

8-Stage Static Shift Register

CD4014BE

Description

The CD4014BE is an 8-stage parallel input/serial output shift register. A parallel/serial control input enables individual JAM inputs to each of 8 stages. Q outputs are available from the sixth, seventh and eighth stages. All outputs have equal source and sink current capabilities and conform to standard “B” series output drive.

When the parallel/serial control input is in the logical “0” state, data is serially shifted into the register synchronously with the positive transition of the clock. When the parallel/serial control input is in the logical “1” state, data is jammed into each stage of the register synchronously with the positive transition of the clock.

Feature

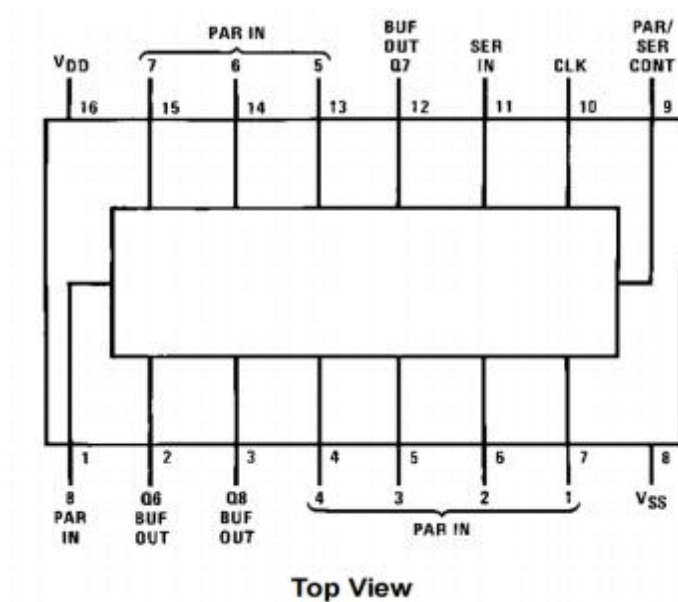
- Wide supply voltage range: 3.0V to 15V
- High noise immunity: 0.45 VDD (typ.)
- 5V –10V –15V parametric ratings
- Symmetrical output characteristics
- Maximum input leakage: 1 μ A at 15V over full temperature range

Absolute Maximum Ratings

Supply Voltage (V_{DD})	-0.5V to +18V
Input Voltage (V_{IN})	-0.5 to $V_{DD} + 0.5V$
Storage Temperature Range (T_S)	-65°C to +150°C
Power Dissipation (P_D)	
Dual-In-Line	700 mW
Small Outline	500 mW
Lead Temperature (T_L)	
(Soldering, 10 seconds)	260°C

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Connection Diagram



Truth Table

CL (Note 1)	Serial Input	Parallel/ Serial Control	PI 1	PI n	Q1 (Internal)	Q _n
↗	X	1	0	0	0	0
↗	X	1	1	0	1	0
↗	X	1	0	1	0	1
↗	X	1	1	1	1	1
↗	0	0	X	X	0	Q _{n-1}
↗	1	0	X	X	1	Q _{n-1}
↘	X	X	X	X	Q1	Q _n

