



CD4584 (LX) Hex Schmitt Trigger

Product Specification

Specification Revision History:

Version	Date	Description
2023-04-A1	2023-04	New



Contents

1、General Description.....	3
2、Block Diagram And Pin Description	4
2.1、Block Diagram	4
2.2、Pin Configurations.....	4
2.3、Pin Description.....	4
2.4、Function Table.....	4
3、Electrical Parameter	5
3.1、Absolute Maximum Ratings.....	5
3.2、Recommended Operating Conditions	5
3.3、Electrical Characteristics.....	5
3.3.1、DC Characteristics 1	5
3.3.2、DC Characteristics 2.....	6
3.3.3、AC Characteristics 1.....	6
3.3.4、AC Characteristics 2.....	7
4、Testing Circuit	7
4.1、AC Testing Circuit	7
4.2、Test Data	7
4.3、AC Testing Waveform	8
4.4、Measurement Points	8
5、Package Information.....	9
5.1、DIP14	9
5.2、SOP14	10
5.3、TSSOP14.....	11
6、Statements And Notes	12
6.1、The name and content of Hazardous substances or Elements in the product.....	12
6.2、Notes	12



1、General Description

The CD4584 is the 6-circuit inverter having the Schmitt trigger function at the input terminal.

Features:

- Supply voltage range:3V to 15V
- Temperature range:-40℃ to +125℃
- Packaging information: DIP14/SOP14/TSSOP14

Ordering Information:

Tube packing specifications:

Part number	Packaging form	Marking code	Tube quantity	Boxed tube quantity	Boxed quantity	Notes
CD4584BE(LX)	DIP14	CD4584BE	25 PCS/tube	40 tube/box	1000 PCS/box	Dimensions of plastic enclosure: 19.0mm×6.4mm Pin spacing: 2.54mm
CD4584BM(LX)	SOP14	CD4584BM	50 PCS/tube	200 tube/box	10000 PCS/box	Dimensions of plastic enclosure: 8.7mm×3.9mm Pin spacing: 1.27mm
CD4584PW(LX)	TSSOP14	CD4584	96 PCS/tube	200 tube/box	19200 PCS/box	Dimensions of plastic enclosure: 5.0mm×4.4mm Pin spacing: 0.65mm

Reel packing specifications:

Part number	Packaging form	Marking code	Reel quantity	Boxed reel quantity	Notes
CD4584BM(LX)	SOP14	CD4584BM	2500 PCS/reel	5000 PCS/box	Dimensions of plastic enclosure: 8.7mm×3.9mm Pin spacing: 1.27mm
CD4584PW(LX)	TSSOP14	CD4584	5000 PCS/reel	10000 PCS/box	Dimensions of plastic enclosure: 5.0mm×4.4mm Pin spacing: 0.65mm

Note: If the physical information is inconsistent with the ordering information, please refer to the actual product.



2、Block Diagram And Pin Description

2.1、Block Diagram

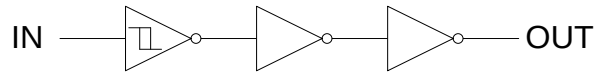


Figure 1. Functional diagram

2.2、Pin Configurations

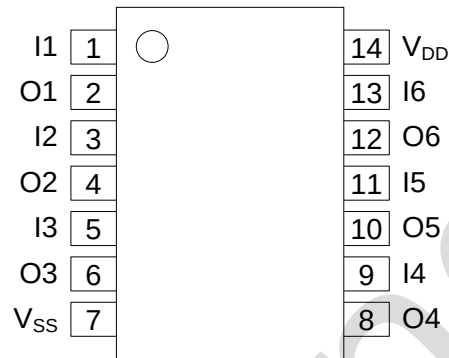


Figure 2. Pin configurations

2.3、Pin Description

Pin No.	Pin Name	Description
1	I1	data input
2	O1	data output
3	I2	data input
4	O2	data output
5	I3	data input
6	O3	data output
7	V _{SS}	ground supply voltage
8	O4	data output
9	I4	data input
10	O5	data output
11	I5	data input
12	O6	data output
13	I6	data input
14	V _{DD}	supply voltage

2.4、Function Table

Input	Output
In	On
H	L
L	H

Note: H=HIGH voltage level; L=LOW voltage level.



