



灵星芯微 芯片经营

深圳市灵星芯微电子科技有限公司

Shenzhen Lingxing Microelectronics Technology Co., Ltd.

Tab: 835-12-B5

SN74LS279(LX)

Quad $\overline{R}/\overline{S}$ Latches

Product Specification

Specification Revision History:

Version	Date	Description
2024-04-A0	2024-04	New
2024-09-A1	2024-09	Modify the parameters



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1、General Description

The SN74LS279 is a quad $\bar{R}\text{-}\bar{S}$ latches.

Features:

- Supply voltage range: 2V to 6V
- Temperature range: -40°C to +125°C
- Packaging information: DIP16/SOP16/TSSOP16

Ordering Information:

Tube packing specifications:

Part number	Packaging form	Marking code	Tube quantity	Boxed tube quantity	Boxed quantity	Notes
SN74LS279AN(LX)	DIP16	SN74LS279AN	25 PCS/tube	40 tube/box	1000 PCS/box	Dimensions of plastic enclosure: 19.0mm×6.4mm Pin spacing: 2.54mm



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Reel packing specifications:

Part number	Packaging form	Marking code	Reel quantity	Boxed reel quantity	Notes
SN74LS279ADR(LX)	SOP16	LS279A	2500 PCS/reel	5000 PCS/box	Dimensions of plastic enclosure: 10.0mm×3.9mm Pin spacing: 1.27mm
SN74LS279APW(LX)	TSSOP16	LS279A	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

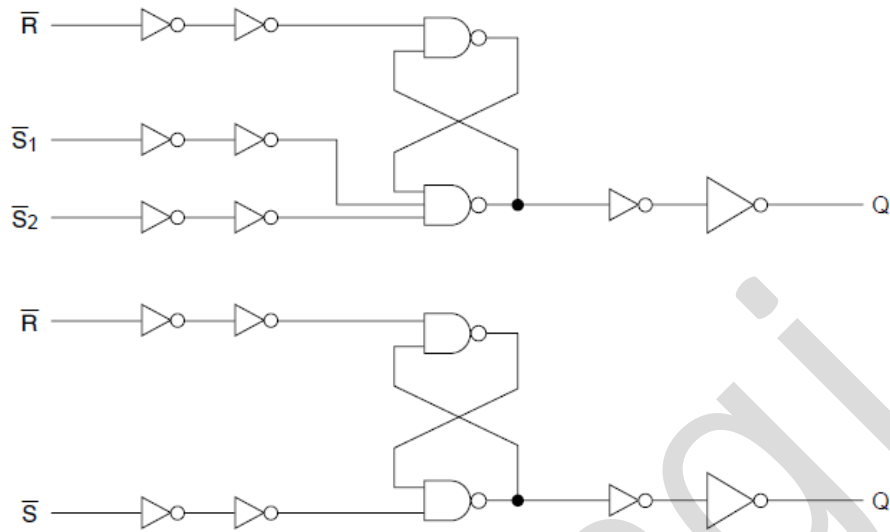
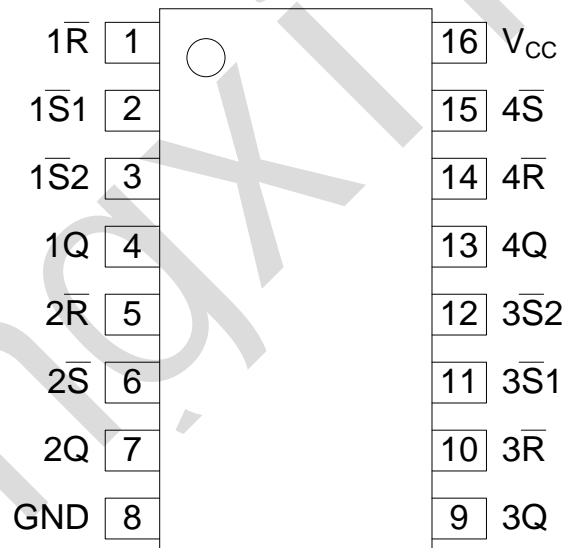


