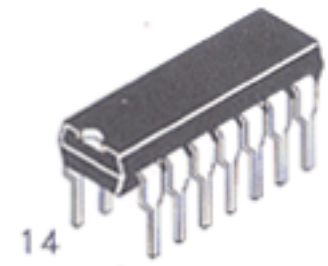
Quad 2-Input "NAND" Schmitt Trigger

DV4093B

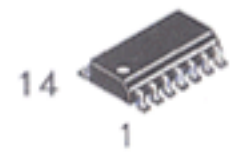
4093B

These device can be utilized where low power dissipation and/or high noise immunity is needed. DV4093B can be used in place of the DV4011B for enhanced noise immunity or to "square up" slowly changing waveforms.

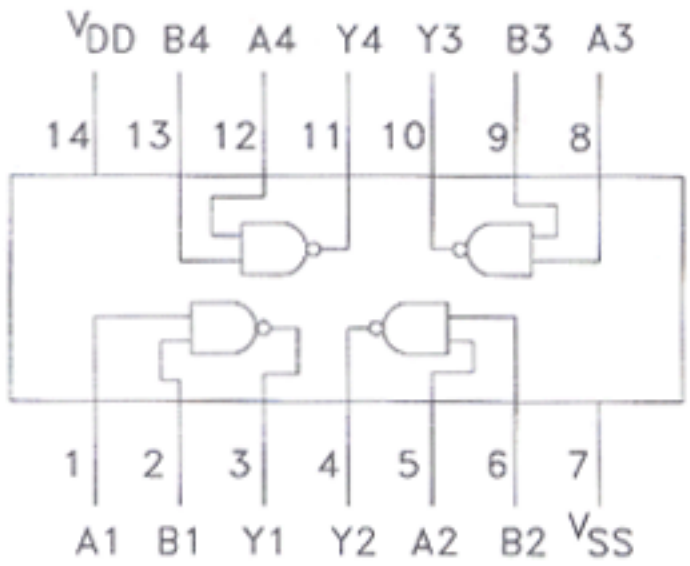
- **Supply voltage range = 3.0 Vdc to 18 Vdc**
- **All outputs buffered**
- **Capable of driving 4 Low Power TTL loads or one LS TTL load over the rated temperature range**
- **Diode protection on all inputs**
- **Highest noise immunity at 12V supply**



N Suffix
Plastic DIP
AVG-001 Case



D Suffix
Plastic SOP
AVG-002 Case



TRUTH TABLE

A	B	Y
0	0	1
0	1	1
1	0	1
1	1	0

ABSOLUTE MAXIMUM RATINGS

Maximum ratings are those values beyond which damage to the device may occur.

Symbol	Parameter	Value	Unit
V_{DD}	DC Supply Voltage (Referenced to GND)	–0.5 to +18.0	V
V_{IN}, V_{OUT}	Input or Output Voltage (DC or Transient)	–0.5 to V_{DD} +0.5	V
I_{IN}, I_{OUT}	Input or Output Current (DC or Transient), per Pin	± 10	mA
P_D	Power Dissipation in Still Air, Per Package Derating: 12mW/°C from 65° to 85°C	500	mW
T_{STG}	Storage Temperature Range	–65 to+150	°C
T_L	Lead Temperature, (8-Second Soldering)	260	°C

ELECTRICAL CHARACTERISTICS (Voltages Referenced to V_{SS})

Symbol	Parameter	Conditions	V_{DD}	Guaranteed Limits							Units
				–40°C		25°C			85°C		
				Min	Max	Min	Typ	Max	Min	Max	
V_{OL}	Output Voltage	V_{IN}= V_{DD} or 0, "0" Level	5.0	-	0.05	-	0	0.05	-	0.05	Vdc
			10	-	0.05	-	0	0.05	-	0.05	
			15	-	0.05	-	0	0.05	-	0.05	
V_{OH}		V_{IN}=0 or V_{DD}, "1" Level	5.0	4.95	-	4.95	0	-	4.95	-	Vdc
			10	9.95	-	9.95	0	-	9.95	-	
			15	14.95	-	14.95	0	-	14.95	-	
I_{OH}	Output Drive Current Source	V_{OH}=2.5 Vdc	5.0	-3.0	-	-2.4	-4.2	-	-1.7	-	mAdc
		V_{OH}=4.6 Vdc	5.0	-0.52	-	-0.44	-0.88	-	-0.36	-	
		V_{OH}=9.5 Vdc	10	-1.3	-	-1.3	-2.25	-	-0.9	-	
		V_{OH}=13.5 Vdc	15	-4.2	-	-3.4	-8.8	-	-2.4	-	
I_{OL}	Sink	V_{OL}=0.4Vdc	5.0	0.52	-	0.44	0.88	-	0.36	-	mAdc
		V_{OL}=0.5Vdc	10	1.3	-	1.1	2.25	-	0.9	-	
		V_{OL}=1.5Vdc	15	3.6	-	3.0	8.8	-	2.4	-	
I_{IN}	Input Current		15	-	±0.3	-	±0.0001	±0.3	-	±1.0	µAdc
C_{IN}	Input Capacitance	V_{IN}=0	-	-	-	-	5.0	7.5	-	-	pF
I_{DD}	Quiescent Current	Per Package	5.0	-	1.0	-	0.0005	1.0	-	7.5	µAdc
			10	-	2.0	-	0.0010	2.0	-	15	
			15	-	4.0	-	0.0015	4.0	-	30	
V_H	Hysteresis Voltage		5.0	0.20	0.62	0.17	0.26	0.6	0.13	0.6	Vdc
			10	0.29	0.85	0.25	0.38	0.8	0.20	0.8	
			15	0.39	1.20	0.33	0.50	1.1	0.27	1.1	
V_{T+}	Threshold Voltage	Positive Going	5.0	1.90	4.15	1.80	2.70	4.05	1.70	4.05	Vdc
			10	3.05	6.75	2.95	4.43	6.65	2.85	6.65	
			15	4.12	9.15	4.02	6.03	9.05	3.92	9.05	
V_{T-}		Negative Going	5.0	1.63	3.76	1.63	2.44	3.66	1.53	3.66	Vdc
			10	2.70	6.18	2.70	4.05	6.08	2.60	6.08	
			15	3.59	8.40	3.69	5.53	8.30	3.70	8.30	

SWITCHING CHARACTERISTICS (C_L=50pF, T_A=25°C)

Symbol	Parameter	V_{DD}	Min	Typ	Max	Unit
t_{TLH}	Output Rise Time	5.0	-	100	200	ns
		10	-	50	100	
		15	-	40	80	
t_{THL}	Output Fall Time	5.0	-	100	200	ns
		10	-	50	100	
		15	-	40	80	
t_{PLH} t_{PHL}	Propogation Delay Time	5.0	-	125	250	ns
		10	-	50	100	
		15	-	40	80	

SWITCHING WAVEFORMS