AiP74ACT245
Octal Bus Transceiver; 3-State

Product Specification

Specification Revision History：

Version	Date	Description
2025-02-A0	2025-02	New
2025-05-A1	2025-05	Modify the parameters

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 5
2.4、Function Table 5
3、Electrical Parameter 6
3.1、Absolute Maximum Ratings 6
3.2、Recommended Operating Conditions 6
3.3、Electrical Characteristics 6
3.3.1、DC Characteristics 6
3.3.2、AC Characteristics 7
4、Testing Circuit 7
4.1、AC Testing Circuit 7
4.2、Test Data 7
4.3、AC Testing Waveforms 8
4.4、Measurement Points 8
5、Package Information 9
5.1、DIP20 9
5.2、SOP20 10
5.3、TSSOP20 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

i-core

1、General Description

The AiP74ACT245 are octal bus transceivers with 3-state outputs.

Features:

- Supply voltage range:4.5V to 5.5V
- Input levels:TTL level
- Temperature range:-40℃ to +125℃
- Packaging information: DIP20/SOP20/TSSOP20

Ordering Information:

Tube packing specifications:

Part number	Packaging form	Marking code	Tube quantity	Boxed tube quantity	Boxed quantity	Notes
AiP74ACT245DA20.TB	DIP20	74ACT245	18 PCS/tube	40 tube/box	720 PCS/box	Dimensions of plastic enclosure: 26.3mm×6.4mm Pin spacing: 2.54mm

Reel packing specifications:

Part number	Packaging form	Marking code	Reel quantity	Boxed reel quantity	Notes
AiP74ACT245SA20.TR	SOP20	74ACT245	2000 PCS/reel	2000 PCS/box	Dimensions of plastic enclosure: 12.8mm×7.5mm Pin spacing: 1.27mm
AiP74ACT245TA20.TR	TSSOP20	74ACT245	4000 PCS/reel	8000 PCS/box	Dimensions of plastic enclosure: 6.5mm×4.4mm Pin spacing: 0.65mm

