



AiP74HC/HCT257

Quad 2-input Multiplexer; 3-state

Product Specification

Specification Revision History:

Version	Date	Description
2012-06-A1	2012-06	New
2023-04-B1	2023-04	Update the template



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1、 General Description

The AiP74HC/HCT257 is a quad 2-input multiplexer with 3-state outputs. Inputs include clamp diodes. This enables the use of current limiting resistors to interface inputs to voltages in excess of V_{CC} .

Features:

- Input levels:
 - For AiP74HC257: CMOS level
 - For AiP74HCT257: TTL level
- Non-inverting data path
- 3-state outputs interface directly with system bus
- Specified from -40°C to $+125^{\circ}\text{C}$
- Packaging information: DIP16/SOP16/TSSOP16

**Ordering Information:****Tube packing specifications:**

Part number	Packaging form	Marking code	Tube quantity	Boxed tube quantity	Boxed quantity	Notes
AiP74HC257DA16.TB	DIP16	74HC257	25 PCS/tube	40 tube/box	1000 PCS/box	Dimensions of plastic enclosure: 19.0mm×6.4mm Pin spacing: 2.54mm
AiP74HCT257DA16.TB	DIP16	74HCT257	25 PCS/tube	40 tube/box	1000 PCS/box	Dimensions of plastic enclosure: 19.0mm×6.4mm Pin spacing: 2.54mm
AiP74HC257SA16.TB	SOP16	74HC257	50 PCS/tube	200 tube/box	10000 PCS/box	Dimensions of plastic enclosure: 10.0mm×3.9mm Pin spacing: 1.27mm
AiP74HCT257SA16.TB	SOP16	74HCT257	50 PCS/tube	200 tube/box	10000 PCS/box	Dimensions of plastic enclosure: 10.0mm×3.9mm Pin spacing: 1.27mm
AiP74HC257TA16.TB	TSSOP16	74HC257	96 PCS/tube	200 tube/box	19200 PCS/box	Dimensions of plastic enclosure: 5.0mm×4.4mm Pin spacing: 0.65mm
AiP74HCT257TA16.TB	TSSOP16	74HCT257	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
AiP74HC257SA16.TR	SOP16	74HC257	4000 PCS/reel	8000 PCS/box	Dimensions of plastic enclosure: 10.0mm×3.9mm Pin spacing:1.27mm
AiP74HCT257SA16.TR	SOP16	74HCT257	4000 PCS/reel	8000 PCS/box	Dimensions of plastic enclosure: 10.0mm×3.9mm Pin spacing:1.27mm
AiP74HC257TA16.TR	TSSOP16	74HC257	5000 PCS/reel	10000 PCS/box	Dimensions of plastic enclosure: 5.0mm×4.4mm Pin spacing:0.65mm
AiP74HCT257TA16.TR	TSSOP16	74HCT257	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

