



# CD4584 (LX) Hex Schmitt Trigger

## Product Specification

### Specification Revision History:

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



灵星芯微 肖芯经营

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## 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°C to +125°C
- 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

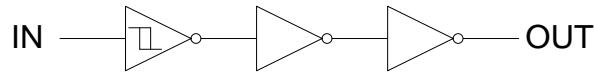


Figure 1. Functional diagram

### 2.2、Pin Configurations

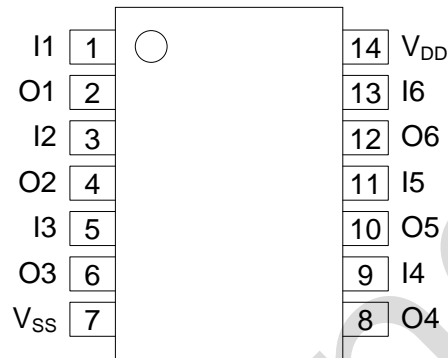


Figure 2. Pin configurations

### 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 <sub>SS</sub>	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 <sub>DD</sub>	supply voltage

### 2.4、Function Table

Input	Output
<b>In</b>	<b>On</b>
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	-	$\pm 10$	mA
storage temperature	$T_{stg}$	-	-65	+150	$^{\circ}C$
soldering temperature	$T_L$	10s	DIP	245	$^{\circ}C$
			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	$^{\circ}C$

### 3.3、Electrical Characteristics

#### 3.3.1、DC Characteristics 1

( $T_{amb}=-40^{\circ}C$  to  $+85^{\circ}C$ , 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	$V_O=4.6V$	-	-	-0.34	mA
		5V	$V_O=2.5V$	-	-	-1.3	mA
		10V	$V_O=9.5V$	-	-	-0.55	mA
		15V	$V_O=13.5V$	-	-	-1.65	mA
LOW-level output current	$I_{OL}$	5V	$V_O=0.4V$	0.34	-	-	mA
		10V	$V_O=0.5V$	0.46	-	-	mA
		15V	$V_O=1.5V$	1.4	-	-	mA
input leakage current	$I_I$	15V	$V_I=15V$ or GND	-	-	$\pm 2$	$\mu A$



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

### 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	-	-	$\pm 4$	$\mu A$
supply current	$I_{DD}$	5V	$V_I=5V$ or GND; $I_O=0A$	-	-	7.5	$\mu A$
		10V	$V_I=10V$ or GND; $I_O=0A$	-	-	15	$\mu A$
		15V	$V_I=15V$ or GND; $I_O=0A$	-	-	30	$\mu A$

