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HD74AC126/HD74ACT126

Quad Buffer/Line Driver with 3-State Output

Description

The HD74AC126/HD74ACT126 is an quad buffer and line driver designed to be employed as a memory address driver, clock driver and bus oriented transmitter/receiver which provides improved PC board density.

Features

- 3-State Outputs Drive Bus Lines or Buffer Memory Address Registers
- Outputs Source/Sink 24 mA
- HD74ACT126 has TTL-Compatible Inputs
- Ordering Information: Ex. HD74AC126

| Part Name	Package Type	Package Code	Package Abbreviation	Taping Abbreviation (Quantity)
HD74AC126FPEL	SOP-14 pin (JEITA)	FP-14DAV	FP	EL (2,000 pcs/reel)
HD74AC126RPEL	SOP-14 pin (JEDEC)	FP-14DNV	RP	EL (2,500 pcs/reel)

Notes: 1. Please consult the sales office for the above package availability.
2. The packages with lead-free pins are distinguished from the conventional products by adding V at the end of the package code.

Pin Arrangement

(Top view)

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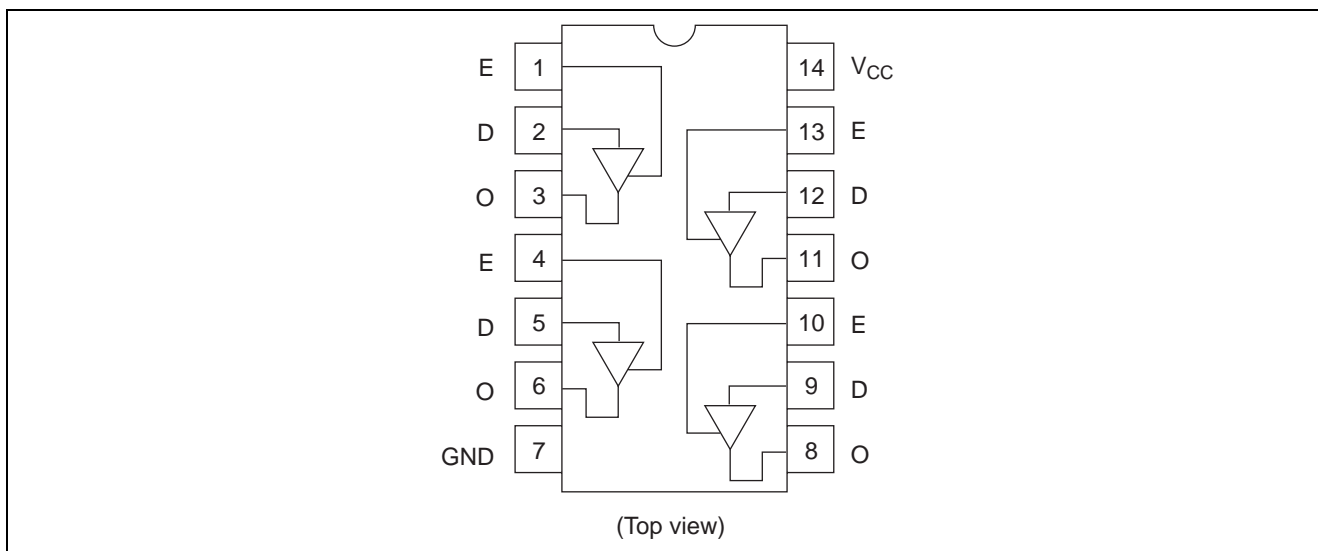
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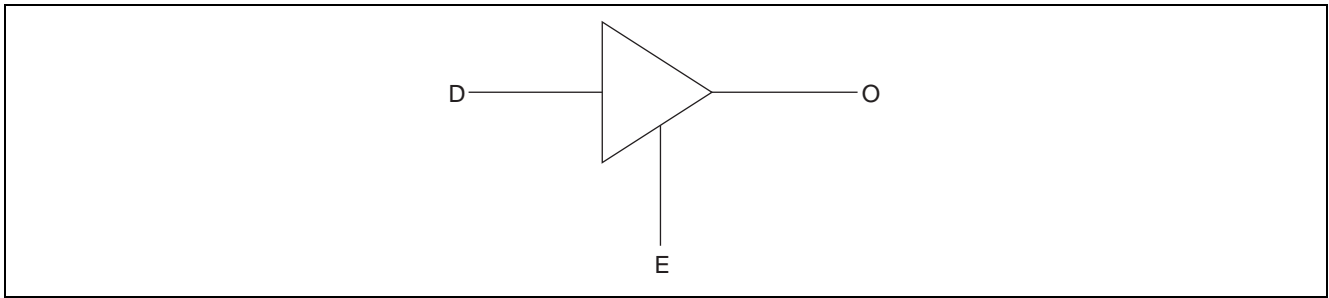
Pin Names

