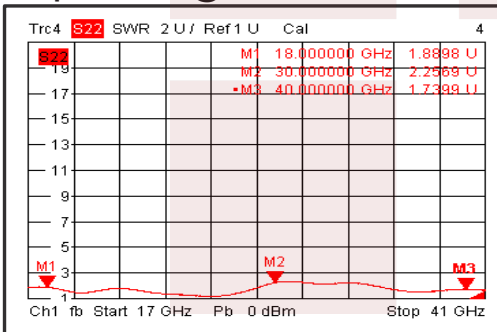
Insertion Loss @+85°C



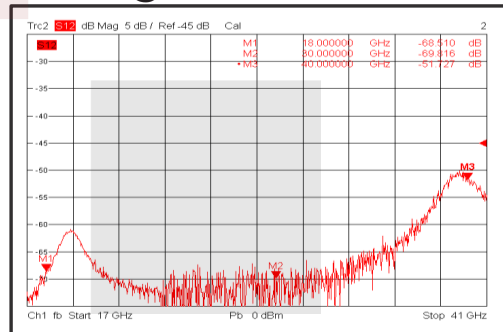
Input VSWR @+85°C



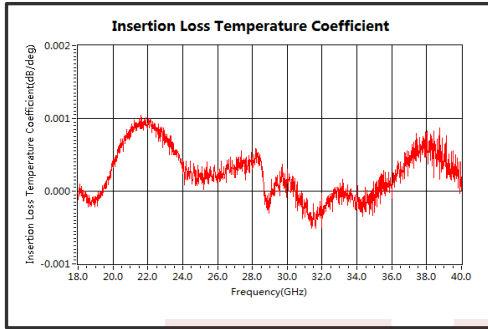
Output VSWR @+85°C



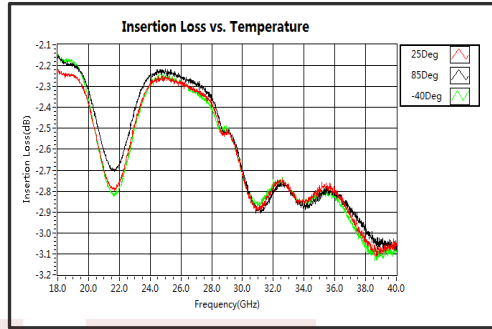
Isolation @+85°C



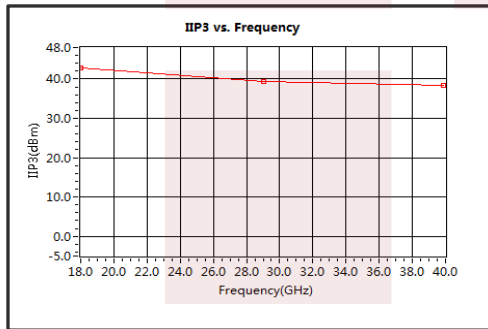
Insertion Loss Temperature Coefficient



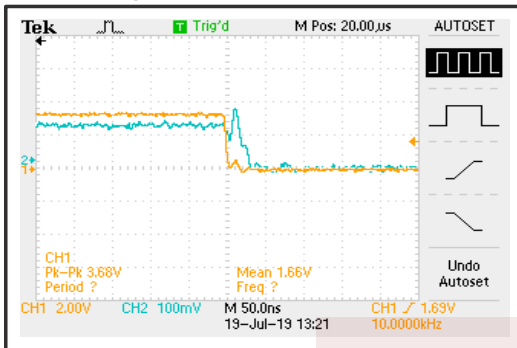
Insertion Loss vs. Temperature



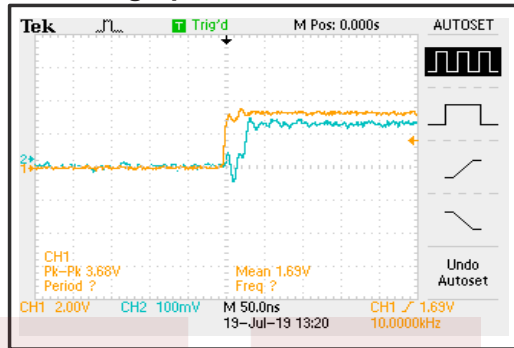
IIP3



Switching Speed



Switching Speed



Absorptive SPDT Broadband PIN Diode Switch Operating 18 GHz to 40 GHz, Up to 23 dBm, 50 nsec max and 2.92mm from Fairview Microwave is in-stock and available to ship same-day. All of our RF/microwave products are available off-the-shelf from our ISO 9001:2008 certified facilities in Lewisville, Texas. Fairview Microwave is RF on-demand.

For additional information on this product, please click the following link: [Absorptive SPDT Broadband PIN Diode Switch Operating 18 GHz to 40 GHz, Up to 23 dBm, 50 nsec max and 2.92mm FMSW1117](#)

URL:

The information contained in this document is accurate to the best of our knowledge and representative of the part described herein. It may be necessary to make modifications to the part and/or the documentation of the part, in order to implement improvements. Fairview Microwave reserves the right to make such changes as required. Unless otherwise stated, all specifications are nominal. Fairview Microwave does not make any representation or warranty regarding the suitability of the part described herein for any particular purpose, and Fairview Microwave does not assume any liability arising out of the use of any part or documentation.

