

NARROWBAND

SP3T SWITCH

HIGH ISOLATION-REFLECTIVE AND ABSORPTIVE 0.02-18 GHz

SERIES VN/VN-HA

GENERAL INFORMATION:

Series VN and VN-HA narrowband 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 +180 mA and -5 volts at -75 mA supplies. Logic is TTL "0" when "on" and "1" when "off". Different supply voltages and logic available if specified at time 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 MDB1-9PSSL or equiv.

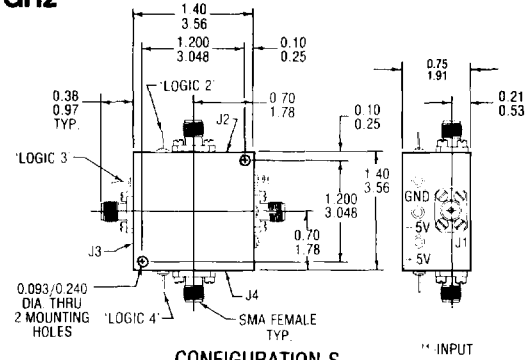
NOTES:

1. Drive connection is normally supplied as a solder feedthrough terminal. Other connectors available (when specified at time of order) include SMA, SMC and Multi-pin. (If multi-pin connector is required, package thickness will increase to 1.00 inch.)
2. When ordering, add suffix for configuration desired to the model number. ('S' for square, 'R' for seven sided.) i.e. VN-30R.
3. If driver is required, add "D" to the model number when ordering, i.e. Model VN-15HAR, with driver, becomes VN-15HARD.
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 VN-62RD-1 is a seven sided SP3T reflective switch with driver whose frequency range is 5.9 to 6.4 GHz and a switching speed of 100 nanosec.
5. Any unit listed can be supplied with pins instead of RF connectors. (Consult factory.)
6. Switches (Configuration 'S') are available with output connectors in line with input. Sizes may change and a special part number may be assigned. (Consult factory.)

MECHANICAL OUTLINES

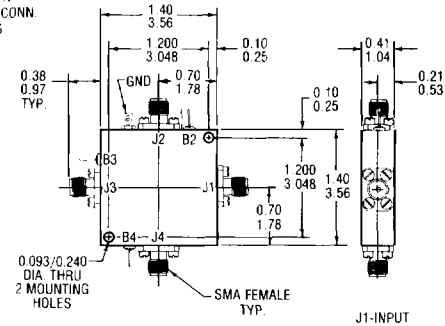
Outline	A Inches cm.	B Inches cm.
1	0.71 1.80	1.350 3.429
2	1.00 2.54	2.000 5.080
3	1.25 3.18	2.550 6.477

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

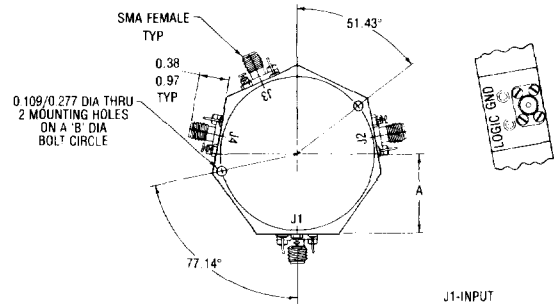


**CONFIGURATION S
OUTLINE WITH DRIVER**

ALSO AVAILABLE WITH
 OPTIONAL MULTIPIN CONN.
 PACKAGE THICKNESS
 WILL INCREASE TO
 1.00. ITT CANNON
 MDB1-9PSP OR
 EQUIV.

