HD74HC242/HD74HC243

Quad. Bus Transceivers (with 3-state outputs)
Quad. Bus Transceivers (with noninverted 3-state outputs)

HITACHI

Description

The HD74HC242 is an inverting buffer and the HD74HC243 is a noninverting buffer. Each device has one active high enable (GBA), and one active low enable ($\overline{G}$AB). GBA enables the A output and $\overline{G}$AB enables the B outputs. The device does not have schmitt trigger inputs.

Features

- High Speed Operation: t_{pd} = 10 ns typ (C_L = 50 pF)
- High Output Current: Fanout of 15 LSTTL Loads
- Wide Operating Voltage: V_{CC} = 2 to 6 V
- Low Input Current: 1 µA max
- Low Quiescent Supply Current: I_{CC} (static) = 4 µA max (Ta = 25°C)

Function Table

		HD74HC242		HC74HC243	
Control inputs		**Data Port Status**		**Data Port Status**	
$\overline{G}$AB	GBA	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 : Hight Impedance

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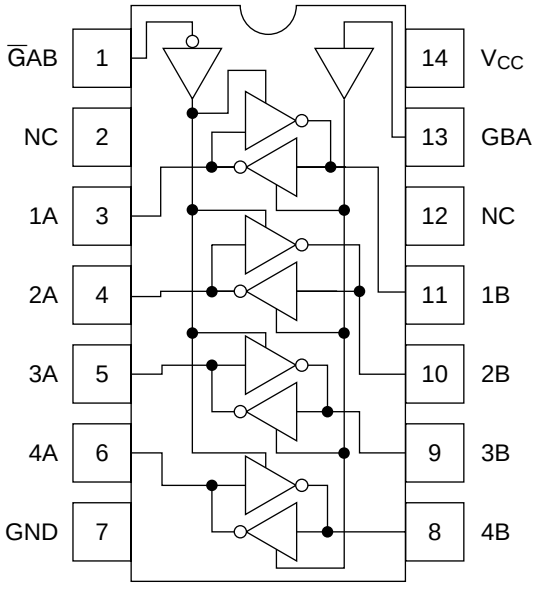
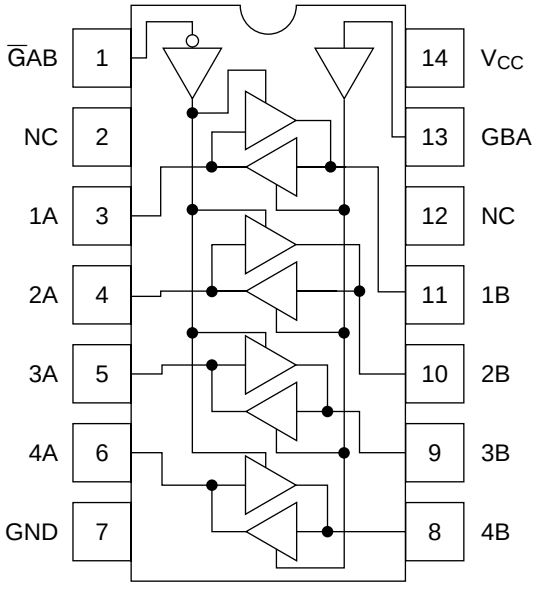
Pin Arrangement

HD74HC242



(Top view)

