

# STANDARD PRODUCTS

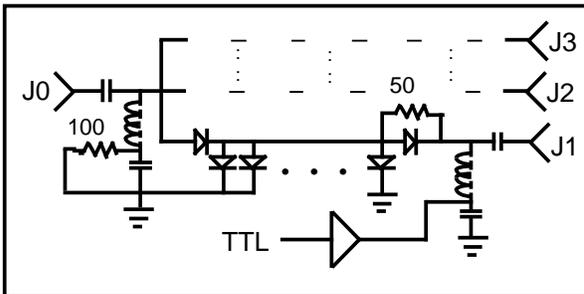
## DESCRIPTION

The SN30-31x series of non-reflective single-pole triple-throw wide band (0.1-20.0GHz) PIN diode switches employ a series/shunt configuration in a microstrip transmission line circuit. They are compact in size, light weight, featured with field replaceable connectors, and offered in medium (-312), high (-313), and extra-high (-314) isolation models.

## SP3T SWITCH

**SERIES SN30-31x**  
Non-Reflective Series/Shunt  
1  $\mu$ sec. Switching Speed

## SCHEMATIC



## ELECTRICAL SPECIFICATIONS

CHARACTERISTIC	WITH DRIVER		WITHOUT DRIVER	
	MAX.	TYP.	MAX.	TYP.
Switching Speed (1)	1.0 $\mu$ s	0.5 $\mu$ s	(2)	(2)
Transition Time (3)	0.5 $\mu$ s	0.1 $\mu$ s	(2)	(2)
Power Handling (CW or peak)	+30 dBm	+33 dBm	+30 dBm	+33 dBm
Positive Supply	5V $\pm$ 2% @ 80 mA max		30 mA (Iso.)	15 mA
Negative Supply (4)	(5) @ 85 mA max		-50 mA (Loss)	-35 mA
Control Impedance	TTL (1 unit loads max)		N/A	
Control Logic (4)	(5)		see Supply Requirements	

## R.F. PERFORMANCE

MODEL	CHARACTERISTIC	FREQUENCY (GHz) (See Note 6)								
		V	U	L	S	C	X	P	K	
SN30-312	INSERTION LOSS (dB max)	TYP.	1.1	0.8	0.9	1.1	1.6	2.1	2.5	3.3
		MAX.	1.5	1.1	1.3	1.5	2.0	2.5	2.9	3.8
	ISOLATION (dB min)	65	60	60	60	55	50	50	45	
SN30-313	INSERTION LOSS (dB max)	TYP.	1.3	0.9	1.1	1.3	1.8	2.3	2.7	3.5
		MAX.	1.8	1.3	1.5	1.7	2.2	2.7	3.1	4.0
	ISOLATION (dB min)	70	70	75	75	70	65	65	60	
SN30-314	INSERTION LOSS (dB max)	TYP.	1.5	1.1	1.3	1.5	2.0	2.5	2.9	3.7
		MAX.	2.0	1.5	1.7	1.9	2.4	2.9	3.3	4.2
	ISOLATION (dB min)	75	80	85	85	80	80	80	75	
ALL MODELS	VSWR {On/Off} (max)	1.5	1.5	1.5	1.5	1.7	1.7	2.0	2.3	

- (1) "Turn-On Time"/"Turn-Off Time" is the time between the 50% point of the control voltage and the 90% or the 10% point of the detected RF, respectively. "Switching Speed" is defined as the slower of the two times (usually the Turn-On Time).
- (2) Depends upon driver supplied by the user. See "Options" on back.
- (3) "Rise Time"/"Fall Time" is the time required for the detected RF to transition between the 10% and 90% points or the 90% and 10% points, respectively. "Transition Time" is defined as the slower of the two times (usually the Rise Time).
- (4) Setting more than one RF port at a time to the insertion loss state can cause excessive power dissipation in the common arm bias return network and may result in switch failure.
- (5) See "Options" on back of page.
- (6) Operating frequency range for narrower bandwidth unit(s) is specified by a two letter option code where the first letter designates the frequency band within which the lowest operating frequency is located and the second letter designates the frequency band within which the highest operating frequency is located. A frequency code is not required for the standard unit that covers 0.1 to 20.0 GHz ("VK").



## ENVIRONMENTAL RATINGS

Temperature: Operating.....55°C to +85°C  
 Non-operating.....65°C to +125°C

Humidity: MIL-STD-202C, Method 103B,  
 Cond. B (96 hrs. at 95%)

Vibration: MIL-STD-202C, Method 204A,  
 Cond. B (0.06" double amplitude  
 or 15G, whichever is less)

Altitude: MIL-STD-202C, Method 105C,  
 Cond. B (50,000ft)

Temp Cycling: MIL-STD-202C, Method 105C,  
 Cond. D, 5 cycles

Shock: MIL-STD-202C, Method 213,  
 Cond. B (750G, 6ms)

## OPTIONS

LOGIC:	OPTION CODE	LOGIC TYPE	CONTROL STATUS			PORT STATUS
			E3	E2	E1	
L3		BINARY DECODED	x	0	0	ALL ISO.
			x	0	1	J1=LOSS
			x	1	0	J2=LOSS
			x	1	1	J3=LOSS
L2 (4)		NON INVERTING	0			ISO.
			1			LOSS
(STD) (4)		INVERTING	0			LOSS
			1			ISO.

CONTROL CONNECTOR:  
 (STD).....Solder Pin  
 C2.....SMC-M

FREQUENCY:  
 (STD).....0.1 to 20.0 GHz  
 Two Letter Code. See note 6  
 for details.

DRIVER:  
 (STD).....With Driver  
 D2.....Without driver

NEGATIVE SUPPLY  
 (STD).....-12V  
 N2.....-15V

## OUTLINE

