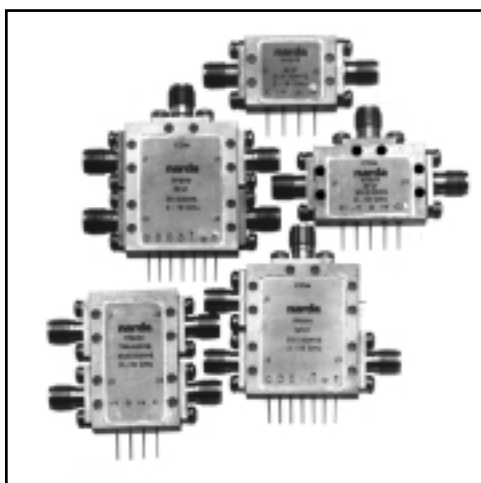


Control Products



0.5–18 GHz and 2–18 GHz

SUPER-SLIM HIGH PERFORMANCE DROP-IN PIN SWITCHES

- Reflective and Absorptive
- SPST thru SP6T plus Transfer
- High Speed
- High Isolation—up to 80 dB
- Low Insertion Loss
- Super-Slim Packages
- Drop-In Applications
- Integral TTL Drivers
- Hermetically Sealed

DESCRIPTION

The super-slim series of broadband hermetically sealed switches offers fast switching speed and low insertion loss in very compact packages. Both 0.5 to 18 GHz and 2 to 18 GHz models are available. The switches are gold plated and have removable SMA connectors for use in drop-in applications. Superior RF performance is achieved over the entire bandwidth due to the use of selected PIN diodes and optimum RF circuit designs.

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 speed, broad bandwidth and low insertion loss make these switches ideal for EW systems, automatic test equipment and simulators.

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	
SS213DHS	SPST	15	2-4 4-8 8-12 12-18	1.2 1.4 1.9 2.4	1.8:1 1.9:1 1.9:1 2.0:1	50 65 60 60	500	50	50	1
SS213DHS-80	SPST	15	2-4 4-8 8-12 12-18	1.3 1.5 1.9 2.5	1.8:1 1.9:1 2.0:1 2.0:1	80 80 80 80	500	60	40	2
SS123DHS	SP2T	15	2-4 4-8 8-12 12-18	1.5 2.0 2.4 2.9	1.9:1 1.9:1 2.0:1 2.0:1	75 70 65 60	200	90	60	3
SS123DHS-80	SP2T	15	2-4 4-8 8-12 12-18	1.5 1.9 2.2 2.9	1.8:1 1.9:1 2.0:1 2.0:1	80 80 80 80	200	90	60	3
SS133DHS	SP3T	15	2-4 4-8 8-12 12-18	1.5 2.0 2.5 3.0	1.9:1 1.9:1 2.0:1 2.0:1	75 70 65 60	200	90	60	4
SS143DHS	SP4T	15	2-4 4-8 8-12 12-18	1.6 2.1 2.6 3.0	1.9:1 1.9:1 2.0:1 2.0:1	75 70 65 60	200	110	70	5
SS153DHS	SP5T	20	2-4 4-8 8-12 12-18	2.0 2.5 3.0 3.6	1.9:1 2.0:1 2.0:1 2.0:1	70 70 65 60	200	220	90	6
SS163DHS	SP6T	20	2-4 4-8 8-12 12-18	2.0 2.5 3.0 3.6	1.9:1 2.0:1 2.0:1 2.0:1	70 70 65 60	200	250	100	7

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

SWITCHING TIME

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

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

SWITCHING RATE

All models

5 MHz max PRF @50% duty cycle

DRIVER Reverse voltage protected

SURVIVAL POWER (25°C)