HD74HC243



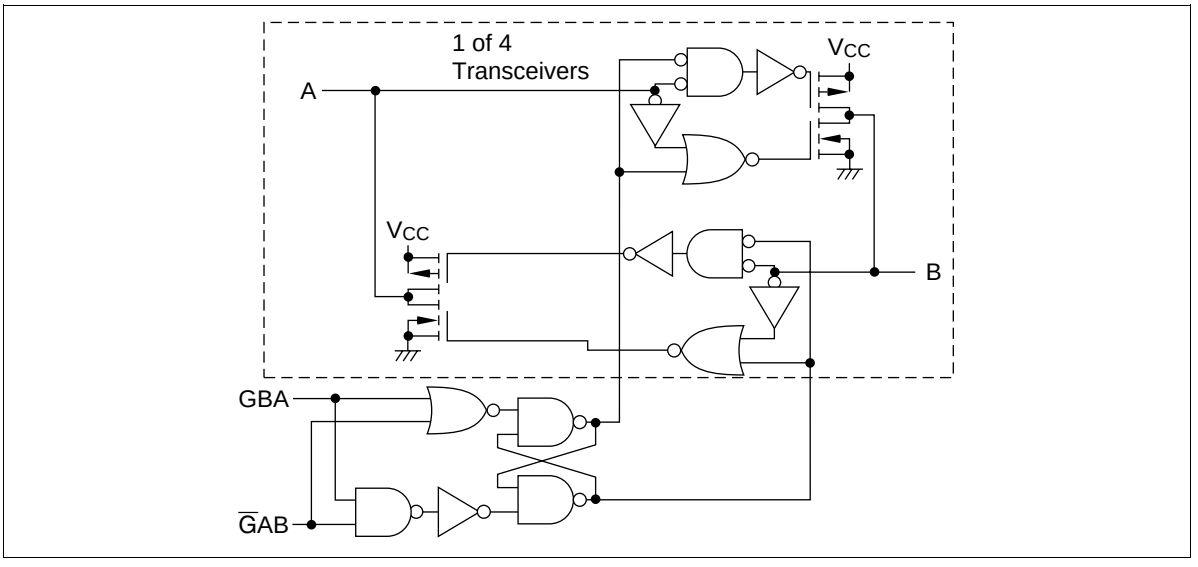
(Top view)

Absolute Maximum Ratings

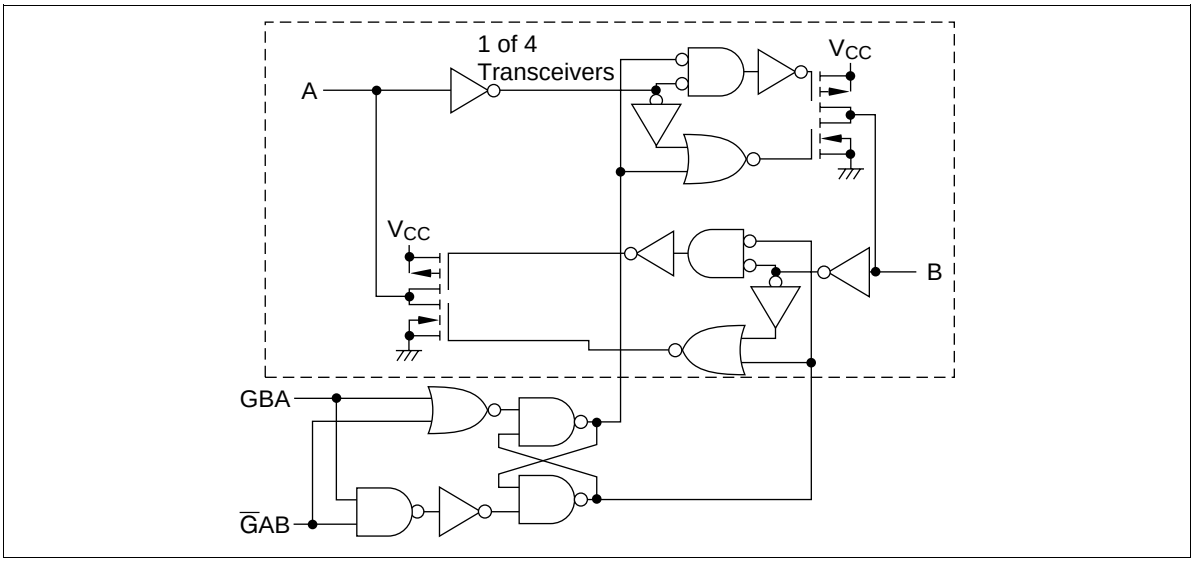
Item	Symbol	Rating	Unit
Supply voltage range	V_{CC}	–0.5 to +7.0	V
Input voltage	V_{IN}	–0.5 to V_{CC} + 0.5	V
Output voltage	V_{OUT}	–0.5 to V_{CC} + 0.5	V
DC current drain per pin	I_{OUT}	±35	mA
DC current drain per VCC, GND	I_{CC}, I_{GND}	±75	mA
DC input diode current	I_{IK}	±20	mA
DC output diode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

