

NARROWBAND

SP7T SWITCH

HIGH ISOLATION-REFLECTIVE AND ABSORPTIVE 0.02-18 GHz

SERIES TN-7/TN-7-HA

GENERAL INFORMATION:

Series TN-7 and TN-7-HA 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 +420 mA and -5 volts at -140 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.
- 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 MDB1-15SSL or equiv.

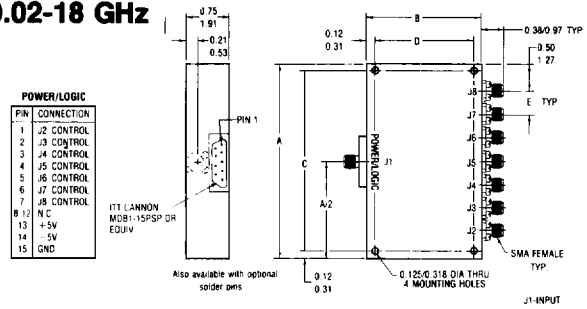
NOTES:

1. 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")
2. When ordering, add suffix for configuration desired to the model number. ('S' for rectangular, 'R' for eight sided) i.e. TN-710R.
3. If driver is required, add 'D' to the model number when ordering, i.e. Model TN-810R, with driver, becomes TN-710RD.
4. 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 TN-818RD-1 is an eight sided SP7T reflective switch with driver whose frequency range is 0.7 to 0.8 GHz and a switching speed of 100 nanosec.
5. 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	3.40 8.64	2.00 5.08	3.150 8.001	1.750 4.450	0.40 1.02
2	4.00 10.16	3.00 7.62	3.750 9.525	2.750 6.985	0.50 1.27
3	0.85 2.16	1.600 4.064	—	—	—
4	1.15 2.92	2.260 5.740	—	—	—
5	4.00 10.16	3.50 8.89	3.750 9.525	3.250 8.255	0.50 1.27
6	1.50 3.81	3.030 7.696	—	—	—
7	4.00 10.16	2.35 5.97	3.750 9.525	2.100 5.334	0.50 1.27

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

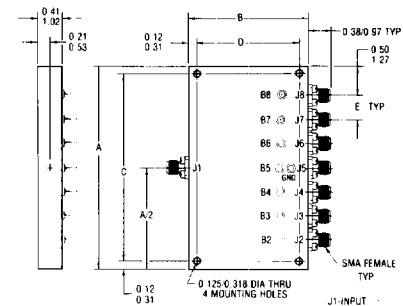


POWER LOGIC

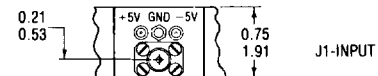
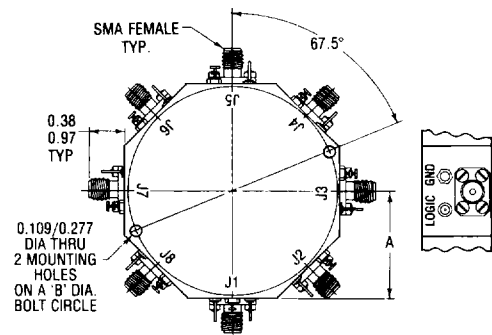
PIN	CONNECTION
1	J2 CONTROL
2	J3 CONTROL
3	J4 CONTROL
4	J5 CONTROL
5	J6 CONTROL
6	J7 CONTROL
7	J8 CONTROL
8-12	N.C.
13	+5V
14	-5V
15	GND

ITT CANNON MDB1-15PSP OR EQUIV.