### 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

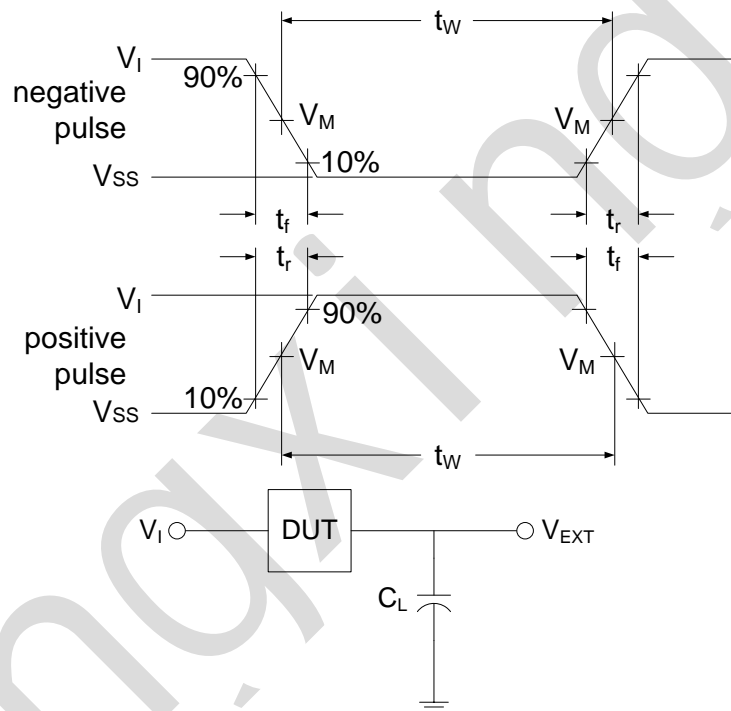


Figure 3. Load circuit

$C_L$  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	$V_{DD}$	$V_{SS}$



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### 4.3、AC Testing Waveform

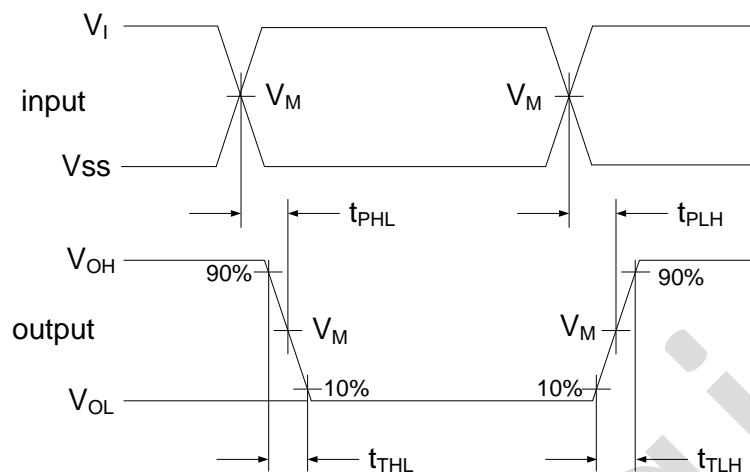


Figure 4. Propagation delay, output transition time

### 4.4、Measurement Points

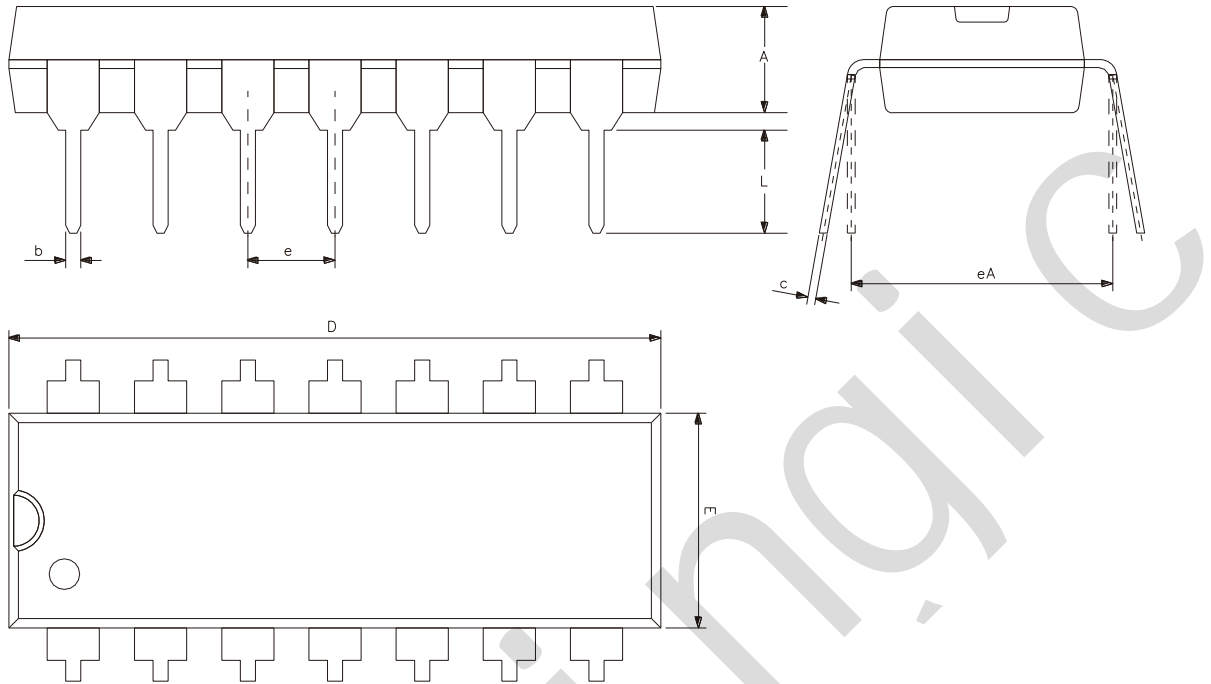
Supply voltage	Input		Output	
	$V_M$	$V_M$	$V_X$	$V_Y$
$V_{DD}$ 5V to 15V	$0.5 \times V_{DD}$	$0.5 \times V_{DD}$	$0.1 \times V_{DD}$	$0.9 \times V_{DD}$





