

NARROWBAND

SP6T SWITCH

HIGH ISOLATION-REFLECTIVE AND ABSORPTIVE 0.02-18 GHz

GENERAL INFORMATION:

Series TN-6 and TN-6-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 +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: 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-610R.
3. If driver is required, add 'D' to the model number when ordering, i.e. Model TN-610R, with driver, becomes TN-610RD.
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-618RD-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.
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	3.00 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
6	1.25 3.18	2.550 6.477	—	—	—

Inches/Centimeters

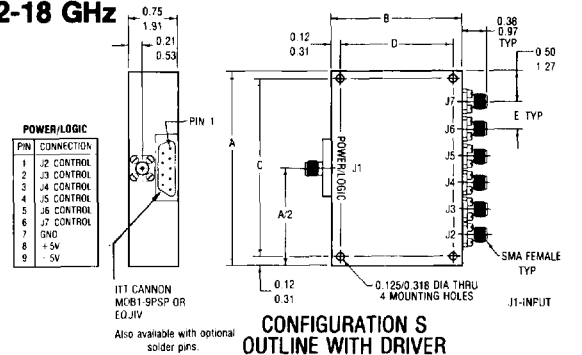
xx ± 0.3 xxx ± .010/ xx ± .08 xxx ± .025

TYPICAL MODEL NO.

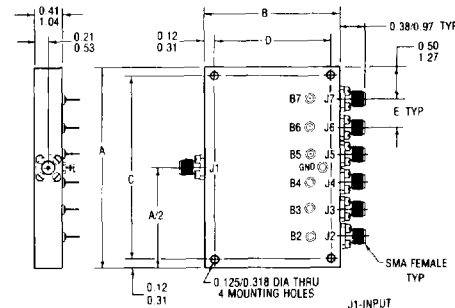
TN - or - S - D - X
 XXXHHA - or - R
 Model Series Freq Code Pkg Style Driver Option Speed Option
 (Note 2) (Note 3) (Note 4)