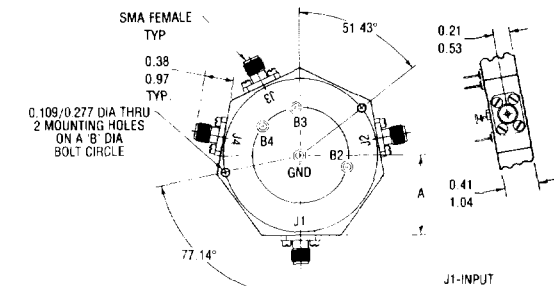


**CONFIGURATION S
OUTLINE WITHOUT DRIVER**



**CONFIGURATION R
OUTLINE WITH DRIVER**

ALSO AVAILABLE WITH
 OPTIONAL MULTIPIN
 CONN. PACKAGE
 THICKNESS WILL INCREASE
 TO 1.00. ITT CANNON
 MDB1-9PSP OR
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**CONFIGURATION R
OUTLINE WITHOUT DRIVER**

NARROWBAND

SP3T SWITCH

SERIES VN/VN-HA

HIGH ISOLATION-REFLECTIVE AND ABSORPTIVE 0.02-18 GHz

ELECTRICAL PERFORMANCE

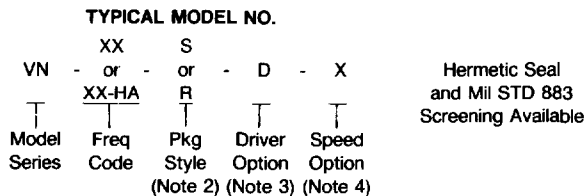
Power: 1 watt average, 10 watts peak, survival