Models SS213DHS

and SS213DHS-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

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	
SS213BDHTS	SPST	20	2-4	1.5	1.9:1	65	200	40	60	1
		20	4-8	1.7	1.9:1	60				
		20	8-12	2.1	1.9:1	55				
		25	12-16	2.5	2.0:1	50				
		25	16-18	2.5	2.0:1	50				
SS123BDHTS	SP2T	20	2-4	1.6	1.9:1	65	200	60	60	3
		20	4-8	1.8	1.9:1	65				
		20	8-12	2.5	1.9:1	60				
		25	12-16	2.9	2.0:1	55				
		25	16-18	2.9	2.0:1	55				
SS133BDHTS	SP3T	20	2-4	1.8	1.9:1	65	200	105	75	4
		20	4-8	2.0	1.9:1	65				
		20	8-12	2.7	1.9:1	60				
		25	12-16	3.2	2.0:1	50				
		25	16-18	3.2	2.0:1	45				
SS143BDHTS	SP4T	20	2-4	1.8	1.9:1	65	200	105	75	5
		20	4-8	2.0	1.9:1	65				
		20	8-12	2.7	1.9:1	60				
		25	12-16	3.2	2.0:1	50				
		25	16-18	3.2	2.0:1	45				
SS153BDHTS	SP5T	25	2-4	2.2	1.9:1	65	200	220	90	6
		25	4-8	2.7	2.0:1	65				
		25	8-12	3.2	2.0:1	60				
		25	12-16	3.8	2.0:1	50				
		25	16-18	3.8	2.0:1	50				
SS163BDHTS	SP6T	25	2-4	2.2	1.9:1	65	200	250	100	7
		25	4-8	2.7	2.0:1	65				
		25	8-12	3.2	2.0:1	60				
		25	12-16	3.8	2.0:1	50				
		25	16-18	3.8	2.0:1	50				

OPTIONS

Very Low Loss Video Leakage
Inverted TTL Logic Control
BCD Decoder Driver
Package Configuration
Over Voltage Protection

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

REFLECTIVE SWITCHES

Frequency range is 0.5 to 18 GHz. Performance is shown in band segments.

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	
SS212DHS	SPST	15	0.5-2	1.1	1.6:1	70	200	50	50	2
			2-4	1.3	1.7:1	70				
			4-8	1.6	1.8:1	70				
			8-12	2.1	1.9:1	70				
			12-18	2.6	2.0:1	70				
SS122DHS	SP2T	20	0.5-2	1.5	1.8:1	70	200	90	60	3
			2-4	1.5	1.9:1	75				
			4-8	2.0	1.9:1	70				
			8-12	2.4	2.0:1	65				
			12-18	2.9	2.0:1	60				
SS132DHS	SP3T	20	0.5-2	1.5	1.8:1	70	200	90	60	4
			2-4	1.5	1.9:1	75				
			4-8	2.0	1.9:1	70				
			8-12	2.5	2.0:1	65				
			12-18	3.0	2.0:1	60				
SS142DHS	SP4T	20	0.5-2	1.6	1.8:1	70	200	110	70	5
			2-4	1.6	1.9:1	75				
			4-8	2.1	1.9:1	70				
			8-12	2.6	2.0:1	65				
			12-18	3.2	2.0:1	60				
SS152DHS	SP5T	20	0.5-2	2.0	1.8:1	70	200	220	90	6
			2-4	2.0	1.9:1	70				
			4-8	2.5	2.0:1	70				
			8-12	3.0	2.0:1	65				
			12-18	3.6	2.0:1	60				
SS162DHS	SP6T	20	0.5-2	2.0	1.8:1	70	200	260	100	7
			2-4	2.0	1.9:1	70				
			4-8	2.5	2.0:1	70				
			8-12	3.0	2.0:1	65				
			12-18	3.6	2.0:1	60				

TRANSFER SWITCH

Frequency range is 2-18 GHz. Performance is shown in Band segments.

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	
XSS323CDHS	XFER	50	2-4	1.8	1.8:1	70	200	80	80	8
			4-8	2.2	1.9:1	70				
			8-12	2.1	2.0:1	60				
			12-18	2.6	2.0:1	55				

Control Products

ELECTRICAL SPECIFICATIONS

FREQUENCY RANGE 0.5-18 GHz

TTL CONTROL LOGIC

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

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

FOR TRANSFER SWITCH (XSS323CDHS)

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

Logic 1: J1-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

All models 5 MHz max PRF @50% duty cycle

DRIVER. Reverse voltage protected

SURVIVAL POWER (25°C)

1.0w CW, 20w Peak

(1 μ sec max. pulse width, 5% duty cycle)

Derate linearly to 50% at +95°C

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)