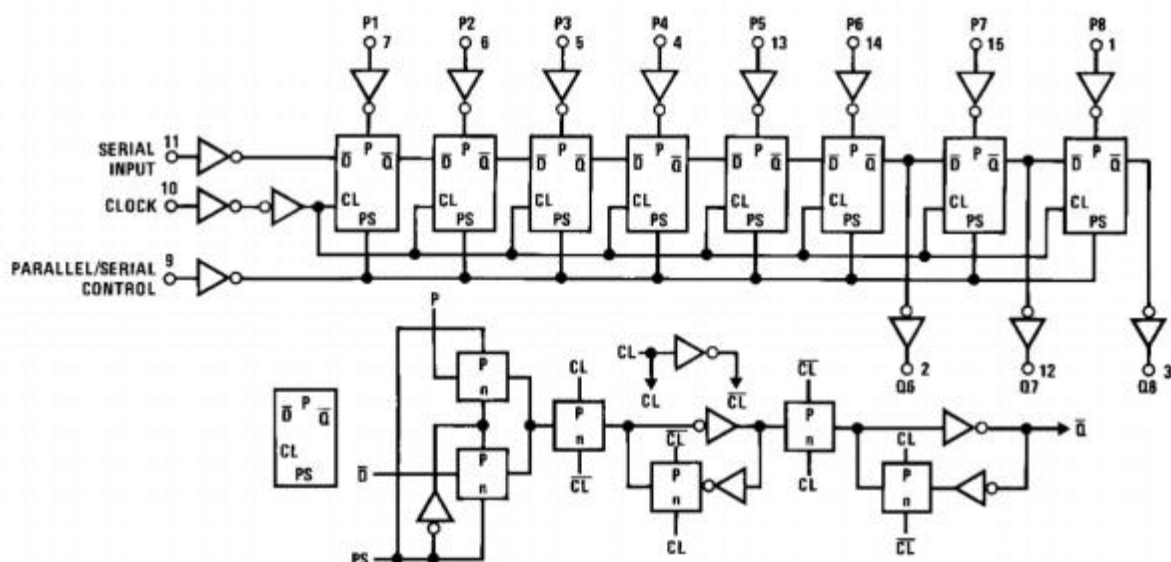
X = Don't care case

No Change

Note 1: Level change

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Logic Diagram



Recommended Operating Conditions

Supply Voltage (V_{DD})	3.0V to 15V
Input Voltage (V_{IN})	0 to V_{DD}
Operating Temperature Range (T_A)	-55°C to +125°C

DC Electrical Characteristics

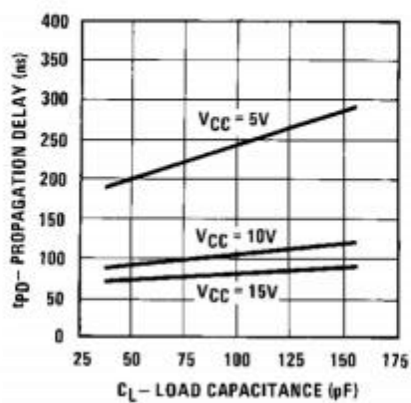
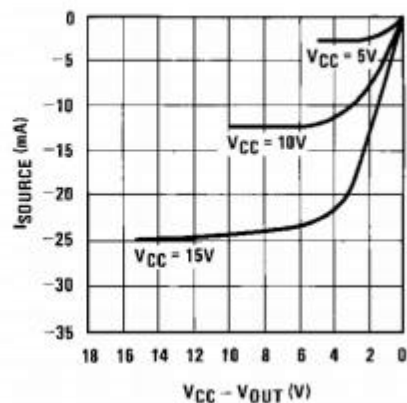
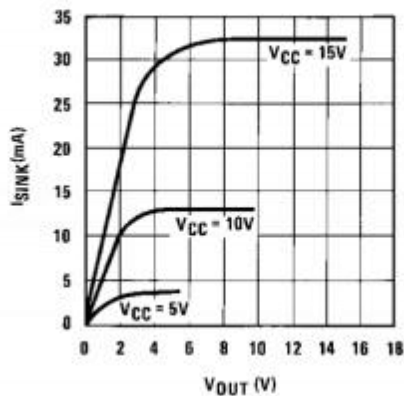
Symbol	Parameter	Conditions	-55°C		+25°C			+125°C		Units
			Min	Max	Min	Typ	Max	Min	Max	
I_{DD}	Quiescent Device Current	$V_{DD} = 5V, V_{IN} = V_{DD} \text{ or } V_{SS}$ $V_{DD} = 10V, V_{IN} = V_{DD} \text{ or } V_{SS}$ $V_{DD} = 15V, V_{IN} = V_{DD} \text{ or } V_{SS}$		5 10 20		0.1 0.2 0.3	5 10 20		150 300 600	μA
V_{OL}	LOW Level Output Voltage	$V_{DD} = 5V$ $V_{DD} = 10V$ $V_{DD} = 15V$ $ I_O < 1 \mu A$		0.05 0.05 0.05		0 0 0	0.05 0.05 0.05		0.05 0.05 0.05	V
V_{OH}	HIGH Level Output Voltage	$V_{DD} = 5V$ $V_{DD} = 10V$ $V_{DD} = 15V$ $ I_O < 1 \mu A$	4.95 9.95 14.95		4.95 9.95 14.95	5 10 15		4.95 9.95 14.95		V
V_{IL}	LOW Level Input Voltage	$V_{DD} = 5V, V_O = 0.5V \text{ or } 4.5V$ $V_{DD} = 10V, V_O = 1.0V \text{ or } 9.0V$ $V_{DD} = 15V, V_O = 1.5V \text{ or } 13.5V$		1.5 3.0 4.0		2 4 6	1.5 3.0 4.0		1.5 3.0 4.0	V
V_{IH}	HIGH Level Input Voltage	$V_{DD} = 5V, V_O = 0.5V \text{ or } 4.5V$ $V_{DD} = 10V, V_O = 1.0V \text{ or } 9.0V$ $V_{DD} = 15V, V_O = 1.5V \text{ or } 13.5V$	3.5 7.0 11.0		3.5 7.0 11.0	3 6 9		3.5 7.0 11.0		V
I_{OL}	LOW Level Output Current (Note 4)	$V_{DD} = 5V, V_O = 0.4V$ $V_{DD} = 10V, V_O = 0.5V$ $V_{DD} = 15V, V_O = 1.5V$	0.64 1.6 4.2		0.51 1.3 3.4	0.88 2.2 8		0.36 0.9 2.4		mA
I_{OH}	HIGH Level Output Current (Note 4)	$V_{DD} = 5V, V_O = 4.6V$ $V_{DD} = 10V, V_O = 9.5V$ $V_{DD} = 15V, V_O = 13.5V$	-0.64 -1.6 -4.2		-0.51 -1.3 -3.4	-0.88 -2.2 -8		-0.36 -0.90 -2.4		mA
I_{IN}	Input Current	$V_{DD} = 15V, V_{IN} = 0V$ $V_{DD} = 15V, V_{IN} = 15V$		-0.1 0.1		-10^{-5} 10^{-5}	-0.1 0.1		-1.0 1.0	μA

