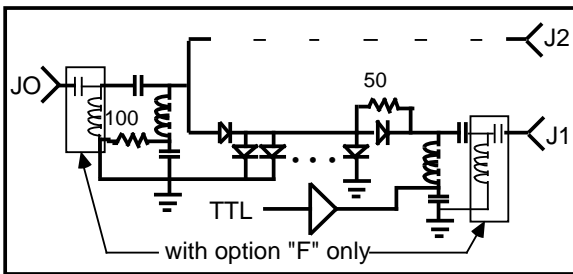


# STANDARD PRODUCTS

## DESCRIPTION

The SN20-33x series of high-speed non-reflective wide-band (2.0-18.0 GHz) single-pole double-throw PIN diode switches, employs a series/shunt configuration in a microstrip transmission line circuit. They are compact in size, light weight, featured with field replaceable connectors, integral TTL compatible drivers, and offered in medium (-332), high (-333), and extra-high (-334) isolation models. Video transient filtering is optional.

## SCHEMATIC



## SP2T SWITCH

**SERIES SN20-33x**

Non-Reflective Series/Shunt

25 nsec. Switching Speed

## ELECTRICAL SPECIFICATIONS

CHARACTERISTIC	WITH DRIVER	
	MAX.	TYP.
Switching Speed (1)	25 ns (7)	20 ns
Transition Time (2)	20 ns (7)	10 ns
Power Handling (CW or peak)	+30 dBm	+33 dBm
Positive Supply	5V ± 2% @ 50 mA max	
Negative Supply (3)	(4) @ 85 mA max	
Control Impedance	TTL (2 unit loads max)	
Control Logic (3)	(4)	
Video Transients (5)	(4)	

## R.F. PERFORMANCE

MODEL	CHARACTERISTIC	FREQUENCY (GHz) (See Note 6)				
		S	C	X	P	
SN20-332	INSERTION LOSS (dB max)	TYP.	1.1	1.6	1.8	2.3
		MAX.	1.5	1.9	2.2	2.7
	ISOLATION (dB min)	60	55	50	50	
SN20-333	INSERTION LOSS (dB max)	TYP.	1.3	1.8	2.2	2.5
		MAX.	1.7	2.2	2.6	2.9
	ISOLATION (dB min)	75	70	65	65	
SN20-334	INSERTION LOSS (dB max)	TYP.	1.5	2.0	2.4	2.7
		MAX.	1.9	2.4	2.8	3.1
	ISOLATION (dB min)	85	80	80	80	
ALL MODELS	VSWR {On/Off} (max)	1.5	1.5	1.75	2.0	

- (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) "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).
- (3) 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.
- (4) See "Options" on back of page.
- (5) Measured into a 50 ohms with a 150MHz B.W. oscilloscope. Typically 2V p-p max. unfiltered and 50mV p-p max. with filtering. Filtering will typically add 0.3dB insertion loss per filter in a transmission path.
- (6) Operating frequency range for narrower bandwidth unit(s) is specified by a two letter option code where the first letter designates the frequency range within which the lowest operating frequency is located and the second letter designates the frequency range within which the highest operating frequency is located. A frequency code is not required for the standard unit that covers 2.0 to 18.0 GHz ("SP").
- (7) Measured by switching a single port between the Insertion Loss and Isolation states. Toggling/Commutating Speed, likewise that for switches with decoded drivers, is measured by switching between two ports and is specified at 50 nsec. max.



## 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
L4	TOGGLE	0	J2=LOSS
		1	J1=LOSS
L3	INVERTING TOGGLE	0	J1=LOSS
		1	J2=LOSS
L2 (4)	NON INVERTING	0	ISO.
		1	LOSS
<b>(STD) (4)</b>	<b>INVERTING</b>	<b>0</b>	<b>LOSS</b>
		<b>1</b>	<b>ISO.</b>

### CONTROL CONNECTOR:

(STD).....Solder Pin  
 C2.....SMC-M

### FREQUENCY:

(STD).....2.0 to 18.0 GHz  
 Two Letter Code, see note 5  
 for detail.

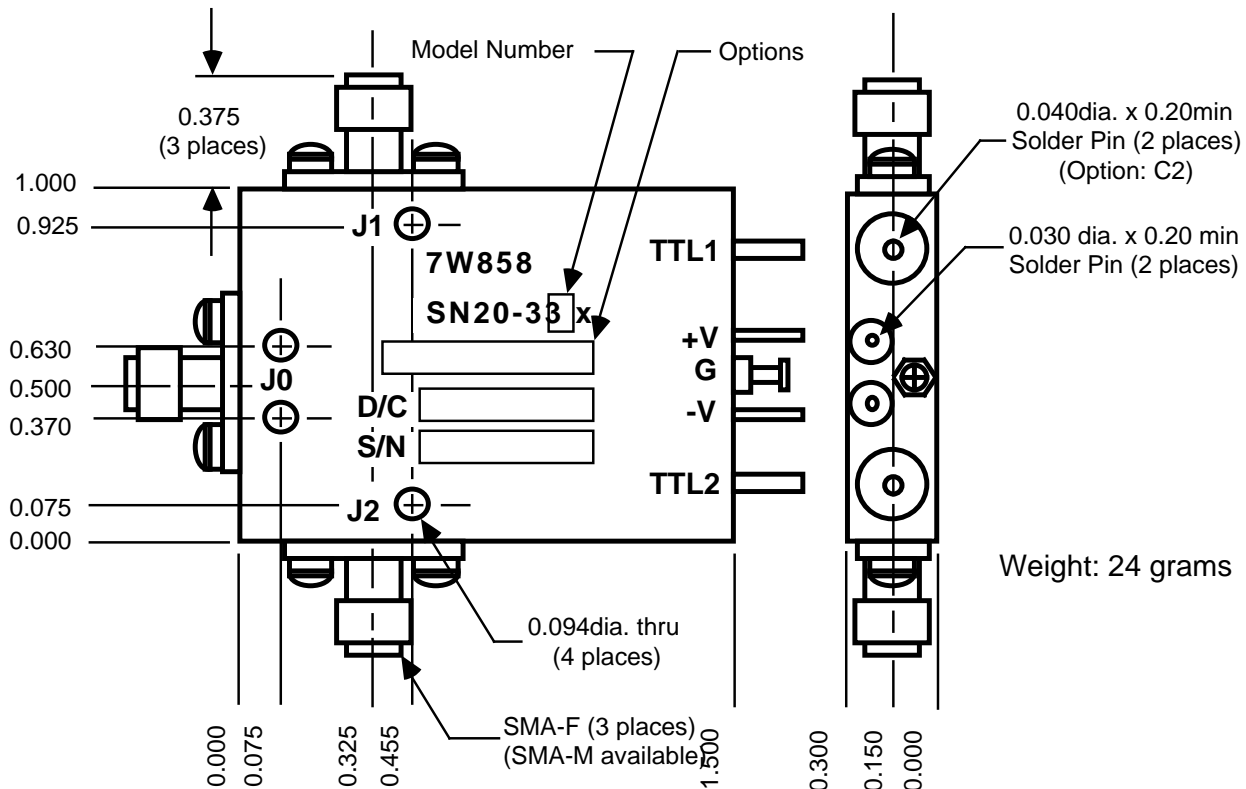
### VIDEO TRANSIENT:

(STD).....None  
 F2.....All Ports  
 F3.....Common Port Only  
 F4.....Non-Common  
 Ports Only

### NEGATIVE SUPPLY

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

## OUTLINE



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 510-651-3434