Figure 1. Block Diagram

2.2、Pin Configurations





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2.3、Pin Description

Pin No.	Pin Name	Description
1	$\bar{1R}$	data input
2	1S1	data input
3	1S2	data input
4	1Q	data output
5	2 \bar{R}	data input
6	2S	data input
7	2Q	data output
8	GND	ground (0V)
9	3Q	data output
10	3 \bar{R}	data input
11	3S1	data input
12	3S2	data input
13	4Q	data output
14	4 \bar{R}	data input
15	4S	data input
16	V _{CC}	supply voltage

2.3、Function Table

Input		Output
$\bar{S}^{[1]}$	\bar{R}	Q
H	H	Q0 ^[2]
L	H	H
H	L	L
L	L	H

Note:

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

[1] For latches with doubles \bar{S} input, H=both of \bar{S} inputs are high; L=either or both of \bar{S} are low.

[2] Q0: The level of Q before the indicated input condition were established.



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3、Electrical Parameter

3.1、Absolute Maximum Ratings

(Voltages are referenced to GND (ground=0V), unless otherwise specified.)

Parameter	Symbol	Conditions	Min.	Max.	Unit
supply voltage	V_{CC}	-	-0.5	+7	V
supply current	I_{CC}	-	-	50	mA
ground current	I_{GND}	-	-50	-	mA
input clamping current	I_{IK}	$V_I < -0.5V$ or $V_I > V_{CC}+0.5V$	-	± 20	mA
output clamping current	I_{OK}	$V_O < -0.5V$ or $V_O > V_{CC}+0.5V$	-	± 20	mA
output current	I_O	$-0.5V < V_O < V_{CC}+0.5V$	-	± 25	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_{CC}	-	2.0	5.0	6.0	V
input voltage	V_I	-	0	-	V_{CC}	V
output voltage	V_O	-	0	-	V_{CC}	V
ambient temperature	T_{amb}	-	-40	-	+125	$^{\circ}C$



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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 GND (ground=0V), unless otherwise specified.)

Parameter	Symbol	V _{CC}	Conditions	Min.	Typ.	Max.	Unit
HIGH-level input voltage	V _{IH}	2.0V	-	1.5	1.2	-	V
		4.5V	-	3.15	2.4	-	V
		6.0V	-	4.2	3.2	-	V
LOW-level input voltage	V _{IL}	2.0V	-	-	0.8	0.5	V
		4.5V	-	-	2.1	1.35	V
		6.0V	-	-	2.8	1.8	V
HIGH-level output voltage	V _{OH}	2.0V	I _O =-20uA	1.9	2.0	-	V
		4.5V	I _O =-20uA	4.4	4.5	-	V
		6.0V	I _O =-20uA	5.9	6.0	-	V
		4.5V	I _O =-4.0mA	3.84	4.32	-	V
		6.0V	I _O =-5.2mA	5.34	5.81	-	V
LOW-level output voltage	V _{OL}	2.0V	I _O =20uA	-	0	0.1	V
		4.5V	I _O =20uA	-	0	0.1	V
		6.0V	I _O =20uA	-	0	0.1	V
		4.5V	I _O =4.0mA	-	0.15	0.33	V
		6.0V	I _O =5.2mA	-	0.16	0.33	V
input leakage current	I _I	6.0V	V _I =V _{CC} or GND	-	-	±2	uA
supply current	I _{CC}	6.0V	V _I =V _{CC} or GND; I _O =0A	-	-	2	uA



