

BROADBAND

SP3T SWITCH

HIGH ISOLATION-REFLECTIVE AND ABSORPTIVE 0.02-18 GHz

GENERAL INFORMATION:

Series VB and VB-HA broadband switches are medium power devices that operate over relatively wide 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 max 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 is placed.
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. 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. VB-11R.
3. If driver is required, add 'D' to the model number when ordering, i.e. Model VB-11R, with driver, becomes VB-11RD.
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 VB-99RD-2 is a seven sided SP3T reflective switch with driver whose frequency range is 12.0 to 18.0 GHz and a switching speed of 20 nanosec.
5. Any unit listed can be supplied with pins instead of RF connectors.
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.)

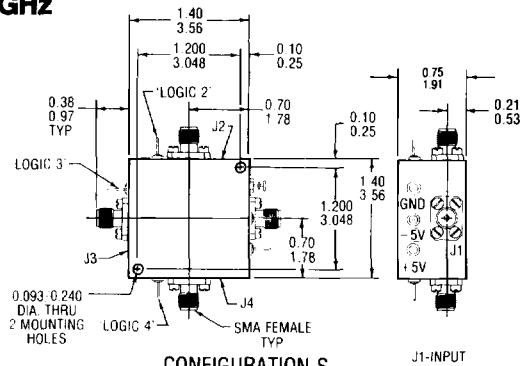
MECHANICAL OUTLINES

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

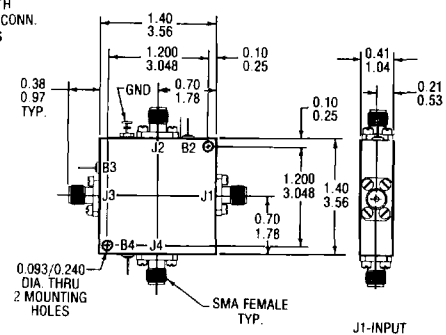
xx ± 0.3 xxx ± .010/ xx ± .08 xxx ± .025

SERIES VB/VB-HA

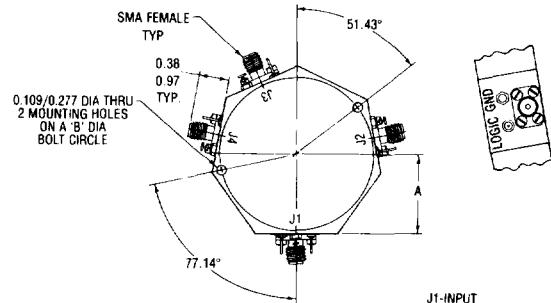


CONFIGURATION S
OUTLINE WITH DRIVER

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

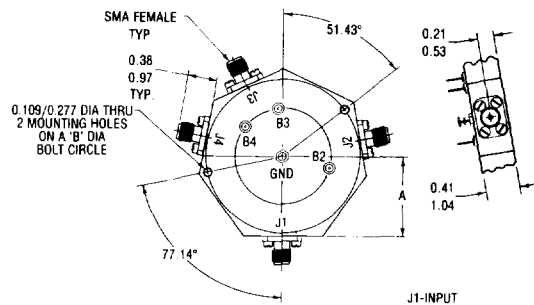


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CONFIGURATION R
OUTLINE WITH DRIVER



