

NARROWBAND

SP5T SWITCH

HIGH ISOLATION-REFLECTIVE AND ABSORPTIVE 0.02-18 GHz

SERIES TN-5/TN-5-HA

GENERAL INFORMATION:

Series TN-5 and TN-5-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 +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.

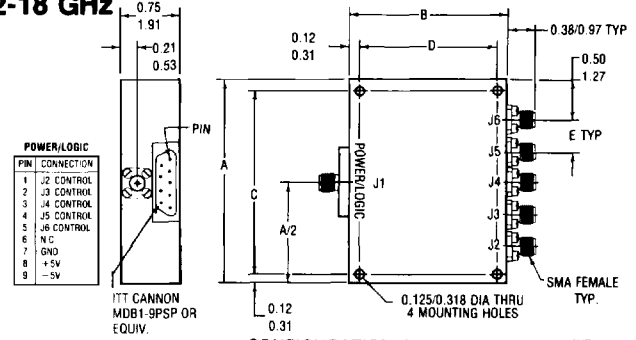
NOTES:

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 seven sided) i.e. TN-510R.
3. If driver is required, add 'D' to the model number when ordering, i.e. Model TN-510R, with driver, becomes TN-510RD.
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-518RD-1 is a seven sided SP5T 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.)

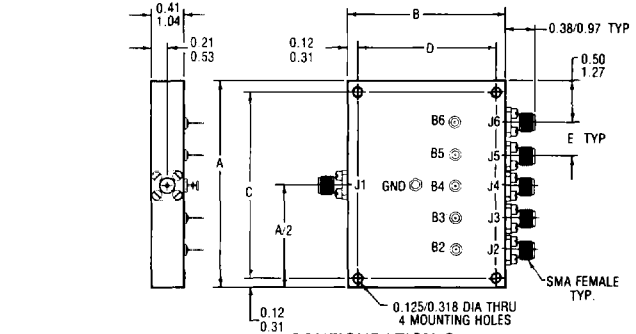
MECHANICAL OUTLINES

Outline	A Inches cm.	B Inches cm.	C Inches cm.	D Inches cm.	E Inches cm.
1	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
6	1.25 3.18	2.550 6.477	—	—	—

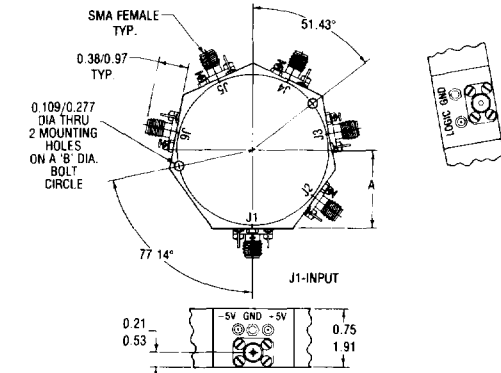
Inches/Centimeters
 xx ± 0.3 xxx ± .010/ xx ± .08 xxx ± .025



