

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

The PE71S1113 is a single pole double throw (SPDT) 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 4.5 dB insertion loss, 50 dB isolation, and 50 nsec switching speed. The switch requires a +5Vdc bias voltage, and has maximum input power handling of +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 Logic

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

Description	Min	Typ	Max	Units
Frequency Range	0.1		50	GHz
Impedance		50		Ohms
VSWR		2:1	3:1	
Insertion Loss		4.5	7.5	dB
IL Temp. Coefficient		0.003		dB/degC
Isolation	40	50		dB
Switching Time		50	100	ns
P0.1dB		23		dBm
Input IP3		45		dBm
Input Power (CW)			23	dBm
DC Power Dissipation		0.8		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%
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Mechanical Specifications

Length	0.94 in [23.88 mm]
Width	0.47 in [11.94 mm]
Height	0.67 in [17.02 mm]
Weight	0.04 lbs [18.14 g]



Features:

- Ultra-Wideband SPDT PIN Diode Switch
- 100 MHz to 50 GHz
- 50 Ohm Absorptive Design
- Integrated TTL Driver
- Insertion Loss: 4.5 dB typ
- Isolation: 50 dB typ
- Switching Speed: 50 nsec typ
- Maximum RF input Power: +23 dBm
- Single Bias Voltage: +5Vdc
- 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

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Design: Absorptive, SPDT
 RF Input/Output Connector: Field Replaceable 2.4mm Female

Environmental Specifications

Temperature

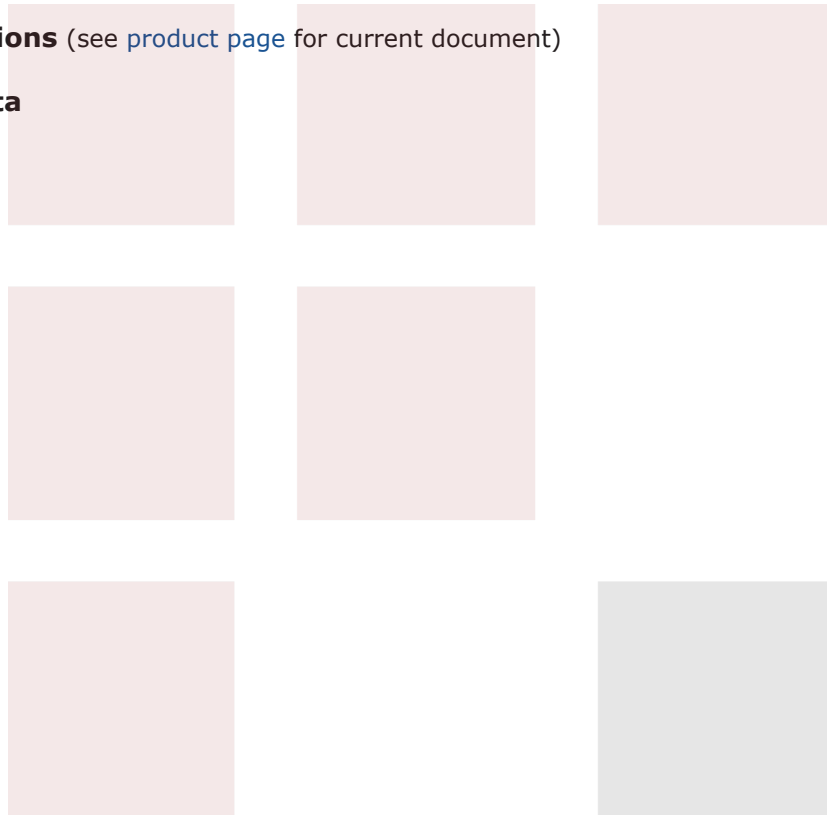
Operating Range: -40 to +85 deg C
 Storage Range: -50 to +105 deg C

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)

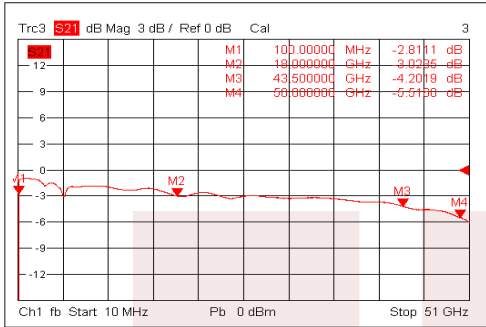
Plotted and Other Data

Notes:

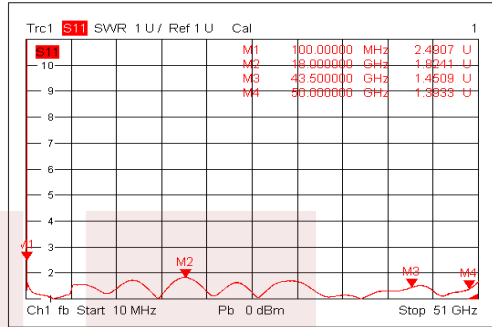


Typical Performance Data

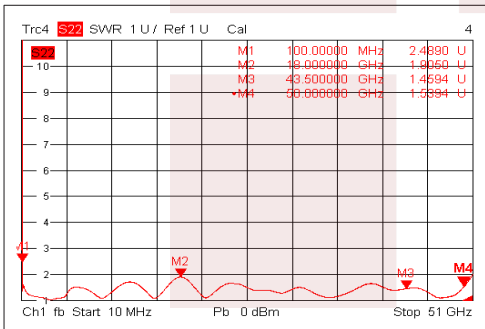
Insertion Loss @+25°C



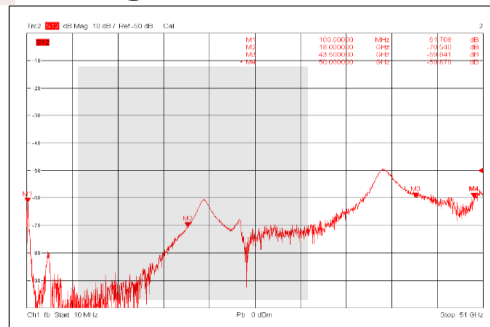
Input VSWR @+25°C



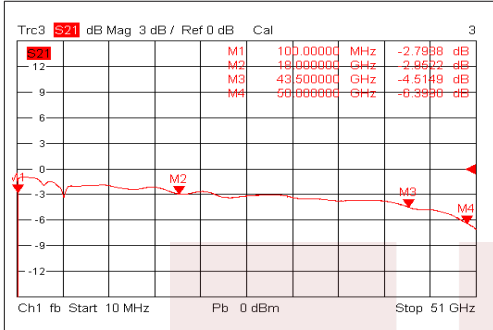
Output VSWR @+25°C



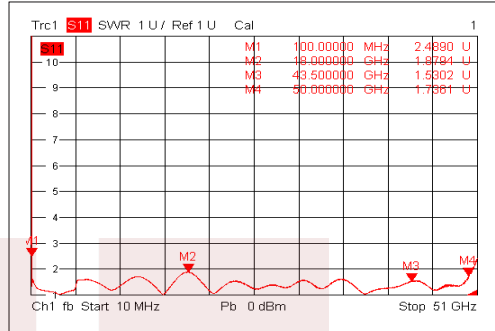
Isolation @+25°C



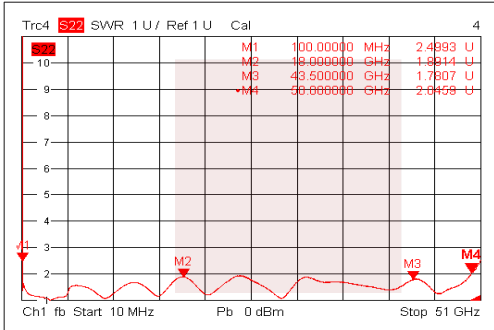
Insertion Loss @-40°C



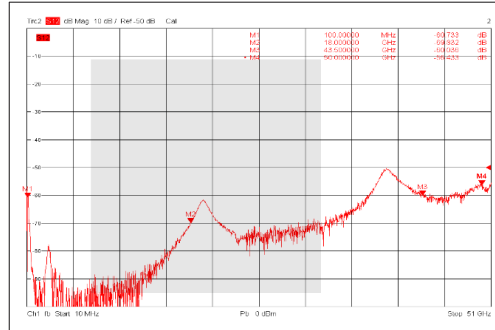
Input VSWR @-40°C



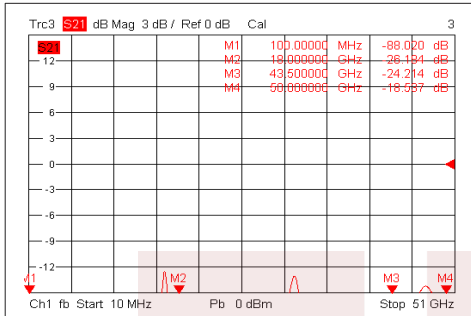
Output VSWR @-40°C



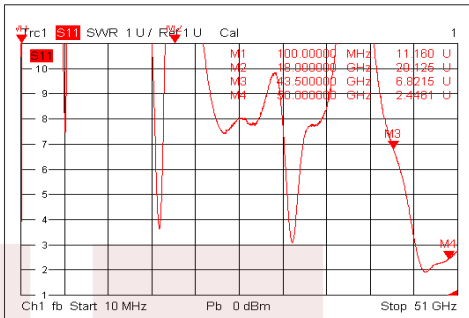
Isolation @-40°C



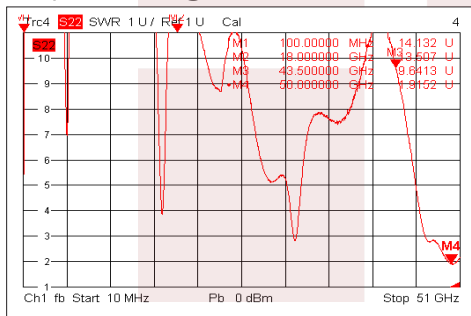
Insertion Loss @+85°C



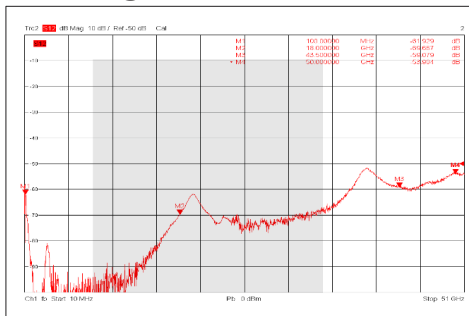
