

**NARROWBAND**

# SP6T SWITCH

REFLECTIVE AND ABSORPTIVE 0.02-18 GHz

# SERIES TF-6/TN-6-A

**GENERAL INFORMATION:**

Series TF-6 and TN-6-A switches are medium power devices that operate over commonly used 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 +360 mA and -5 volts at -130 mA supplies. Logic is TTL "0" when "on" and "1" when "off". Different supply voltages and logic available if specified at time of order. Operating temperature from -55°C to +85°C.  
**Temperature Information:**  
**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.

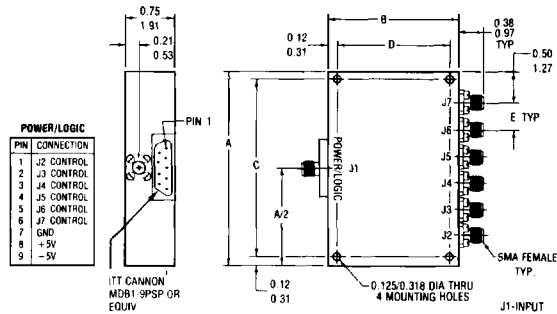
**NOTES:**

- 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. TF-611R.
- If driver is required, add 'D' to the model number when ordering, i.e. Model TF-611R, with driver, becomes TF-611RD.
- 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 TF-620RD-1 is a seven sided SP6T reflective switch with driver whose frequency range is 0.7 to 0.8 GHz and a switching speed of 100 nanosec.
- Any unit listed can be supplied with pins instead of RF connectors. (Consult factory.)

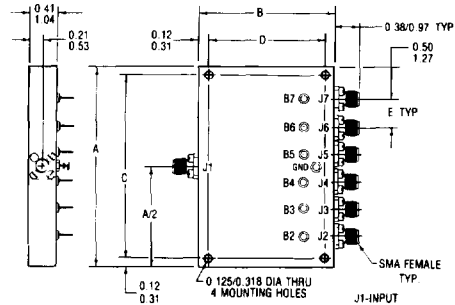
**MECHANICAL OUTLINES**

Outline	A Inches cm.	B Inches cm.	C Inches cm.	D Inches cm.	E Inches cm.
1	3.00 7.62	2.00 5.08	2.750 6.985	1.750 4.450	0.40 1.02
2	3.50 8.89	3.00 7.62	3.250 8.255	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	3.50 8.89	3.50 8.89	3.250 8.255	3.250 8.255	0.50 1.27

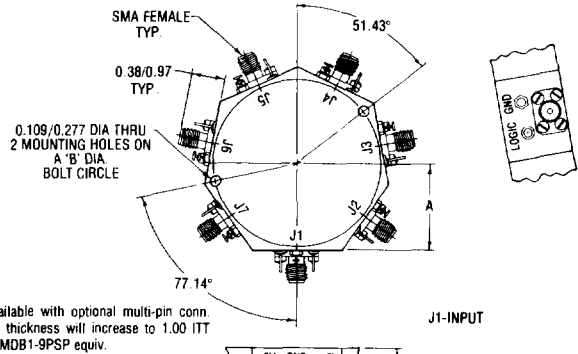
Inches/Centimeters  
 xx ± 0.3 xxx ± .010/ xx ± .08 xxx ± .025



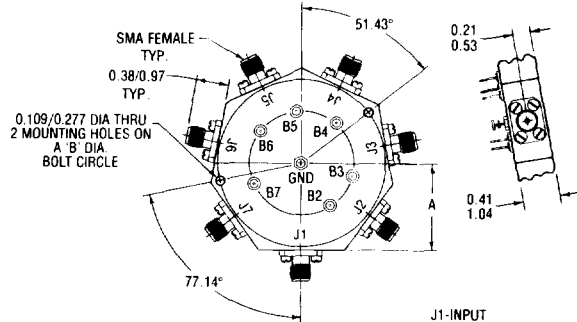
**CONFIGURATION S  
OUTLINE WITH DRIVER**



