

Reflective SPDT GaN High Power PIN Diode
Switch Operating from DC to 6 GHz Up to 40 Watts
(+46 dBm), < 100ns and SMA with Heatsink



PIN Diode Switches Technical Data Sheet

PE71S1105

Features

- Reflective SPDT High Power PIN Diode Switch
- GaN Semiconductor Technology
- Reflective Design
- Frequency Range: DC to 6 GHz
- Insertion Loss: 0.9 dB typ
- Isolation: 35 dB typ
- VSWR: 1.2:1 typ
- Maximum RF Input Power: +46 dBm
- Input IP3: +55 dBm typ
- Switching Speed: < 100 nsec
- TTL Compatible Driver Circuitry
- 50 Ohm Design
- SMA Female Connectors
- Compact Package Design withstands up to 95% Relative Humidity
- -45°C to +85°C Operating Temperature

Applications

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

Description

The Reflective PE71S1105 is a high power SPDT PIN Diode Switch that operates from DC to 6 GHz and incorporates an integrated heatsink to ensure optimum thermal dissipation for reliable operation. The module utilizes Gallium Nitride (GaN) and chip-and-wire technology in the manufacturing process that ensures state-of-the-art power performance with excellent power-to-volume ratio that's ideal for broadband high power applications. The 50 ohm reflective design has impressive RF input power handling capability for cold switching up to +46 dBm, and incorporates TTL compatible driver circuitry for accurate logic control. Typical performance includes 0.9 dB insertion loss, 35 dB isolation, 1.2:1 VSWR, and < 100 nsec switching speed. Operational temperature range is -45°C to +85°C and the bias voltage requirement is +5Vdc. The rugged and compact package supports SMA female connectors and is designed to meet a series of environmental conditions including Altitude, Vibration, Humidity, and Shock.

Electrical Specifications

TTL Control

Off/Isolation: 0 to 0.8 V

On/Low Loss: 2.8 to 5 V

Description	Minimum	Typical	Maximum	Units
Frequency Range	DC		6	GHz
Impedance		50		Ohms
VSWR		1.2:1	1.5:1	
Insertion Loss		0.9	1.3	dB
IL Temperature Coefficient		0.003		dB/degC
Isolation	25	35		dB
Switching Time			100	ns
0.1dB Compression Point		+55		dBm
Input IP3		55		dBm
RF Input Power (CW)*			40	Watts
DC Power Dissipation		0.7		Watt

Click the following link (or enter part number in "SEARCH" on website) to obtain additional part information including price, inventory and certifications: [Reflective SPDT GaN High Power PIN Diode Switch Operating from DC to 6 GHz Up to 40 Watts \(+46 dBm\), < 100ns and SMA with Heatsink PE71S1105](#)

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Positive Operating Voltage	5	Vdc
Current @ 5 Vdc	100	mA
Operating Temperature	-45	+85 deg C

Performance by Frequency

Description	F1	F2	F3	F4	F5	Units
Frequency Range	DC to 3	3 to 6				GHz
VSWR, Max	1.3:1	1.5:1				
VSWR, Typ	1.2:1	1.3:1				
Insertion Loss, Max	1	1.3				dB
Insertion Loss, Typ	0.8	1.1				dB
Isolation, Min	33	25				dB
Isolation, Typ	37	28				dB

Electrical Specification Notes:

Internal TTL Driver will become damaged if Negative Voltage is applied

*Cold Switching: Before changing any TTL signal(s), the RF input power must be blanked or the switch could become damaged

Absolute Maximum Rating

Parameter	Rating
Biassing	+5V±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	1.57 in [39.88 mm]
Width	1.34 in [34.04 mm]
Height	0.37 in [9.4 mm]
Weight	2.5 lbs [1.13 kg]
Design	Reflective, SPDT
RF Connector	SMA Female

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Environmental Specifications