Input VSWR @+85°C



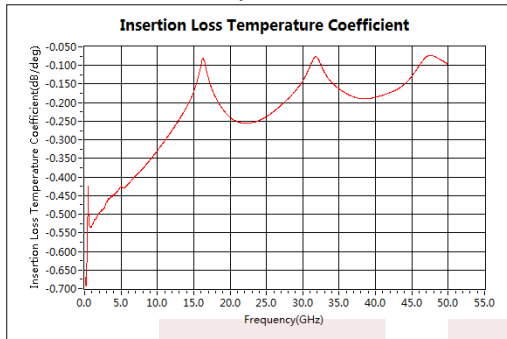
Output VSWR @+85°C



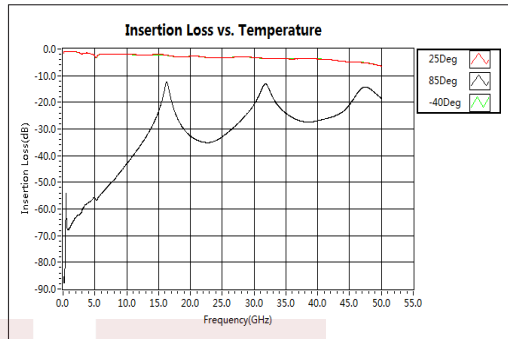
Isolation @+85°C



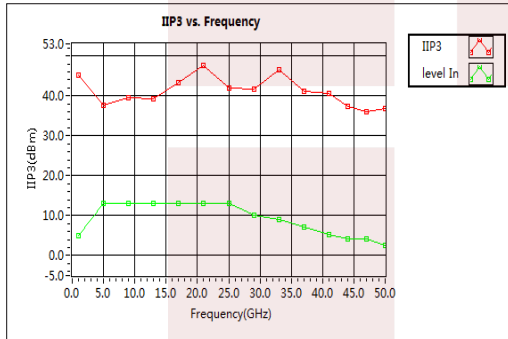
Insertion Loss Temperature Coefficient



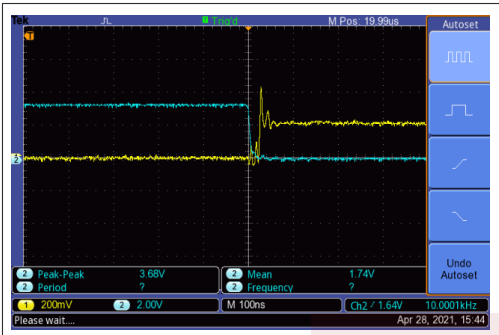
Insertion Loss vs. Temperature



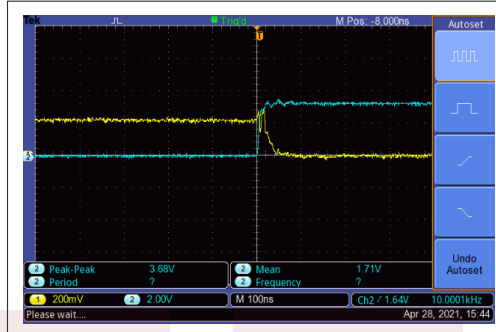
IIP3



Switching Speed



Switching Speed

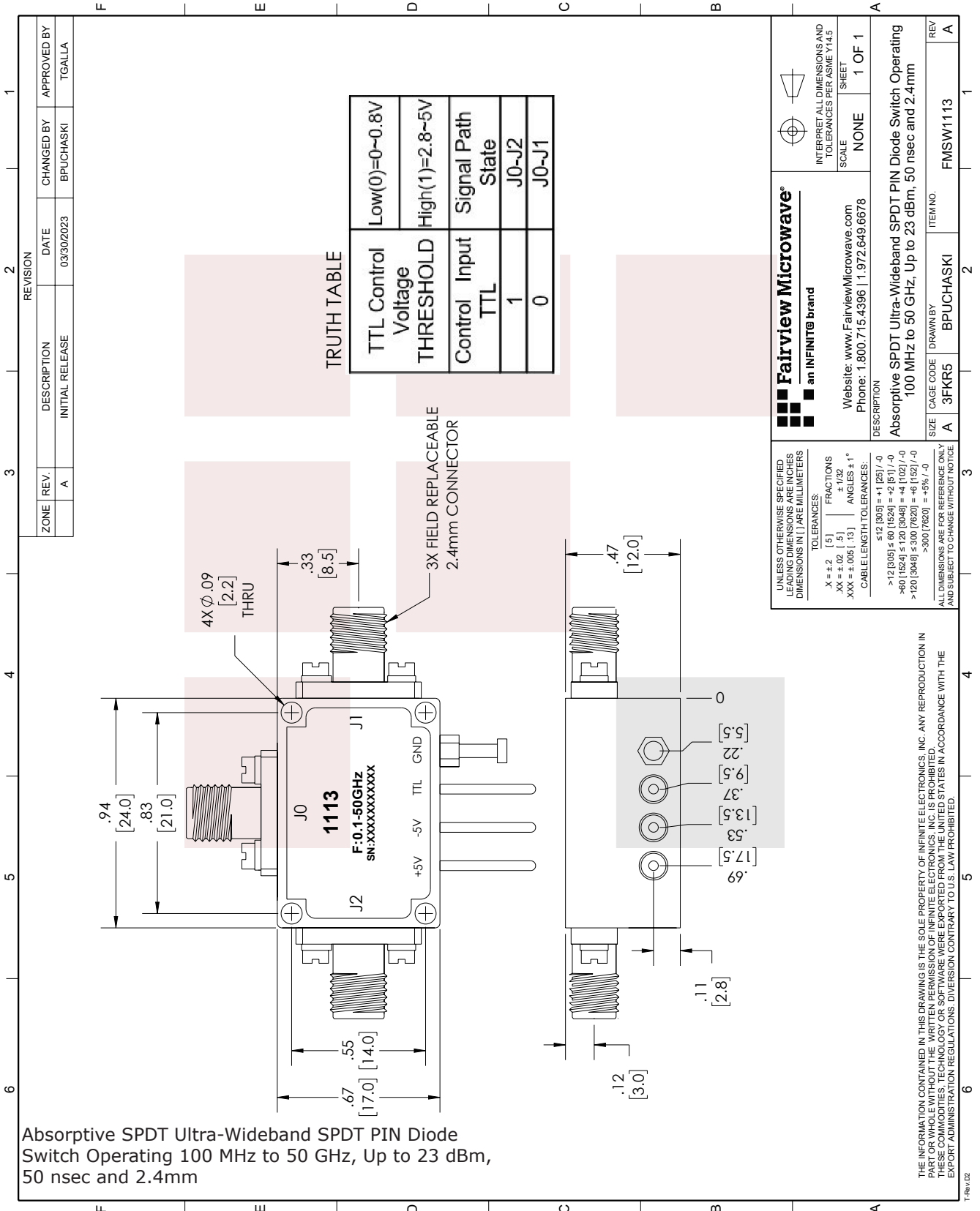


Absorptive SPDT Ultra-Wideband SPDT PIN Diode Switch Operating 100 MHz to 50 GHz, Up to 23 dBm, 50 nsec and 2.4mm from Fairview Microwave is in-stock and available to ship same-day. All of our RF/microwave products are available off-the-shelf from our ISO 9001:2008 certified facilities in Lewisville, Texas. Fairview Microwave is RF on-demand.

For additional information on this product, please click the following link: [Absorptive SPDT Ultra-Wideband SPDT PIN Diode Switch Operating 100 MHz to 50 GHz, Up to 23 dBm, 50 nsec and 2.4mm FMSW1113](#)

URL:

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INTERPRET ALL DIMENSIONS AND TOLERANCES PER ASME Y14.5
SCALE NONE SHEET 1 OF 1

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

ZONE	REV.	DESCRIPTION	DATE	CHANGED BY	APPROVED BY
A	A	INITIAL RELEASE	03/30/2023	BPUCHASKI	TGALLA

SIZE A 3FKR5 DRAWN BY BPUCHASKI ITEM NO. FMSW1113 REV A