OPTIONS

Very Low Loss Video Leakage

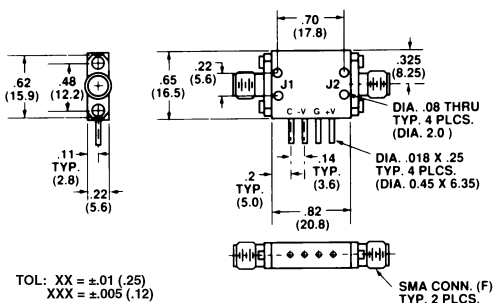
Inverted TTL Logic Control

BCD Decoder Driver

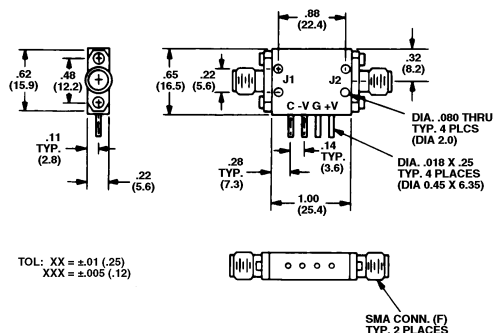
Package Configuration

Over Voltage Protection

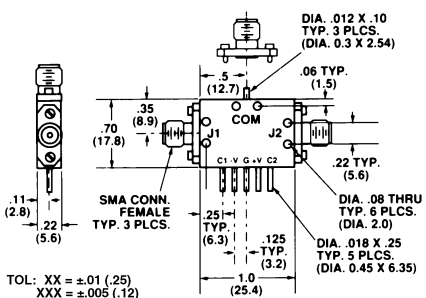
OUTLINE DRAWINGS



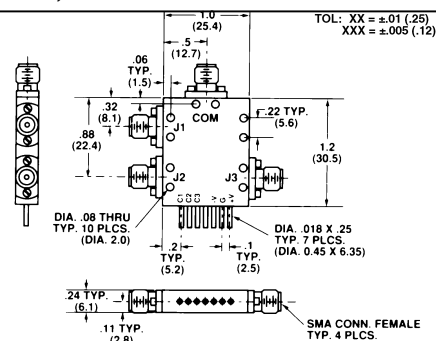
1 SS213DHS, SS213BDHTS



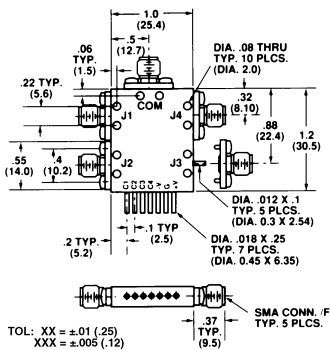
2 SS213DHS-80, SS212DHS



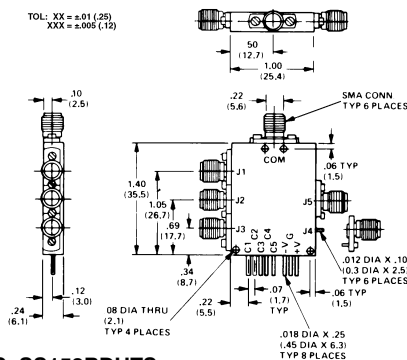
3 SS123DHS, SS123BDHTS, SS122DHS, SS123DHS-80



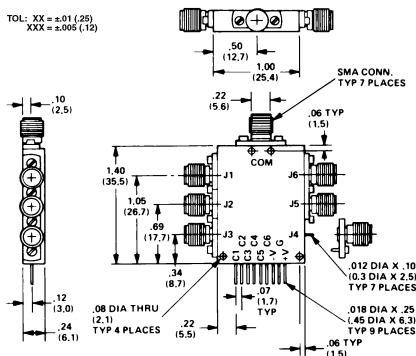
4 SS133DHS, SS133BDHTS, SS132DHS



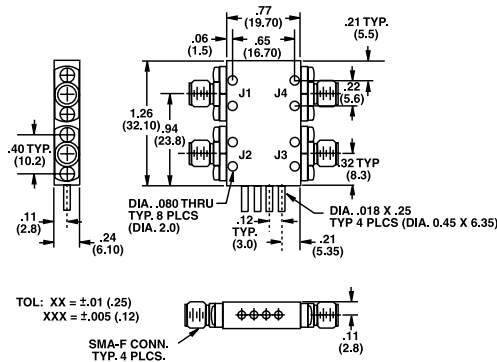
5 SS143DHS, SS143BDHTS, SS142DHS



6 SS153DHS, SS153BDHTS



7 SS163DHS, SS163BDHTS, SS162DHS



8 XSS323CDHS

Dimensions in parentheses are in millimeters and for reference only.