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35 dB High Isolation SPDT PIN Diode Switch DC to 20 GHz, 4 dB Insertion Loss with SMA

TECHNICAL DATA SHEET PE71S5000

The PE71S5000 is a Single Pole Double Throw (SPDT) Absorptive Switch that covers a wide frequency band from DC to 20 GHz. This general purpose design utilizes GaAs MESFET MMIC technology that has extremely fast switching speed levels of 5 nsec. Additional typical performance includes 45 dB Isolation up to 5 GHz, and 2 dB Insertion Loss at 12 GHz. The design also incorporates CMOS driver circuitry that allows a single +5V biased voltage at very low DC current levels. The drop-in package is hermetically sealed with field replaceable SMA connectors. Operating temperature range is -55°C to +85°C. And for added confidence, this rugged package assembly is designed to meet MIL-STD-883 test conditions for Hermeticity and Temperature Cycle.

Features

- SPDT Non-Reflective Switch Design
- GaAs MESFET MMIC Technology
- Ultra Fast Switching Speed 5 nsec typical
- High Isolation 45 dB typical up to 5 GHz
- Low Insertion Loss 2 dB typical at 12 GHz
- CMOS Driver Circuit
- Hermetically Sealed Module
- Field Replaceable SMA Connectors
- -55°C to +85°C Operating Temperature
- Designed to meet MIL-STD-883 Conditions

Applications

- Electronic Warfare
- Electronic Countermeasures
- Microwave Radio
- VSAT
- Radar
- Fiber Optic
- Space Systems
- Test Instrumentation
- Telecom Infrastructure
- Base station Infrastructure

Electrical Specifications

Description	Minimum	Typical	Maximum	Units
Frequency Range	DC		20	GHz
Insertion Loss		4		dB
Isolation		35		dB
Switching Speed		5		ns
Control Input		TTL		
Power Handling		+23		dBm

Click the following link (or enter part number in "SEARCH" on website) to obtain additional part information including price, inventory and certifications: 35 dB High Isolation SPDT PIN Diode Switch DC to 20 GHz, 4 dB Insertion Loss with SMA PE71S5000

Pasternack Enterprises, Inc. • P.O. Box 16759, Irvine, CA 92623
Phone: (866) 727-8376 or (949) 261-1920 • **Fax:** (949) 261-7451
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Performance by Frequency

Description		Frequency	Min.	Typ.	Max.	Units
Insertion Loss		DC - 4.0 GHz		1.8	2.3	dB
		DC - 12.0 GHz		2.0	2.5	dB
		DC - 16.0 GHz		2.5	3.5	
		DC - 20.0 GHz		4	4.9	dB
Isolation		DC - 4.0 GHz	41	46		dB
		DC - 8.0 GHz	35	40		dB
		DC - 20.0 GHz	25	35		dB
Return Loss	"On State"	DC - 12.0 GHz		15		dB
		DC - 20.0 GHz		10		dB
Return Loss RF1, RF2	"Off State"	DC - 10.0 GHz		20		dB
		DC - 15.0 GHz		15		dB
		DC - 20.0 GHz		10		dB
Input Power For 1 dB Compression		0.5 - 20.0 GHz	+20	+23		dBm
Input Third Order Intercept		0.5 - 10.0 GHz		+48		dBm
(Two-Tone Input Power= +7 dBm Each Tone)		0.5 - 20.0 GHz		+45		dBm
Switching Characteristics						
Trise, Tfall (10/90% RF)		DC - 20 GHz		1.3		ns
Ton, Toff (50% Ctl To 10/90% RF)				5		ns
Switching Transients		DC - 20 GHz		20		mVpp

TTL Logic Table

Absolute Maximum Rating

Mechanical Specifications

Size

Length	0.89 in [22.61 mm]
Width/Dia.	0.68 in [17.27 mm]
Height	0.235 in [5.97 mm]
Weight	0.079 lbs [35.83 g]

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Environmental Specifications By Design

Temperature

Operating Range	-55 to +85 deg C
Storage Range	-65 to +150 deg C
Temperature Cycling	MIL-STD-883, Method 101C, Cond B
Hermetic Seal	Gross Leak MIL-STD-883 Method 1014C1/Fine Leak MIL-STD-883, Method 1014A2, 5 x 10-8 atm cc
ESD Sensitivity	ESD Sensitive Material, Transport material in Approved ESD bags. Handle only in ESD Workstation.



Compliance Certifications (visit www.Pasternack.com for current document)

RoHS Compliant

Plotted and Other Data

Notes:

- Values at +25 °C, sea level
- ESD Sensitive Material, Transport material in Approved ESD bags. Handle only in approved ESD Workstation.