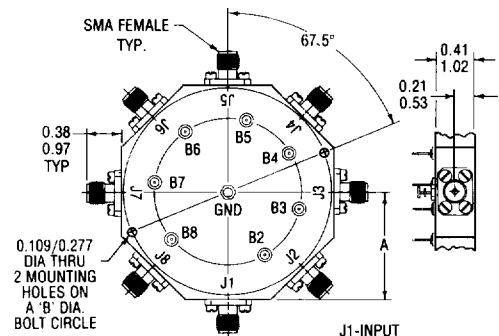
**CONFIGURATION S
OUTLINE WITH DRIVER**



**CONFIGURATION S
OUTLINE WITHOUT DRIVER**



**CONFIGURATION R
OUTLINE WITH DRIVER**



**CONFIGURATION R
OUTLINE WITHOUT DRIVER**

NARROWBAND

SP7T SWITCH

SERIES TN-7/TN-7-HA

HIGH ISOLATION-REFLECTIVE AND ABSORPTIVE 0.02-18 GHz

ELECTRICAL PERFORMANCE

Power: 1 watt average, 10 watts peak, survival

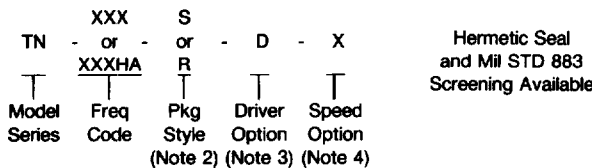
STANDARD SWITCH								HIGH SPEED OPTION			
Isolation: 60 dB or 80 dB minimum Speed: 2 microsec. maximum								MODEL-1		MODEL-2	
Reflective Model No.	Absorptive Model No.	Frequency Range GHz	Isolation Min dB	Insertion Loss Max. dB Ref. / Abs.	VSWR † Max.	OUTLINE		Speed Nanosec.	Insertion Loss Max. dB Ref. / Abs.	Speed Nanosec.	Insertion Loss Max. dB Ref. / Abs.
						Config. Square Ref. / Abs.	Config. Round Ref. / Abs.				
TN-710	TN-710-HA	0.02-0.07	60	0.85 / 0.95	1.50	2 / 5	4 / 4	500	0.90 / 1.00	N/A	N/A
TN-711	TN-711-HA	0.02-0.07	80	0.90 / 1.00	1.50	2 / 5	4 / 4	500	0.95 / 1.05	N/A	N/A
TN-712	TN-713-HA	0.2-0.25	60	0.95 / 1.05	1.50	2 / 5	4 / 4	500	1.00 / 1.10	N/A	N/A
TN-714	TN-715-HA	0.2-0.25	80	1.00 / 1.10	1.50	2 / 5	4 / 4	500	1.05 / 1.15	N/A	N/A
TN-715	TN-716-HA	0.4-0.45	60	0.95 / 1.05	1.50	2 / 5	4 / 4	200	1.00 / 1.10	N/A	N/A
TN-716	TN-718-HA	0.4-0.45	80	1.00 / 1.10	1.50	2 / 5	4 / 4	200	1.05 / 1.15	N/A	N/A
TN-718	TN-719-HA	0.7-0.8	60	1.05 / 1.15	1.50	2 / 2	3 / 4	100	1.10 / 1.20	20	1.15 / 1.25
TN-719	TN-721-HA	0.7-0.8	80	1.10 / 1.20	1.50	2 / 2	3 / 4	100	1.15 / 1.25	20	1.20 / 1.30
TN-721	TN-722-HA	0.95-1.22	60	1.15 / 1.25	1.50	1 / 2	3 / 4	100	1.20 / 1.30	20	1.25 / 1.35
TN-722	TN-724-HA	0.95-1.22	80	1.20 / 1.30	1.50	1 / 2	3 / 4	100	1.25 / 1.35	20	1.30 / 1.40
TN-723	TN-725-HA	1.02-1.10	60	1.15 / 1.25	1.50	1 / 2	3 / 4	100	1.20 / 1.30	20	1.25 / 1.35
TN-724	TN-727-HA	1.02-1.10	80	1.20 / 1.30	1.50	1 / 2	3 / 4	100	1.25 / 1.35	20	1.30 / 1.40
TN-726	TN-728-HA	1.2-1.4	60	1.15 / 1.25	1.50	1 / 2	3 / 4	100	1.20 / 1.30	20	1.25 / 1.35
TN-727	TN-730-HA	1.2-1.4	80	1.20 / 1.30	1.50	1 / 2	3 / 4	100	1.25 / 1.35	20	1.30 / 1.40
TN-729	TN-731-HA	1.5-1.6	60	1.20 / 1.30	1.50	1 / 2	3 / 4	100	1.25 / 1.35	20	1.30 / 1.40