3、Electrical Parameter

3.1、Absolute Maximum Ratings

(Voltages are referenced to V_{SS} (ground=0V), unless otherwise specified.)

Parameter	Symbol	Conditions	Min.	Max.	Unit
supply voltage	V_{DD}	-	-0.5	+18	V
input voltage	V_I	all inputs	-0.5	$V_{DD}+0.5$	V
DC input current	I_{IK}	any one input	-	± 10	mA
storage temperature	T_{stg}	-	-65	+150	°C
soldering temperature	T_L	10s	DIP	245	°C
			SOP/TSSOP	260	

3.2、Recommended Operating Conditions

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
supply voltage	V_{DD}	-	3	-	15	V
ambient temperature	T_{amb}	in free air	-40	-	+125	°C

3.3、Electrical Characteristics

3.3.1、DC Characteristics 1

($T_{amb}=-40^{\circ}\text{C}$ to $+85^{\circ}\text{C}$, voltages are referenced to V_{SS} (ground=0V), unless otherwise specified.)

Parameter	Symbol	V_{DD}	Conditions	Min.	Typ.	Max.	Unit
HIGH-level input voltage	V_{IH}	5V	-	2.05	3.0	3.85	V
		10V	-	4.8	6.4	7.7	V
		15V	-	7.8	9.9	11.7	V
LOW-level input voltage	V_{IL}	5V	-	1.25	2.3	2.85	V
		10V	-	2.4	3.8	5.10	V
		15V	-	3.4	5.2	7.10	V
Hysteresis voltage	V_H	5V	-	0.1	0.65	1.4	V
		10V	-	1.8	2.6	3.6	V
		15V	-	3.7	4.7	5.7	V
HIGH-level output voltage	V_{OH}	5V	$ I_O <1\mu\text{A}$	4.95	-	-	V
		10V	$ I_O <1\mu\text{A}$	9.95	-	-	V
		15V	$ I_O <1\mu\text{A}$	14.95	-	-	V
LOW-level output voltage	V_{OL}	5V	$ I_O <1\mu\text{A}$	-	-	0.05	V
		10V	$ I_O <1\mu\text{A}$	-	-	0.05	V
		15V	$ I_O <1\mu\text{A}$	-	-	0.05	V
HIGH-level output current	I_{OH}	5V	$V_O=4.6\text{V}$	-	-	-0.34	mA
		5V	$V_O=2.5\text{V}$	-	-	-1.3	mA
		10V	$V_O=9.5\text{V}$	-	-	-0.55	mA
		15V	$V_O=13.5\text{V}$	-	-	-1.65	mA
LOW-level output current	I_{OL}	5V	$V_O=0.4\text{V}$	0.34	-	-	mA
		10V	$V_O=0.5\text{V}$	0.46	-	-	mA
		15V	$V_O=1.5\text{V}$	1.4	-	-	mA
input leakage current	I_I	15V	$V_I=15\text{V}$ or GND	-	-	± 2	μA



supply current	I_{DD}	5V	$V_I=5V$ or GND; $I_O=0A$	-	-	7.5	μA
		10V	$V_I=10V$ or GND; $I_O=0A$	-	-	15	μA
		15V	$V_I=15V$ or GND; $I_O=0A$	-	-	30	μA

3.3.2、DC Characteristics 2

($T_{amb}=-40^{\circ}C$ to $+125^{\circ}C$, voltages are referenced to V_{SS} (ground=0V), unless otherwise specified.)