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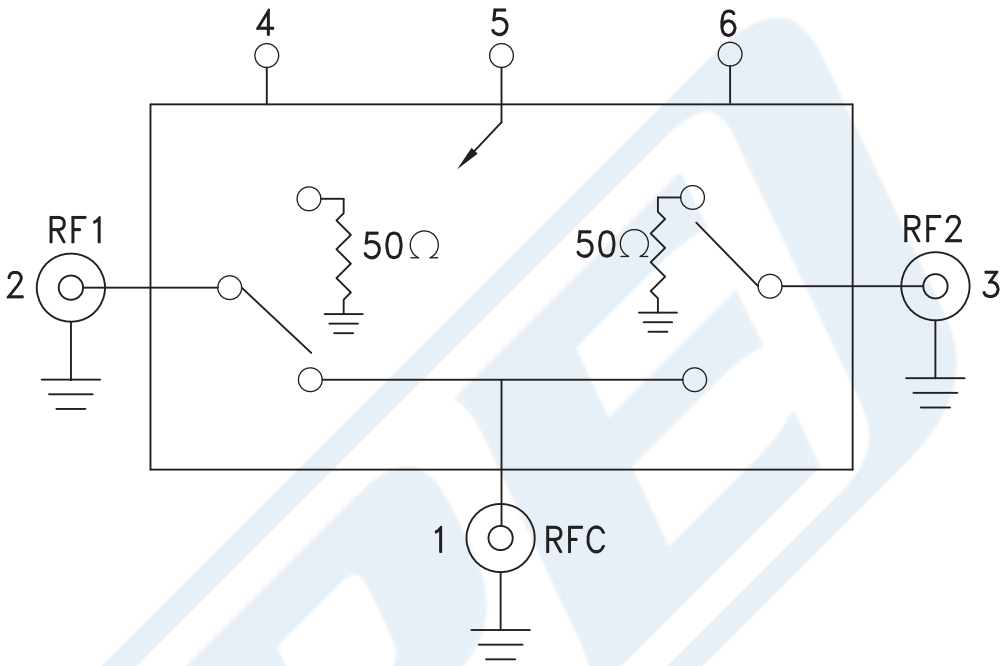
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Functional Block Diagram



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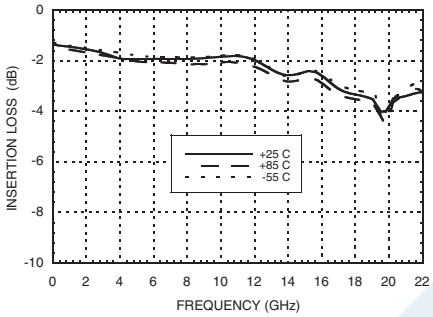


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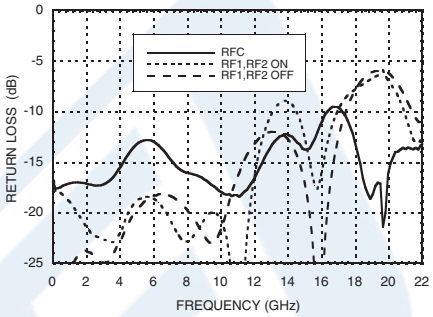
TECHNICAL DATA SHEET PE71S5000

Typical Performance Data

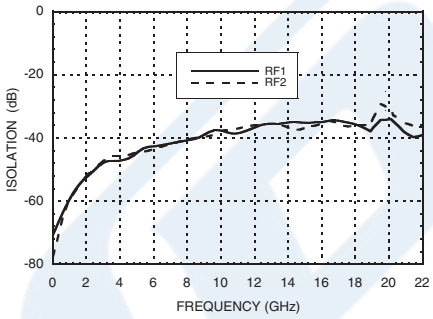
Insertion Loss



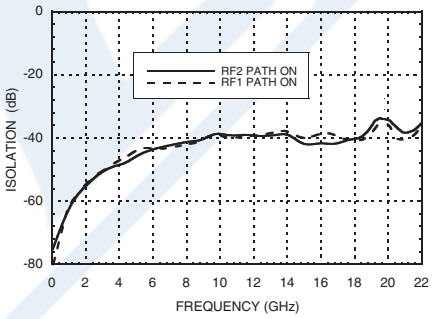
Return Loss



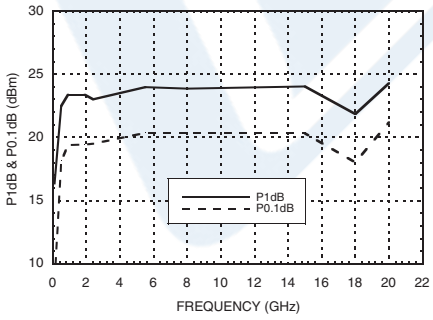
Isolations



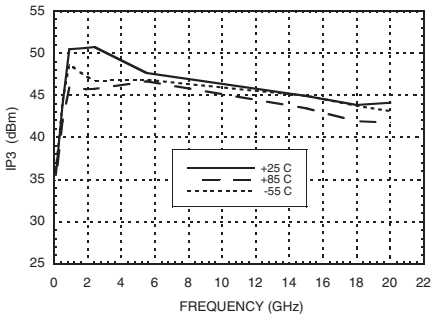
Isolation Between Ports RF1 and RF2



Input P1dB & P0.1dB Compression Point



Input Third Order Intercept Point



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URL: https://www.pasternack.com/35-db-high-isolation-spdt-pin-diode-switch-dc-20-ghz-pe71s5000-p.aspx

