

HD74HCT242/HD74HCT243

Quad. Bus Transceivers (with 3-state outputs)

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Description

The HD74HCT242 is an inverting buffer and the HD74HCT243 is a noninverting buffer. Each device has one active high enable (G_{BA}), and one active low enable ($\overline{G_{AB}}$). G_{BA} enables the A outputs and $\overline{G_{AB}}$ enables the B outputs.

The device does not have schmitt trigger inputs.

Features

- LSTTL Output Logic Level Compatibility as well as CMOS Output Compatibility
- High Speed Operation: t_{pd} (A to Y) = 9.5 ns typ ($C_L = 50$ pF)
- High Output Current: Fanout of 15 LSTTL Loads
- Wide Operating Voltage: $V_{CC} = 4.5$ to 5.5 V
- Low Input Current: $1 \mu A$ max
- Low Quiescent Supply Current: I_{CC} (static) = $4 \mu A$ max ($T_a = 25^\circ C$)

Function Table

Control Inputs		HD74HCT242		HD74HCT243	
		Data Port Status		Data Port Status	
$\overline{G_{AB}}$	G_{BA}	A	B	A	B
H	H	$\overline{O}$	I	O	I
L	H	Z	Z	Z	Z
H	L	Z	Z	Z	Z
L	L	I	$\overline{O}$	I	O