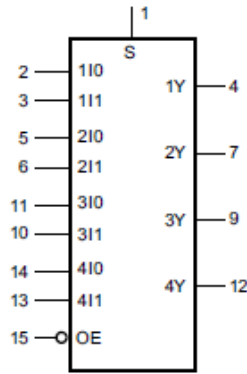


Figure 1. Logic symbol

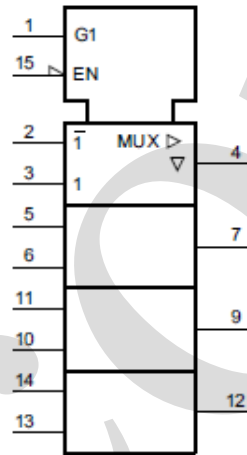


Figure 2. IEC logic symbol

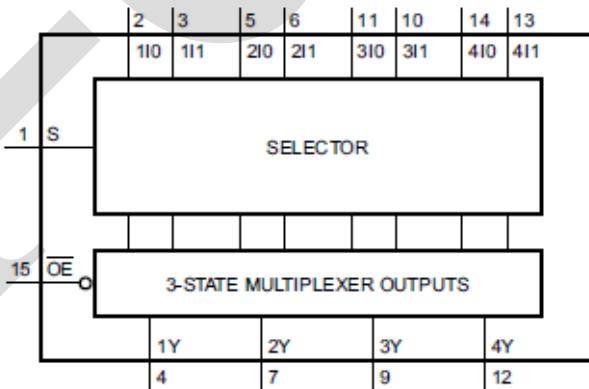


Figure 3. Functional diagram

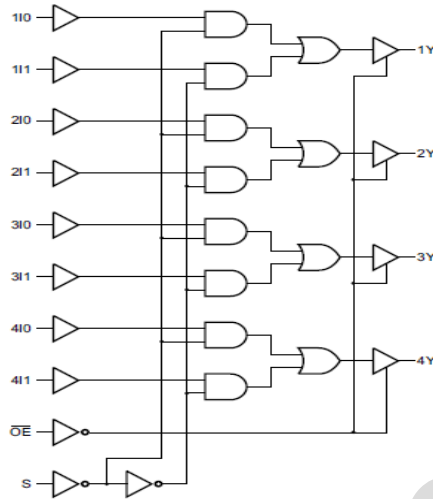
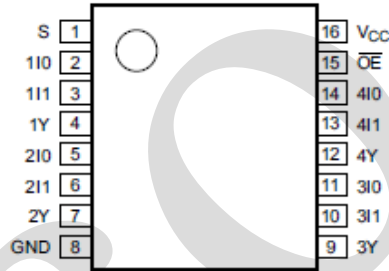


Figure 4. Logic diagram

2.2. Pin Configurations



2.3. Pin Description

Pin No.	Pin Name	Description
1	S	common data select input
2	1I0	data input from source 0
3	1I1	data input from source 1
4	1Y	3-state multiplexer output
5	2I0	data input from source 0
6	2I1	data input from source 1
7	2Y	3-state multiplexer output
8	GND	ground (0V)
9	3Y	3-state multiplexer output
10	3I1	data input from source 1
11	3I0	data input from source 0
12	4Y	3-state multiplexer output
13	4I1	data input from source 1
14	4I0	data input from source 0
15	OE	3-state output enable input (active LOW)
16	V _{CC}	supply voltage



2.4、Function Table

Input				Output
$\overline{\text{OE}}$	S	nI0	nI1	nY
H	X	X	X	Z
L	L	L	X	L
L	L	H	X	H
L	H	X	L	L
L	H	X	H	H

Note: H=HIGH voltage level; L=LOW voltage level; X=don't care; Z=high-impedance OFF-state.

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	+7.0	V
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	$V_O = -0.5V$ to $V_{CC}+0.5V$	-	± 35	mA
supply current	I_{CC}	-	-	+70	mA
ground current	I_{GND}	-	-70	-	mA
storage temperature	T_{stg}	-	-65	+150	$^{\circ}C$
total power dissipation	P_{tot}	-	-	500	mW
Soldering temperature	T_L	10s	DIP	245	$^{\circ}C$
			SOP/TSSOP	260	$^{\circ}C$



3.2、Recommended Operating Conditions

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
AiP74H257						
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
input transition rise and fall rate	$\Delta t/\Delta V$	$V_{CC}=2.0V$	-	-	625	ns/V
		$V_{CC}=4.5V$	-	1.67	139	ns/V
		$V_{CC}=6.0V$	-	-	83	ns/V
ambient temperature	T_{amb}	-	-40	-	+125	°C
AiP74HCT257						
supply voltage	V_{CC}	-	4.5	5.0	5.5	V
input voltage	V_I	-	0	-	V_{CC}	V
output voltage	V_O	-	0	-	V_{CC}	V
input transition rise and fall rate	$\Delta t/\Delta V$	$V_{CC}=4.5V$	-	1.67	139	ns/V
ambient temperature	T_{amb}	-	-40	-	+125	°C

3.3、Electrical Characteristics

3.3.1、DC Characteristics 1

($T_{amb}=25^{\circ}C$, voltages are referenced to GND (ground=0V), unless otherwise specified.)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit	
AiP74HC257							
HIGH-level input voltage	V_{IH}	$V_{CC}=2.0V$	1.5	1.2	-	V	
		$V_{CC}=4.5V$	3.15	2.4	-	V	
		$V_{CC}=6.0V$	4.2	3.2	-	V	
LOW-level input voltage	V_{IL}	$V_{CC}=2.0V$	-	0.8	0.5	V	
		$V_{CC}=4.5V$	-	2.1	1.35	V	
		$V_{CC}=6.0V$	-	2.8	1.8	V	
HIGH-level output voltage	V_{OH}	$V_I = V_{IH} \text{ or } V_{IL}$	$I_O=-20\mu A; V_{CC}=2.0V$	1.9	2.0	-	V
			$I_O=-20\mu A; V_{CC}=4.5V$	4.4	4.5	-	V
			$I_O=-20\mu A; V_{CC}=6.0V$	5.9	6.0	-	V
			$I_O=-6.0mA; V_{CC}=4.5V$	3.98	4.32	-	V
			$I_O=-7.8mA; V_{CC}=6.0V$	5.48	5.81	-	V
LOW-level output voltage	V_{OL}	$V_I = V_{IH} \text{ or } V_{IL}$	$I_O=20\mu A; V_{CC}=2.0V$	-	0	0.1	V
			$I_O=20\mu A; V_{CC}=4.5V$	-	0	0.1	V
			$I_O=20\mu A; V_{CC}=6.0V$	-	0	0.1	V
			$I_O=6.0mA; V_{CC}=4.5V$	-	0.15	0.26	V
			$I_O=7.8mA; V_{CC}=6.0V$	-	0.16	0.26	V
input leakage current	I_I	$V_I=V_{CC} \text{ or } GND; V_{CC}=6.0V$	-	-	± 1.0	μA	
OFF-state output current	I_{OZ}	$V_I=V_{IH} \text{ or } V_{IL}; V_O=V_{CC} \text{ or } GND; V_{CC}=6.0V$	-	-	± 1.0	μA	
supply current	I_{CC}	$V_I=V_{CC} \text{ or } GND; I_O=0A; V_{CC}=6.0V$	-	-	8.0	μA	