Temperature

Operating Range
Storage Range

-45 to +85 deg C
-55 to +125 deg C

Humidity

100% RH @ 35°C, 95% RH @ 40°C

Shock

20G for 11ms Half Sinewave, 3 axis both directions

Vibration

25g RMS (15° 2KHz) endurance, 1 hr per axis

Altitude

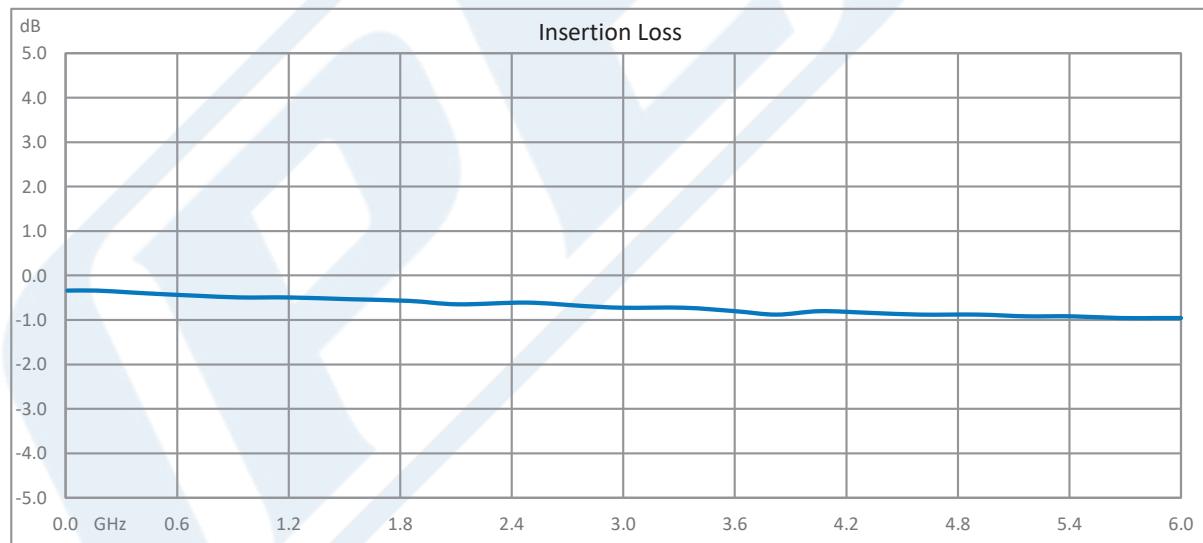
30,000 ft. (Epoxy Sealed Controlled Environment)

Compliance Certifications (see [product page](#) for current document)

Plotted and Other Data

Notes:

