

# BROADBAND SP5T SWITCH

## REFLECTIVE AND ABSORPTIVE 0.02-18 GHz

### GENERAL INFORMATION:

Series TL-5 and TB-5-A switches are medium power devices that operate over relatively wide frequency ranges. Carefully selected diodes placed in either series, series-shunt, or shunt configurations produce excellent electrical performance from UHF through KU bands.

### GENERAL SPECIFICATIONS:

- Frequency Coverage:** 0.02 to 18.0 GHz.  
**RF Impedance:** 50 OHMS.  
**RF Power:** +20 dBm operational.  
 Consult factory for high power options.
- DC Requirements:** For switches without drivers, each path requires +60 mA for the "off" condition and -60 mA for the "on" condition. Switches with drivers require +5 volts at +300 mA and -5 volts at -110 mA supplies. Logic is TTL "0" when "on" and "1" when "off". Different supply voltages and logic available if specified at time of order.
- Temperature Information:** Operating temperature from -55°C to +85°C.
- Switching Speed:** 10% to 90% or 90% to 10% of RF. There is an additional 30 nanosec of driver delay.
- Environment:** MIL-E-5400, MIL-STD-202, MIL-E-16400 MIL-STD-883 (Special request only).
- Connectors:** RF connectors are SMA. Other connectors available (when specified at time of order) include types N, TNC, and BNC. Mating connector supplied for all units with multipin connector; ITT Cannon MDB1-9SSL or equiv.

### NOTES:

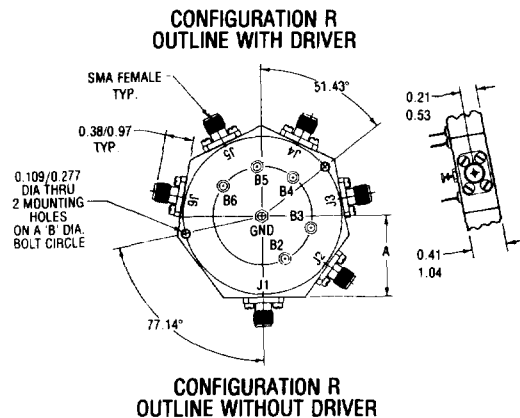
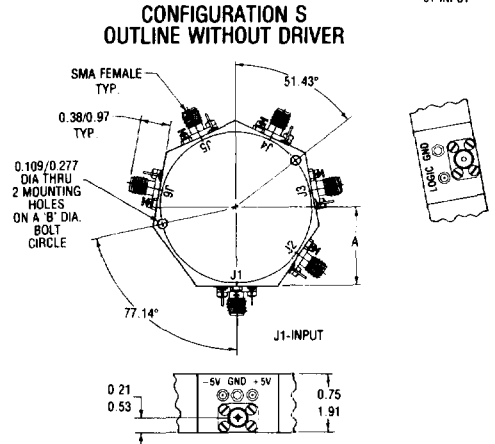
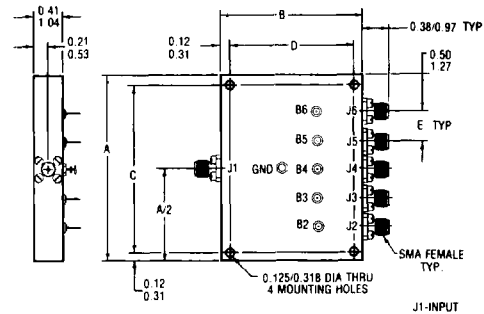
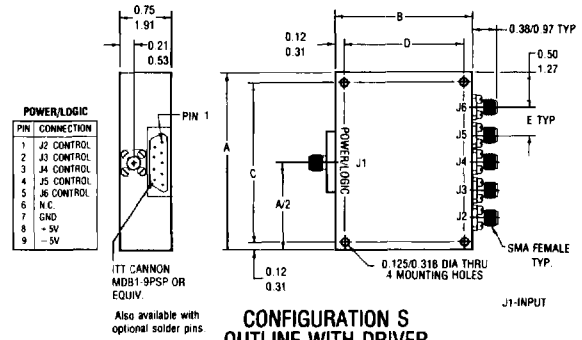
- All switches, with drivers, are available with either solder pins, or a multi-pin connector for the drive connection, when specified at time of order. (see "outlines with driver")
- When ordering, add suffix for configuration desired to the model number. ('S' for rectangular, 'R' for seven sided) i.e. TB-513AS.
- If driver is required, add 'D' to the model number when ordering, i.e. Model TL-512R, with driver, becomes TL-512RD.
- When ordering, the complete model number should be given. The model number consists of the model number for a standard switch plus the dash number for any options, i.e. Model TL-531RD-1 is a seven sided SP5T reflective switch with driver whose frequency range is 0.5 to 1.0 GHz and a switching speed of 100 nanosec.
- Any unit listed can be supplied with pins instead of RF connectors. (Consult factory.)