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

i-core

2、Block Diagram And Pin Description

2.1、Block Diagram

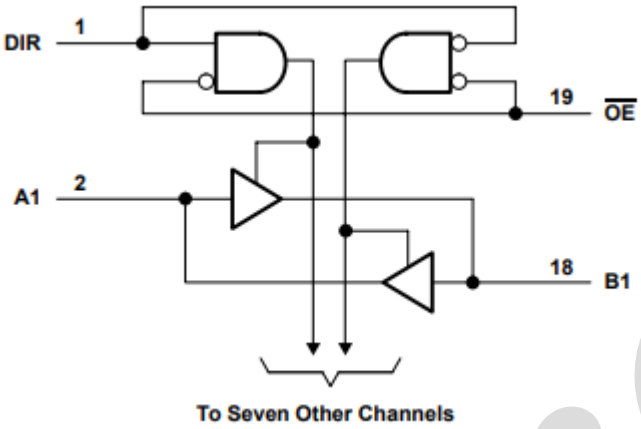


Figure 1. Logic symbol

2.2、Pin Configurations

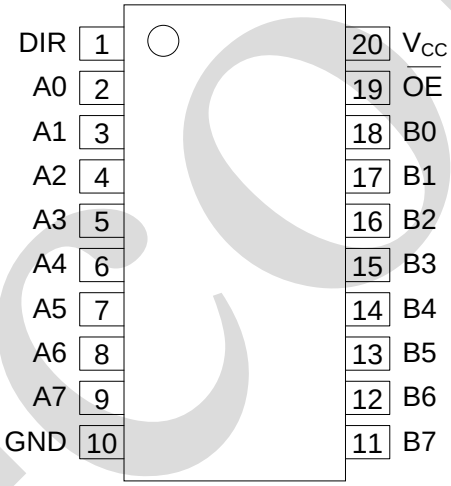


Figure 2. Pin Configurations

i-core

2.3、Pin Description

Pin No.	Pin Name	Description
1	DIR	direction-control
2	A0	data input /output
3	A1	data input /output
4	A2	data input /output
5	A3	data input /output
6	A4	data input /output
7	A5	data input /output
8	A6	data input /output
9	A7	data input /output
10	GND	ground (0V)
11	B7	data input /output
12	B6	data input /output
13	B5	data input /output
14	B4	data input /output
15	B3	data input /output
16	B2	data input /output
17	B1	data input /output
18	B0	data input /output
19	$\overline{OE}$	output enable input (active LOW)
20	V_{CC}	supply voltage

2.4、Function Table

Input		Operation
$\overline{OE}$	DIR	
L	L	B data to A bus
L	H	A data to B bus
H	X	isolation

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

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
continuous supply current	I_{CC}	-		-	200	mA
continuous ground current	I_{GND}	-		-200	-	mA
input clamping current	I_{IK}	V_I<0V or V_I>V_{CC}		-	±20	mA
output clamping current	I_{OK}	V_O<0V or V_O>V_{CC}		-	±20	mA
continuous output current	I_O	V_O=0 to V_{CC}		-	±50	mA
storage temperature	T_{stg}	-		-65	+150	℃
soldering temperature	T_L	10s	DIP	245		℃
			SOP/TSSOP	260		

3.2、Recommended Operating Conditions

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
supply voltage	V_{CC}	-	4.5	-	5.5	V
input voltage	V_I	-	0	-	V_{CC}	V
output voltage	V_O	-	0	-	V_{CC}	V
High-level output current	I_{OH}	-	-	-	-24	mA
Low-level output current	I_{OL}	-	-	-	24	mA
ambient temperature	T_{amb}	-	-40	-	+125	℃

3.3、Electrical Characteristics

3.3.1、DC Characteristics

(T_{amb}=-40℃ to +125℃, 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}	4.5~5.5V	-	2	-	-	V
LOW-level input voltage	V_{IL}	4.5~5.5V	-	-	-	0.8	V
HIGH-level output voltage	V_{OH}	4.5V	I_O=-50uA	4.4	4.49	-	V
			I_O=-24mA	3.76	-	-	V
		5.5V	I_O=-50uA	5.4	-	-	V
			I_O=-24mA	4.76	-	-	V
			I_O=-75mA	3.85	-	-	V
LOW-level output voltage	V_{OL}	4.5V	I_O=50uA	-	0.001	0.1	V
			I_O=24mA	-	-	0.44	V
		5.5V	I_O=50uA	-	0.001	0.1	V
			I_O=24mA	-	-	0.44	V
			I_O=75mA		-	1.65	V
input leakage current	I_I	5.5V	V_I=V_{CC} or GND	-	-	±20	uA
supply current	I_{CC}	5.5V	V_I=V_{CC} or GND; I_O=0A	-	-	200	uA
additional	ΔI_{CC}	5.5V	One input at V_I=V_{CC}-2.1V;	-	-	1.5	mA

supply current			Other inputs at V_{CC} or GND;I_O=0A				

3.3.2、AC Characteristics

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

Parameter	Symbol	V_{CC}	Conditions		Min.	Typ.	Max.	Unit
A to B to propagation delay	t_{PLH}	5.5V	C_L=50pF R_L=500Ω	see Figure 4	-	4	7.5	ns
	t_{PHL}				-	4	8	
$\overline{OE}$ to A/B enable time	t_{PZH}				-	5	10	
	t_{PZL}				-	5.5	10	
$\overline{OE}$ to A/B enable time	t_{PHZ}				-	5.5	10	
	t_{PLZ}				-	5	10	

