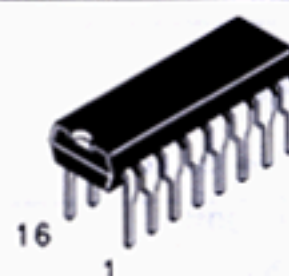


Dual 4-Bit Shift Register

DV4015B

This device is comprised of two identical, independent 4-State serial-input/parallel-output registers. Each register has independent Clock and Reset inputs with a single serial Data input. The register states are type D master-slave flip-flops. Data is shifted from one stage to the next during the positive-going clock transition. Each register can be cleared when a high level is applied on the Reset line.

- Supply voltage range = 3.0 Vdc to 18 Vdc
- All outputs buffered
- Capable of driving 2 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



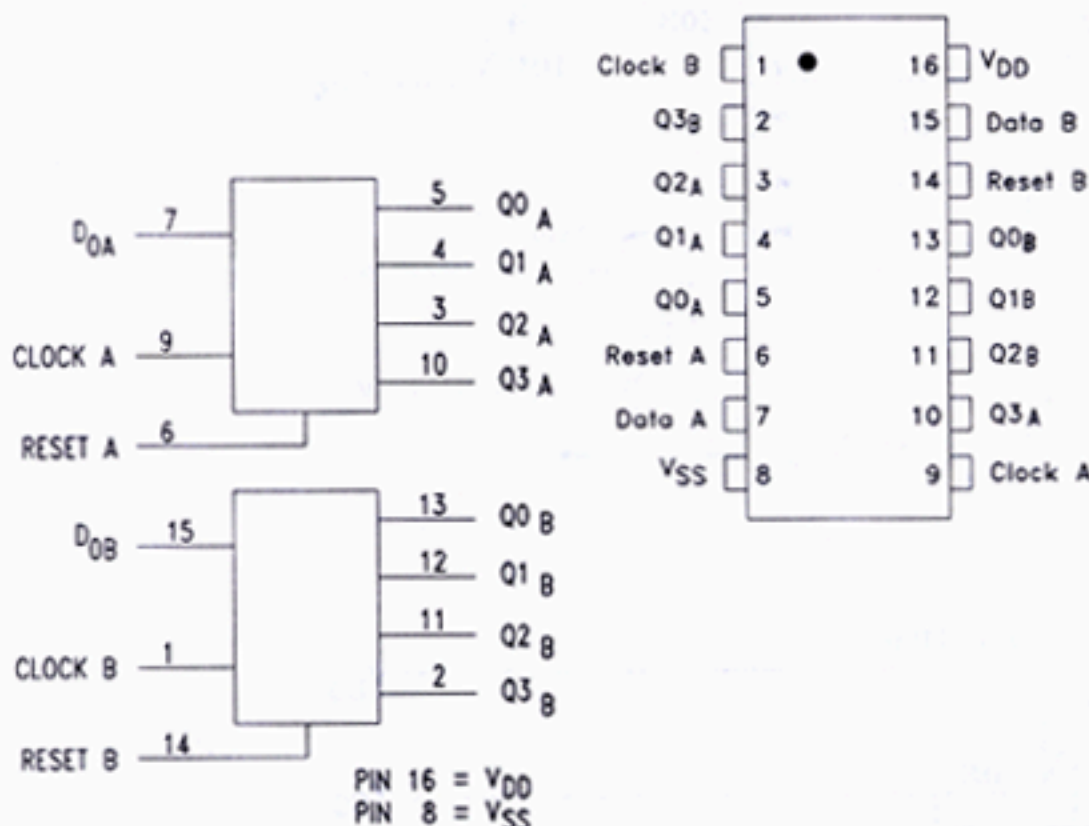
N Suffix
Plastic DIP
AVG-003 Case



D Suffix
Plastic SOP
AVG-004 Case

4015B

PIN ASSIGNMENT



TRUTH TABLE

C	D ₀	R	Q ₀	Q _n
↑	0	0	0	Q _{n-1}
↑	1	0	1	Q _{n-1}
↓	X	0	No Change	No Change
X	X	1	0	0