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3.3.2、DC Characteristics 2

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

Parameter	Symbol	V _{CC}	Conditions	Min.	Typ.	Max.	Unit
HIGH-level input voltage	V _{IH}	2.0V	-	1.5	-	-	V
		4.5V	-	3.15	-	-	V
		6.0V	-	4.2	-	-	V
LOW-level input voltage	V _{IL}	2.0V	-	-	-	0.5	V
		4.5V	-	-	-	1.35	V
		6.0V	-	-	-	1.8	V
HIGH-level output voltage	V _{OH}	2.0V	I _O =-20uA	1.9	-	-	V
		4.5V	I _O =-20uA	4.4	-	-	V
		6.0V	I _O =-20uA	5.9	-	-	V
		4.5V	I _O =-4.0mA	3.7	-	-	V
		6.0V	I _O =-5.2mA	5.2	-	-	V
LOW-level output voltage	V _{OL}	2.0V	I _O =20uA	-	-	0.1	V
		4.5V	I _O =20uA	-	-	0.1	V
		6.0V	I _O =20uA	-	-	0.1	V
		4.5V	I _O =4.0mA	-	-	0.4	V
		6.0V	I _O =5.2mA	-	-	0.4	V
input leakage current	I _I	6.0V	V _I =V _{CC} or GND	-	-	±4	uA
supply current	I _{CC}	6.0V	V _I =V _{CC} or GND; I _O =0A	-	-	4	uA



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3.3.3、AC Characteristics 1

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

Parameter	Symbol	V _{CC}	Conditions	Min.	Typ.	Max.	Unit	
propagation delay, $\bar{S}1$, $\bar{S}2$ to Q	t_{PLH} , t_{PHL}	2.0V	$C_L=50\text{pF}$	see Figure 4	-	-	165	ns
		4.5V	$C_L=50\text{pF}$		-	-	33	ns
		5.0V	$C_L=15\text{pF}$		-	-	22	ns
		6.0V	$C_L=50\text{pF}$		-	-	28	ns
propagation delay, \bar{S} to Q	t_{PLH} , t_{PHL}	2.0V	$C_L=50\text{pF}$	see Figure 4	-	-	125	ns
		4.5V	$C_L=50\text{pF}$		-	-	25	ns
		5.0V	$C_L=15\text{pF}$		-	-	17	ns
		6.0V	$C_L=50\text{pF}$		-	-	21	ns
propagation delay, \bar{R} to Q	t_{PLH} , t_{PHL}	2.0V	$C_L=50\text{pF}$	see Figure 4	-	-	150	ns
		4.5V	$C_L=50\text{pF}$		-	-	30	ns
		5.0V	$C_L=15\text{pF}$		-	-	20	ns
		6.0V	$C_L=50\text{pF}$		-	-	26	ns
transition time	t_{THL} , t_{TLH}	2.0V	$C_L=50\text{pF}$	see Figure 4	-	-	95	ns
		4.5V	$C_L=50\text{pF}$		-	-	19	ns
		6.0V	$C_L=50\text{pF}$		-	-	16	ns



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3.3.4、AC Characteristics 2

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

Parameter	Symbol	V _{CC}	Conditions	Min.	Typ.	Max.	Unit	
propagation delay, $\bar{S}1$, $\bar{S}2$ to Q	t_{PLH} , t_{PHL}	2.0V	$C_L=50\text{pF}$	see Figure 4	-	-	182	ns
		4.5V	$C_L=50\text{pF}$		-	-	36	ns
		6.0V	$C_L=50\text{pF}$		-	-	31	ns
propagation delay, \bar{S} to Q	t_{PLH} , t_{PHL}	2.0V	$C_L=50\text{pF}$	see Figure 4	-	-	138	ns
		4.5V	$C_L=50\text{pF}$		-	-	28	ns
		6.0V	$C_L=50\text{pF}$		-	-	23	ns
propagation delay, \bar{R} to Q	t_{PLH} , t_{PHL}	2.0V	$C_L=50\text{pF}$	see Figure 4	-	-	165	ns
		4.5V	$C_L=50\text{pF}$		-	-	33	ns
		6.0V	$C_L=50\text{pF}$		-	-	29	ns
transition time	t_{THL} , t_{TLH}	2.0V	$C_L=50\text{pF}$	see Figure 4	-	-	105	ns
		4.5V	$C_L=50\text{pF}$		-	-	21	ns
		6.0V	$C_L=50\text{pF}$		-	-	18	ns