Note 4: I_{OL} and I_{OH} are tested one output at a time.



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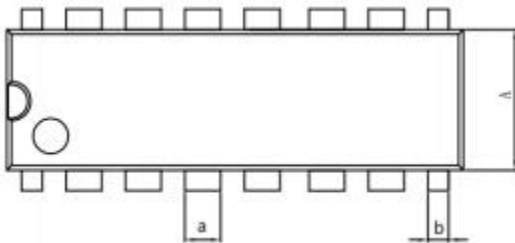
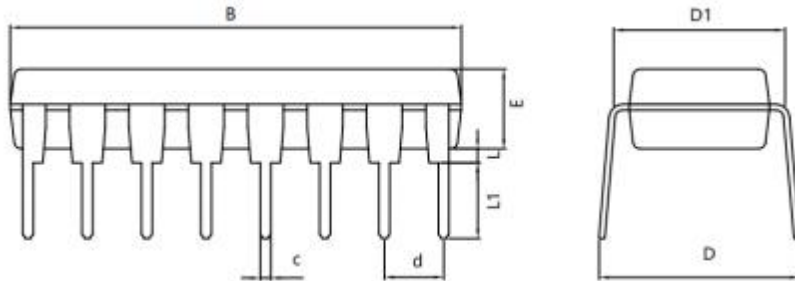
Typical Performance Characteristics





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Pin Assignment:
DIP16



Dimensions In Millimeters					
Symbol :	Min :	Max :	Symbol :	Min :	Max :
A	6.100	6.680	L	0.500	0.800
B	18.940	19.560	a	1.524 TYP	
D	8.200	9.200	b	0.889 TYP	
D1	7.42	7.820	c	0.457 TYP	
E	3.100	3.550	d	2.540 TYP	
L	0.500	0.800			