D   Data Inputs
E   3-State Output Enable Inputs (Active High)
O   Outputs

Truth Table

Inputs		Output
E	**D**	
H	L	L
H	H	H
L	X	Z

H : High Voltage Level

L : Low Voltage Level

X : Immaterial

Z : High Impedance

Absolute Maximum Ratings

Item	Symbol	Ratings	Unit	Condition
Supply voltage	V_{CC}	−0.5 to 7	V	
DC input diode current	I_{IK}	−20	mA	$V_I = -0.5V$
		20	mA	$V_I = Vcc+0.5V$
DC input voltage	V_I	−0.5 to Vcc+0.5	V	
DC output diode current	I_{OK}	−50	mA	$V_O = -0.5V$
		50	mA	$V_O = Vcc+0.5V$
DC output voltage	V_O	−0.5 to Vcc+0.5	V	
DC output source or sink current	I_O	±50	mA	
DC V_{CC} or ground current per output pin	I_{CC}, I_{GND}	±50	mA	
Storage temperature	Tstg	−65 to +150	°C	

Recommended Operating Conditions: HD74AC126

Item	Symbol	Ratings	Unit	Condition
Supply voltage	V_{CC}	2 to 6	V	
Input and Output voltage	V_I, V_O	0 to V_{CC}	V	
Operating temperature	Ta	−40 to +85	°C	
Input rise and fall time (except Schmitt inputs) V_{IN} 30% to 70% V_{CC}	tr, tf	8	ns/V	V_{CC} = 3.0V
				V_{CC} = 4.5 V
				V_{CC} = 5.5 V

DC Characteristics: HD74AC126

Item	Sym-bol	Vcc (V)	Ta = 25°C			Ta = −40 to +85°C		Unit	Condition	
			min.	typ.	max.	min.	max.			
Input Voltage	V_{IH}	3.0	2.1	1.5	—	2.1	—	V	V_{OUT} = 0.1 V or V_{CC} −0.1 V	
		4.5	3.15	2.25	—	3.15	—			
		5.5	3.85	2.75	—	3.85	—			
	V_{IL}	3.0	—	1.50	0.9	—	0.9		V_{OUT} = 0.1 V or V_{CC} −0.1 V	
		4.5	—	2.25	1.35	—	1.35			
		5.5	—	2.75	1.65	—	1.65			
Output voltage	V_{OH}	3.0	2.9	2.99	—	2.9	—	V	V_{IN} = V_{IL} or V_{IH} I_{OUT} = −50 µA	
		4.5	4.4	4.49	—	4.4	—			
		5.5	5.4	5.49	—	5.4	—			
		3.0	2.58	—	—	2.48	—		V_{IN} = V_{IL} or V_{IH}	I_{OH} = −12 mA
		4.5	3.94	—	—	3.80	—			I_{OH} = −24 mA
		5.5	4.94	—	—	4.80	—			I_{OH} = −24 mA
	V_{OL}	3.0	—	0.002	0.1	—	0.1		V_{IN} = V_{IL} or V_{IH} I_{OUT} = 50 µA	
		4.5	—	0.001	0.1	—	0.1			
		5.5	—	0.001	0.1	—	0.1			
		3.0	—	—	0.32	—	0.37		V_{IN} = V_{IL} or V_{IH}	I_{OL} = 12 mA
		4.5	—	—	0.32	—	0.37			I_{OL} = 24 mA
		5.5	—	—	0.32	—	0.37			I_{OL} = 24 mA
Input leakage current	I_{IN}	5.5	—	—	±0.1	—	±1.0	µA	V_{IN} = V_{CC} or GND	
3 State current	I_{OZ}	5.5	—	—	±0.5	—	±5.0	µA	$V_{IN(OE)}$ = V_{IL}, V_{IH} V_{IN} = V_{CC} or GND V_{OUT} = V_{CC} or GND	
Dynamic output current*	I_{OLD}	5.5	—	—	—	86	—	mA	V_{OLD} = 1.1 V	
	I_{OHD}	5.5	—	—	—	−75	—	mA	V_{OHD} = 3.85 V	
Quiescent supply current	I_{CC}	5.5	—	—	8.0	—	80	µA	V_{IN} = V_{CC} or ground	

∗Maximum test duration 2.0 ms, one output loaded at a time.