input capacitance	C_I	-	-	3.5	-	pF	
AiP74HCT257							
HIGH-level input voltage	V_{IH}	$V_{CC}=4.5V$ to $5.5V$	2.0	1.6	-	V	
LOW-level input voltage	V_{IL}	$V_{CC}=4.5V$ to $5.5V$	-	1.2	0.8	V	
HIGH-level output voltage	V_{OH}	$V_I = V_{IH}$ or V_{IL} ; $V_{CC}=4.5V$	$I_O=-20\mu A$	4.4	4.5	-	V
			$I_O=-6.0mA$	3.98	4.32	-	V
LOW-level output voltage	V_{OL}	$V_I = V_{IH}$ or V_{IL} ; $V_{CC}=4.5V$	$I_O=20\mu A$	-	0	0.1	V
			$I_O=6.0mA$	-	0.15	0.26	V
input leakage current	I_I	$V_I=V_{CC}$ or GND; $V_{CC}=5.5V$	-	-	± 1.0	μA	
OFF-state output current	I_{OZ}	$V_I=V_{IH}$ or V_{IL} ; $V_O=V_{CC}$ or GND; $V_{CC}=5.5V$	-	-	± 1.0	μA	
supply current	I_{CC}	$V_I=V_{CC}$ or GND; $I_O=0A$; $V_{CC}=5.5V$	-	-	8.0	μA	
additional supply current	ΔI_{CC}	$V_I=V_{CC}-2.1V$; other inputs at V_{CC} or GND; $I_O=0A$; $V_{CC}=4.5V$ to $5.5V$	per input pin; nI0, nI1 inputs	-	-	144	μA
			per input pin; OE input	-	-	486	μA
			per input pin; S input	-	-	252	μA
input capacitance	C_I	-	-	3.5	-	pF	

3.3.2、DC Characteristics 2

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

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit	
AiP74HC257							
HIGH-level input voltage	V_{IH}	$V_{CC}=2.0V$	1.5	-	-	V	
		$V_{CC}=4.5V$	3.15	-	-	V	
		$V_{CC}=6.0V$	4.2	-	-	V	
LOW-level input voltage	V_{IL}	$V_{CC}=2.0V$	-	-	0.5	V	
		$V_{CC}=4.5V$	-	-	1.35	V	
		$V_{CC}=6.0V$	-	-	1.8	V	
HIGH-level output voltage	V_{OH}	$V_I = V_{IH}$ or V_{IL}	$I_O=-20\mu A$; $V_{CC}=2.0V$	1.9	-	-	V
			$I_O=-20\mu A$; $V_{CC}=4.5V$	4.4	-	-	V
			$I_O=-20\mu A$; $V_{CC}=6.0V$	5.9	-	-	V
			$I_O=-6.0mA$; $V_{CC}=4.5V$	3.84	-	-	V
			$I_O=-7.8mA$; $V_{CC}=6.0V$	5.34	-	-	V
LOW-level output voltage	V_{OL}	$V_I = V_{IH}$ or V_{IL}	$I_O=20\mu A$; $V_{CC}=2.0V$	-	-	0.1	V
			$I_O=20\mu A$; $V_{CC}=4.5V$	-	-	0.1	V
			$I_O=20\mu A$; $V_{CC}=6.0V$	-	-	0.1	V
			$I_O=6.0mA$; $V_{CC}=4.5V$	-	-	0.33	V
			$I_O=7.8mA$; $V_{CC}=6.0V$	-	-	0.33	V
input leakage current	I_I	$V_I=V_{CC}$ or GND; $V_{CC}=6.0V$	-	-	± 1.0	μA	
OFF-state	I_{OZ}	$V_I=V_{IH}$ or V_{IL} ; $V_O=V_{CC}$ or GND; $V_{CC}=6.0V$	-	-	± 5.0	μA	