Q_n=Q0, Q1, Q2, OR Q3, as applicable

Q_{n-1}=Output of prior stage

↑ = Low to High Transition

↓ = High to Low Transition

X=Don't Care

ABSOLUTE MAXIMUM RATINGS

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

Symbol	Parameter	Value	Unit
V _{DD}	Supply Voltage (Referenced to V _{SS})	-0.5 to +18.0	V
V _{IN} , V _{OUT}	Input or Output Voltage	-0.5 to V _{DD} +0.5	V
I _{IN} , I _{OUT}	DC Current Into or Out of Any Pin	± 10	mA
P _D	Power Dissipation in Still Air, Derating: 12 mW/°C from 65° to 85°C	500	mW
T _{STG}	Storage Temperature Range	-65 to +150	°C
TL	Lead Temperature, (8 Second Soldering)	260	°C

ELECTRICAL CHARACTERISTICS (Voltages Referenced to V_{SS})

Symbol	Parameter		V _{DD}	Guaranteed Limits							Unit
				-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 10 15	- - -	0.05 0.05 0.05	- - -	0 0 0	0.05 0.05 0.05	- - -	0.05 0.05 0.05	V _{dc}
V _{OH}	V _{IN} = 0 or V _{DD}	"1" Level	5.0 10 15	4.95 9.95 14.95	- - -	4.95 9.95 14.95	5.0 10 15	- - -	4.95 9.95 14.95	- - -	V _{dc}
V _{IL}	Input Voltage (V _O =4.5 or 0.5 V _{dc}) (V _O =9.0 or 1.0 V _{dc}) (V _O =13.5 or 1.5 V _{dc})	"0" Level	5.0 10 15	- - -	1.5 3.0 4.0	- - -	2.25 4.50 6.75	1.5 3.0 4.0	- - -	1.5 3.0 4.0	V _{dc}
V _{IH}	(V _O =0.5 or 4.5 V _{dc}) (V _O =1.0 or 9.0 V _{dc}) (V _O =1.5 or 13.5 V _{dc})	"1" Level	5.0 10 15	3.5 7.0 11	- - -	3.5 7.0 11	2.75 5.50 8.25	- - -	3.5 7.0 11	- - -	V _{dc}
I _{OH}	Output Drive Current (V _{OH} = 2.5 V _{dc}) (V _{OH} = 4.6 V _{dc}) (V _{OH} = 9.5 V _{dc}) (V _{OH} = 13.5 V _{dc})	Source	5.0 5.0 10 15	-3.0 -0.52 -1.3 -3.6	- - - -	-2.4 -0.44 -1.1 -3.4	-4.2 -0.88 -2.25 -8.8	- - - -	-1.7 -0.36 -0.9 -2.4	- - - -	mA _{dc}
I _{OL}	(V _{OL} = 0.4 V _{dc}) (V _{OL} = 0.5 V _{dc}) (V _{OL} = 1.5 V _{dc})	Sink	5.0 10 15	0.52 1.3 4.2	- - -	0.44 1.3 3.4	0.88 2.25 8.8	- - -	0.36 0.9 2.4	- - -	mA _{dc}
I _{IN}	Input Current		15	-	±0.3	-	±0.00001	±0.3	-	±1.0	μA _{dc}
C _{IN}	Input Capacitance	V _{IN} =0	-	-	-	-	5.0	7.5	-	-	pF
I _{DD}	Quiescent Current (Per Package)		5.0 10 15	- - -	20 40 80	- - -	0.005 0.010 0.015	20 40 80	- - -	150 300 600	μA _{dc}

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

Symbol	Characteristics	V _{DD}	Min	Typ	Max	Unit
t _{TLH} t _{THL}	Output Rise and Fall Time	5.0 10 15	- - -	100 50 40	200 100 80	ns
t _{PLH} t _{PHL}	Propagation Delay Time Clock, Data to Q	5.0 10 15	- - -	310 125 90	750 250 170	ns
	Reset to Q	5.0 10 15	- - -	460 180 120	750 250 170	ns
t _{WH}	Clock Pulse Width	5.0 10 15	400 175 135	185 85 55	- - -	ns
f _{cl}	Clock Pulse Frequency	5.0 10 15	- - -	2.0 6.0 7.5	1.5 3.0 3.75	MHz
t _{TLH} t _{THL}	Clock Pulse Rise and Fall Time	5.0 10 15	- - -	- - -	15 5 4	μs

SWITCHING CHARACTERISTICS (Continued)

t_{WH}	Reset Pulse Width	5.0	400	200	-	ns
		10	160	80	-	
		15	120	60	-	
t_{SU}	Setup Time	5.0	350	100	-	ns
		10	100	50	-	
		15	75	40	-	
t_h	Hold	5.0	0	-	-	ns
		10	0	-	-	
		15	0	-	-	

SWITCHING WAVEFORMS

4015B