4、Testing Circuit

4.1、AC Testing Circuit

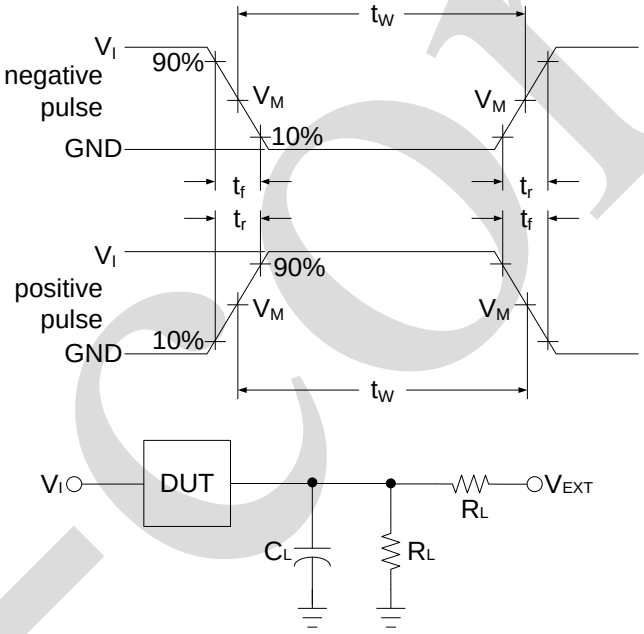


Figure 3. Test circuit for measuring switching times

C_L includes probe and jig capacitance.

4.2、Test Data

Supply voltage	Input		Load		V_{EXT}
V_{CC}	V_I	$t_r = t_f$	C_L	R_L	t_{PLH}/t_{PHL}
5.5V	V_{CC}	≤2.5ns	50pF	500Ω	Open

4.3、AC Testing Waveforms

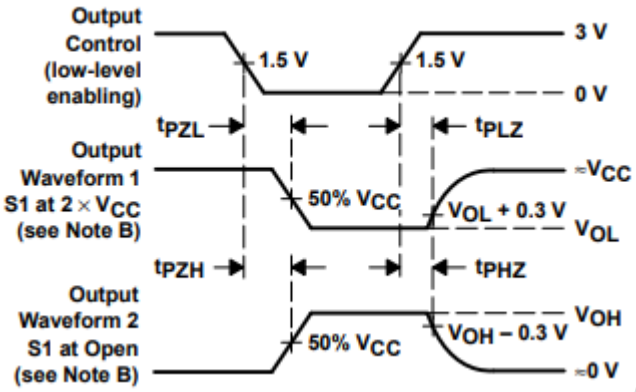


Figure 4. The data input ($\overline{OE}$) to input/output (A or B) propagation delays

