



AiP74CBT3126

4-Bit Bus Switch

Product Specification

Specification Revision History:

Version	Date	Description
2024-12-A0	2024-12	New
2025-03-A1	2025-03	Modify the parameters
2026-07-A2	2026-07	Add VQFN14 and SSOP16 package forms



Contents

1、General Description.....	1
2、Block Diagram And Pin Description	2
2.1、Block Diagram	2
2.2、Pin Configurations.....	2
2.3、Pin Description.....	3
2.4、Function Table.....	3
3、Electrical Parameter	3
3.1、Absolute Maximum Ratings.....	3
3.2、Recommended Operating Conditions.....	4
3.3、Electrical Characteristics.....	4
3.3.1、DC Characteristics.....	4
3.3.2、AC Characteristics.....	4
4、Testing Circuit	5
4.1、AC Testing Circuit	5
4.2、Testing Data	5
4.3、AC Testing Waveforms.....	5
4.4、Measurement Points	6
5、Package Information	7
5.1、SOP14	7
5.2、TSSOP14.....	8
5.3、VQFN14.....	9
5.4、SSOP16.....	10
6、Statements And Notes	11
6.1、The name and content of Hazardous substances or Elements in the product	11
6.2、Notes	11

**1、General Description**

AiP74CBT3126 is a 4-Bit bus switch circuit. Each bit is controlled by the separate enable port (nOE) and enable ports are all Schmitt design.

Features:

- Power Supply Voltage: 4.5V to 5.5V
- ON Resistance typical: 5Ω
- CMOS low power consumption
- Operating Temperature: -40℃ to +125℃
- Package information: SOP14/TSSOP14/VQFN14/SSOP16

Ordering Information:**Reel packing specifications:**

Part number	Packaging form	Marking code	Reel quantity	Boxed reel quantity	Notes
AiP74CBT3126SA14.TR	SOP14	74CBT3126	4000PCS/reel	8000PCS/box	Dimensions of plastic enclosure: 8.7mm×3.9mm Pin spacing: 1.27mm
AiP74CBT3126TA14.TR	TSSOP14	74CBT3126	5000PCS/reel	10000PCS/box	Dimensions of plastic enclosure: 5.0mm×4.4mm Pin spacing: 0.65mm
AiP74CBT3126QK14.TR	VQFN14	CBT3126	5000PCS/reel	10000PCS/box	Dimensions of plastic enclosure: 3.5mm×3.5mm Pin spacing: 0.5mm
AiP74CBT3126VB16.TR	SSOP16	74CBT3126	4000PCS/reel	8000PCS/box	Dimensions of plastic enclosure: 4.9mm×3.9mm Pin spacing: 0.635mm