Parameter	Symbol	V_{DD}	Conditions	Min.	Typ.	Max.	Unit
HIGH-level input voltage	V_{IH}	5V	-	2.05	3.0	3.85	V
		10V	-	4.8	6.4	7.7	V
		15V	-	7.8	9.9	11.7	V
LOW-level input voltage	V_{IL}	5V	-	1.25	2.3	2.85	V
		10V	-	2.4	3.8	5.10	V
		15V	-	3.4	5.2	7.10	V
Hysteresis voltage	V_H	5V	-	0.1	0.65	1.4	V
		10V	-	1.8	2.6	3.6	V
		15V	-	3.7	4.7	5.7	V
HIGH-level output voltage	V_{OH}	5V	$ I_O <1\mu A$	4.95	-	-	V
		10V	$ I_O <1\mu A$	9.95	-	-	V
		15V	$ I_O <1\mu A$	14.95	-	-	V
LOW-level output voltage	V_{OL}	5V	$ I_O <1\mu A$	-	-	0.05	V
		10V	$ I_O <1\mu A$	-	-	0.05	V
		15V	$ I_O <1\mu A$	-	-	0.05	V
HIGH-level output current	I_{OH}	5V	$V_O=4.6V$	-	-	-0.3	mA
		5V	$V_O=2.5V$	-	-	-1.15	mA
		10V	$V_O=9.5V$	-	-	-0.45	mA
		15V	$V_O=13.5V$	-	-	-1.4	mA
LOW-level output current	I_{OL}	5V	$V_O=0.4V$	0.29	-	-	mA
		10V	$V_O=0.5V$	0.38	-	-	mA
		15V	$V_O=1.5V$	1.2	-	-	mA
input leakage current	I_I	15V	$V_I=15V$ or GND	-	-	± 4	μA
supply current	I_{DD}	5V	$V_I=5V$ or GND; $I_O=0A$	-	-	7.5	μA
		10V	$V_I=10V$ or GND; $I_O=0A$	-	-	15	μA
		15V	$V_I=15V$ or GND; $I_O=0A$	-	-	30	μA

3.3.3、AC Characteristics 1

($T_{amb}=-40^{\circ}C$ to $+85^{\circ}C$, $V_{SS}=0V$, unless otherwise specified.)

Parameter	Symbol	V_{DD}	Conditions	Min.	Typ.	Max.	Unit
propagation delay time	t_{PHL}, t_{PLH}	5V	$C_L=50pF$, see Figure 4	-	80	200	ns
		10V		-	50	100	ns
		15V		-	40	80	ns
transition time	t_{THL}, t_{TLH}	5V	$C_L=50pF$, see Figure 4	-	170	340	ns
		10V		-	80	160	ns
		15V		-	60	120	ns



3.3.4、AC Characteristics 2

($T_{amb} = -40^{\circ}\text{C}$ to $+125^{\circ}\text{C}$, $V_{SS} = 0\text{V}$, unless otherwise specified.)

Parameter	Symbol	V_{DD}	Conditions	Min.	Typ.	Max.	Unit
propagation delay time	t_{PHL} , t_{PLH}	5V	$C_L = 50\text{pF}$, see Figure 4	-	-	240	ns
		10V		-	-	120	ns
		15V		-	-	96	ns
transition time	t_{THL} , t_{TLH}	5V	$C_L = 50\text{pF}$, see Figure 4	-	-	408	ns
		10V		-	-	192	ns
		15V		-	-	144	ns

