

SPST and SPDT PIN Diode Switches

18 - 110 GHz

7(WG) 231/232 Series

V2.00

Features

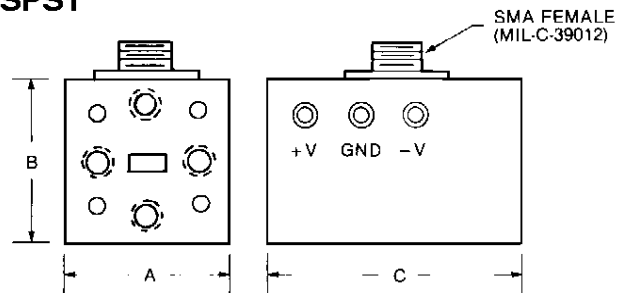
- Low Loss
- High Isolation
- Fast Switching
- Compact Package
- Optional Integral Driver

Description

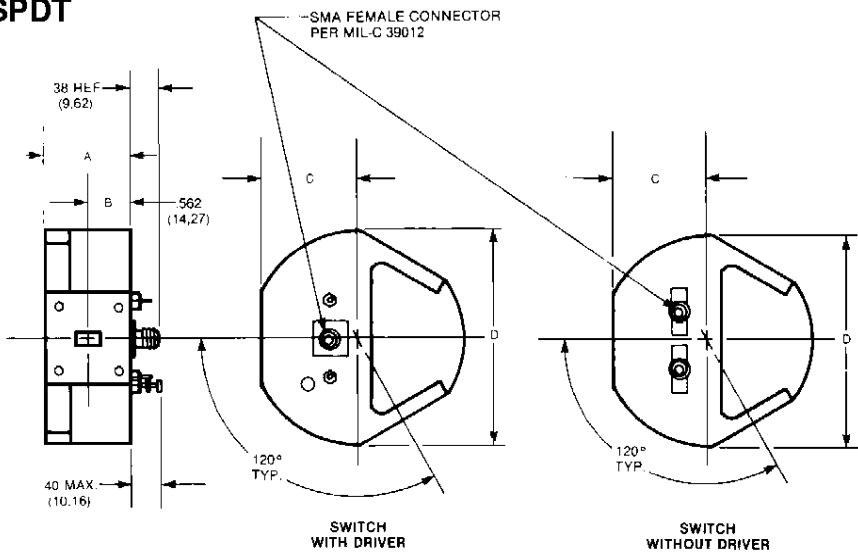
This series of SPST and SPDT PIN diode switches is available in seven waveguide bands from 18 to 110 GHz, achieving high isolation and low insertion loss over the specified frequency bandwidth. These PIN diode switches have numerous applications as solid state modulators and attenuators due to their unique characteristics of broadband frequency coverage, high isolation, low insertion loss and fast switching speeds. An integral driver for direct control from TTL logic levels is available.

When used in conjunction with a circulator, the SPST switches can be used as SPDT switches. When used with an isolator they can provide a matched device in both high and low loss states. Consult the factory for specifications on alternate PIN diode switches of SPDT designs from 18 to 110 GHz. Multi-throw options are also available.

SPST



SPDT



Mechanical Specifications

Waveguide	WR-42	WR-28	WR-22	WR-19	WR-15	WR-12	WR-10
RF Mating Flange MIL-F-3922/	54-001-M	68-001 68-002	67B-006	67B-007	67B-008	67B-009	67B-010
UG Reference	595/U	599/U	383/U	383/U-M	385/U	387/U	387/U-M
Bias Connector	Feed Thru						
Control Connector	SMA Female						
Control Logic	TTL						

Specifications Subject to Change Without Notice.

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Specifications at 25 °C

Waveguide	Frequency (GHz)	RF Bandwidth (GHz)	Insertion Loss ² (dB Typ.)		Isolation ² (dB Min.)		Part Number ²	
			SPST	SPDT	SPST	SPDT	SPST	SPDT
WR-42	18-26.5	18-26.5	1.2	1.8	30	30	7-42-231	7-42-232
WR-28	26.5-40	26.5-40	1.5	2.0	30	30	7-28-231	7-28-232
WR-22	33-50	33-50	1.5	2.0	30	30	7-22-231	7-22-232
WR-19	40-60	40-60	1.8	2.5	25	25	7-19-231	7-19-232
WR-15	50-75	50-75	2.0	2.5	20	25	7-15-231	7-15-232
WR-12	60-90	±5.0	2.0	2.5	20	20	7-12-231 ¹	7-12-232 ¹
WR-10	75-110	±5.0	2.0	2.5	20	20	7-10-231 ¹	7-10-232 ¹

Common Specifications

VSWR	2.0:1 Max
Average Power Rating	1.0W
Switching Speed ³	
Loss to Isolation	10nsec. Typ.
Isolation to Loss	50nsec. Typ.
Isolation State Current	+10 mA Typ.
Low Loss State Voltage	-12V Typ.
dc Bias	
With Driver	+5/-12, +20 mA
Without Driver	+12/-12V, +20 mA
Operating Temperature	0°C to +60°C

Notes:

1. When ordering, specify center frequency.
2. Contact factory for driver availability and Lower Loss and insulation.
3. Switching speed including driver delay, and 20 nsec. The specifications noted are RF detected transition time (10%-90%—90%-10%). Switching speeds as fast as 2 nsec. available. Consult Factory.

Mechanical Specifications

Waveguide		WR-42	WR-28	WR-22	WR-19	WR-15	WR-12	WR-10
SPST	A	.88(22.2)	.75(19.1)	1.13(28.7)	1.13(28.7)	.75(19.1)	.75(19.1)	.75(19.1)
	B	1.50(38.1)	1.50(38.1)	1.50(38.1)	1.50(38.1)	1.25(31.8)	1.25(31.8)	1.25(31.8)
	C	2.30(58.3)	2.00(50.8)	1.75(44.5)	1.75(44.5)	1.75(44.5)	1.75(44.5)	1.75(44.5)
SPDT	A	1.13(28.7)	1.13(28.7)	1.13(28.7)	1.13(28.7)	.75(19.1)	.75(19.1)	.75(19.1)
	B	.56(14.3)	.56(14.3)	.56(14.3)	.56(14.3)	.375(9.5)	.375(9.5)	.375(9.5)
	C	1.25(31.8)	1.25(31.8)	.67 (17.0)	.67 (17.0)	.67 (17.0)	.67 (17.0)	.67 (17.0)
	D	2.80(71.1)	2.80(71.1)	1.75(44.5)	1.75(44.5)	1.75(44.5)	1.75(44.5)	1.75(44.5)

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