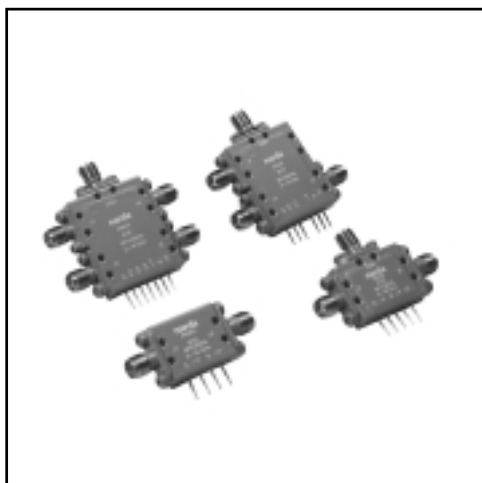


## Control Products



**2-18 GHz**

## HIGH PERFORMANCE PIN SWITCHES

- Reflective and Absorptive
- SPST through SP4T
- High Speed: 15 nsec.
- High Isolation: up to 80 dB
- Low Insertion Loss
- Small Package Size
- Integral TTL Drivers
- Hermetically Sealed

### DESCRIPTION

The performance series of 2 to 18 GHz hermetically sealed switches offers fast switching speed and low insertion loss in compact packages. These Narda switches use the identical circuits as the top-of-the-line super slim series. They are ideal for connector applications where the absolutely thinnest profile is not required.

All models include integral drivers with reverse voltage protection. The drivers are TTL compatible and are tailored to each RF circuit to give optimum switching performance.

The small size, high sepped, broad bandwidth and low insertion loss make these switches ideal for EW systems, automatic test equipment, and simulators.

**Control Products****SPECIFICATIONS**

Frequency Range is 2–18 GHz. Performance is shown in band segments.

**REFLECTIVE SWITCHES**

MODEL NO.	TYPE	SWITCHING TIME nsec	BAND SEGMENT GHz	INSERTION LOSS dB (max)	VSWR (Max)	ISOLATION dB (min)	POWER HANDLING mW	POWER SUPPLY REQUIREMENTS		OUTLINE DRAWING
								mA @+5V	mA @-12V	
SP213DHS	SPST	15	2-12 12-18	1.9 2.4	1.9:1 2.0:1	50 60	500	50	60	1
SP213DHS-80	SPST	15	2-12 12-18	1.9 2.5	1.9:1 2.0:1	70 80	500	50	50	2
SP123DHS	SP2T	15	2-12 12-18	2.4 2.9	1.9:1 2.0:1	65 60	200	90	60	3
SP123DHS-80	SPDT	15	2-12 12-18	2.2 2.9	2.0:1 2.0:1	80 80	200	90	60	3
SP133DHS	SP3T	15	2-12 12-18	2.6 3.0	1.9:1 2.0:1	65 60	200	110	70	4
SP143DHS	SP4T	15	2-12 12-18	2.6 3.0	1.9:1 2.0:1	65 60	200	110	70	5
SP153DHS	SP5T	20	2-12 12-18	3.0 3.6	2.0:1 2.0:1	65 60	200	220	90	6
SP163DHS	SP6T	20	2-12 12-18	3.0 3.6	2.0:1 2.0:1	65 60	200	250	100	7
XSP323DHS	XFER	50	2-12 12-18	2.8 3.4	2.0:1 2.0:1	60 65	200	90	80	8

**ELECTRICAL SPECIFICATIONS**

**FREQUENCY RANGE** . . . . . 2-18 GHz

**TTL CONTROL LOGIC**

Logic 0 (0-0.8V, 1.6 mA max sink @ 0.4V) = Insertion Loss

Logic 1 (2.0-5.5V, 40µA max Source @ 2.4V) = Isolation

FOR TRANSFER SWITCH (XSP323DHS)

Logic 0: J1-J4 and J2-J3 at Insertion Loss

Logic 1: J2-J2 and J4-J3 at Insertion Loss

**SWITCHING TIME**

T on = 50% TTL to 90% of RF voltage

T off = 50% TTL to 10% of RF voltage

**SWITCHING RATE**

Reflective Models . . . 5 MHz max PRF @50% duty cycle

Absorptive Models. . . 2 MHz max PRF @50% duty cycle

**DRIVER** . . . . . Reverse voltage protected

**SURVIVAL POWER (25°C)**

Models SP213DHS

and SP213DHS-80 . . . . . 1.5w CW, 20w Peak  
(1µsec max. pulse width, 7½% duty cycle)