4、Testing Circuit

4.1、AC Testing Circuit

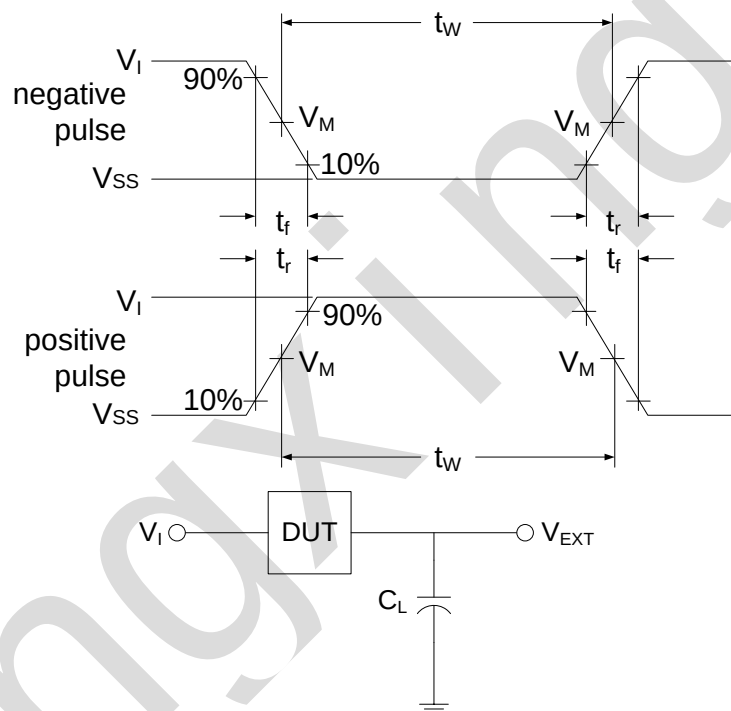


Figure 3. Load circuit

C_L includes probe and jig capacitance.

4.2、Test Data

Supply voltage	Input		Load	V_{EXT}		
V_{DD}	V_I	$t_r = t_f$	C_L	t_{PLH}/t_{PHL}	t_{PLZ}/t_{PZL}	t_{PHZ}/t_{PZH}
5V to 15V	V_{DD}	$\leq 20\text{ns}$	50pF	Open	V_{DD}	V_{SS}