4、Testing Circuit

4.1、AC Testing Circuit

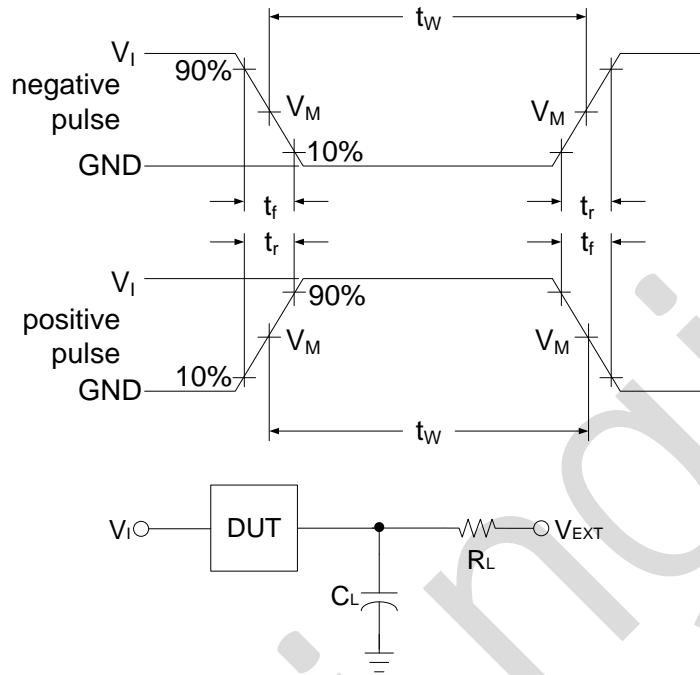


Figure 3. Test circuit for measuring switching times

C_L includes probe and jig capacitance.

4.2、Test Data

Input		Load		V_{EXT}		
V_I	$t_r = t_f$	C_L	R_L	t_{PLH}/t_{PHL}	t_{PLZ}/t_{PZL}	t_{PHZ}/t_{PZH}
V_{CC}	3.0ns	15pF, 50pF	1K Ω	Open	V_{CC}	GND