### MECHANICAL OUTLINES

Outline	A Inches cm.	B Inches cm.	C Inches cm.	D Inches cm.	E Inches cm.
1	2.60 6.61	2.00 5.08	2.350 5.969	1.750 4.445	0.40 1.02
2	3.00 7.62	3.00 7.62	2.750 6.985	2.750 6.985	0.50 1.27
3	0.71 1.80	1.350 3.429	—	—	—
4	1.00 2.54	2.000 5.080	—	—	—
5	3.00 7.62	3.50 8.89	2.750 6.985	3.250 8.255	0.50 1.27

Inches/Centimeters  
 xx ± 0.3 xxx ± .010/ xx ± .08 xxx ± .025

# SERIES TL-5/TB-5-A



**BROADBAND**

**SP5T SWITCH**

**SERIES TL-5/TB-5-A**

**REFLECTIVE AND ABSORPTIVE 0.02-18 GHz**

**ELECTRICAL PERFORMANCE**

Power: 1 watt average, 10 watts peak, survival

STANDARD SWITCH							HIGH SPEED OPTION			
Isolation: 30 dB minimum Speed: 2 microsec. maximum							MODEL-1		MODEL-2	
							Speed Nanosec.	Insertion Loss Max. dB Ref. / Abs.	Speed Nanosec.	Insertion Loss Max. dB Ref. / Abs.
Reflective Model No.	Absorptive Model No.	Frequency Range GHz	Insertion Loss Max. dB Ref. / Abs.	VSWR† Max.	OUTLINE					
					Square Ref. / Abs.	Round Ref. / Abs.				
TL-512	TB-513-A	0.02-0.1	0.80 / 0.90	1.80	2 / 5	4 / 4	500	0.85 / 0.95	N/A	N/A
TL-516	TB-517-A	0.1-1.0	1.20 / 1.30	1.80	2 / 5	4 / 4	500	1.25 / 1.35	N/A	N/A
TL-522	TB-521-A	0.1-2.0	1.50 / 1.60	1.80	2 / 5	4 / 4	500	1.55 / 1.65	N/A	N/A
TL-525	TB-525-A	0.25-0.5	1.20 / 1.30	1.80	2 / 5	4 / 4	500	1.25 / 1.35	N/A	N/A
TL-528	TB-529-A	0.25-1.0	1.20 / 1.30	1.80	2 / 5	4 / 4	500	1.25 / 1.35	N/A	N/A
TL-531	TB-533-A	0.5-1.0	1.00 / 1.10	1.80	1 / 2	4 / 4	100	1.10 / 1.20	20	1.20 / 1.30
TL-537	TB-537-A	0.5-2.0	1.20 / 1.30	1.80	1 / 2	4 / 4	100	1.30 / 1.40	20	1.40 / 1.50
TL-540	TB-541-A	1.0-2.0	1.00 / 1.10	1.80	1 / 2	3 / 4	100	1.10 / 1.20	20	1.30 / 1.40
TL-544	TB-545-A	1.0-4.0	1.40 / 1.50	1.80	1 / 2	3 / 4	100	1.50 / 1.60	20	1.70 / 1.80
TL-549	TB-549-A	1.0-6.0	1.40 / 1.50	1.80	1 / 2	3 / 4	100	1.50 / 1.60	20	1.70 / 1.80
TL-553	TB-553-A	1.5-3.0	1.10 / 1.20	1.80	1 / 2	3 / 4	100	1.35 / 1.45	20	1.60 / 1.70
TL-556	TB-557-A	2.0-4.0	1.40 / 1.50	1.80	1 / 2	3 / 4	100	1.50 / 1.60	20	1.70 / 1.80
TL-561	TB-561-A	2.0-8.0	1.50 / 1.60	1.80	1 / 1	3 / 4	100	1.70 / 1.80	20	1.85 / 2.00
TL-564	TB-565-A	3.0-12.0	2.60 / 2.70	2.50	1 / 1	3 / 4	100	2.85 / 2.95	20	3.10 / 3.20
TL-568	TB-569-A	4.0-8.0	1.70 / 1.80	1.80	1 / 1	3 / 4	100	1.85 / 1.95	20	2.05 / 2.20
TL-572	TB-573-A	2.0-18.0	3.00 / 3.10	2.50	1 / 1	3 / 4	100	3.25 / 3.35	20	3.50 / 3.60
TL-576	TB-577-A	5.0-10.0	2.00 / 2.10	1.80	1 / 1	3 / 4	100	2.25 / 2.35	20	2.50 / 2.60
TL-583	TB-581-A	6.0-12.0	2.20 / 2.30	2.00	1 / 1	3 / 4	100	2.45 / 2.55	20	2.70 / 2.80
TL-585	TB-585-A	6.0-18.0	3.00 / 3.10	2.50	1 / 1	3 / 4	100	3.25 / 3.35	20	3.50 / 3.60
TL-587	TB-589-A	7.0-12.4	2.20 / 2.30	2.00	1 / 1	3 / 4	100	2.45 / 2.55	20	2.70 / 2.80
TL-591	TB-593-A	7.0-18.0	2.50 / 3.10	2.50	1 / 1	3 / 4	100	2.75 / 3.35	20	3.00 / 3.60
TL-594	TB-596-A	8.0-18.0	2.50 / 3.10	2.50	1 / 1	3 / 4	100	2.75 / 3.35	20	3.00 / 3.60
TL-598	TB-598-A	12.0-18.0	2.50 / 3.10	2.50	1 / 1	3 / 4	100	2.75 / 3.35	20	3.00 / 3.60

If improvement of any of the electrical specifications listed above is required, consult factory.

† Reflective Switch: VSWR measured in the 'ON' input and 'ON' Output Position.

Absorptive Switch: VSWR measured in the 'ON' Input and 'ON' Output and 'OFF' Output Position.

Insertion Loss measured with input power less than 100 mW. Increase insertion loss by 20% for outer arms, for rectangular (S) package.

**TYPICAL MODEL NO.**

Hermetic Seal  
and Mil STD 883  
Screening Available

TL or TB	XXX or XXXXA	S or R	- D -	X
Model Series	Freq Code	Pkg Style (Note 2)	Driver Option (Note 3)	Speed Option (Note 4)