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

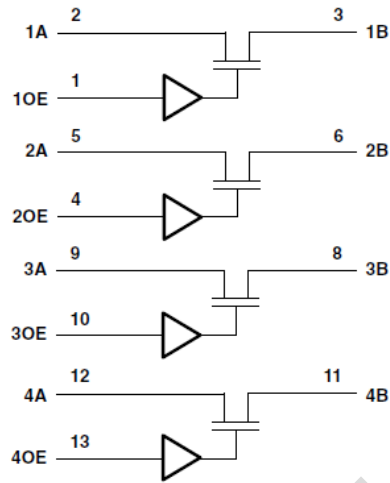
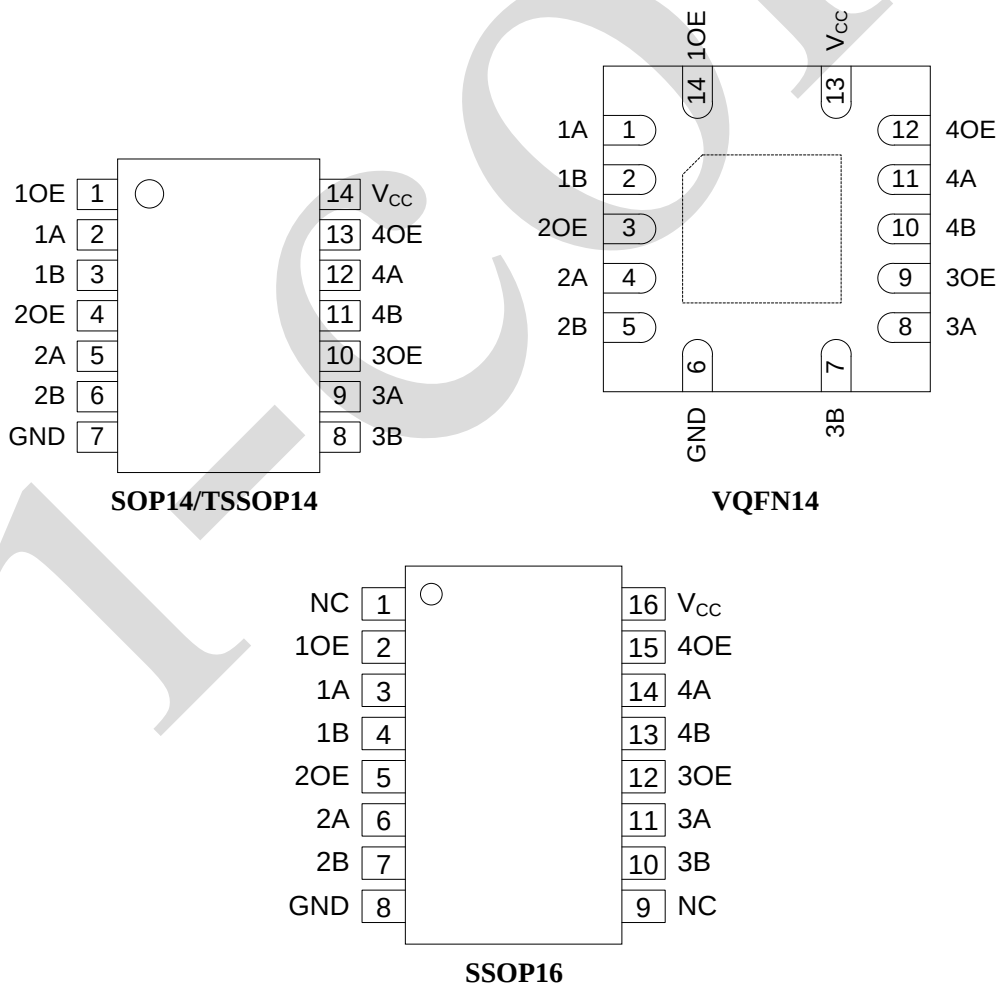


Figure 1. Block Diagram

2.2、Pin Configurations





2.3、Pin Description

Pin No.			Pin Name	Description
SOP14/TSSOP14	VQFN14	SSOP16		
1	14	2	1OE	output enable input (active HIGH)
2	1	3	1A	input/output
3	2	4	1B	input/output
4	3	5	2OE	output enable input (active HIGH)
5	4	6	2A	input/output
6	5	7	2B	input/output
7	6	8	GND	ground (0V)
8	7	10	3B	input/output
9	8	11	3A	input/output
10	9	12	3OE	output enable input (active HIGH)
11	10	13	4B	input/output
12	11	14	4A	input/output
13	12	15	4OE	output enable input (active HIGH)
14	13	16	V _{CC}	power supply voltage
-	-	1, 9	NC	not connected

2.4、Function Table

Input	Input/Output
nOE	
H	
L	
	nA=nB
	Z

Note: H=HIGH voltage level; L=LOW voltage level; Z=high-impedance OFF-state.