output current							
supply current	I_{CC}	$V_I=V_{CC}$ or GND; $I_O=0A$; $V_{CC}=6.0V$	-	-	80	uA	
AiP74HC257							
HIGH-level input voltage	V_{IH}	$V_{CC}=4.5V$ to $5.5V$	2.0	-	-	V	
LOW-level input voltage	V_{IL}	$V_{CC}=4.5V$ to $5.5V$	-	-	0.8	V	
HIGH-level output voltage	V_{OH}	$V_I = V_{IH}$ or V_{IL} ; $V_{CC}=4.5V$	$I_O=-20uA$	4.4	-	-	V
			$I_O=-6.0mA$	3.84	-	-	V
LOW-level output voltage	V_{OL}	$V_I = V_{IH}$ or V_{IL} ; $V_{CC}=4.5V$	$I_O=20uA$	-	-	0.33	V
			$I_O=6.0mA$	-	-	0.33	V
input leakage current	I_I	$V_I=V_{CC}$ or GND; $V_{CC}=5.5V$	-	-	± 1.0	uA	
OFF-state output current	I_{OZ}	$V_I=V_{IH}$ or V_{IL} ; $V_O=V_{CC}$ or GND; $V_{CC}=5.5V$	-	-	± 5.0	uA	
supply current	I_{CC}	$V_I=V_{CC}$ or GND; $I_O=0A$; $V_{CC}=5.5V$	-	-	80	uA	
additional supply current	ΔI_{CC}	$V_I=V_{CC}-2.1V$; other inputs at V_{CC} or GND; $I_O=0A$; $V_{CC}=4.5V$ to $5.5V$	per input pin; nI0, nI1 inputs	-	-	180	uA
			per input pin; \overline{OE} input	-	-	608	uA
			per input pin; S input	-	-	315	uA

3.3.3、DC Characteristics 3

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

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit	
AiP74HC257							
HIGH-level input voltage	V_{IH}	$V_{CC}=2.0V$	1.5	-	-	V	
		$V_{CC}=4.5V$	3.15	-	-	V	
		$V_{CC}=6.0V$	4.2	-	-	V	
LOW-level input voltage	V_{IL}	$V_{CC}=2.0V$	-	-	0.5	V	
		$V_{CC}=4.5V$	-	-	1.35	V	
		$V_{CC}=6.0V$	-	-	1.8	V	
HIGH-level output voltage	V_{OH}	$V_I = V_{IH}$ or V_{IL}	$I_O=-20uA$; $V_{CC}=2.0V$	1.9	-	-	V
			$I_O=-20uA$; $V_{CC}=4.5V$	4.4	-	-	V
			$I_O=-20uA$; $V_{CC}=6.0V$	5.9	-	-	V
			$I_O=-6.0mA$; $V_{CC}=4.5V$	3.7	-	-	V
			$I_O=-7.8mA$; $V_{CC}=6.0V$	5.2	-	-	V
LOW-level output voltage	V_{OL}	$V_I = V_{IH}$ or V_{IL}	$I_O=20uA$; $V_{CC}=2.0V$	-	-	0.1	V
			$I_O=20uA$; $V_{CC}=4.5V$	-	-	0.1	V
			$I_O=20uA$; $V_{CC}=6.0V$	-	-	0.1	V
			$I_O=6.0mA$; $V_{CC}=4.5V$	-	-	0.4	V
			$I_O=7.8mA$; $V_{CC}=6.0V$	-	-	0.4	V
input leakage current	I_I	$V_I=V_{CC}$ or GND; $V_{CC}=6.0V$	-	-	± 1.0	uA	
OFF-state output current	I_{OZ}	$V_I=V_{IH}$ or V_{IL} ; $V_O=V_{CC}$ or GND; $V_{CC}=6.0V$	-	-	± 10	uA	



