

# NARROWBAND SP3T SWITCH REFLECTIVE AND ABSORPTIVE 0.02-18 GHz

# SERIES VT/VN-A

## GENERAL INFORMATION:

Series VT and VN-A 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 when 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.

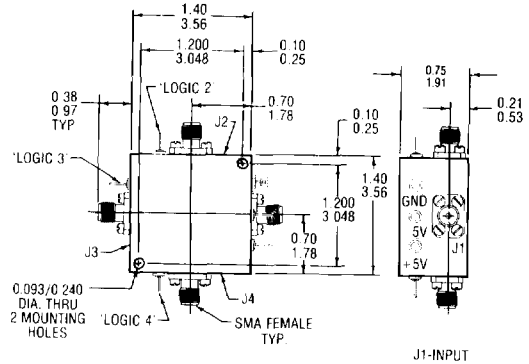
## NOTES:

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. VT-35R.
3. If driver is required, add "D" to the model number when ordering, i.e. Model VT-35R, with driver, becomes VT-35RD.
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 VT-77RD-1 is a seven sided SP3T reflective switch with driver whose frequency range is 8.5 to 9.6 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.)

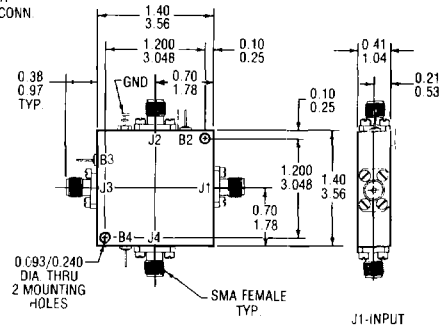
## MECHANICAL OUTLINES

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

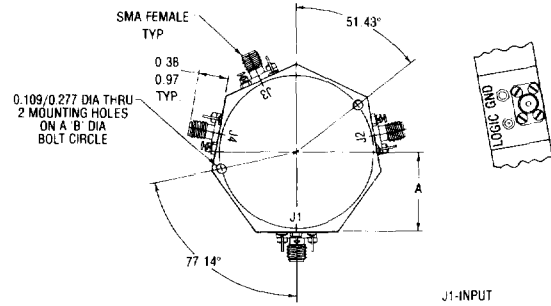
Inches/Centimeters  
 xx ± 0.3 xxx ± .010/ xx ± .08 xxx ± .025



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

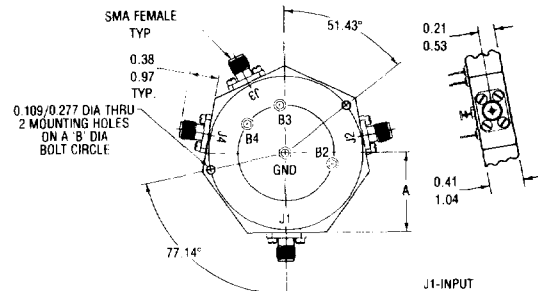


CONFIGURATION S  
 OUTLINE WITHOUT DRIVER



ALSO AVAILABLE WITH  
 OPTIONAL MULTIPIN  
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CONFIGURATION R  
 OUTLINE WITH DRIVER