Logic Diagram

HD74HC242



HD74HC243



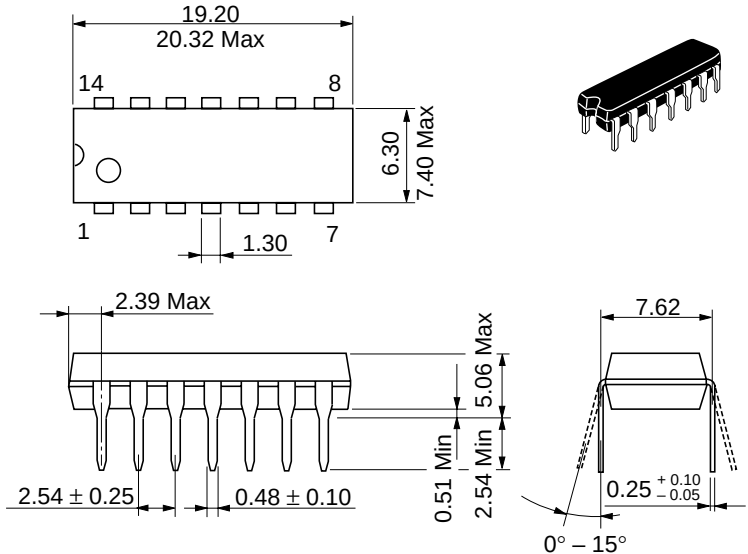
DC Characteristics

Item	Symbol	V_{CC} (V)	Ta = 25°C Min	Typ	Max	Ta = –40 to +85°C Min	Max	Unit	Test Conditions	
Input voltage	V_{IH}	2.0	1.5	—	—	1.5	—	V		
		4.5	3.15	—	—	3.15	—			
		6.0	4.2	—	—	4.2	—			
	V_{IL}	2.0	—	—	0.5	—	0.5	V		
		4.5	—	—	1.35	—	1.35			
		6.0	—	—	1.8	—	1.8			
Output voltage	V_{OH}	2.0	1.9	2.0	—	1.9	—	V	Vin = V_{IH} or V_{IL}	I_{OH} = –20 µA
		4.5	4.4	4.5	—	4.4	—			
		6.0	5.9	6.0	—	5.9	—			
		4.5	4.18	—	—	4.13	—			I_{OH} = –6 mA
		6.0	5.68	—	—	5.63	—			I_{OH} = –7.8 mA
	V_{OL}	2.0	—	0.0	0.1	—	0.1	V	Vin = V_{IH} or V_{IL}	I_{OL} = 20 µA
		4.5	—	0.0	0.1	—	0.1			
		6.0	—	0.0	0.1	—	0.1			
		4.5	—	—	0.26	—	0.33			I_{OL} = 6 mA
		6.0	—	—	0.26	—	0.33			I_{OL} = 7.8 mA
Off-state output current	I_{OZ}	6.0	—	—	±0.5	—	±5.0	µA	Vin = V_{IH} or V_{IL}, Vout = V_{CC} or GND	
Input current	Iin	6.0	—	—	±0.1	—	±1.0	µA	Vin = V_{CC} or GND	
Quiescent supply current	I_{CC}	6.0	—	—	4.0	—	40	µA	Vin = V_{CC} or GND, Iout = 0 µA	