TN-731	TN-733-HA	1.5-1.6	80	1.30 / 1.40	1.50	1 / 2	3 / 4	100	1.35 / 1.45	20	1.40 / 1.50
TN-732	TN-734-HA	1.7-2.4	60	1.30 / 1.40	1.50	1 / 2	3 / 4	100	1.35 / 1.45	20	1.40 / 1.50
TN-733	TN-736-HA	1.7-2.4	80	1.35 / 1.45	1.50	1 / 2	3 / 4	100	1.40 / 1.50	20	1.50 / 1.60
TN-735	TN-737-HA	2.2-2.3	60	1.30 / 1.40	1.50	1 / 2	3 / 4	100	1.35 / 1.45	20	1.40 / 1.50
TN-736	TN-739-HA	2.2-2.3	80	1.35 / 1.45	1.50	1 / 2	3 / 4	100	1.40 / 1.50	20	1.50 / 1.60
TN-737	TN-740-HA	2.9-3.1	60	1.30 / 1.40	1.50	1 / 2	3 / 4	100	1.35 / 1.45	20	1.40 / 1.50
TN-739	TN-742-HA	2.9-3.1	80	1.35 / 1.45	1.50	1 / 2	3 / 6	100	1.40 / 1.50	20	1.50 / 1.60
TN-741	TN-743-HA	3.1-3.5	60	1.30 / 1.40	1.50	1 / 2	3 / 4	100	1.35 / 1.45	20	1.40 / 1.50
TN-742	TN-744-HA	3.1-3.5	80	1.35 / 1.45	1.50	1 / 2	3 / 6	100	1.40 / 1.50	20	1.50 / 1.60
TN-743	TN-746-HA	3.3-3.7	60	1.30 / 1.40	1.50	1 / 2	3 / 4	100	1.35 / 1.45	20	1.40 / 1.50
TN-745	TN-748-HA	3.3-3.7	80	1.35 / 1.45	1.50	1 / 2	3 / 6	100	1.40 / 1.50	20	1.50 / 1.60
TN-746	TN-749-HA	3.7-4.2	60	1.30 / 1.40	1.50	1 / 2	3 / 4	100	1.35 / 1.45	20	1.40 / 1.50
TN-747	TN-751-HA	3.7-4.2	80	1.35 / 1.45	1.50	1 / 2	3 / 6	100	1.40 / 1.50	20	1.50 / 1.60
TN-749	TN-752-HA	4.2-4.4	60	1.40 / 1.50	1.50	1 / 2	3 / 4	100	1.50 / 1.60	20	1.60 / 1.70
TN-751	TN-754-HA	4.2-4.4	80	1.50 / 1.60	1.50	1 / 2	3 / 6	100	1.60 / 1.70	20	1.70 / 1.80
TN-752	TN-755-HA	4.4-5.0	60	1.50 / 1.60	1.60	1 / 2	3 / 4	100	1.60 / 1.70	20	1.70 / 1.80
TN-753	TN-757-HA	4.4-5.0	80	1.55 / 1.65	1.60	1 / 2	3 / 6	100	1.65 / 1.75	20	1.80 / 1.90
TN-755	TN-758-HA	5.0-5.25	60	1.55 / 1.65	1.60	1 / 2	3 / 4	100	1.65 / 1.75	20	1.80 / 1.90
TN-756	TN-760-HA	5.0-5.25	80	1.60 / 1.70	1.60	1 / 2	3 / 6	100	1.70 / 1.80	20	1.80 / 1.90
TN-757	TN-761-HA	5.4-5.9	60	1.60 / 1.70	1.60	1 / 2	3 / 4	100	1.70 / 1.80	20	1.80 / 1.90
TN-759	TN-763-HA	5.4-5.9	80	1.70 / 1.80	1.60	1 / 2	3 / 6	100	1.80 / 1.90	20	1.90 / 2.00
TN-761	TN-764-HA	5.9-6.4	60	1.70 / 1.80	1.60	1 / 2	3 / 4	100	1.80 / 1.90	20	1.90 / 2.00
TN-762	TN-766-HA	5.9-6.4	80	1.80 / 1.90	1.60	1 / 2	3 / 6	100	1.90 / 2.00	20	2.00 / 2.10
TN-763	TN-767-HA	6.7-7.4	60	1.75 / 1.85	1.60	1 / 2	3 / 4	100	1.90 / 2.00	20	2.00 / 2.10
TN-765	TN-769-HA	6.7-7.4	80	1.85 / 1.95	1.60	1 / 2	3 / 6	100	2.00 / 2.10	20	2.10 / 2.20