3、Electrical Parameter

3.1、Absolute Maximum Ratings

Characteristic	Symbol	Conditions	Min.	Max.	Unit
supply voltage	V _{CC}	-	-0.5	+7.0	V
input voltage	V _I	input port nOE	-0.5	+7.0	V
switch voltage	V _{SW}	-	-0.5	+7.0	V
input clamping current	I _{IK}	V _I <-0.5V	-50	-	mA
switch clamping current	I _{SK}	V _I <-0.5V	-50	-	mA
switch current	I _{SW}	-	-	±120	mA
supply current	I _{CC}	-	-	+100	mA
ground current	I _{GND}	-	-100	-	mA
storage temperature	T _{stg}	-	-65	+150	°C
total power dissipation	P _{tot}	-40°C to +125°C	-	500	mW
soldering temperature	T _L	10s	260		°C



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	input port nOE	0	-	5.5	V
switch voltage	V_{SW}	-	0	-	5.5	V
operating temperature	T_{amb}	-	-40	-	+125	°C

3.3、Electrical Characteristics

3.3.1、DC Characteristics

($T_{amb}=-40^{\circ}\text{C}\sim+125^{\circ}\text{C}$, GND=0V, unless otherwise specified)

Parameter	Symbol	V_{CC}	Conditions	Min.	Typ.	Max.	Unit
HIGH-Level input voltage	V_{IH}	4.5V to 5.5V	pin nOE	2.0	-	-	V
LOW-Level input voltage	V_{IL}	4.5V to 5.5V	pin nOE	-	-	0.8	V
input clamping voltage	V_{IK}	4.5V	nA, nB pin; $I_I=-18\text{mA}$	-	-	-1.2	V
input leakage current	I_I	5.5V	pin nOE; $V_I=\text{GND to } 5.5\text{V}$	-	-	± 1	μA
supply current	I_{CC}	5.5V	$V_I=V_{CC}$ or GND; $I_O=0\text{A}$; $V_{SW}=\text{GND or } V_{CC}$	-	-	3	μA
additional supply current	ΔI_{CC}	5.5V	pin nOE; $V_I=3.4\text{V}$; $V_{SW}=\text{GND or } V_{CC}$	-	-	2.5	mA
ON resistance	R_{ON}	4.5V	$I_{sw}=64\text{mA}$; $V_I=0\text{V}$	-	5	7	Ω
			$I_{sw}=30\text{mA}$; $V_I=0\text{V}$	-	5	7	Ω
			$I_{sw}=15\text{mA}$; $V_I=2.4\text{V}$	-	10	15	Ω

Note:

[1] All the typical values are measured at $V_{CC}=5\text{V}$ (unless otherwise specified) and $T_{amb}=25^{\circ}\text{C}$.

3.3.2、AC Characteristics

($T_{amb}=-40^{\circ}\text{C}\sim+125^{\circ}\text{C}$, GND=0V, unless otherwise specified)

Parameter	Symbol	V_{CC}	Conditions	Min.	Typ.	Max.	Unit
propagation delay	t_{PLH} , t_{PHL}	4.5V to 5.5V	nA to nB; nB to nA see Figure 3	-	-	0.25	ns
enable time	t_{PZH} , t_{PZL}	4.5V to 5.5V	OE to nA/nB see Figure 4	-	-	5.1	ns
disable time	t_{PLZ} , t_{PHZ}	4.5V to 5.5V	OE to nA/nB see Figure 4	-	-	4.5	ns