supply current	I_{CC}	$V_I=V_{CC}$ or GND; $I_O=0A$; $V_{CC}=6.0V$		-	-	160	μA
AiP74HC257							
HIGH-level input voltage	V_{IH}	$V_{CC}=4.5V$ to $5.5V$		2.0	-	-	V
LOW-level input voltage	V_{IL}	$V_{CC}=4.5V$ to $5.5V$		-	-	0.8	V
HIGH-level output voltage	V_{OH}	$V_I = V_{IH}$ or V_{IL} ; $V_{CC}=4.5V$	$I_O=-20\mu A$	4.4	-	-	V
			$I_O=-6.0mA$	3.7	-	-	V
LOW-level output voltage	V_{OL}	$V_I = V_{IH}$ or V_{IL} ; $V_{CC}=4.5V$	$I_O=20\mu A$	-	-	0.4	V
			$I_O=6.0mA$	-	-	0.4	V
input leakage current	I_I	$V_I=V_{CC}$ or GND; $V_{CC}=5.5V$		-	-	± 1.0	μA
OFF-state output current	I_{OZ}	$V_I=V_{IH}$ or V_{IL} ; $V_O=V_{CC}$ or GND; $V_{CC}=5.5V$		-	-	± 10	μA
supply current	I_{CC}	$V_I=V_{CC}$ or GND; $I_O=0A$; $V_{CC}=5.5V$		-	-	160	μA
additional supply current	ΔI_{CC}	$V_I=V_{CC}-2.1V$; other inputs at V_{CC} or GND; $I_O=0A$; $V_{CC}=4.5V$ to $5.5V$	per input pin; n10, n11 inputs	-	-	196	μA
			per input pin; OE input	-	-	662	μA
			per input pin; S input	-	-	343	μA

3.3.4、AC Characteristics 1

($T_{amb}=25^{\circ}C$, voltages are referenced to GND (ground=0V), unless otherwise specified.)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit	
AiP74HC257							
propagation delay	t_{pd}	n10 to nY or n11 to nY; see Figure 6	$V_{CC}=2.0V$	-	36	110	ns
			$V_{CC}=4.5V$	-	13	22	ns
			$V_{CC}=5.0V$; $C_L=15pF$	-	11	-	ns
		S to nY; see Figure 6	$V_{CC}=6.0V$	-	10	19	ns
			$V_{CC}=2.0V$	-	47	150	ns
			$V_{CC}=4.5V$	-	14	30	ns
			$V_{CC}=5.0V$; $C_L=15pF$	-	14	-	ns
OE to nY enable time	t_{en}	see Figure 7	$V_{CC}=6.0V$	-	14	26	ns
			$V_{CC}=2.0V$	-	33	150	ns
			$V_{CC}=4.5V$	-	12	30	ns
OE to nY disable time	t_{dis}	see Figure 7	$V_{CC}=6.0V$	-	10	26	ns
			$V_{CC}=2.0V$	-	41	150	ns
			$V_{CC}=4.5V$	-	15	30	ns
transition time	t_t	see Figure 6	$V_{CC}=6.0V$	-	12	26	ns
			$V_{CC}=2.0V$	-	14	60	ns
			$V_{CC}=4.5V$	-	5	12	ns
power dissipation capacitance	C_{PD}	per multiplexer; $V_I=GND$ to V_{CC}	$V_{CC}=6.0V$	-	4	10	ns
			$V_{CC}=2.0V$	-	45	-	pF

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propagation delay	t_{pd}	nl0 to nY or nl1 to nY; see Figure 6	$V_{CC}=4.5V$	-	16	30	ns
			$V_{CC}=5.0V; C_L=15pF$	-	13	-	ns
		S to nY; see Figure 6	$V_{CC}=4.5V$	-	20	35	ns
			$V_{CC}=5.0V; C_L=15pF$	-	17	-	ns
\overline{OE} to nY enable time	t_{en}	$V_{CC}=4.5V$; see Figure 7		-	15	30	ns
\overline{OE} to nY disable time	t_{dis}	$V_{CC}=4.5V$; see Figure 7		-	16	30	ns
transition time	t_t	$V_{CC}=4.5V$; see Figure 6		-	5	12	ns
power dissipation capacitance	C_{PD}	per multiplexer; $V_I=GND$ to $V_{CC}-1.5V$		-	45	-	pF

Note:

[1] t_{pd} is the same as t_{PLH} and t_{PHL} .

[2] t_{en} is the same as t_{PZH} and t_{PZL} .

[3] t_{dis} is the same as t_{PLZ} and t_{PHZ} .

[4] t_t is the same as t_{THL} and t_{TLH} .

[5] C_{PD} is used to determine the dynamic power dissipation (P_D in uW).

$$P_D = C_{PD} \times V_{CC}^2 \times f_i \times N + \sum (C_L \times V_{CC}^2 \times f_o) \text{ where:}$$

f_i =input frequency in MHz;

f_o =output frequency in MHz;

C_L =output load capacitance in pF;

V_{CC} =supply voltage in V;

N =number of inputs switching;

$\sum (C_L \times V_{CC}^2 \times f_o)$ =sum of outputs.