TN-766	TN-770-HA	7.1-7.7	60	1.80 / 1.90	1.60	1 / 2	3 / 4	100	1.90 / 2.00	20	2.10 / 2.20
TN-767	TN-772-HA	7.1-7.7	80	1.90 / 2.00	1.60	1 / 2	3 / 6	100	2.00 / 2.10	20	2.20 / 2.30
TN-769	TN-773-HA	8.5-9.6	60	1.90 / 2.00	1.60	1 / 7	3 / 4	100	2.00 / 2.10	20	2.10 / 2.20
TN-771	TN-775-HA	8.5-9.6	80	2.00 / 2.10	1.60	1 / 7	3 / 6	100	2.10 / 2.20	20	2.20 / 2.30
TN-772	TN-776-HA	9.0-9.2	60	1.90 / 2.00	1.60	1 / 7	3 / 4	100	2.00 / 2.10	20	2.10 / 2.20
TN-773	TN-778-HA	9.0-9.2	80	2.00 / 2.10	1.60	1 / 7	3 / 6	100	2.10 / 2.20	20	2.20 / 2.30
TN-775	TN-779-HA	9.3-9.7	60	1.90 / 2.00	1.60	1 / 7	3 / 4	100	2.00 / 2.10	20	2.10 / 2.20
TN-776	TN-781-HA	9.3-9.7	80	2.00 / 2.10	1.60	1 / 7	3 / 6	100	2.10 / 2.20	20	2.20 / 2.30
TN-777	TN-782-HA	9.8-10.4	60	1.90 / 2.00	1.60	1 / 7	3 / 4	100	2.00 / 2.10	20	2.10 / 2.20
TN-779	TN-784-HA	9.8-10.4	80	2.00 / 2.10	1.60	1 / 7	3 / 6	100	2.10 / 2.20	20	2.20 / 2.30
TN-781	TN-785-HA	10.0-10.5	60	1.95 / 2.05	1.60	1 / 7	3 / 4	100	2.10 / 2.20	20	2.20 / 2.30
TN-782	TN-787-HA	10.0-10.5	80	2.05 / 2.15	1.60	1 / 7	3 / 6	100	2.20 / 2.30	20	2.30 / 2.40
TN-783	TN-788-HA	12.0-12.4	60	2.00 / 2.10	1.60	1 / 7	3 / 4	100	2.10 / 2.20	20	2.20 / 2.30
TN-785	TN-789-HA	12.0-12.4	80	2.10 / 2.20	1.70	1 / 7	3 / 6	100	2.20 / 2.30	20	2.30 / 2.40
TN-786	TN-790-HA	13.1-13.5	60	2.10 / 2.20	1.70	1 / 7	3 / 4	100	2.20 / 2.30	20	2.30 / 2.40
TN-787	TN-792-HA	13.1-13.5	80	2.20 / 2.30	1.70	1 / 7	3 / 6	100	2.30 / 2.40	20	2.40 / 2.50
TN-789	TN-793-HA	14.5-15.5	60	2.10 / 2.20	1.70	1 / 7	3 / 4	100	2.20 / 2.30	20	2.30 / 2.40
TN-791	TN-795-HA	14.5-15.5	80	2.20 / 2.30	1.70	1 / 7	3 / 6	100	2.30 / 2.40	20	2.40 / 2.50
TN-793	TN-796-HA	15.0-17.0	60	2.00 / 2.10	1.70	1 / 7	3 / 4	100	2.10 / 2.20	20	2.20 / 2.30
TN-795	TN-797-HA	15.0-17.0	80	2.20 / 2.30	1.70	1 / 7	3 / 6	100	2.30 / 2.40	20	2.40 / 2.50
TN-796	TN-798-HA	16.0-18.0	60	2.20 / 2.30	1.70	1 / 7	3 / 4	100	2.30 / 2.40	20	2.40 / 2.50
TN-798	TN-799-HA	16.0-18.0	80	2.40 / 2.50	1.70	1 / 7	3 / 6	100	2.50 / 2.60	20	2.70 / 2.80

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.



KDI/triangle ELECTRONICS

31 Farinella Drive • East Hanover, NJ 07936 • Phone: (201) 884-1423
TWX: (710) 986-8202 • FAX: (201) 884-0445