Typical Performance Data



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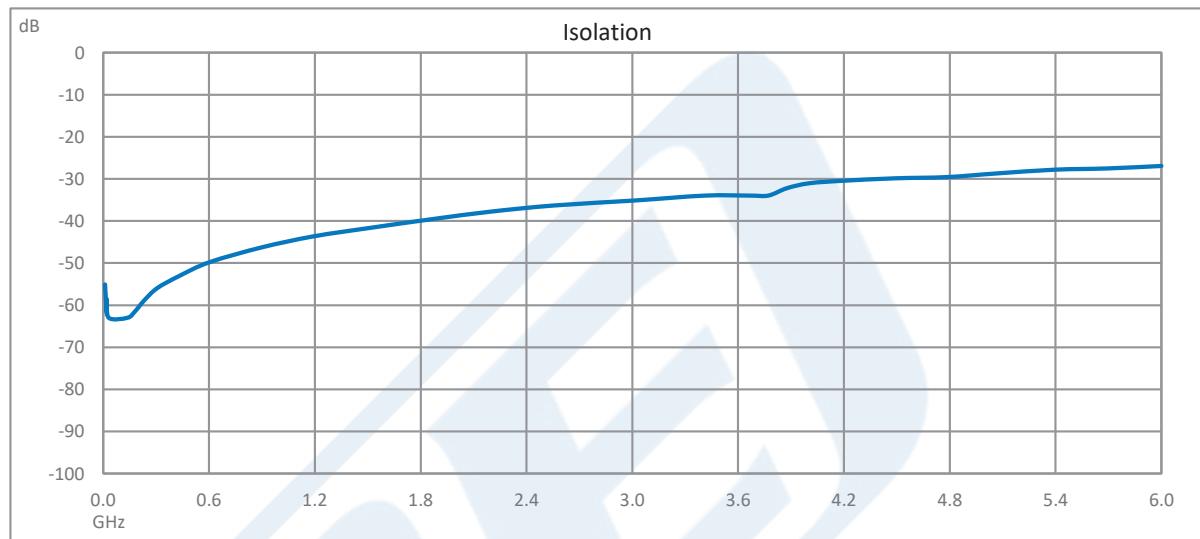
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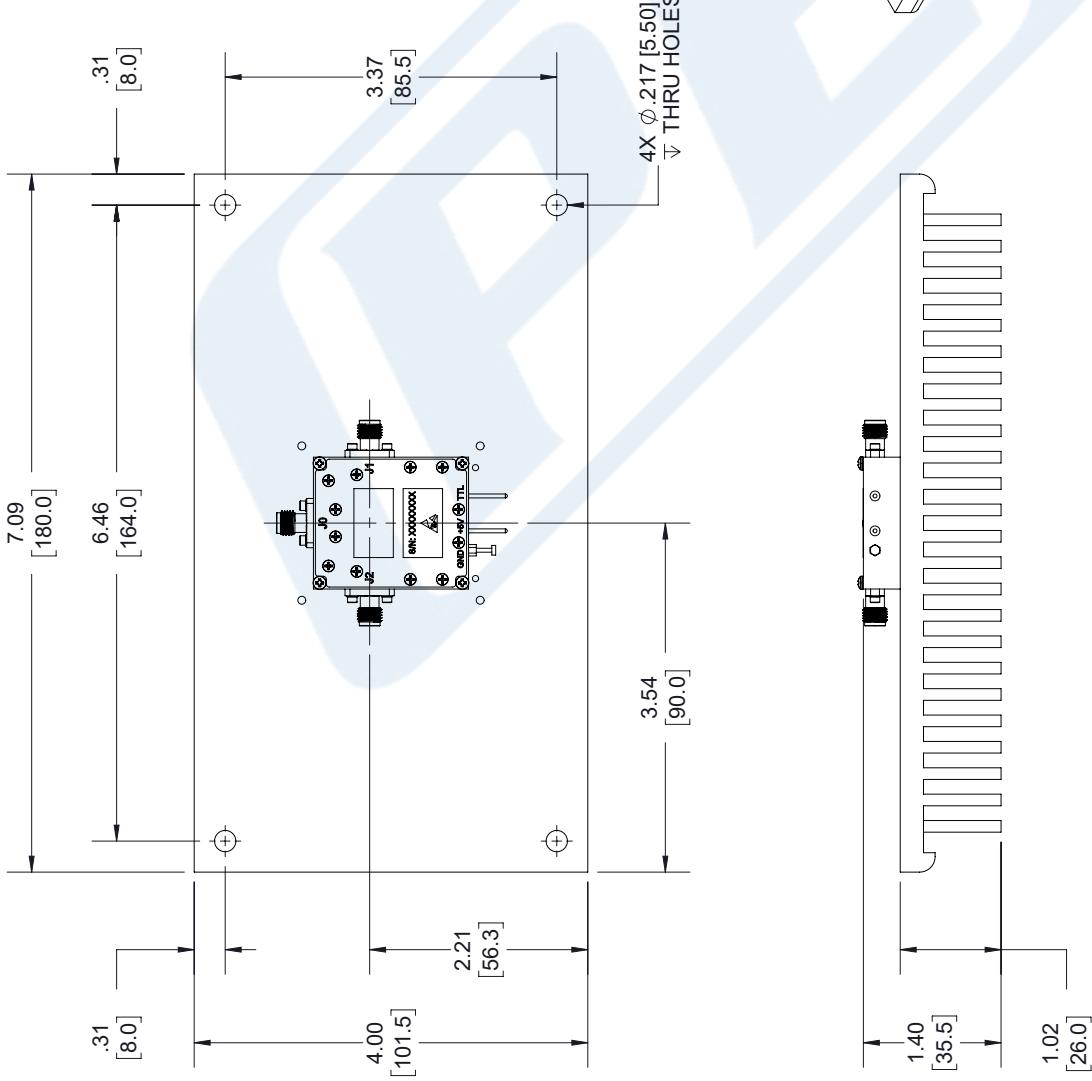
URL: <https://www.pasternack.com/spdt-pin-diode-switch-6-ghz-40-watts-sma-pe71s1105-p.aspx>

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PE71S1105 CAD Drawing

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REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
A	INITIAL RELEASE	8/17/2020	T. GALLA



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