4.3、AC Testing Waveforms

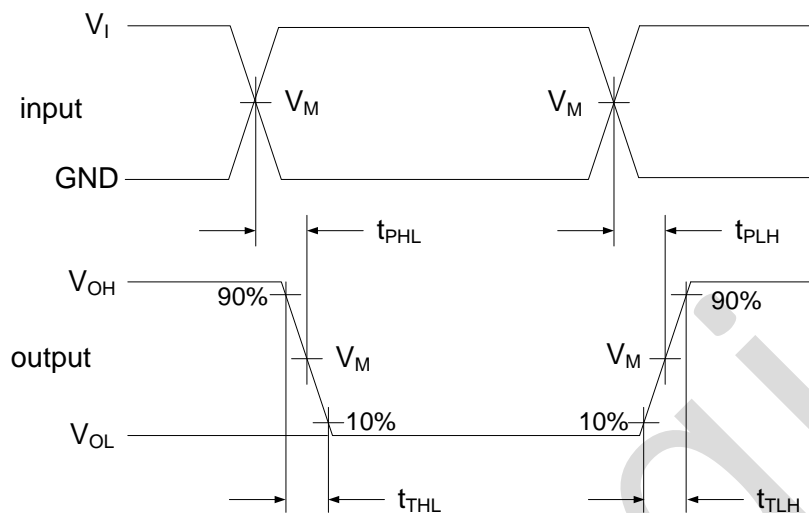


Figure 4. Propagation delay, output transition time

4.4、Measurement Points

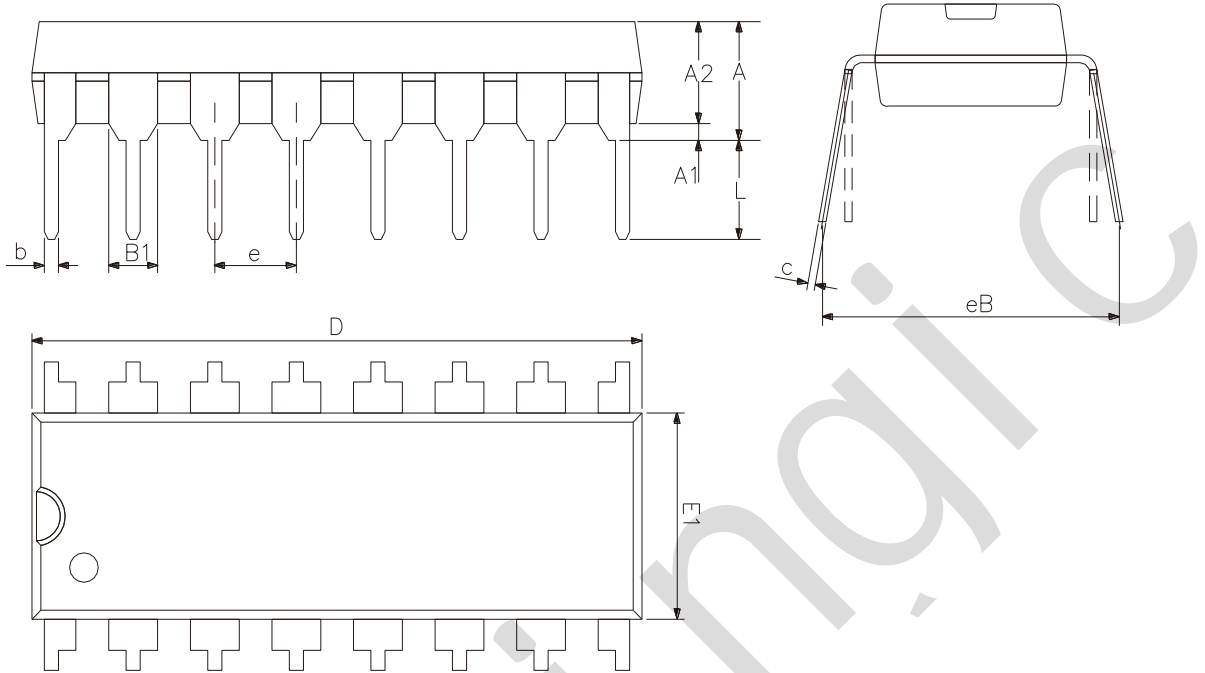
Input	Output
V_M	V_M
$0.5 \times V_{CC}$	$0.5 \times V_{CC}$