4、Testing Circuit

4.1、AC Testing Circuit

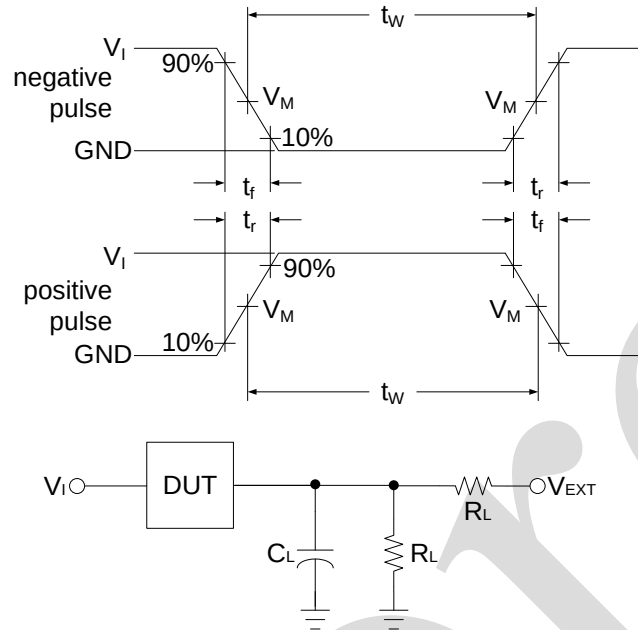


Figure 2. Load circuit

Definitions for test circuit:

R_L =Load resistance.

C_L =Load capacitance including jig and probe capacitance.

4.2、Testing Data

Supply voltage	Input		Load		V_{EXT}		
V_{CC}	V_I	t_r, t_f	C_L	R_L	t_{PLH}, t_{PHL}	t_{PHZ}, t_{PZH}	t_{PLZ}, t_{PZL}
4.5V to 5.5V	GND to 3.0V	$\leq 2.5ns$	50pF	500 Ω	open	GND	7.0V