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

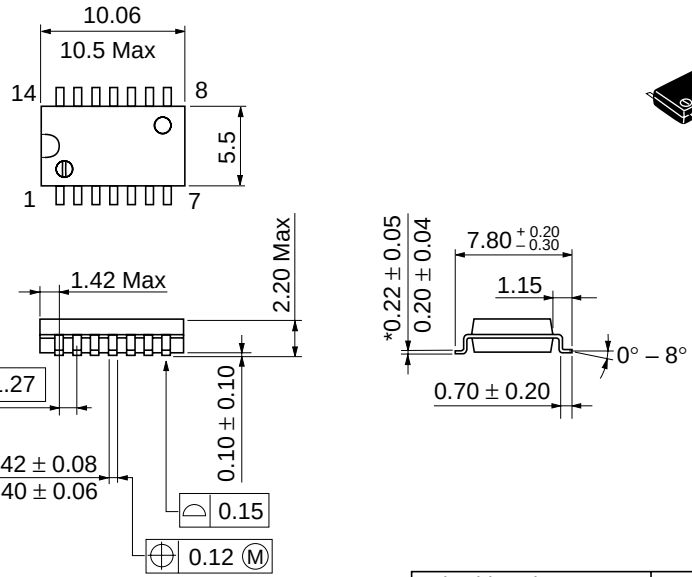
			Ta = 25°C			Ta = –40 to +85°C			
Item	**Symbol**	**V_{cc} (V)**	**Min**	**Typ**	**Max**	**Min**	**Max**	**Unit**	**Test Conditions**
Propagation delay time	t_{PHL}	2.0	—	—	90	—	115	ns	
		4.5	—	10	18	—	23		
		6.0	—	—	15	—	20		
	t_{PLH}	2.0	—	—	90	—	115	ns	
		4.5	—	10	18	—	23		
		6.0	—	—	15	—	20		
Output enable time	t_{ZL}	2.0	—	—	150	—	190	ns	
		4.5	—	14	30	—	38		
		6.0	—	—	26	—	33		
	t_{ZH}	2.0	—	—	150	—	190	ns	
		4.5	—	15	30	—	38		
		6.0	—	—	26	—	33		
Output disable time	t_{LZ}	2.0	—	—	150	—	190	ns	
		4.5	—	18	30	—	38		
		6.0	—	—	26	—	33		
	t_{HZ}	2.0	—	—	150	—	190	ns	
		4.5	—	20	30	—	38		
		6.0	—	—	26	—	33		
Output rise/fall time	t_{TLH}	2.0	—	—	60	—	75	ns	
	t_{THL}	4.5	—	4	12	—	15		
		6.0	—	—	10	—	13		
Input capacitance	Cin	—	—	5	10	—	10	pF	

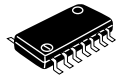
Unit: mm



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

Unit: mm

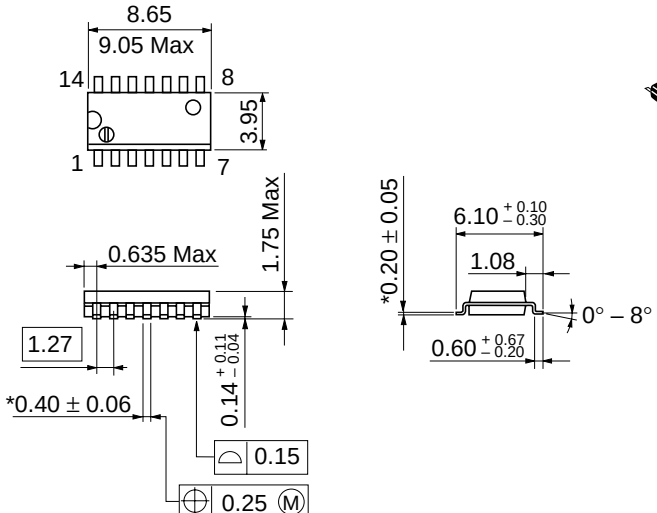




Hitachi Code	FP-14DA
JEDEC	—
EIAJ	Conforms
Weight (reference value)	0.23 g

*Dimension including the plating thickness
Base material dimension

Unit: mm



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

*Pd plating

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