I : Input

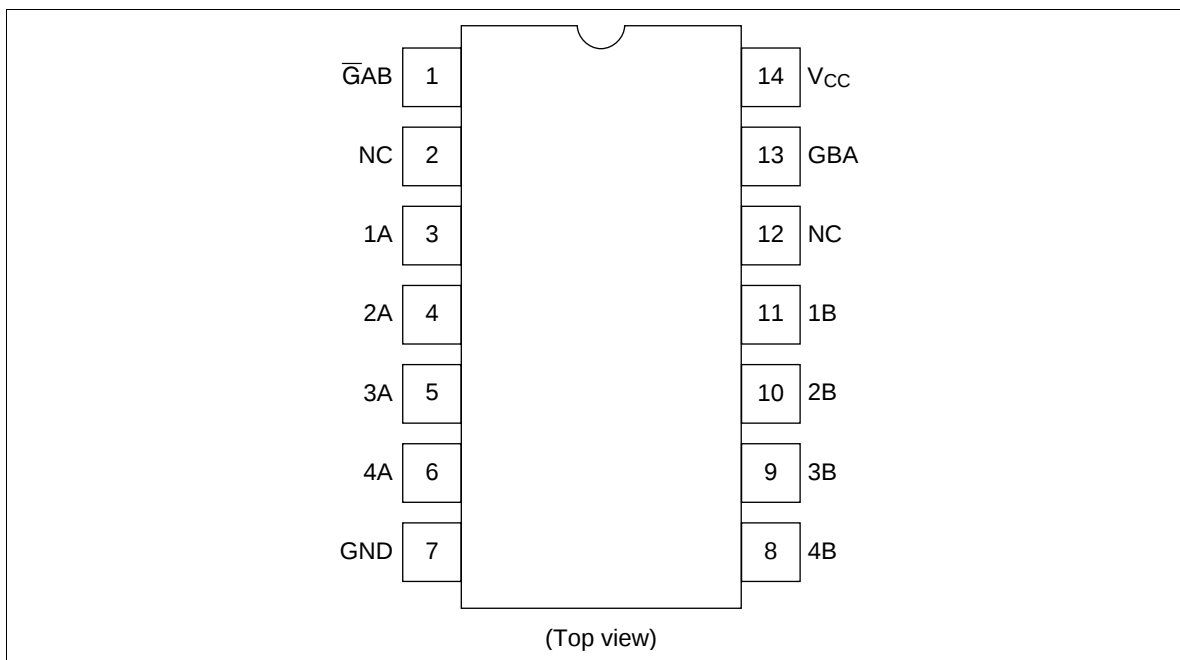
O : Output

$\overline{O}$: Inverting Output

Z : High Impedance

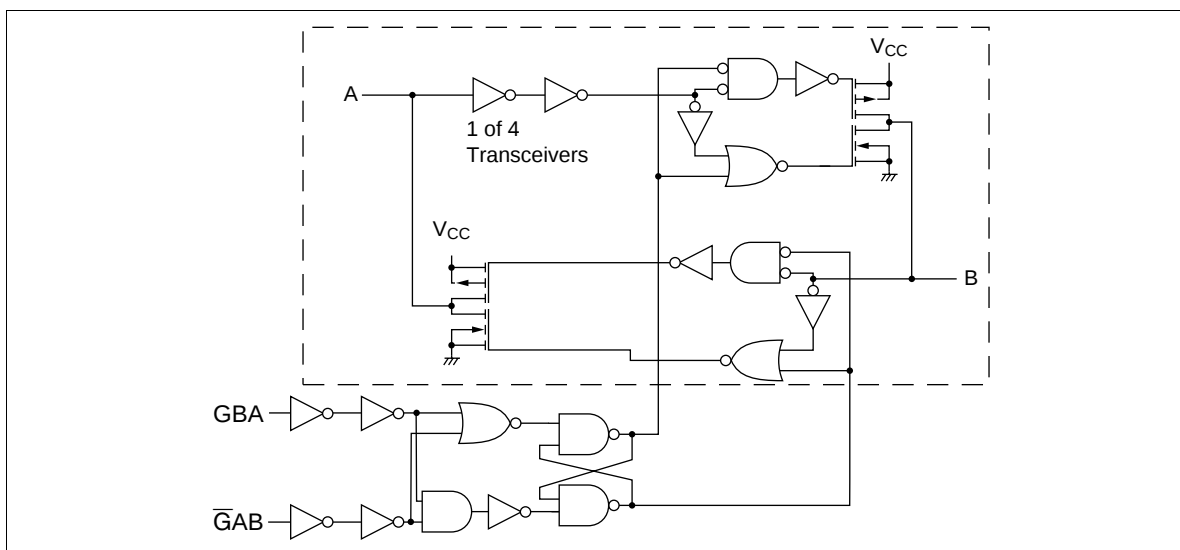
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Pin Arrangement



Block Diagram

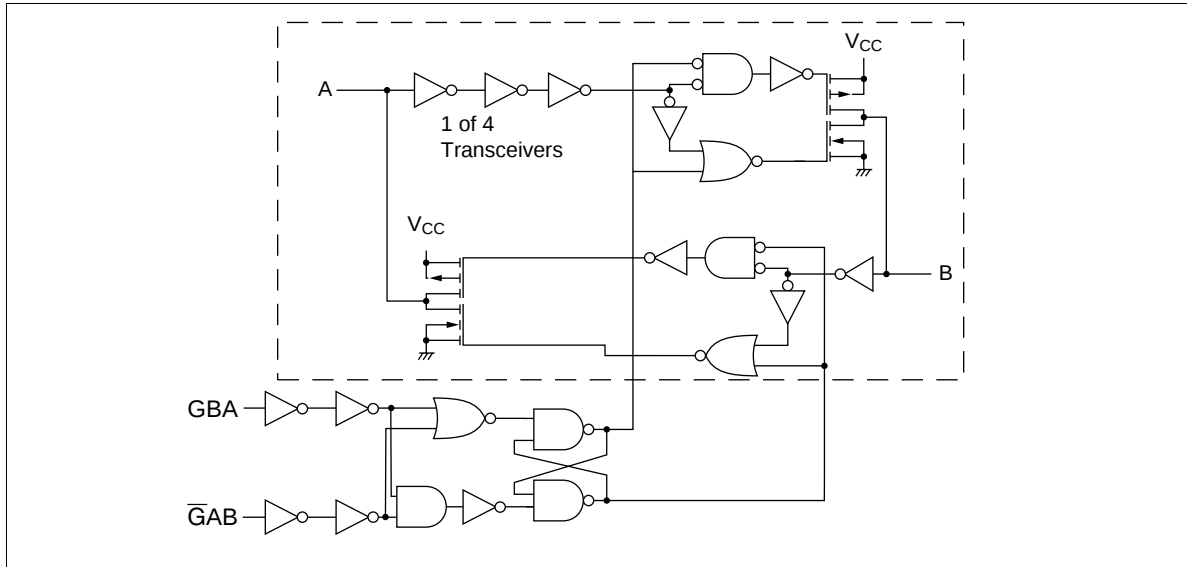
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Absolute Maximum Ratings

Item	Symbol	Rating	Unit
Supply voltage range	V_{CC}	-0.5 to +7.0	V
Input voltage	V_{IN}	-0.5 to $V_{CC} + 0.5$	V
Output voltage	V_{OUT}	-0.5 to $V_{CC} + 0.5$	V
DC current drain per pin	I_{OUT}	± 35	mA
DC current drain per V_{CC} , GND	I_{CC}, I_{GND}	± 75	mA
DC input diode current	I_{IK}	± 20	mA
DC output diode current	I_{OK}	± 20	mA
Power dissipation per package	P_T	500	mW
Storage temperature	Tstg	-65 to +150	°C

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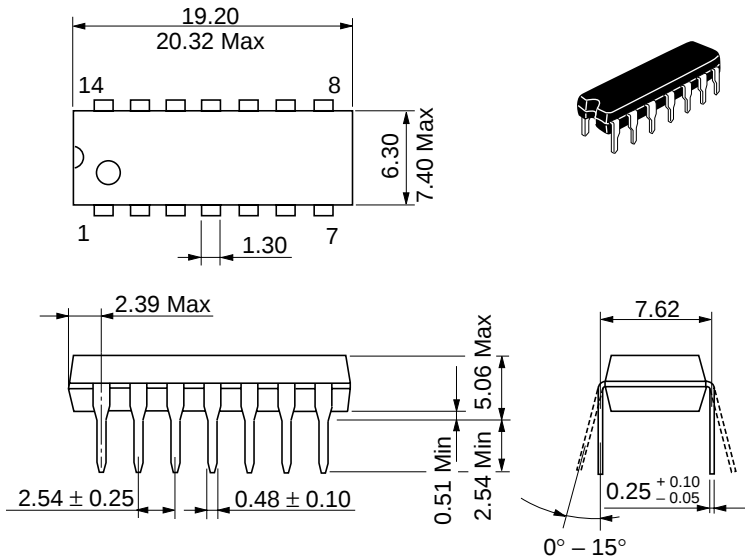
DC Characteristics