4.3、AC Testing Waveforms

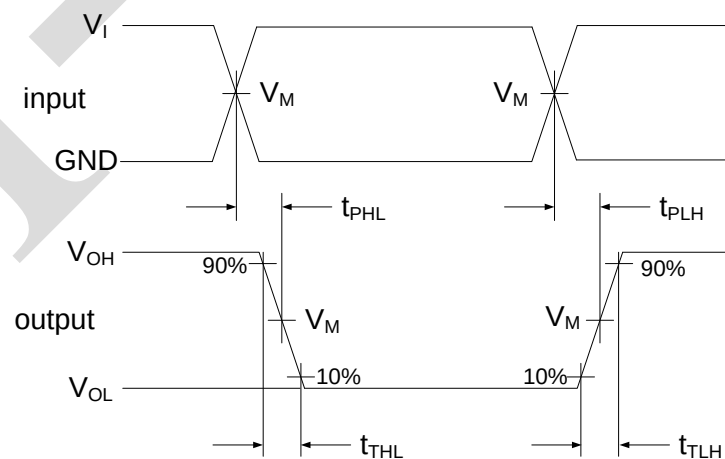


Figure 3. Input (nA/nB) to output (nB/nA) propagation delays

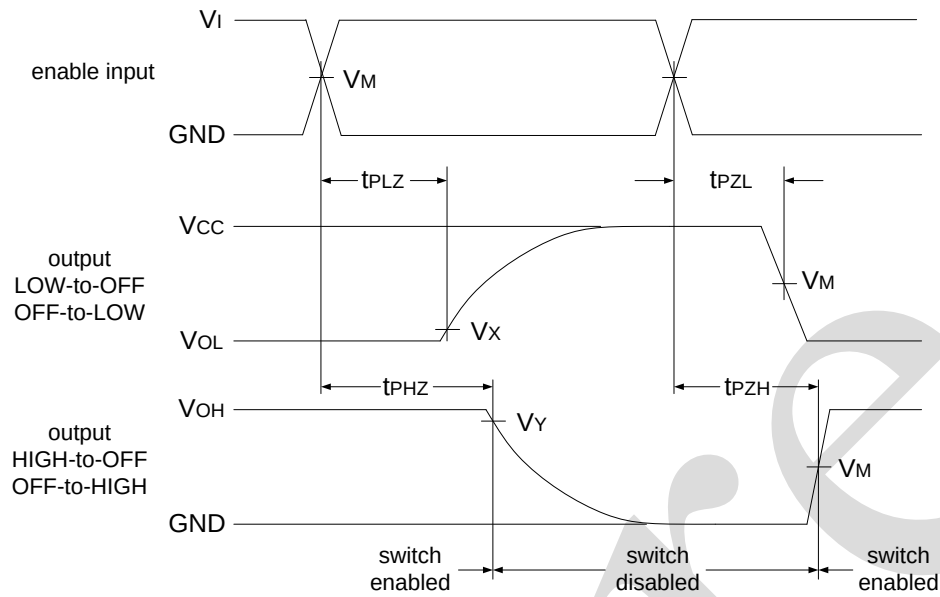


Figure 4. Enable and disable times

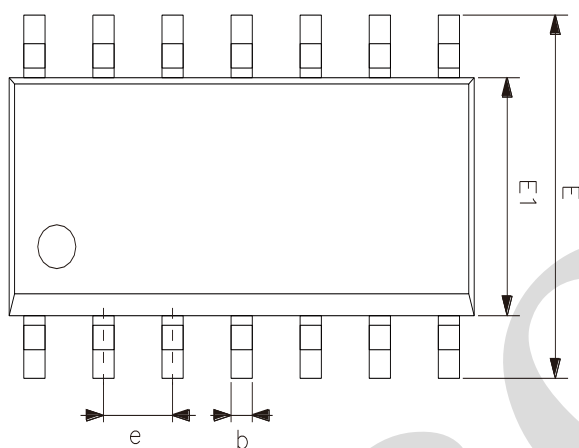
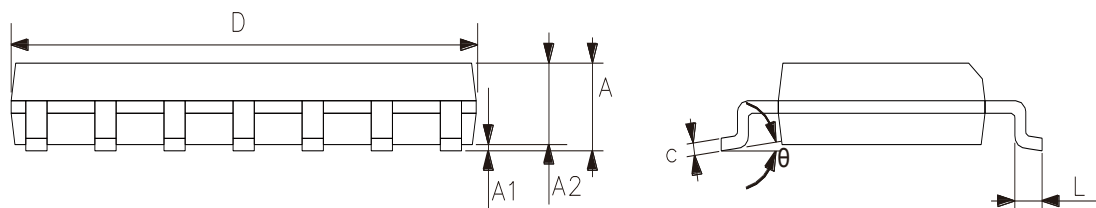
4.4、Measurement Points

Supply voltage	Input		Output		
V_{CC}	V_I	V_M	V_M	V_X	V_Y
4.5V to 5.5V	GND to 3.0V	1.5V	1.5V	$V_{OL}+0.3V$	$V_{OH}-0.3V$



5、Package Information

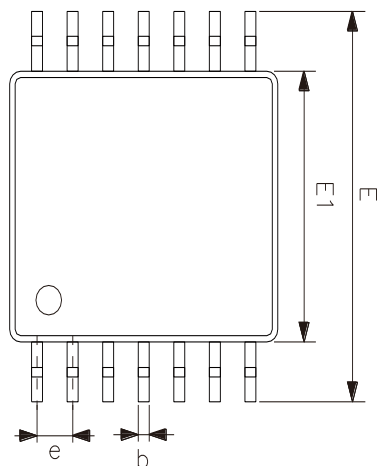
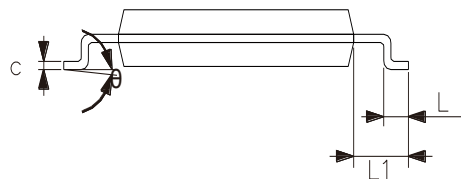
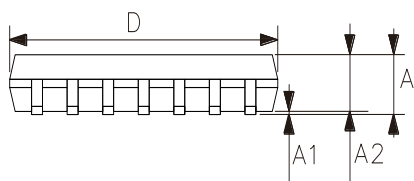
5.1、SOP14



2023/12/A	Dimensions In Millimeters	
Symbol	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°