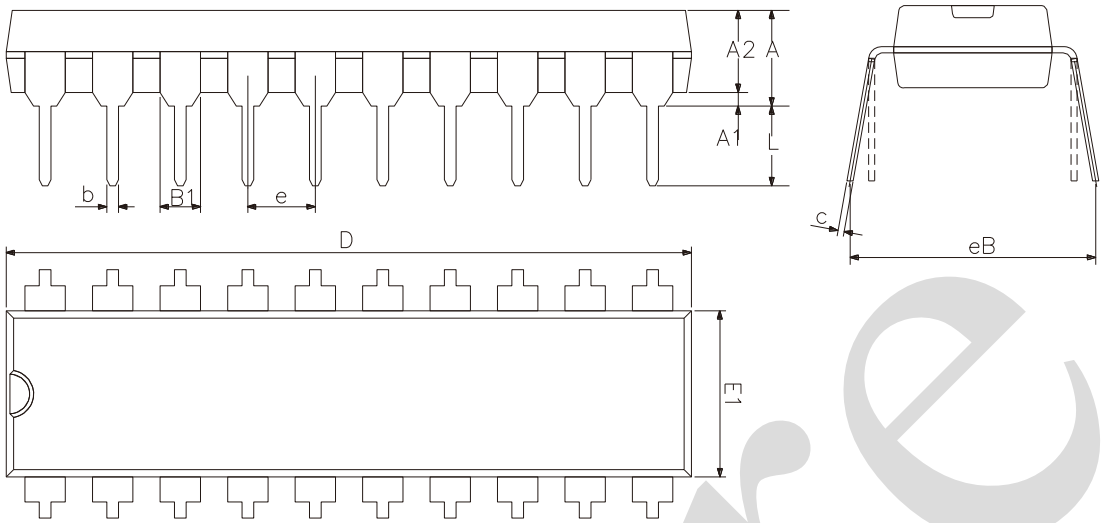
4.4、Measurement Points

Supply voltage	Input	Output
V_{CC}	V_M	V_M
5.5V	$0.5\times V_{CC}$	$0.5\times V_{CC}$

i-core

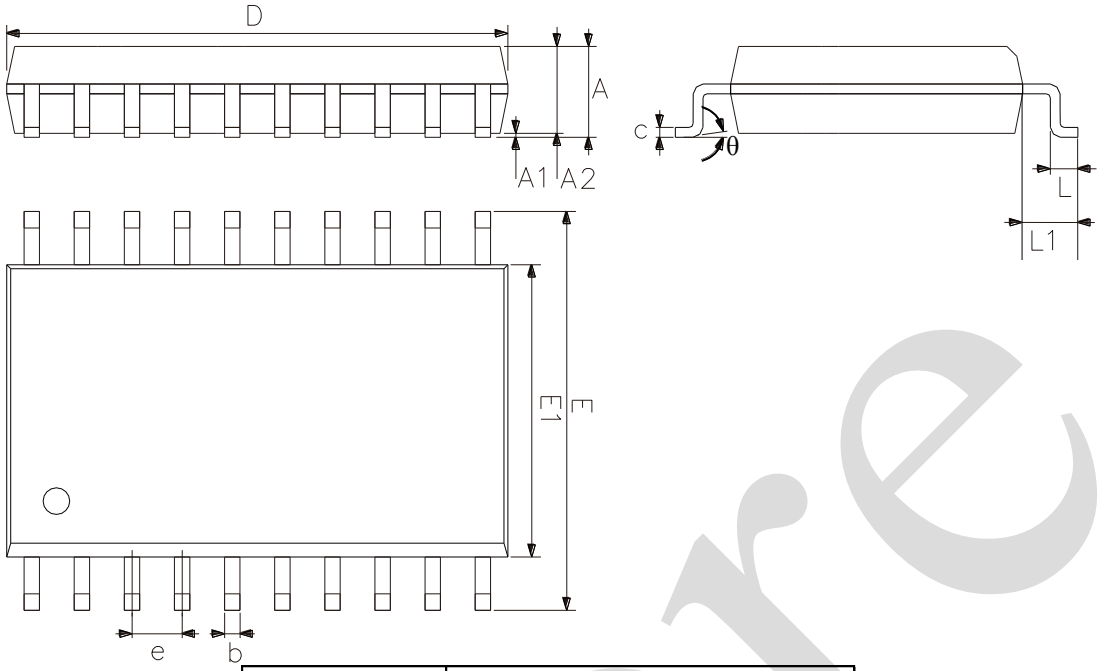
5、Package Information

5.1、DIP20



2023/12/A	Dimensions In Millimeters	
Symbol	**Min**	**Max**
A	3.60	5.33
A1	0.51	—
A2	3.20	3.60
b	0.36	0.53
B1	1.52	
c	0.204	0.36
D	25.70	26.54
E1	6.20	6.75
e	2.54	
eB	7.62	9.30
L	3.00	3.60