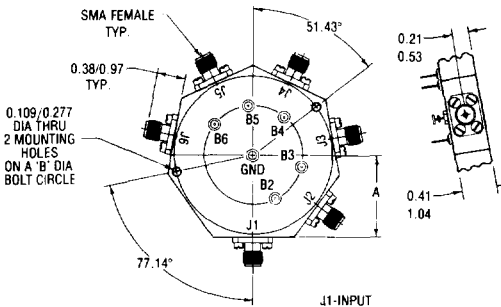
**CONFIGURATION S
 OUTLINE WITH DRIVER**



**CONFIGURATION S
 OUTLINE WITHOUT DRIVER**



**CONFIGURATION R
 OUTLINE WITH DRIVER**



**CONFIGURATION R
 OUTLINE WITHOUT DRIVER**

NARROWBAND

SP5T SWITCH

SERIES TN-5/TN-5-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-510	TN-510-HA	0.02-0.07	60	0.65 / 0.75	1.40	2 / 5	4 / 4	500	0.70 / 0.80	N/A	N/A
TN-511	TN-511-HA	0.02-0.07	80	0.70 / 0.80	1.40	2 / 5	4 / 4	500	0.75 / 0.85	N/A	N/A
TN-512	TN-513-HA	0.2-0.25	60	0.75 / 0.85	1.40	2 / 5	4 / 4	500	0.80 / 0.90	N/A	N/A
TN-514	TN-515-HA	0.2-0.25	80	0.80 / 0.90	1.40	2 / 5	4 / 4	500	0.85 / 0.95	N/A	N/A
TN-515	TN-516-HA	0.4-0.45	60	0.75 / 0.85	1.40	2 / 5	4 / 4	200	0.80 / 0.90	N/A	N/A
TN-516	TN-518-HA	0.4-0.45	80	0.80 / 0.90	1.40	2 / 5	4 / 4	200	0.85 / 0.95	N/A	N/A
TN-518	TN-519-HA	0.7-0.8	60	0.85 / 0.95	1.40	2 / 2	3 / 4	100	0.90 / 1.00	20	0.95 / 1.05
TN-519	TN-521-HA	0.7-0.8	80	0.90 / 1.00	1.40	2 / 2	3 / 4	100	0.95 / 1.05	20	1.00 / 1.10
TN-521	TN-522-HA	0.95-1.22	60	0.95 / 1.05	1.40	1 / 2	3 / 4	100	1.00 / 1.10	20	1.05 / 1.15
TN-522	TN-524-HA	0.95-1.22	80	1.00 / 1.10	1.40	1 / 2	3 / 4	100	1.05 / 1.15	20	1.10 / 1.20
TN-523	TN-525-HA	1.02-1.10	60	0.95 / 1.05	1.40	1 / 2	3 / 4	100	1.00 / 1.10	20	1.05 / 1.15
TN-525	TN-527-HA	1.02-1.10	80	1.00 / 1.10	1.40	1 / 2	3 / 4	100	1.05 / 1.15	20	1.10 / 1.20
TN-526	TN-528-HA	1.2-1.4	60	0.95 / 1.05	1.40	1 / 2	3 / 4	100	1.00 / 1.10	20	1.05 / 1.15
TN-527	TN-530-HA	1.2-1.4	80	1.00 / 1.10	1.40	1 / 2	3 / 4	100	1.05 / 1.15	20	1.10 / 1.20
TN-529	TN-531-HA	1.5-1.6	60	1.00 / 1.10	1.40	1 / 2	3 / 4	100	1.05 / 1.15	20	1.10 / 1.20
TN-531	TN-533-HA	1.5-1.6	80	1.10 / 1.20	1.40	1 / 2	3 / 4	100	1.15 / 1.25	20	1.20 / 1.30
TN-532	TN-534-HA	1.7-2.4	60	1.10 / 1.20	1.40	1 / 2	3 / 4	100	1.15 / 1.25	20	1.20 / 1.30
TN-533	TN-536-HA	1.7-2.4	80	1.15 / 1.25	1.40	1 / 2	3 / 4	100	1.20 / 1.30	20	1.30 / 1.40
TN-535	TN-537-HA	2.2-2.3	60	1.10 / 1.20	1.40	1 / 2	3 / 4	100	1.15 / 1.25	20	1.20 / 1.30
TN-536	TN-539-HA	2.2-2.3	80	1.15 / 1.25	1.40	1 / 2	3 / 4	100	1.20 / 1.30	20	1.30 / 1.40