**CONFIGURATION S  
OUTLINE WITHOUT DRIVER**



**CONFIGURATION R  
OUTLINE WITH DRIVER**



**CONFIGURATION R  
OUTLINE WITHOUT DRIVER**

**NARROWBAND**

**SP6T SWITCH**

**SERIES TF-6/TN-6-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 Config. Square Ref. / Abs.    Config. Round Ref. / Abs.		Speed Nanosec.	Insertion Loss Max. dB Ref. / Abs.	Speed Nanosec.	Insertion Loss Max. dB Ref. / Abs.
TF-611	TN-611-A	0.02-0.07	0.70 / 0.80	1.45	2 / 5	4 / 4	500	0.75 / 0.85	N/A	N/A
TF-614	TN-614-A	0.2-0.25	0.70 / 0.80	1.45	2 / 5	4 / 4	500	0.75 / 0.85	N/A	N/A
TF-617	TN-617-A	0.4-0.45	0.80 / 0.90	1.45	2 / 5	4 / 4	200	0.85 / 0.95	N/A	N/A
TF-620	TN-620-A	0.7-0.8	0.90 / 1.00	1.45	1 / 2	3 / 4	100	1.00 / 1.10	20	1.10 / 1.20
TF-623	TN-623-A	0.95-1.22	1.00 / 1.10	1.45	1 / 2	3 / 4	100	1.10 / 1.20	20	1.20 / 1.30
TF-626	TN-626-A	1.02-1.10	1.00 / 1.10	1.45	1 / 2	3 / 4	100	1.10 / 1.20	20	1.20 / 1.30
TF-629	TN-629-A	1.2-1.4	1.00 / 1.10	1.45	1 / 2	3 / 4	100	1.10 / 1.20	20	1.20 / 1.30
TF-632	TN-632-A	1.5-1.6	1.00 / 1.10	1.45	1 / 2	3 / 4	100	1.10 / 1.20	20	1.20 / 1.30
TF-635	TN-635-A	1.7-2.4	1.10 / 1.20	1.45	1 / 2	3 / 4	100	1.20 / 1.30	20	1.30 / 1.40
TF-638	TN-638-A	2.2-2.3	1.10 / 1.20	1.45	1 / 2	3 / 4	100	1.20 / 1.30	20	1.30 / 1.40
TF-641	TN-641-A	2.9-3.1	1.10 / 1.20	1.45	1 / 2	3 / 4	100	1.20 / 1.30	20	1.30 / 1.40
TF-644	TN-644-A	3.1-3.5	1.10 / 1.20	1.45	1 / 2	3 / 4	100	1.20 / 1.30	20	1.30 / 1.40
TF-647	TN-647-A	3.3-3.7	1.10 / 1.20	1.45	1 / 2	3 / 4	100	1.20 / 1.30	20	1.30 / 1.40
TF-650	TN-650-A	3.7-4.2	1.10 / 1.20	1.45	1 / 2	3 / 4	100	1.20 / 1.30	20	1.30 / 1.40
TF-653	TN-653-A	4.2-4.4	1.20 / 1.30	1.45	1 / 2	3 / 4	100	1.30 / 1.40	20	1.40 / 1.50
TF-656	TN-656-A	4.4-5.0	1.30 / 1.40	1.45	1 / 2	3 / 4	100	1.40 / 1.50	20	1.50 / 1.60
TF-659	TN-659-A	5.0-5.25	1.30 / 1.40	1.55	1 / 2	3 / 4	100	1.40 / 1.50	20	1.50 / 1.60
TF-662	TN-662-A	5.4-5.9	1.30 / 1.40	1.55	1 / 2	3 / 4	100	1.40 / 1.50	20	1.50 / 1.60
TF-665	TN-665-A	5.9-6.4	1.30 / 1.40	1.55	1 / 2	3 / 4	100	1.40 / 1.50	20	1.50 / 1.60
TF-668	TN-668-A	6.7-7.4	1.50 / 1.60	1.55	1 / 2	3 / 4	100	1.60 / 1.70	20	1.70 / 1.80
TF-671	TN-671-A	7.1-7.7	1.50 / 1.60	1.55	1 / 2	3 / 4	100	1.60 / 1.70	20	1.70 / 1.80
TF-674	TN-674-A	8.5-9.6	1.60 / 1.70	1.55	1 / 1	3 / 4	100	1.70 / 1.80	20	1.80 / 1.90
TF-677	TN-677-A	9.0-9.2	1.60 / 1.70	1.55	1 / 1	3 / 4	100	1.70 / 1.80	20	1.80 / 1.90
TF-680	TN-680-A	9.3-9.7	1.60 / 1.70	1.65	1 / 1	3 / 4	100	1.70 / 1.80	20	1.80 / 1.90
TF-683	TN-683-A	9.8-10.4	1.80 / 1.90	1.65	1 / 1	3 / 4	100	1.90 / 2.00	20	2.00 / 2.10
TF-686	TN-686-A	10.0-10.5	1.80 / 1.90	1.65	1 / 1	3 / 4	100	1.90 / 2.00	20	2.00 / 2.10
TF-689	TN-689-A	12.0-12.4	1.90 / 2.00	1.65	1 / 1	3 / 4	100	2.00 / 2.10	20	2.10 / 2.20
TF-692	TN-691-A	13.1-13.5	2.00 / 2.10	1.65	1 / 1	3 / 4	100	2.10 / 2.20	20	2.20 / 2.30
TF-695	TN-694-A	14.5-15.5	2.00 / 2.10	1.65	1 / 1	3 / 4	100	2.10 / 2.20	20	2.20 / 2.30
TF-696	TN-696-A	15.0-17.0	2.00 / 2.10	1.65	1 / 1	3 / 4	100	2.10 / 2.20	20	2.20 / 2.30
TF-699	TN-699-A	16.0-18.0	2.00 / 2.10	1.65	1 / 1	3 / 4	100	2.15 / 2.25	20	2.30 / 2.40

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.

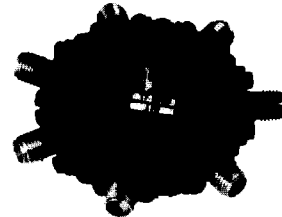
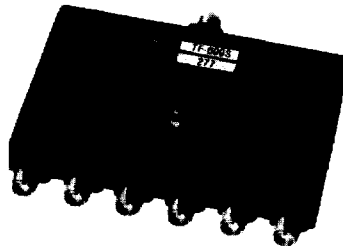
Insertion Loss measured with input power less than 100 mW. Increase insertion loss by 20% for outer arms, for rectangular (S) package.

**TYPICAL MODEL NO.**

TF    XXX    S  
or    -    or    -    D    -    X  
TN    XXXA    R

Model Series    Freq Code    Pkg Style    Driver Option    Speed Option

(Note 2)    (Note 3)    (Note 4)



Hermetic Seal  
and Mil STD 883  
Screening Available