Item	Symbol	Ta = 25°C			Ta = -40 to +85°C		Unit	Test Conditions	
		Min	Typ	Max	Min	Max		V _{CC} (V)	
Input voltage	V _{IH}	2.0	—	—	2.0	—	V	4.5 to 5.5	
	V _{IL}	—	—	0.8	—	0.8	V	4.5 to 5.5	
Output voltage	V _{OH}	4.4	—	—	4.4	—	V	4.5	Vin = V _{IH} or V _{IL} , I _{OH} = -20 µA
		4.18	—	—	4.13	—		4.5	I _{OH} = -6 mA
	V _{OL}	—	—	0.1	—	0.1	V	4.5	Vin = V _{IH} or V _{IL} , I _{OL} = 20 µA
		—	—	0.26	—	0.33		4.5	I _{OL} = 6 mA
Off-state output current	I _{OZ}	—	—	±0.5	—	±5.0	µA	5.5	Vin = V _{IH} or V _{IL} , Vout = V _{CC} or GND
Input current	I _{in}	—	—	±0.1	—	±1.0	µA	5.5	Vin = V _{CC} or GND
Quiescent current	I _{CC}	—	—	4.0	—	40	µA	5.5	Vin = V _{CC} or GND, Iout = 0 µA

AC Characteristics (C_L = 50 pF, Input t_r = t_f = 6 ns)

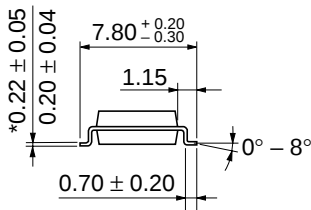
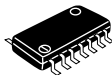
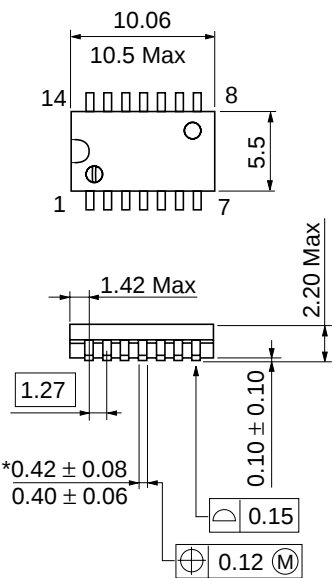
Item	Symbol	Ta = 25°C			Ta = -40 to +85°C		Unit	Test Conditions	
		Min	Typ	Max	Min	Max		V _{CC} (V)	
Propagation delay time	t _{PHL}	—	10	18	—	22	ns	4.5	
	t _{PLH}	—	9	18	—	22		4.5	
Output enable time	t _{ZL}	—	14	30	—	38	ns	4.5	
	t _{ZH}	—	13	30	—	38		4.5	
Output disable time	t _{LZ}	—	16	30	—	38	ns	4.5	
	t _{HZ}	—	17	30	—	38		4.5	
Output rise/fall time	t _{TLH} t _{THL}	—	4	12	—	15	ns	4.5	
Input capacitance	C _{in}	—	5	10	—	10	pF	—	

Unit: mm



Hitachi Code	DP-14
JEDEC	Conforms
EIAJ	Conforms
Weight (reference value)	0.97 g

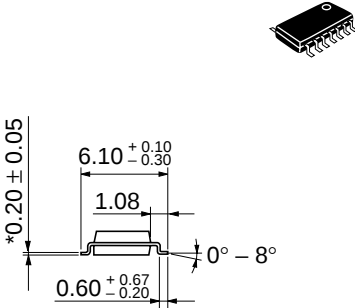
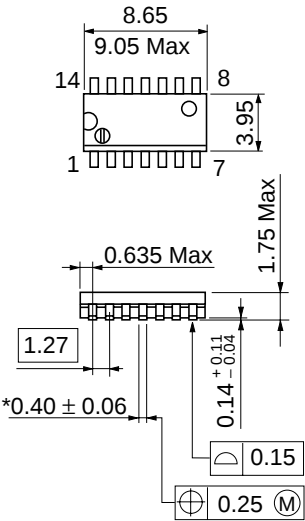
Unit: mm



*Dimension including the plating thickness
Base material dimension

Hitachi Code	FP-14DA
JEDEC	—
EIAJ	Conforms
Weight (reference value)	0.23 g

Unit: mm



Hitachi Code	FP-14DN
JEDEC	Conforms
EIAJ	Conforms
Weight (reference value)	0.13 g

*Pd plating

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