3.3.5、AC Characteristics 2

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

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit	
AiP74HC257							
propagation delay	t_{pd}	nl0 to nY or nl1 to nY; see Figure 6	$V_{CC}=2.0V$	-	-	140	ns
			$V_{CC}=4.5V$	-	-	28	ns
			$V_{CC}=6.0V$	-	-	24	ns
		S to nY; see Figure 6	$V_{CC}=2.0V$	-	-	190	ns
			$V_{CC}=4.5V$	-	-	38	ns
			$V_{CC}=6.0V$	-	-	33	ns
\overline{OE} to nY enable time	t_{en}	see Figure 7	$V_{CC}=2.0V$	-	-	190	ns
			$V_{CC}=4.5V$	-	-	38	ns
			$V_{CC}=6.0V$	-	-	33	ns
\overline{OE} to nY disable time	t_{dis}	see Figure 7	$V_{CC}=2.0V$	-	-	190	ns
			$V_{CC}=4.5V$	-	-	38	ns
			$V_{CC}=6.0V$	-	-	33	ns
transition time	t_t	see Figure 6	$V_{CC}=2.0V$	-	-	75	ns
			$V_{CC}=4.5V$	-	-	15	ns



			$V_{CC}=6.0V$	-	-	13	ns
AiP74HCT257							
propagation delay	t_{pd}	n10 to nY or n11 to nY; see Figure 6	$V_{CC}=4.5V$	-	-	38	ns
		S to nY; see Figure 6	$V_{CC}=4.5V$	-	-	44	ns
\overline{OE} to nY enable time	t_{en}	$V_{CC}=4.5V$; see Figure 7		-	-	38	ns
\overline{OE} to nY disable time	t_{dis}	$V_{CC}=4.5V$; see Figure 7		-	-	38	ns
transition time	t_t	$V_{CC}=4.5V$; see Figure 6		-	-	15	ns

Note:

- [1] t_{pd} is the same as t_{PLH} and t_{PHL} .
 [2] t_{en} is the same as t_{PZH} and t_{PZL} .
 [3] t_{dis} is the same as t_{PLZ} and t_{PHZ} .
 [4] t_t is the same as t_{THL} and t_{TLH} .

3.3.6. AC Characteristics 3

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

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit	
AiP74HC257							
propagation delay	t_{pd}	n10 to nY or n11 to nY; see Figure 6	$V_{CC}=2.0V$	-	-	165	ns
			$V_{CC}=4.5V$	-	-	22	ns
			$V_{CC}=6.0V$	-	-	28	ns
		S to nY; see Figure 6	$V_{CC}=2.0V$	-	-	225	ns
			$V_{CC}=4.5V$	-	-	45	ns
			$V_{CC}=6.0V$	-	-	38	ns
\overline{OE} to nY enable time	t_{en}	see Figure 7	$V_{CC}=2.0V$	-	-	225	ns
			$V_{CC}=4.5V$	-	-	45	ns
			$V_{CC}=6.0V$	-	-	38	ns
\overline{OE} to nY disable time	t_{dis}	see Figure 7	$V_{CC}=2.0V$	-	-	225	ns
			$V_{CC}=4.5V$	-	-	45	ns
			$V_{CC}=6.0V$	-	-	38	ns
transition time	t_t	see Figure 6	$V_{CC}=2.0V$	-	-	90	ns
			$V_{CC}=4.5V$	-	-	18	ns
			$V_{CC}=6.0V$	-	-	15	ns
AiP74HCT257							
propagation delay	t_{pd}	n10 to nY or n11 to nY; see Figure 6	$V_{CC}=4.5V$	-	-	45	ns
		S to nY; see Figure 6	$V_{CC}=4.5V$	-	-	53	ns
\overline{OE} to nY enable time	t_{en}	$V_{CC}=4.5V$; see Figure 7		-	-	45	ns



OE to nY disable time	t_{dis}	$V_{CC}=4.5V$; see Figure 7	-	-	45	ns
transition time	t_t	$V_{CC}=4.5V$; see Figure 6	-	-	18	ns

Note:

- [1] t_{pd} is the same as t_{PLH} and t_{PHL} .
- [2] t_{en} is the same as t_{PZH} and t_{PZL} .
- [3] t_{dis} is the same as t_{PLZ} and t_{PHZ} .
- [4] t_t is the same as t_{THL} and t_{TLH} .