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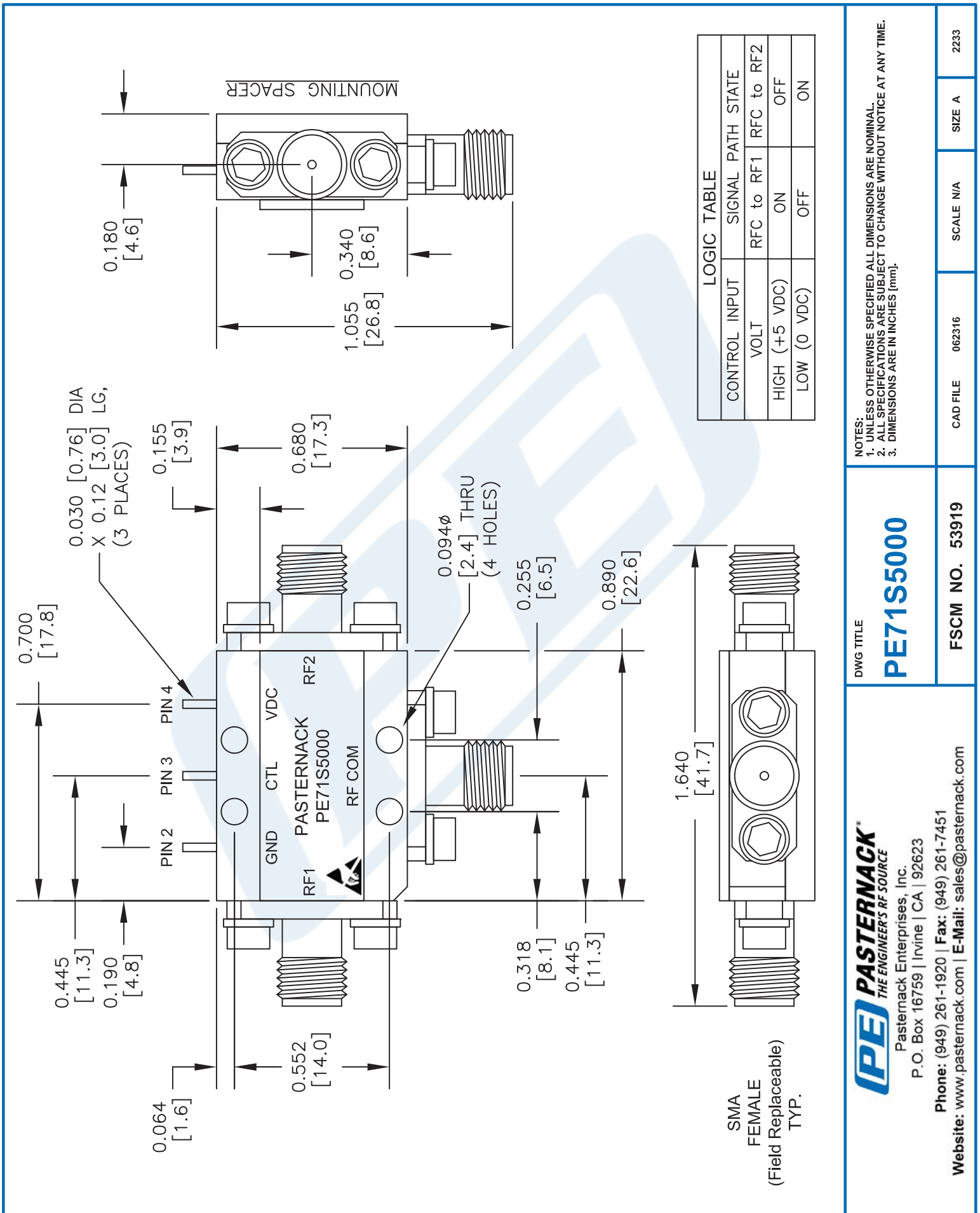
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PE71S5000 CAD Drawing

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NOTES:
1. UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE NOMINAL.
2. ALL SPECIFICATIONS ARE SUBJECT TO CHANGE WITHOUT NOTICE AT ANY TIME.
3. DIMENSIONS ARE IN INCHES [mm].

CAD FILE	SCALE	SIZE	
062316	N/A	A	2233

DWG TITLE: **PE71S5000**

FSCM NO. 53919

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