TN-537	TN-540-HA	2.9-3.1	60	1.10 / 1.20	1.40	1 / 2	3 / 4	100	1.15 / 1.25	20	1.20 / 1.30
TN-539	TN-542-HA	2.9-3.1	80	1.15 / 1.25	1.40	1 / 2	3 / 6	100	1.20 / 1.30	20	1.30 / 1.40
TN-541	TN-543-HA	3.1-3.5	60	1.10 / 1.20	1.40	1 / 2	3 / 4	100	1.15 / 1.25	20	1.20 / 1.30
TN-542	TN-544-HA	3.1-3.5	80	1.15 / 1.25	1.40	1 / 2	3 / 6	100	1.20 / 1.30	20	1.30 / 1.40
TN-543	TN-546-HA	3.3-3.7	60	1.10 / 1.20	1.40	1 / 2	3 / 4	100	1.15 / 1.25	20	1.20 / 1.30
TN-545	TN-548-HA	3.3-3.7	80	1.15 / 1.25	1.40	1 / 2	3 / 6	100	1.20 / 1.30	20	1.30 / 1.40
TN-546	TN-549-HA	3.7-4.2	60	1.10 / 1.20	1.40	1 / 2	3 / 4	100	1.15 / 1.25	20	1.20 / 1.30
TN-547	TN-551-HA	3.7-4.2	80	1.15 / 1.25	1.40	1 / 2	3 / 6	100	1.20 / 1.30	20	1.30 / 1.40
TN-549	TN-552-HA	4.2-4.4	60	1.20 / 1.30	1.40	1 / 2	3 / 4	100	1.30 / 1.40	20	1.40 / 1.50
TN-551	TN-554-HA	4.2-4.4	80	1.30 / 1.40	1.40	1 / 2	3 / 6	100	1.40 / 1.50	20	1.50 / 1.60
TN-552	TN-555-HA	4.4-5.0	60	1.30 / 1.40	1.50	1 / 2	3 / 4	100	1.40 / 1.50	20	1.50 / 1.60
TN-553	TN-557-HA	4.4-5.0	80	1.35 / 1.45	1.50	1 / 2	3 / 6	100	1.45 / 1.55	20	1.60 / 1.70
TN-555	TN-558-HA	5.0-5.25	60	1.35 / 1.45	1.50	1 / 2	3 / 4	100	1.45 / 1.55	20	1.60 / 1.70
TN-556	TN-560-HA	5.0-5.25	80	1.40 / 1.50	1.50	1 / 2	3 / 6	100	1.50 / 1.60	20	1.60 / 1.70
TN-557	TN-561-HA	5.4-5.9	60	1.40 / 1.50	1.50	1 / 2	3 / 4	100	1.50 / 1.60	20	1.60 / 1.70
TN-559	TN-563-HA	5.4-5.9	80	1.50 / 1.60	1.50	1 / 2	3 / 6	100	1.60 / 1.70	20	1.70 / 1.80
TN-561	TN-564-HA	5.9-6.4	60	1.50 / 1.60	1.50	1 / 2	3 / 4	100	1.60 / 1.70	20	1.70 / 1.80
TN-562	TN-566-HA	5.9-6.4	80	1.60 / 1.70	1.50	1 / 2	3 / 6	100	1.70 / 1.80	20	1.80 / 1.90
TN-563	TN-567-HA	6.7-7.4	60	1.55 / 1.65	1.50	1 / 2	3 / 4	100	1.70 / 1.80	20	1.80 / 1.90
TN-565	TN-569-HA	6.7-7.4	80	1.65 / 1.75	1.50	1 / 2	3 / 6	100	1.80 / 1.90	20	1.90 / 2.00
TN-566	TN-570-HA	7.1-7.7	60	1.60 / 1.70	1.50	1 / 2	3 / 4	100	1.70 / 1.80	20	1.90 / 2.00
TN-567	TN-572-HA	7.1-7.7	80	1.70 / 1.80	1.50	1 / 2	3 / 6	100	1.80 / 1.90	20	2.00 / 2.10
TN-569	TN-573-HA	8.5-9.6	60	1.70 / 1.80	1.50	1 / 1	3 / 4	100	1.80 / 1.90	20	1.90 / 2.00