4.3、AC Testing Waveform

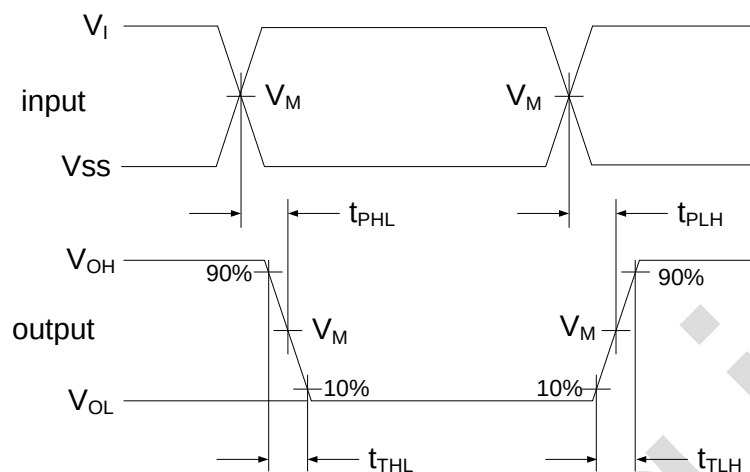


Figure 4. Propagation delay, output transition time

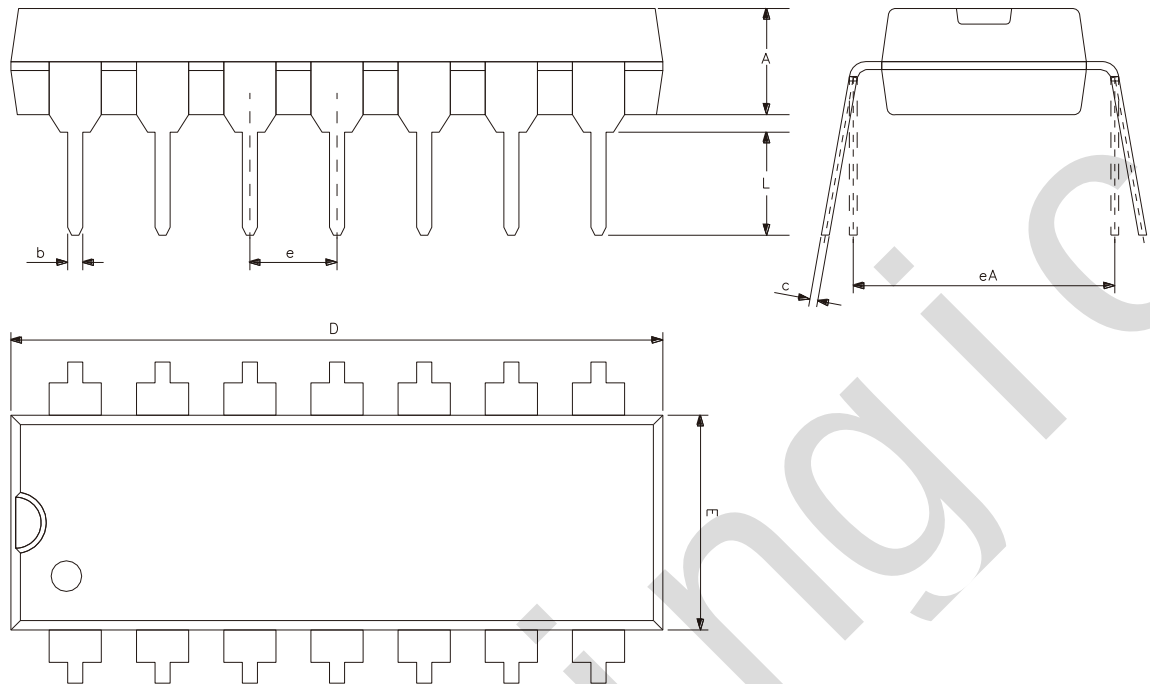
4.4、Measurement Points

Supply voltage	Input	Output		
V_{DD}	V_M	V_M	V_X	V_Y
5V to 15V	$0.5 \times V_{DD}$	$0.5 \times V_{DD}$	$0.1 \times V_{DD}$	$0.9 \times V_{DD}$