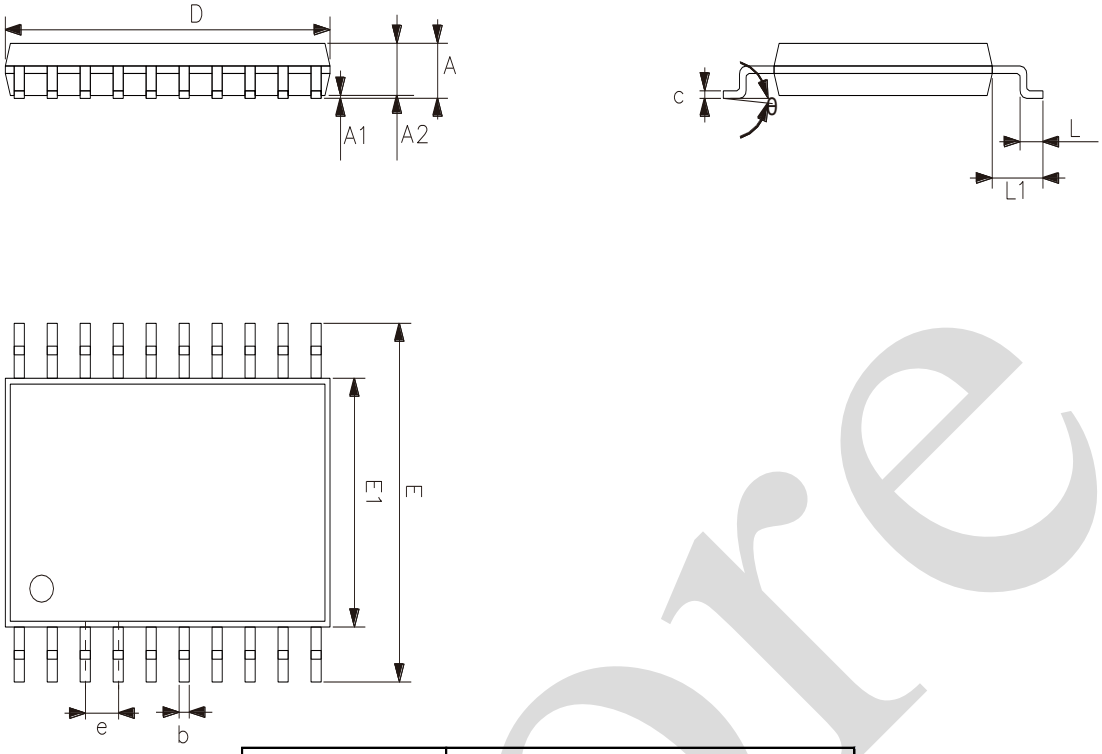
5.2、SOP20



2023/12/A	Dimensions In Millimeters	
Symbol	**Min.**	**Max.**
A	2.47	2.65
A1	0.05	0.30
A2	2.20	2.44
b	0.35	0.50
c	0.15	0.30
D	12.54	12.94
E	10.00	10.60
E1	7.30	7.70
e	1.27	
L	0.40	1.05
L1	1.30	1.50
θ	0°	8°

i-core

5.3、TSSOP20



2023/12/A	Dimensions In Millimeters	
Symbol	**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	6.40	6.60
E1	4.30	4.50
E	6.20	6.60
e	0.65	
L	0.45	0.75
L1	1.00	
θ	0°	8°

i-core

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

We recommend you to read this chapter carefully before using this product.

The information in this chapter is provided for reference only and i-Core disclaims any express or implied warranties, including but not limited to applicability, special application or non-infringement of third party rights.

This product is not suitable for critical equipment such as life-saving, life-sustaining or safety equipment. It is also not suitable for applications that may result in personal injury, death, or serious property or environmental damage due to product malfunction or failure. I-Core will not be liable for any damages incurred by the customers at their own risk for such applications.

The customer is responsible for conducting all necessary tests i-Core's application to avoid failure in the application or the application of the customer' s third party users. I-Core does not accept any liability.

The Company reserves the right to change or improve the information published in this chapter at any time. The information in this chapter are subject to change without notice. We recommend the customer to consult our sales staff before purchasing.

Please obtain related materials form i-Core's regular channels and we are not responsible for its content if it is provided by sources other than our company.

In case of any conflict between the Chinese and English version, the version is subject to the Chinese one.