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.	Config. R Outline Only Ref. / Abs.	Speed Nanosec.	Insertion Loss Max. dB Ref. / Abs.	Speed Nanosec.	Insertion Loss Max. dB Ref. / Abs.
VN-10	VN-10-HA	0.02-0.07	60	0.45 / 0.55	1.40	2 / 2	500	0.50 / 0.60	N/A	N/A
VN-11	VN-11-HA	0.02-0.07	80	0.50 / 0.60	1.40	2 / 2	500	0.55 / 0.65	N/A	N/A
VN-12	VN-12-HA	0.20-25	60	0.55 / 0.65	1.40	2 / 2	500	0.60 / 0.70	N/A	N/A
VN-14	VN-14-HA	0.2-0.25	80	0.60 / 0.70	1.40	2 / 2	500	0.65 / 0.75	N/A	N/A
VN-15	VN-15-HA	0.4-0.45	60	0.55 / 0.65	1.40	2 / 2	200	0.60 / 0.70	N/A	N/A
VN-16	VN-16-HA	0.4-0.45	80	0.60 / 0.70	1.40	2 / 2	200	0.65 / 0.75	N/A	N/A
VN-19	VN-19-HA	0.7-0.8	60	0.65 / 0.75	1.40	1 / 2	100	0.70 / 0.80	20	0.75 / 0.85
VN-21	VN-21-HA	0.7-0.8	80	0.70 / 0.80	1.40	1 / 2	100	0.75 / 0.85	20	0.80 / 0.90
VN-22	VN-22-HA	0.95-1.22	60	0.75 / 0.85	1.40	1 / 2	100	0.80 / 0.90	20	0.85 / 0.95
VN-23	VN-23-HA	0.95-1.22	80	0.80 / 0.90	1.40	1 / 2	100	0.85 / 0.95	20	0.90 / 1.00
VN-25	VN-25-HA	1.02-1.10	60	0.75 / 0.85	1.40	1 / 2	100	0.80 / 0.90	20	0.85 / 0.95
VN-26	VN-26-HA	1.02-1.10	80	0.80 / 0.90	1.40	1 / 2	100	0.85 / 0.95	20	0.90 / 1.00
VN-27	VN-27-HA	1.2-1.4	60	0.75 / 0.85	1.40	1 / 2	100	0.80 / 0.90	20	0.85 / 0.95
VN-28	VN-28-HA	1.2-1.4	80	0.80 / 0.90	1.40	1 / 2	100	0.85 / 0.95	20	0.90 / 1.00
VN-30	VN-30-HA	1.5-1.6	60	0.80 / 0.90	1.40	1 / 2	100	0.85 / 0.95	20	0.90 / 1.00
VN-31	VN-31-HA	1.5-1.6	80	0.90 / 1.00	1.40	1 / 2	100	0.95 / 1.05	20	1.00 / 1.10
VN-32	VN-32-HA	1.7-2.4	60	0.90 / 1.00	1.40	1 / 2	100	0.95 / 1.05	20	1.00 / 1.10
VN-34	VN-34-HA	1.7-2.4	80	0.95 / 1.05	1.40	1 / 2	100	1.00 / 1.10	20	1.10 / 1.20
VN-35	VN-35-HA	2.2-2.3	60	0.90 / 1.00	1.40	1 / 2	100	0.95 / 1.05	20	1.00 / 1.10
VN-36	VN-36-HA	2.2-2.3	80	0.95 / 1.05	1.40	1 / 2	100	1.00 / 1.10	20	1.10 / 1.20
VN-38	VN-38-HA	2.9-3.1	60	0.90 / 1.00	1.40	1 / 2	100	0.95 / 1.05	20	1.00 / 1.10
VN-39	VN-39-HA	2.9-3.1	80	0.95 / 1.05	1.40	1 / 3	100	1.00 / 1.10	20	1.10 / 1.20
VN-41	VN-41-HA	3.1-3.5	60	0.90 / 1.00	1.40	1 / 2	100	0.95 / 1.05	20	1.00 / 1.10
VN-42	VN-42-HA	3.1-3.5	80	0.95 / 1.05	1.40	1 / 3	100	1.00 / 1.10	20	1.10 / 1.20
VN-43	VN-43-HA	3.3-3.7	60	0.90 / 1.00	1.40	1 / 2	100	0.95 / 1.05	20	1.00 / 1.10
VN-45	VN-45-HA	3.3-3.7	80	0.95 / 1.05	1.40	1 / 3	100	1.00 / 1.10	20	1.10 / 1.20
VN-46	VN-46-HA	3.7-4.2	60	0.90 / 1.00	1.40	1 / 2	100	0.95 / 1.05	20	1.00 / 1.10
VN-47	VN-47-HA	3.7-4.2	80	0.95 / 1.05	1.40	1 / 3	100	1.00 / 1.10	20	1.10 / 1.20
VN-49	VN-49-HA	4.2-4.4	60	1.00 / 1.10	1.40	1 / 2	100	1.10 / 1.20	20	1.20 / 1.30
VN-50	VN-50-HA	4.2-4.4	80	1.10 / 1.20	1.20	1 / 3	100	1.20 / 1.30	20	1.30 / 1.40
VN-51	VN-51-HA	4.4-5.0	60	1.10 / 1.20	1.50	1 / 2	100	1.20 / 1.30	20	1.30 / 1.40