CONFIGURATION R  
 OUTLINE WITHOUT DRIVER

**NARROWBAND**  
**SP3T SWITCH**  
 REFLECTIVE AND ABSORPTIVE 0.02-18 GHz

**SERIES VT/VN-A**

**ELECTRICAL PERFORMANCE**

Power: 1 watt average, 10 watts peak, survival

STANDARD SWITCH						HIGH SPEED OPTION			
Isolation: 30 dB minimum Speed: 2 microsec. maximum						MODEL-1		MODEL-2	
						Speed Nanosec.	Insertion Loss Max. dB Ref. / Abs.	Speed Nanosec.	Insertion Loss Max. dB Ref. / Abs.
Reflective Model No.	Absorptive Model No.	Frequency Range GHz	Insertion Loss Max. dB Ref. / Abs.	VSWR† Max.	Outline Configuration Round Only Ref. / Abs.				
VT-12	VN-13-A	0.02-0.07	0.40 / 0.50	1.40	2 / 1	500	0.45 / 0.55	N/A	N/A
VT-15	VN-17-A	0.2-0.25	0.40 / 0.50	1.40	2 / 1	500	0.45 / 0.55	N/A	N/A
VT-18	VN-18-A	0.4-0.45	0.50 / 0.60	1.40	2 / 1	200	0.55 / 0.65	N/A	N/A
VT-21	VN-20-A	0.7-0.8	0.60 / 0.70	1.40	1 / 1	100	0.65 / 0.80	20	0.70 / 0.90
VT-24	VN-24-A	0.95-1.22	0.70 / 0.80	1.40	1 / 1	100	0.75 / 0.90	20	0.80 / 1.00
VT-29	VN-29-A	1.02-1.10	0.70 / 0.80	1.40	1 / 1	100	0.75 / 0.90	20	0.80 / 1.00
VT-30	VN-33-A	1.2-1.4	0.70 / 0.80	1.40	1 / 1	100	0.75 / 0.90	20	0.80 / 1.00
VT-35	VN-35-A	1.5-1.6	0.70 / 0.80	1.40	1 / 1	100	0.75 / 0.90	20	0.80 / 1.00
VT-38	VN-37-A	1.7-2.4	0.80 / 0.90	1.40	1 / 1	100	0.85 / 1.00	20	0.90 / 1.10
VT-42	VN-40-A	2.2-2.3	0.80 / 0.90	1.40	1 / 1	100	0.85 / 1.00	20	0.90 / 1.10
VT-47	VN-44-A	2.9-3.1	0.80 / 0.90	1.40	1 / 1	100	0.85 / 1.00	20	0.90 / 1.10
VT-49	VN-48-A	3.1-3.5	0.80 / 0.90	1.40	1 / 1	100	0.85 / 1.00	20	0.90 / 1.10
VT-51	VN-49-A	3.3-3.7	0.80 / 0.90	1.40	1 / 1	100	0.85 / 1.00	20	0.90 / 1.10
VT-53	VN-52-A	3.7-4.2	0.80 / 0.90	1.40	1 / 1	100	0.85 / 1.00	20	0.90 / 1.10
VT-56	VN-56-A	4.2-4.4	0.90 / 1.00	1.40	1 / 1	100	0.95 / 1.10	20	1.00 / 1.20
VT-58	VN-58-A	4.4-5.0	1.00 / 1.10	1.50	1 / 1	100	1.10 / 1.20	20	1.20 / 1.30
VT-60	VN-60-A	5.0-5.25	1.00 / 1.10	1.50	1 / 1	100	1.10 / 1.20	20	1.20 / 1.30
VT-64	VN-64-A	5.4-5.9	1.00 / 1.10	1.50	1 / 1	100	1.10 / 1.20	20	1.20 / 1.30
VT-69	VN-69-A	5.0-6.4	1.00 / 1.10	1.50	1 / 1	100	1.10 / 1.20	20	1.20 / 1.30
VT-72	VN-71-A	6.7-7.4	1.10 / 1.25	1.50	1 / 1	100	1.20 / 1.40	20	1.30 / 1.50
VT-75	VN-73-A	7.1-7.7	1.10 / 1.25	1.50	1 / 1	100	1.20 / 1.40	20	1.30 / 1.50
VT-77	VN-77-A	8.5-9.6	1.20 / 1.40	1.50	1 / 1	100	1.30 / 1.50	20	1.40 / 1.60
VT-79	VN-79-A	9.0-9.2	1.20 / 1.40	1.50	1 / 1	100	1.30 / 1.50	20	1.40 / 1.60
VT-81	VN-81-A	9.3-9.7	1.20 / 1.40	1.50	1 / 1	100	1.30 / 1.50	20	1.40 / 1.60
VT-83	VN-84-A	9.8-10.4	1.40 / 1.60	1.50	1 / 1	100	1.50 / 1.70	20	1.60 / 1.80
VT-86	VN-86-A	10.0-10.5	1.40 / 1.60	1.50	1 / 1	100	1.50 / 1.70	20	1.60 / 1.80
VT-88	VN-88-A	12.0-12.4	1.50 / 1.70	1.50	1 / 1	100	1.60 / 1.80	20	1.70 / 1.90
VT-92	VN-90-A	13.1-13.5	1.60 / 1.80	1.60	1 / 1	100	1.70 / 1.90	20	1.80 / 2.00
VT-95	VN-95-A	14.5-15.5	1.60 / 1.80	1.60	1 / 1	100	1.70 / 1.90	20	1.80 / 2.00
VT-97	VN-97-A	15.0-17.0	1.60 / 1.80	1.60	1 / 1	100	1.70 / 1.90	20	1.80 / 2.00
VT-99	VN-99-A	16.0-18.0	1.60 / 1.80	1.60	1 / 1	100	1.75 / 1.95	20	1.90 / 2.10

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.**

VT    XX    S  
 or    or    or  
 VN    XXA   R    D    X  
 |    |    |    |    |  
 Model    Freq    Pkg    Driver    Speed  
 Series    Code    Style    Option    Option  
 (Note 2)    (Note 3)    (Note 4)

Hermetic Seal  
 and Mil STD 883  
 Screening Available