## 5、Package Information

### 5.1、DIP14

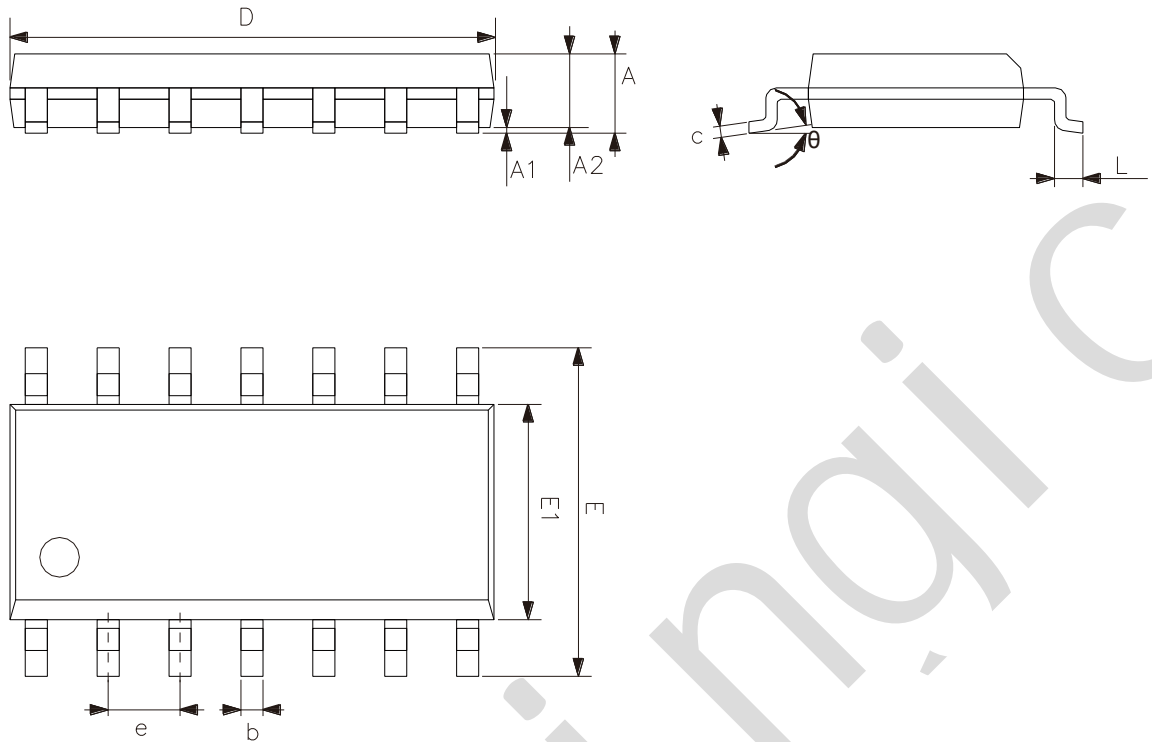


Symbol	Dimensions (mm)	
	Min.	Max.
A	3.05	3.60
b	0.33	0.56
c	0.20	0.36
D	18.80	19.40
E	6.20	6.60
e	2.54	
eA	7.62	10.90
L	2.92	-



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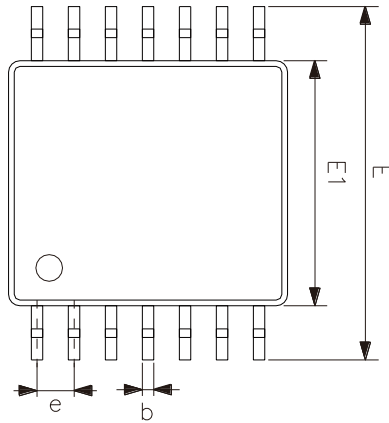
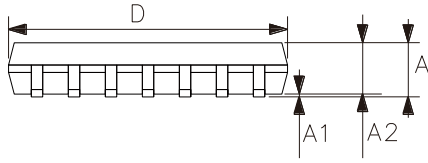
## 5.2、SOP14



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	
$\theta$	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.									

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