Hermetic Seal
 and Mil STD 883
 Screening Available

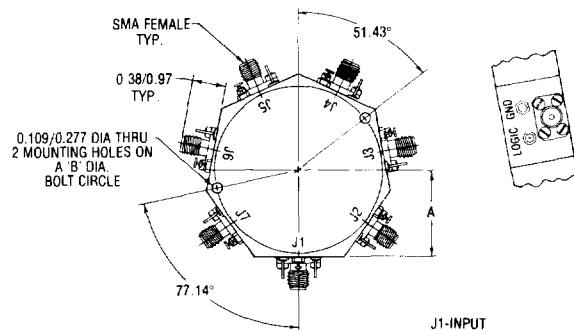
SERIES TN-6/TN-6-HA



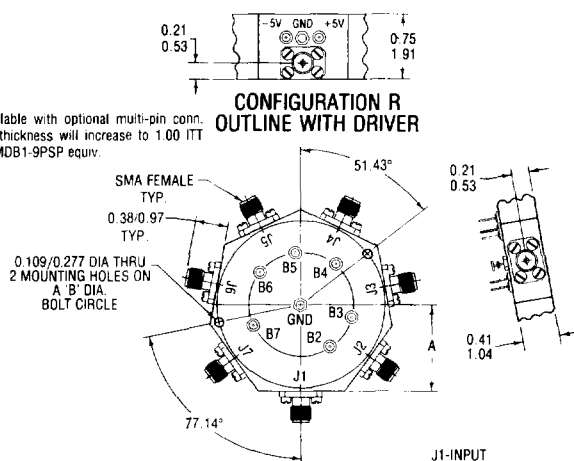
CONFIGURATION S
OUTLINE WITH DRIVER



CONFIGURATION S
OUTLINE WITHOUT DRIVER



CONFIGURATION R
OUTLINE WITH DRIVER



CONFIGURATION R
OUTLINE WITHOUT DRIVER

**KDI/triangle
ELECTRONICS**

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

NARROWBAND

SP6T SWITCH

SERIES TN-6/TN-6-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-610	TN-610-HA	0.02-0.07	60	0.75 / 0.85	1.45	2 / 5	4 / 4		500	0.80 / 0.90	N/A	N/A
TN-611	TN-611-HA	0.02-0.07	80	0.80 / 0.90	1.45	2 / 5	4 / 4		500	0.85 / 0.95	N/A	N/A
TN-612	TN-613-HA	0.2-0.25	60	0.85 / 0.95	1.45	2 / 5	4 / 4		500	0.90 / 1.00	N/A	N/A
TN-614	TN-615-HA	0.2-0.25	80	0.90 / 1.00	1.45	2 / 5	4 / 4		500	0.95 / 1.05	N/A	N/A
TN-615	TN-616-HA	0.4-0.45	60	0.85 / 0.95	1.45	2 / 5	4 / 4		200	0.90 / 1.00	N/A	N/A
TN-616	TN-618-HA	0.4-0.45	80	0.90 / 1.00	1.45	2 / 5	4 / 4		200	0.95 / 1.05	N/A	N/A
TN-618	TN-619-HA	0.7-0.8	60	0.95 / 1.05	1.45	2 / 2	3 / 4		100	1.00 / 1.10	20	1.05 / 1.15
TN-619	TN-621-HA	0.7-0.8	80	1.00 / 1.10	1.45	2 / 2	3 / 4		100	1.05 / 1.15	20	1.10 / 1.20
TN-621	TN-622-HA	0.95-1.22	60	1.05 / 1.15	1.45	1 / 2	3 / 4		100	1.10 / 1.20	20	1.15 / 1.25
TN-622	TN-624-HA	0.95-1.22	80	1.10 / 1.20	1.45	1 / 2	3 / 4		100	1.15 / 1.25	20	1.20 / 1.30
TN-623	TN-625-HA	1.02-1.10	60	1.05 / 1.15	1.45	1 / 2	3 / 4		100	1.10 / 1.20	20	1.15 / 1.25
TN-625	TN-627-HA	1.02-1.10	80	1.10 / 1.20	1.45	1 / 2	3 / 4		100	1.15 / 1.25	20	1.20 / 1.30
TN-626	TN-628-HA	1.2-1.4	60	1.05 / 1.15	1.45	1 / 2	3 / 4		100	1.10 / 1.20	20	1.15 / 1.25
TN-627	TN-630-HA	1.2-1.4	80	1.10 / 1.20	1.45	1 / 2	3 / 4		100	1.15 / 1.25	20	1.20 / 1.30
TN-629	TN-631-HA	1.5-1.6	60	1.10 / 1.20	1.45	1 / 2	3 / 4		100	1.15 / 1.25	20	1.20 / 1.30
TN-631	TN-633-HA	1.5-1.6	80	1.20 / 1.30	1.45	1 / 2	3 / 4		100	1.25 / 1.35	20	1.30 / 1.40
TN-632	TN-634-HA	1.7-2.4	60	1.20 / 1.30	1.45	1 / 2	3 / 4		100	1.25 / 1.35	20	1.30 / 1.40
TN-633	TN-636-HA	1.7-2.4	80	1.25 / 1.35	1.45	1 / 2	3 / 4		100	1.30 / 1.40	20	1.40 / 1.50
TN-635	TN-637-HA	2.2-2.3	60	1.20 / 1.30	1.45	1 / 2	3 / 4		100	1.25 / 1.35	20	1.30 / 1.40
TN-636	TN-639-HA	2.2-2.3	80	1.25 / 1.35	1.45	1 / 2	3 / 4		100	1.30 / 1.40	20	1.40 / 1.50
TN-637	TN-640-HA	2.9-3.1	60	1.20 / 1.30	1.45	1 / 2	3 / 4		100	1.25 / 1.35	20	1.30 / 1.40
TN-639	TN-642-HA	2.9-3.1	80	1.25 / 1.35	1.45	1 / 2	3 / 6		100	1.30 / 1.40	20	1.40 / 1.50
TN-641	TN-643-HA	3.1-3.5	60	1.20 / 1.30	1.45	1 / 2	3 / 4		100	1.25 / 1.35	20	1.30 / 1.40
TN-642	TN-644-HA	3.1-3.5	80	1.25 / 1.35	1.45	1 / 2	3 / 6		100	1.30 / 1.40	20	1.40 / 1.50
TN-643	TN-646-HA	3.3-3.7	60	1.20 / 1.30	1.45	1 / 2	3 / 4		100	1.25 / 1.35	20	1.30 / 1.40
TN-645	TN-648-HA	3.3-3.7	80	1.25 / 1.35	1.45	1 / 2	3 / 6		100	1.30 / 1.40	20	1.40 / 1.50
TN-646	TN-649-HA	3.7-4.2	60	1.20 / 1.30	1.45	1 / 2	3 / 4		100	1.25 / 1.35	20	1.30 / 1.40
TN-647	TN-651-HA	3.7-4.2	80	1.25 / 1.35	1.45	1 / 2	3 / 6		100	1.30 / 1.40	20	1.40 / 1.50
TN-649	TN-652-HA	4.2-4.4	60	1.30 / 1.40	1.45	1 / 2	3 / 4		100	1.40 / 1.50	20	1.50 / 1.60