Recommended Operating Conditions: HD74ACT126

Item	Symbol	Ratings	Unit	Condition
Supply voltage	V_{CC}	2 to 6	V	
Input and output voltage	V_I, V_O	0 to V_{CC}	V	
Operating temperature	Ta	−40 to +85	°C	
Input rise and fall time (except Schmitt inputs) V_{IN} 0.8 to 2.0 V	tr, tf	8	ns/V	V_{CC} = 4.5V V_{CC} = 5.5V

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DC Characteristics：HD74ACT126

Item	Sym-bol	V_{CC} (V)	Ta = 25°C			Ta = −40 to +85°C		Unit	Condition	
			min.	typ.	max.	min.	max.			
Input voltage	V_{IH}	4.5	2.0	1.5	—	2.0	—	V	V_{OUT} = 0.1 V or V_{CC}–0.1 V	
		5.5	2.0	1.5	—	2.0	—			
	V_{IL}	4.5	—	1.5	0.8	—	0.8		V_{OUT} = 0.1 V or V_{CC} –0.1 V	
		5.5	—	1.5	0.8	—	0.8			
Output voltage	V_{OH}	4.5	4.4	4.49	—	4.4	—	V	V_{IN} = V_{IL} or V_{IH} I_{OUT} = −50 μA	
		5.5	5.4	5.49	—	5.4	—			
		4.5	3.94	—	—	3.80	—		V_{IN} = V_{IL}	I_{OH} = −24 mA
		5.5	4.94	—	—	4.80	—			I_{OH} = −24 mA
	V_{OL}	4.5	—	0.001	0.1	—	0.1		V_{IN} = V_{IL} or V_{IH} I_{OUT} = 50 μA	
		5.5	—	0.001	0.1	—	0.1			
		4.5	—	—	0.32	—	0.37		V_{IN} = V_{IL}	I_{OL} = 24 mA
		5.5	—	—	0.32	—	0.37			I_{OL} = 24 mA
Input current	I_{IN}	5.5	—	—	±0.1	—	±1.0	μA	V_{IN} = V_{CC} or GND	
3 State current	I_{OZ}	5.5	—	—	±0.5	—	±5.0	μA	V_{IN} = V_{IL}, V_{IH} V_{OUT} = V_{CC} or GND	
I_{CC}/input current	I_{CCT}	5.5	—	0.6	—	—	1.5	mA	V_{IN} = V_{CC}–2.1 V	
Dynamic output current*	I_{OLD}	5.5	—	—	—	86	—	mA	V_{OLD} = 1.1 V	
	I_{OHD}	5.5	—	—	—	−75	—	mA	V_{OHD} = 3.85 V	
Quiescent supply current	I_{CC}	5.5	—	—	8.0	—	80	μA	V_{IN} = V_{CC} or ground	

*Maximum test duration 2.0 ms, one output loaded at a time.

AC Characteristics：HD74AC126

Item	Symbol	V_{CC} (V)*[1]	Ta = +25°C C_L = 50 pF			Ta = −40°C to +85°C C_L = 50 pF		Unit
			Min	Typ	Max	Min	Max	
Propagation Delay	t_{PLH}	3.3	1.0	6.5	9.0	1.0	10.0	ns
		5.0	1.0	5.5	7.0	1.0	7.5	
Propagation Delay	t_{PHL}	3.3	1.0	6.5	9.0	1.0	10.0	
		5.0	1.0	5.0	7.0	1.0	7.5	
Enable Time	t_{ZH}	3.3	1.0	6.5	12.5	1.0	13.0	
		5.0	1.0	5.5	9.0	1.0	9.5	
Enable Time	t_{ZL}	3.3	1.0	7.0	12.0	1.0	13.0	
		5.0	1.0	5.5	9.0	1.0	9.5	
Disable Time	t_{HZ}	3.3	1.0	8.0	12.0	1.0	12.5	
		5.0	1.0	6.5	10.0	1.0	10.5	
Disable Time	t_{LZ}	3.3	1.0	7.0	12.5	1.0	13.5	
		5.0	1.0	6.0	10.0	1.0	10.5	