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5、Package Information

5.1、DIP16

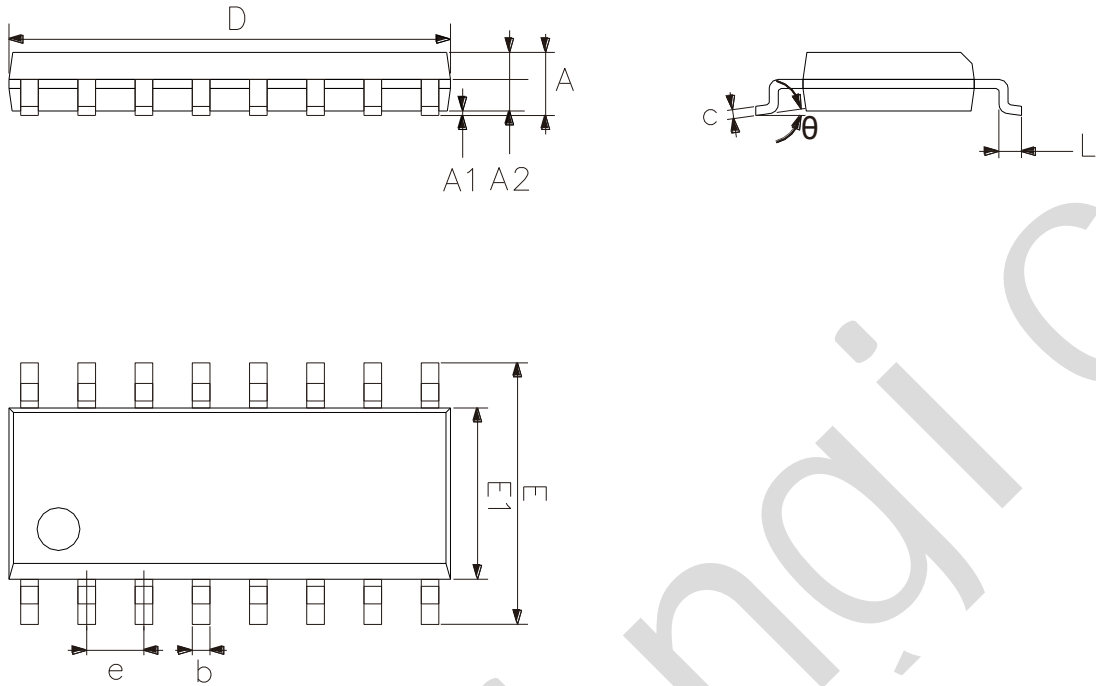


2023/12/A	Dimensions In Millimeters	
Symbol	Min	Max
A2	3.00	3.60
A1	0.51	—
A	3.60	5.33
L	3.00	3.60
b	0.36	0.56
B1	1.52	
D	18.80	19.94
E1	6.20	6.60
e	2.54	
c	0.20	0.36
eB	7.62	9.30



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5.2、SOP16

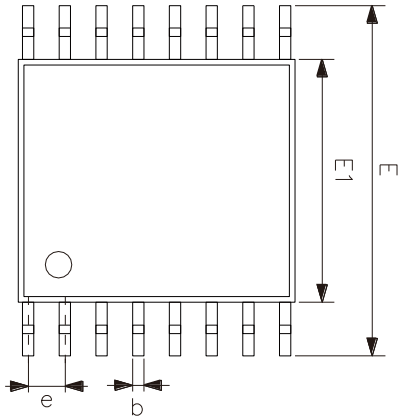
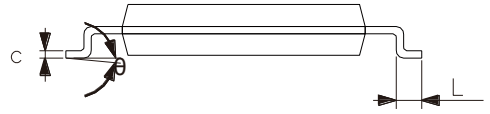
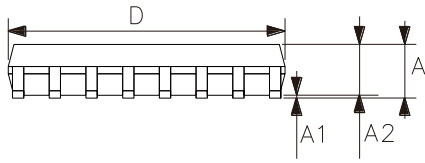


2023/12/A	Dimensions In Millimeters	
Symbol	Min.	Max.
A	1.35	1.80
A1	0.10	0.25
A2	1.25	1.55
b	0.33	0.51
c	0.19	0.25
D	9.50	10.10
E	5.80	6.30
E1	3.70	4.10
e	1.27	
L	0.35	0.89
θ	0°	8°



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5.3、TSSOP16



2023/12/A Symbol	Dimensions In Millimeters	
	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
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	<p>○: Indicates that the content of hazardous substances or elements in the detection limit of the following the SJ/T11363-2006 standard.</p> <p>×: Indicates that the content of hazardous substances or elements exceeding the SJ/T11363-2006 Standard limit requirements.</p>									

6.2、 Notes

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