VN-53	VN-53-HA	4.4-5.0	80	1.15 / 1.25	1.50	1 / 3	100	1.25 / 1.35	20	1.40 / 1.50
VN-54	VN-54-HA	5.0-5.25	60	1.15 / 1.25	1.50	1 / 2	100	1.25 / 1.35	20	1.40 / 1.50
VN-55	VN-55-HA	5.0-5.25	80	1.20 / 1.30	1.50	1 / 3	100	1.30 / 1.40	20	1.40 / 1.50
VN-57	VN-57-HA	5.4-5.9	60	1.20 / 1.30	1.50	1 / 2	100	1.30 / 1.40	20	1.40 / 1.50
VN-59	VN-59-HA	5.4-5.9	80	1.30 / 1.40	1.50	1 / 3	100	1.40 / 1.50	20	1.50 / 1.60
VN-61	VN-61-HA	5.9-6.4	60	1.30 / 1.40	1.50	1 / 2	100	1.40 / 1.50	20	1.50 / 1.60
VN-62	VN-62-HA	5.9-6.4	80	1.40 / 1.50	1.50	1 / 3	100	1.50 / 1.60	20	1.60 / 1.70
VN-63	VN-63-HA	6.7-7.4	60	1.35 / 1.45	1.50	1 / 2	100	1.50 / 1.60	20	1.60 / 1.70
VN-65	VN-65-HA	6.7-7.4	80	1.45 / 1.55	1.50	1 / 3	100	1.60 / 1.70	20	1.70 / 1.80
VN-66	VN-66-HA	7.1-7.7	60	1.40 / 1.50	1.50	1 / 2	100	1.50 / 1.60	20	1.60 / 1.70
VN-67	VN-67-HA	7.1-7.7	80	1.50 / 1.60	1.50	1 / 3	100	1.60 / 1.70	20	1.70 / 1.80
VN-68	VN-68-HA	8.5-9.6	60	1.50 / 1.60	1.50	1 / 2	100	1.60 / 1.70	20	1.70 / 1.80
VN-70	VN-70-HA	8.5-9.6	80	1.60 / 1.70	1.50	1 / 3	100	1.70 / 1.80	20	1.80 / 1.90
VN-71	VN-71-HA	9.0-9.2	60	1.50 / 1.60	1.50	1 / 2	100	1.60 / 1.70	20	1.70 / 1.80
VN-72	VN-72-HA	9.0-9.2	80	1.60 / 1.70	1.50	1 / 3	100	1.70 / 1.80	20	1.80 / 1.90
VN-74	VN-74-HA	9.3-9.7	60	1.50 / 1.60	1.50	1 / 2	100	1.60 / 1.70	20	1.70 / 1.80
VN-75	VN-75-HA	9.3-9.7	80	1.60 / 1.70	1.50	1 / 3	100	1.70 / 1.80	20	1.80 / 1.90
VN-76	VN-76-HA	9.8-10.4	60	1.50 / 1.60	1.50	1 / 2	100	1.60 / 1.70	20	1.70 / 1.80
VN-78	VN-78-HA	9.8-10.4	80	1.60 / 1.70	1.50	1 / 3	100	1.70 / 1.80	20	1.80 / 1.90
VN-80	VN-80-HA	10.0-10.5	60	1.55 / 1.65	1.50	1 / 2	100	1.70 / 1.80	20	1.80 / 1.90
VN-82	VN-82-HA	10.0-10.5	80	1.65 / 1.75	1.50	1 / 3	100	1.80 / 1.90	20	1.90 / 2.00
VN-83	VN-83-HA	12.0-12.4	60	1.60 / 1.70	1.50	1 / 2	100	1.70 / 1.80	20	1.80 / 1.90
VN-85	VN-85-HA	12.0-12.4	80	1.70 / 1.80	1.50	1 / 2	100	1.80 / 1.90	20	1.90 / 2.00
VN-87	VN-87-HA	13.1-13.5	60	1.70 / 1.80	1.60	1 / 2	100	1.80 / 1.90	20	1.90 / 2.00
VN-89	VN-89-HA	13.1-13.5	80	1.80 / 1.90	1.60	1 / 2	100	1.90 / 2.00	20	2.00 / 2.10
VN-91	VN-91-HA	14.5-15.5	60	1.70 / 1.80	1.60	1 / 2	100	1.80 / 1.90	20	1.90 / 2.00
VN-92	VN-92-HA	14.5-15.5	80	1.80 / 1.90	1.60	1 / 2	100	1.90 / 2.00	20	2.00 / 2.10
VN-93	VN-93-HA	15.0-17.0	60	1.60 / 1.70	1.60	1 / 2	100	1.70 / 1.80	20	1.80 / 1.90
VN-95	VN-94-HA	15.0-17.0	80	1.80 / 1.90	1.60	1 / 2	100	1.90 / 2.00	20	2.00 / 2.10
VN-96	VN-96-HA	16.0-18.0	60	1.80 / 1.90	1.60	1 / 2	100	1.90 / 2.00	20	2.00 / 2.10
VN-98	VN-98-HA	16.0-18.0	80	2.00 / 2.10	1.60	1 / 2	100	2.10 / 2.20	20	2.25 / 2.35

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 500 mW.



KDI/triangle ELECTRONICS

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