All other models. . . . . 1.0w CW, 20w Peak  
(1µsec max. pulse width, 5% duty cycle)

Derate linearly to 50% at +95°C

**OPTIONS**

Very Low Loss Video Leakage

Inverted TTL Logic Control

BCD Decoder Driver

Package Configuration

Over Voltage Protection

## Control Products

### SPECIFICATIONS

Frequency Range is 2–18 GHz. Performance is shown in band segments.

#### ABSORPTIVE SWITCHES

MODEL NO.	TYPE	SWITCHING TIME nsec	BAND SEGMENT GHz	INSERTION LOSS dB (max)	VSWR (Max)	ISOLATION dB (min)	POWER HANDLING mW	POWER SUPPLY REQUIREMENTS		OUTLINE DRAWING
								mA @+5V	mA @-12V	
SP213DHTS	SPST	25	2-12 12-18	2.1 2.5	1.9:1 2.0:1	55 50	200	40	60	1
SP213DHTS-80	SPST	25	2-12 12-18	2.1 2.6	1.9:1 2.0:1	70 80	500	50	60	2
SP123DHTS	SP2T	25	2-12 12-18	2.5 2.9	1.9:1 2.0:1	60 55	200	60	60	3
SP133DHTS	SP3T	25	2-12 12-18	2.7 3.2	1.9:1 2.0:1	60 45	200	105	75	4
SP143DHTS	SP4T	25	2-12 12-18	2.7 3.2	1.9:1 2.0:1	60 45	200	105	75	5
SP153DHTS	SP5T	25 25	2-12 12-18	3.2 3.8	2.0:1 2.0:1	60 50	200	220	90	6
SP163DHTS	SP6T	25 25	2-12 12-18	3.2 3.8	2.0:1 2.0:1	60 50	200	250	100	7

### ENVIRONMENTAL SPECIFICATIONS

#### TEMPERATURE

Operating . . . . . -54°C to +95°C

Storage . . . . . -65°C to +125°C

#### HUMIDITY

Per MIL-STD-202F, method 103B, condition B  
(96 hours at 95% R.H.)

#### SHOCK

Per MIL-STD-202F, method 213B, condition B (75G, 6 msec)

#### ALTITUDE

Per MIL-STD-202F, method 105C, condition B (50,000 feet)

#### VIBRATION

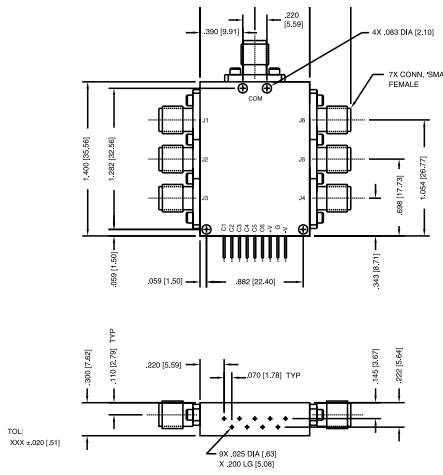
Per MIL-STD-202F, method 204D, condition B  
(.06" double amplitude or 15G, whichever is less).

#### THERMAL SHOCK

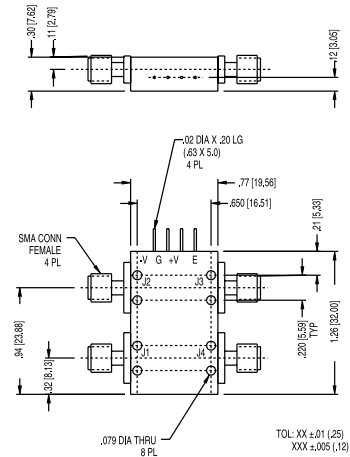
Per MIL-STD-202F, method 107D, condition A  
(5 cycles)



# Control Products



**7 SP163DHS, SP163DHTS**



**8 XSP323DHS**

Dimensions in parentheses are in millimeters and for reference only.