5、Package Information

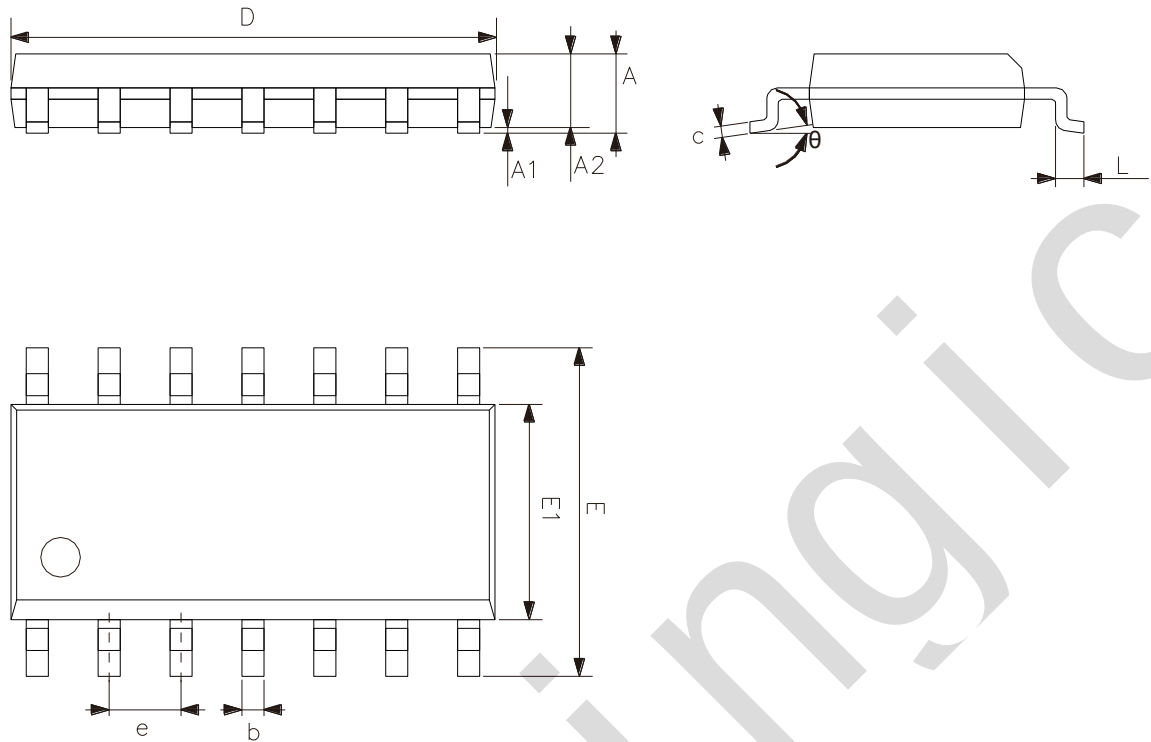
5.1、DIP14



Symbol	Dimensions (mm)	
	Min.	Max.
A	3.05	3.60
b	0.33	0.56
c	0.20	0.36
D	18.80	19.40
E	6.20	6.60
e	2.54	
eA	7.62	10.90
L	2.92	-



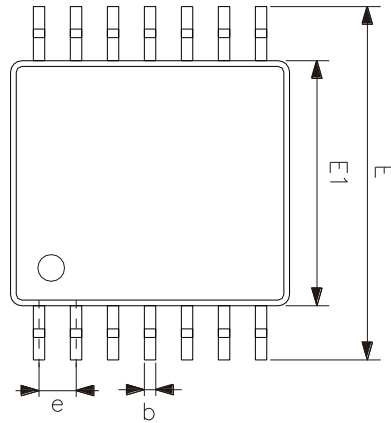
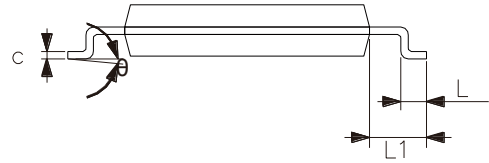
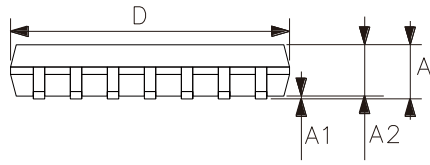
5.2、SOP14



Symbol	Dimensions (mm)	
	Min.	Max.
A	1.50	1.75
A1	0.05	0.25
A2	1.30	-
b	0.33	0.50
c	0.19	0.25
D	8.43	8.76
E	5.80	6.25
E1	3.75	4.00
e	1.27	
L	0.40	0.89
θ	0°	8°



5.3、TSSOP14



Symbol	Dimensions (mm)	
	Min.	Max.
A	-	1.20
A1	0.05	0.15
A2	0.80	1.05
b	0.19	0.30
c	0.09	0.20
D	4.90	5.10
E1	4.30	4.50
E	6.20	6.60
e	0.65	
L	0.45	0.75
L1	1.00	
θ	0°	8°



6、Statements And Notes

6.1、The name and content of Hazardous substances or Elements in the product

Part name	Hazardous substances or Elements									
	Lead and lead compounds	Mercury and mercury compounds	Cadmium and cadmium compounds	Hexavalent chromium compounds	Polybrominated biphenyls	Polybrominated biphenyl ethers	Dibutyl phthalate	Butylbenzyl phthalate	Di-2-ethylhexyl phthalate	Diisobutyl phthalate
Lead frame	○	○	○	○	○	○	○	○	○	○
Plastic resin	○	○	○	○	○	○	○	○	○	○
Chip	○	○	○	○	○	○	○	○	○	○
The lead	○	○	○	○	○	○	○	○	○	○
Plastic sheet installed	○	○	○	○	○	○	○	○	○	○
explanation	○: Indicates that the content of hazardous substances or elements in the detection limit of the following the SJ/T11363-2006 standard. ×: Indicates that the content of hazardous substances or elements exceeding the SJ/T11363-2006 Standard limit requirements.									

6.2、Notes

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