4、Testing Circuit

4.1、AC Testing Circuit

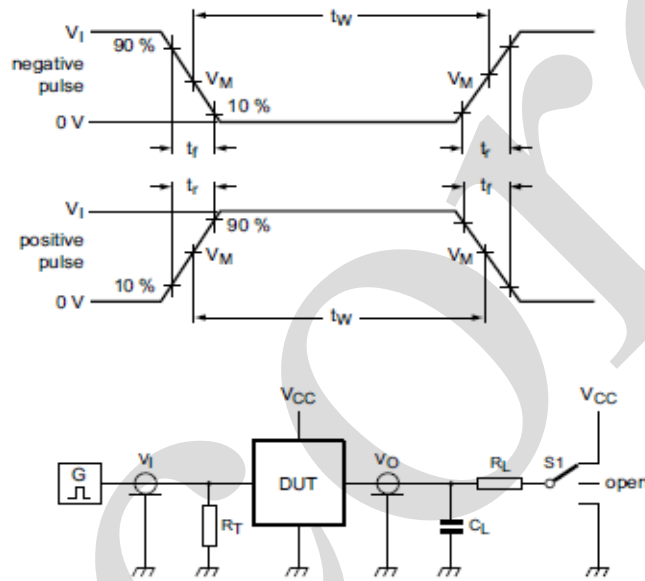


Figure 5. Test circuit for measuring switching times

Definitions for test circuit:

C_L =Load capacitance including jig and probe capacitance.

R_T =Termination resistance should be equal to the output impedance Z_o of the pulse generator.

R_L =Load resistance.

S1=Test selection switch.



4.2、 AC Testing Waveforms

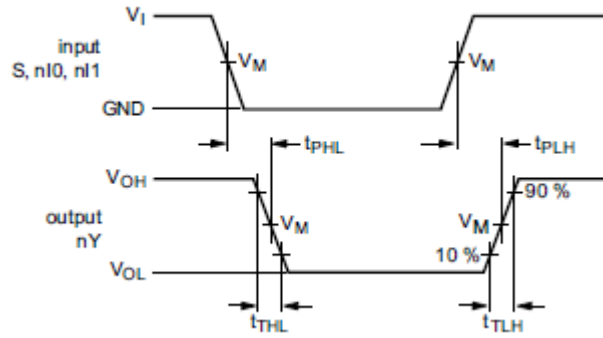


Figure 6. Propagation delays input (S, nI0, nI1) to output (nY) and output (nY) transition times

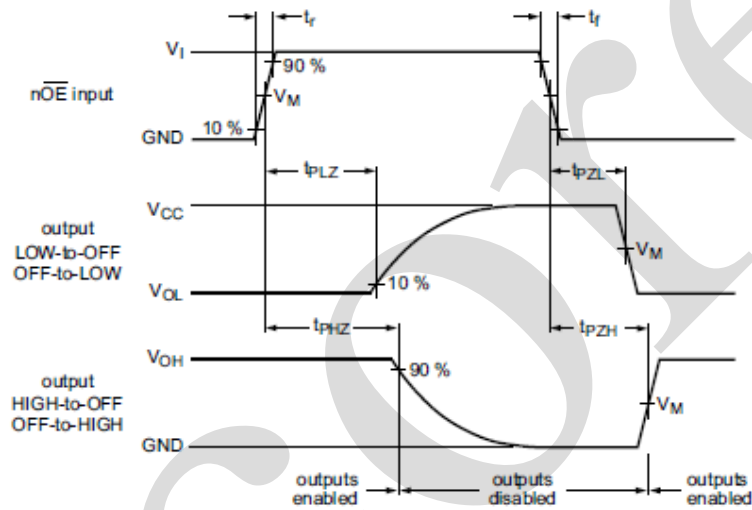


Figure 7. 3-state output enable and disable times

4.3、 Measurement Points

Type	Input	Output
	V_M	V_M
AiP74HC257	$0.5 \times V_{CC}$	$0.5 \times V_{CC}$
AiP74HCT257	1.3V	1.3V