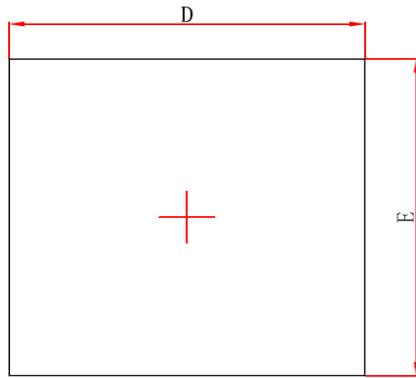
5.2、TSSOP14



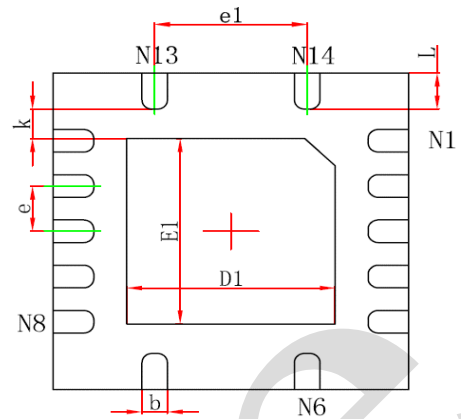
2023/12/A	Dimensions In Millimeters	
Symbol	Min	Max
A	—	1.20
A1	0.05	0.15
A2	0.80	1.05
b	0.19	0.30
c	0.09	0.20
D	4.90	5.10
E1	4.30	4.50
E	6.20	6.60
e	0.65	
L	0.45	0.75
L1	1.00	
θ	0°	8°



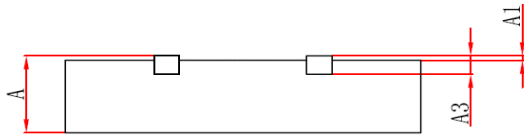
5.3、VQFN14



Top View

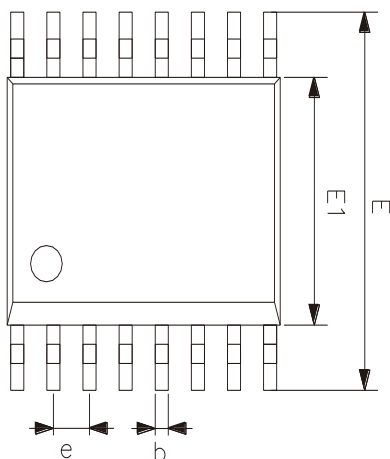
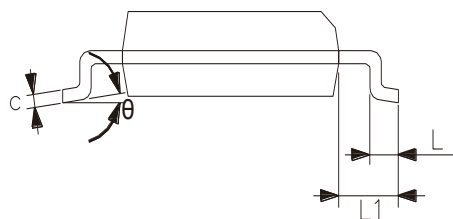
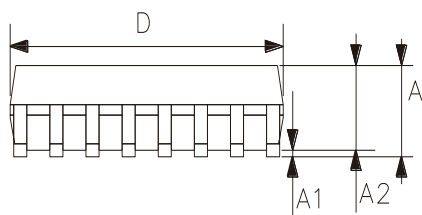


Bottom View



Side View

2024/08/A	Dimensions In Millimeters	
Symbol	Min	Max
A	0.70	0.90
A1	0	0.05
A3	0.203 REF	
D	3.424	3.576
E	3.424	3.576
D1	1.95	2.15
E1	1.95	2.15
k	0.20	—
b	0.20	0.30
e	0.50	
e1	1.50	
L	0.324	0.476

**5.4、SSOP16**

2023/12/A	Dimensions In Millimeters	
Symbol	Min	Max
A	—	1.75
A1	0.02	0.23
A2	1.30	1.50
b	0.23	0.31
c	0.20	0.24
D	4.70	5.10
E	5.80	6.25
E1	3.80	4.02
e	0.635	
L	0.45	0.80
L1	1.05	
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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