TN-571	TN-575-HA	8.5-9.6	80	1.80 / 1.90	1.50	1 / 1	3 / 6	100	1.90 / 2.00	20	2.00 / 2.10
TN-572	TN-576-HA	9.0-9.2	60	1.70 / 1.80	1.50	1 / 1	3 / 4	100	1.80 / 1.90	20	1.90 / 2.00
TN-573	TN-578-HA	9.0-9.2	80	1.80 / 1.90	1.50	1 / 1	3 / 6	100	1.90 / 2.00	20	2.00 / 2.10
TN-575	TN-579-HA	9.3-9.7	60	1.70 / 1.80	1.50	1 / 1	3 / 4	100	1.80 / 1.90	20	1.90 / 2.00
TN-576	TN-581-HA	9.3-9.7	80	1.80 / 1.90	1.50	1 / 1	3 / 6	100	1.90 / 2.00	20	2.00 / 2.10
TN-577	TN-582-HA	9.8-10.4	60	1.70 / 1.80	1.50	1 / 1	3 / 4	100	1.80 / 1.90	20	1.90 / 2.00
TN-579	TN-584-HA	9.8-10.4	80	1.80 / 1.90	1.50	1 / 1	3 / 6	100	1.90 / 2.00	20	2.00 / 2.10
TN-581	TN-585-HA	10.0-10.5	60	1.75 / 1.85	1.50	1 / 1	3 / 4	100	1.90 / 2.00	20	2.00 / 2.10
TN-582	TN-587-HA	10.0-10.5	80	1.85 / 1.95	1.50	1 / 1	3 / 6	100	2.00 / 2.10	20	2.10 / 2.20
TN-583	TN-588-HA	12.0-12.4	60	1.80 / 1.90	1.50	1 / 1	3 / 4	100	1.90 / 2.00	20	2.00 / 2.10
TN-585	TN-589-HA	12.0-12.4	80	1.90 / 2.00	1.50	1 / 1	3 / 6	100	2.00 / 2.10	20	2.10 / 2.20
TN-586	TN-590-HA	13.1-13.5	60	1.90 / 2.00	1.60	1 / 1	3 / 4	100	2.00 / 2.10	20	2.10 / 2.20
TN-587	TN-592-HA	13.1-13.5	80	2.00 / 2.10	1.60	1 / 1	3 / 6	100	2.10 / 2.20	20	2.20 / 2.30
TN-589	TN-593-HA	14.5-15.5	60	1.90 / 2.00	1.60	1 / 1	3 / 4	100	2.00 / 2.10	20	2.10 / 2.20
TN-591	TN-595-HA	14.5-15.5	80	2.00 / 2.10	1.60	1 / 1	3 / 6	100	2.10 / 2.20	20	2.20 / 2.30
TN-593	TN-596-HA	15.0-17.0	60	1.80 / 1.90	1.60	1 / 1	3 / 4	100	1.90 / 2.00	20	2.00 / 2.10
TN-595	TN-597-HA	15.0-17.0	80	2.00 / 2.10	1.60	1 / 1	3 / 6	100	2.10 / 2.20	20	2.20 / 2.30
TN-596	TN-598-HA	16.0-18.0	60	2.00 / 2.10	1.60	1 / 1	3 / 4	100	2.10 / 2.20	20	2.20 / 2.30
TN-598	TN-599-HA	16.0-18.0	80	2.20 / 2.30	1.60	1 / 1	3 / 6	100	2.30 / 2.40	20	2.45 / 2.60

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

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.

XXX S
 TN - or - or - D - X
 XXXHA R

Model Freq Pkg Driver Speed
 Series Code Style Option Option

(Note 2) (Note 3) (Note 4)

Hermetic Seal
 and Mil STD 883
 Screening Available

**KDI/triangle
ELECTRONICS**

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