TN-651	TN-654-HA	4.2-4.4	80	1.40 / 1.50	1.45	1 / 2	3 / 6		100	1.50 / 1.60	20	1.60 / 1.70
TN-652	TN-655-HA	4.4-5.0	60	1.40 / 1.50	1.55	1 / 2	3 / 4		100	1.50 / 1.60	20	1.60 / 1.70
TN-653	TN-657-HA	4.4-5.0	80	1.45 / 1.55	1.55	1 / 2	3 / 6		100	1.55 / 1.65	20	1.70 / 1.80
TN-655	TN-658-HA	5.0-5.25	60	1.45 / 1.55	1.55	1 / 2	3 / 4		100	1.55 / 1.65	20	1.70 / 1.80
TN-656	TN-660-HA	5.0-5.25	80	1.50 / 1.60	1.55	1 / 2	3 / 6		100	1.60 / 1.70	20	1.70 / 1.80
TN-657	TN-661-HA	5.4-5.9	60	1.50 / 1.60	1.55	1 / 2	3 / 4		100	1.60 / 1.70	20	1.70 / 1.80
TN-659	TN-663-HA	5.4-5.9	80	1.60 / 1.70	1.55	1 / 2	3 / 6		100	1.70 / 1.80	20	1.80 / 1.90
TN-661	TN-664-HA	5.9-6.4	60	1.60 / 1.70	1.55	1 / 2	3 / 4		100	1.70 / 1.80	20	1.80 / 1.90
TN-662	TN-666-HA	5.9-6.4	80	1.70 / 1.80	1.55	1 / 2	3 / 6		100	1.80 / 1.90	20	1.90 / 2.00
TN-663	TN-667-HA	6.7-7.4	60	1.65 / 1.75	1.55	1 / 2	3 / 4		100	1.80 / 1.90	20	1.90 / 2.00
TN-665	TN-669-HA	6.7-7.4	80	1.75 / 1.85	1.55	1 / 2	3 / 6		100	1.90 / 2.00	20	2.00 / 2.10
TN-666	TN-670-HA	7.1-7.7	60	1.70 / 1.80	1.55	1 / 2	3 / 4		100	1.80 / 1.90	20	2.00 / 2.10
TN-667	TN-672-HA	7.1-7.7	80	1.80 / 1.90	1.55	1 / 2	3 / 6		100	1.90 / 2.00	20	2.10 / 2.20
TN-669	TN-673-HA	8.5-9.6	60	1.80 / 1.90	1.55	1 / 1	3 / 4		100	1.90 / 2.00	20	2.00 / 2.10
TN-671	TN-675-HA	8.5-9.6	80	1.90 / 2.00	1.55	1 / 1	3 / 6		100	2.00 / 2.10	20	2.10 / 2.20
TN-672	TN-676-HA	9.0-9.2	60	1.80 / 1.90	1.55	1 / 1	3 / 4		100	1.90 / 2.00	20	2.00 / 2.10
TN-673	TN-678-HA	9.0-9.2	80	1.90 / 2.00	1.55	1 / 1	3 / 6		100	2.00 / 2.10	20	2.10 / 2.20
TN-675	TN-679-HA	9.3-9.7	60	1.80 / 1.90	1.55	1 / 1	3 / 4		100	1.90 / 2.00	20	2.00 / 2.10
TN-676	TN-681-HA	9.3-9.7	80	1.90 / 2.00	1.55	1 / 1	3 / 6		100	2.00 / 2.10	20	2.10 / 2.20
TN-677	TN-682-HA	9.8-10.4	60	1.80 / 1.90	1.55	1 / 1	3 / 4		100	1.90 / 2.00	20*	2.00 / 2.10
TN-679	TN-684-HA	9.8-10.4	80	1.90 / 2.00	1.55	1 / 1	3 / 6		100	2.00 / 2.10	20	2.10 / 2.20
TN-681	TN-685-HA	10.0-10.5	60	1.85 / 1.95	1.55	1 / 1	3 / 4		100	2.00 / 2.10	20	2.10 / 2.20
TN-682	TN-687-HA	10.0-10.5	80	1.95 / 2.05	1.55	1 / 1	3 / 6		100	2.10 / 2.20	20	2.20 / 2.30
TN-683	TN-688-HA	12.0-12.4	60	1.90 / 2.00	1.55	1 / 1	3 / 4		100	2.00 / 2.10	20	2.10 / 2.20
TN-685	TN-689-HA	12.0-12.4	80	2.00 / 2.10	1.55	1 / 1	3 / 6		100	2.10 / 2.20	20	2.20 / 2.30
TN-686	TN-690-HA	13.1-13.5	60	2.00 / 2.10	1.65	1 / 1	3 / 4		100	2.10 / 2.20	20	2.20 / 2.30
TN-687	TN-692-HA	13.1-13.5	80	2.10 / 2.20	1.65	1 / 1	3 / 6		100	2.20 / 2.30	20	2.30 / 2.40
TN-689	TN-693-HA	14.5-15.5	60	2.00 / 2.10	1.65	1 / 1	3 / 4		100	2.10 / 2.20	20	2.20 / 2.30
TN-691	TN-695-HA	14.5-15.5	80	2.10 / 2.20	1.65	1 / 1	3 / 6		100	2.20 / 2.30	20	2.30 / 2.40
TN-693	TN-696-HA	15.0-17.0	60	1.90 / 2.00	1.65	1 / 1	3 / 4		100	2.00 / 2.10	20	2.10 / 2.20
TN-695	TN-697-HA	15.0-17.0	80	2.10 / 2.20	1.65	1 / 1	3 / 6		100	2.20 / 2.30	20	2.30 / 2.40
TN-696	TN-698-HA	16.0-18.0	60	2.10 / 2.20	1.65	1 / 1	3 / 4		100	2.20 / 2.30	20	2.30 / 2.40
TN-698	TN-699-HA	16.0-18.0	80	2.30 / 2.40	1.65	1 / 1	3 / 6		100	2.40 / 2.50	20	2.60 / 2.70

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.

**KDI/triangle
ELECTRONICS**

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