Note: 1. Voltage Range 3.3 is 3.3 V ± 0.3 V

Voltage Range 5.0 is 5.0 V ± 0.5 V

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AC Characteristics: HD74ACT126

Item	Symbol	V_{CC} (V)*[1]	Ta = +25°C C_L = 50 pF			Ta = −40°C to +85°C C_L = 50 pF		Unit
			Min	Typ	Max	Min	Max	
Propagation Delay	t_{PLH}	5.0	1.0	6.5	9.0	1.0	10.0	ns
Propagation Delay	t_{PHL}	5.0	1.0	7.0	9.0	1.0	10.0	
Enable Time	t_{ZH}	5.0	1.0	6.0	9.0	1.0	10.0	
Enable Time	t_{ZL}	5.0	1.0	7.0	10.0	1.0	11.0	
Disable Time	t_{HZ}	5.0	1.0	8.0	10.5	1.0	11.5	
Disable Time	t_{LZ}	5.0	1.0	7.0	10.5	1.0	11.5	

Note: 1. Voltage Range 5.0 is 5.0 V ± 0.5 V

Capacitance

Item	Symbol	Typ	Unit	Condition
Input capacitance	C_{IN}	4.5	pF	V_{CC} = 5.5 V
Power dissipation capacitance	C_{PD}	45.0	pF	V_{CC} = 5.0 V

Package Dimensions

As of January, 2003

Unit: mm

10.06
10.5 Max

14   8

5.5

1   7

1.42 Max

2.20 Max

1.27

0.10 ± 0.10

*0.40 ± 0.06

△ 0.15

⊕ 0.12 Ⓜ

*Ni/Pd/Au plating

*0.20 ± 0.05

$7.80 ^{+0.20}_{-0.30}$

1.15

0° − 8°

0.70 ± 0.20
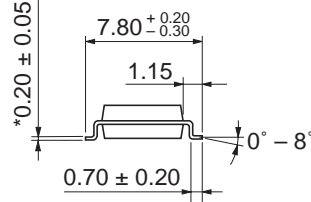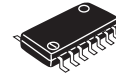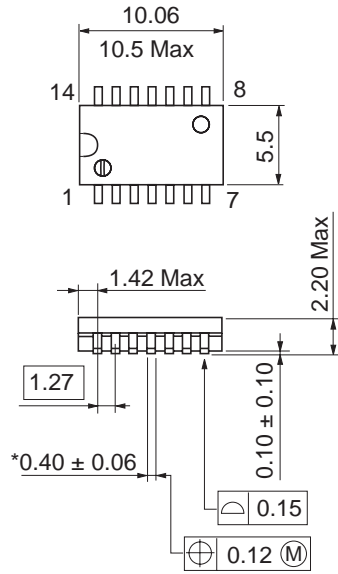
Package Code	FP-14DAV
JEDEC	—
JEITA	Conforms
Mass (reference value)	0.23 g

As of January, 2003

Unit: mm

8.65
9.05 Max

14   8

3.95

1   7

1.75 Max

0.635 Max

1.27

$0.14 ^{+0.11}_{-0.04}$

*0.40 ± 0.06

△ 0.15

⊕ 0.25 Ⓜ

*Ni/Pd/Au plating

*0.20 ± 0.05

$6.10 ^{+0.10}_{-0.30}$

1.08

0° − 8°

$0.60 ^{+0.67}_{-0.20}$
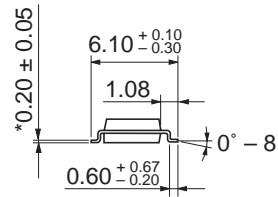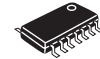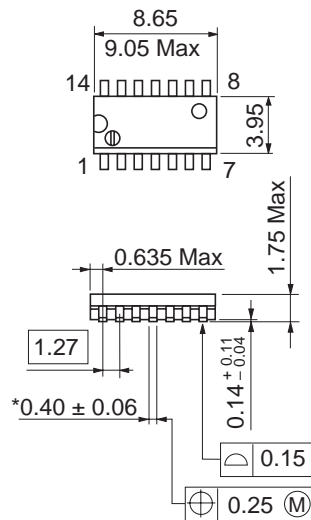
Package Code	FP-14DNV
JEDEC	Conforms
JEITA	Conforms
Mass (reference value)	0.13 g

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