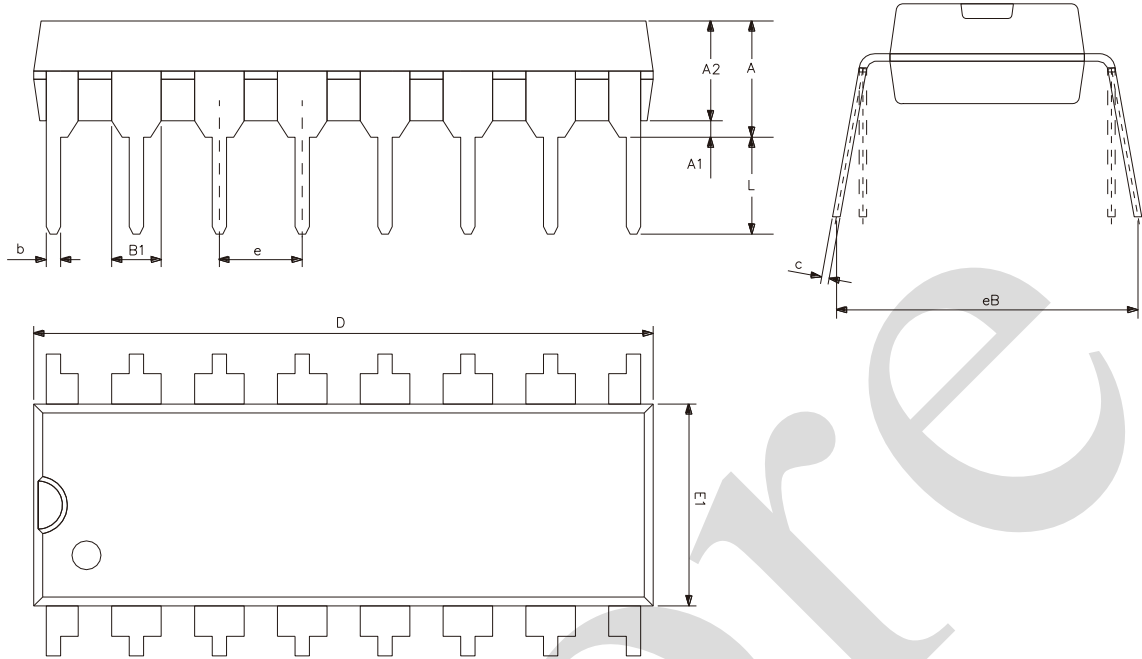
4.4、 Test Data

Type	Input		Load		S1 position		
	V_I	t_r, t_f	C_L	R_L	t_{PHL}, t_{PLH}	t_{PZH}, t_{PHZ}	t_{PZL}, t_{PLZ}
AiP74HC257	V_{CC}	6ns	50pF	1k Ω	open	GND	V_{CC}
AiP74HCT257	3V	6ns	50pF	1k Ω	open	GND	V_{CC}



5、 Package Information

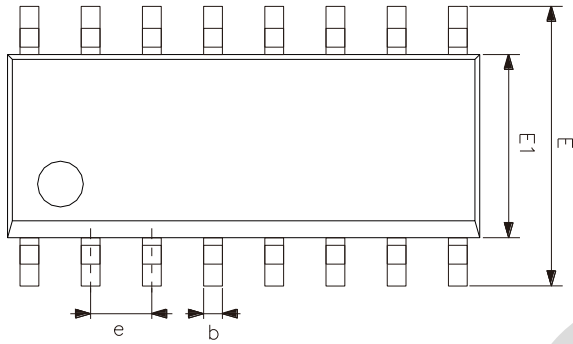
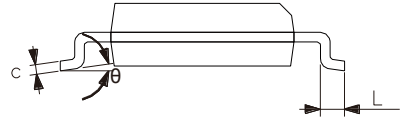
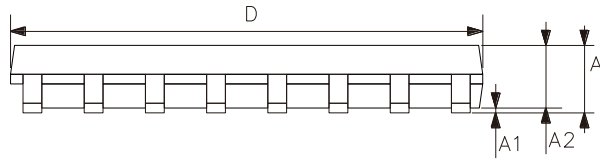
5.1、 DIP16



Symbol	Dimensions (mm)	
	Min.	Max.
A2	3.20	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



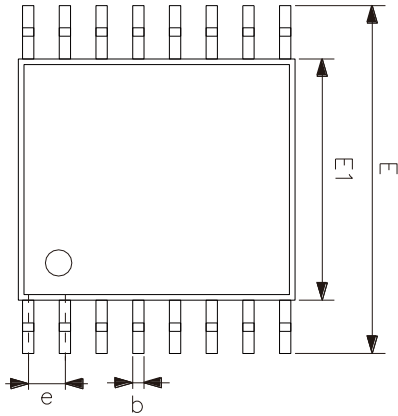
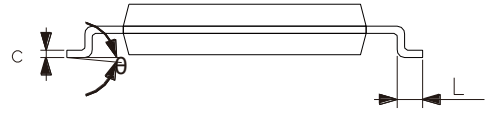
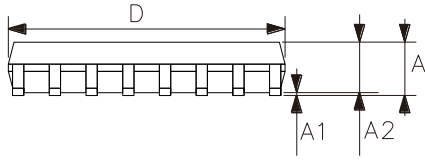
5.2、SOP16



Symbol	Dimensions (mm)	
	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°



5.3. TSSOP16



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
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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