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

BROADBAND

SP3T SWITCH

SERIES VB/VB-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.
VB-11	VB-11-HA	0.02-0.1	60	0.70 / 0.80	1.70	2 / 2	500	0.75 / 0.85	N/A	N/A
VB-13	VB-13-HA	0.02-0.1	80	0.80 / 0.90	1.70	2 / 2	500	0.85 / 0.95	N/A	N/A
VB-15	VB-15-HA	0.1-1.0	60	1.00 / 1.10	1.70	2 / 2	500	1.05 / 1.15	N/A	N/A
VB-17	VB-17-HA	0.1-1.0	80	1.10 / 1.20	1.70	2 / 2	500	1.15 / 1.25	N/A	N/A
VB-19	VB-19-HA	0.1-2.0	60	1.30 / 1.40	1.70	2 / 2	500	1.35 / 1.45	N/A	N/A
VB-20	VB-20-HA	0.1-2.0	80	1.40 / 1.50	1.70	2 / 2	500	1.45 / 1.55	N/A	N/A
VB-22	VB-22-HA	0.25-0.5	60	1.00 / 1.10	1.70	2 / 2	500	1.05 / 1.15	N/A	N/A
VB-24	VB-24-HA	0.25-0.5	80	1.10 / 1.20	1.70	2 / 2	500	1.15 / 1.25	N/A	N/A
VB-26	VB-26-HA	0.25-1.0	60	1.00 / 1.10	1.70	2 / 2	500	1.05 / 1.15	N/A	N/A
VB-28	VB-28-HA	0.25-1.0	80	1.10 / 1.20	1.70	2 / 2	500	1.15 / 1.25	N/A	N/A
VB-31	VB-31-HA	0.5-1.0	60	0.90 / 1.00	1.70	2 / 2	100	1.00 / 1.10	20	1.10 / 1.20
VB-33	VB-33-HA	0.5-1.0	80	1.00 / 1.10	1.70	2 / 2	100	1.10 / 1.20	20	1.20 / 1.30
VB-35	VB-35-HA	0.5-2.0	60	1.00 / 1.10	1.70	2 / 2	100	1.10 / 1.20	20	1.20 / 1.30
VB-37	VB-37-HA	0.5-2.0	80	1.10 / 1.20	1.70	2 / 2	100	1.20 / 1.30	20	1.30 / 1.40
VB-39	VB-39-HA	1.0-2.0	60	0.90 / 1.00	1.70	1 / 2	100	1.00 / 1.10	20	1.20 / 1.25
VB-40	VB-40-HA	1.0-2.0	80	1.00 / 1.10	1.70	1 / 2	100	1.10 / 1.20	20	1.20 / 1.30
VB-42	VB-42-HA	1.0-4.0	60	1.00 / 1.10	1.70	1 / 2	100	1.10 / 1.20	20	1.20 / 1.30
VB-44	VB-44-HA	1.0-4.0	80	1.10 / 1.20	1.70	1 / 3	100	1.20 / 1.30	20	1.30 / 1.40
VB-46	VB-46-HA	1.0-6.0	60	1.20 / 1.30	1.70	1 / 2	100	1.30 / 1.40	20	1.40 / 1.50
VB-48	VB-48-HA	1.0-6.0	80	1.30 / 1.40	1.70	1 / 3	100	1.40 / 1.50	20	1.50 / 1.60
VB-51	VB-51-HA	1.5-3.0	60	0.90 / 1.00	1.70	1 / 2	100	1.00 / 1.10	20	1.10 / 1.20
VB-53	VB-53-HA	1.5-3.0	80	1.00 / 1.10	1.70	1 / 3	100	1.10 / 1.20	20	1.20 / 1.30
VB-55	VB-55-HA	2.0-4.0	60	1.10 / 1.20	1.70	1 / 2	100	1.20 / 1.30	20	1.30 / 1.40
VB-57	VB-57-HA	2.0-4.0	80	1.20 / 1.30	1.70	1 / 3	100	1.30 / 1.40	20	1.40 / 1.50
VB-59	VB-59-HA	2.0-8.0	60	1.30 / 1.40	1.70	1 / 2	100	1.40 / 1.50	20	1.50 / 1.60
VB-60	VB-60-HA	2.0-8.0	80	1.40 / 1.50	1.80	1 / 3	100	1.50 / 1.60	20	1.60 / 1.70
VB-62	VB-62-HA	3.0-12.0	60	2.40 / 2.60	2.20	1 / 2	100	2.60 / 2.70	20	2.80 / 2.90
VB-64	VB-64-HA	3.0-12.0	80	2.50 / 2.70	2.20	1 / 3	100	2.70 / 2.80	20	2.90 / 3.00
VB-66	VB-66-HA	4.0-8.0	60	1.30 / 1.40	1.70	1 / 2	100	1.40 / 1.50	20	1.50 / 1.60
VB-68	VB-68-HA	4.0-8.0	80	1.40 / 1.50	1.70	1 / 3	100	1.50 / 1.60	20	1.60 / 1.70
VB-71	VB-71-HA	2.0-18.0	60	2.90 / 3.10	2.50	1 / 2	100	3.10 / 3.25	20	3.25 / 3.40
VB-73	VB-73-HA	2.0-18.0	80	3.10 / 3.30	2.50	1 / 3	100	3.30 / 3.50	20	3.50 / 3.60
VB-75	VB-75-HA	5.0-10.0	60	1.70 / 1.80	1.70	1 / 2	100	1.80 / 1.90	20	2.00 / 2.10
VB-77	VB-77-HA	5.0-10.0	80	1.80 / 1.90	1.70	1 / 3	100	1.95 / 2.00	20	2.10 / 2.20
VB-79	VB-79-HA	6.0-12.0	60	1.90 / 2.00	1.70	1 / 2	100	2.10 / 2.10	20	2.20 / 2.30
VB-80	VB-80-HA	6.0-12.0	80	2.00 / 2.10	1.70	1 / 3	100	2.20 / 2.20	20	2.30 / 2.40
VB-82	VB-82-HA	6.0-18.0	60	2.90 / 3.10	2.50	1 / 2	100	3.10 / 3.25	20	3.30 / 3.40
VB-84	VB-84-HA	6.0-18.0	80	3.10 / 3.30	2.50	1 / 3	100	3.30 / 3.50	20	3.50 / 3.60
VB-86	VB-86-HA	7.0-12.4	60	2.00 / 2.10	1.80	1 / 2	100	2.20 / 2.30	20	2.40 / 2.50
VB-88	VB-88-HA	7.0-12.4	80	2.10 / 2.20	1.80	1 / 3	100	2.35 / 2.45	20	2.50 / 2.60
VB-90	VB-90-HA	7.0-18.0	60	2.90 / 3.10	2.50	1 / 2	100	3.10 / 3.25	20	3.30 / 3.40
VB-91	VB-91-HA	7.0-18.0	80	3.10 / 3.30	2.50	1 / 3	100	3.30 / 3.50	20	3.50 / 3.60
VB-93	VB-93-HA	8.0-18.0	60	2.90 / 3.10	2.50	1 / 2	100	3.10 / 3.25	20	3.30 / 3.40
VB-95	VB-95-HA	8.0-18.0	80	3.10 / 3.30	2.50	1 / 3	100	3.30 / 3.50	20	3.50 / 3.60
VB-97	VB-97-HA	12.0-18.0	60	2.90 / 3.10	2.40	1 / 2	100	3.10 / 3.25	20	3.30 / 3.40
VB-99	VB-99-HA	12.0-18.0	80	3.10 / 3.30	2.40	1 / 2	100	3.30 / 3.50	20	3.50 / 3.60

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.

TYPICAL MODEL NO.

VB - XX - S - D - X
 or - XX-HA - D - - -
 T T T T T
 Model Freq Pkg Driver Speed
 Series Code Style Option Option
 (Note 2) (Note 3) (Note 4)

Hermetic Seal
 and Mil STD 883
 Screening Available

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