

# 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<sub>BA</sub>), and one active low enable ( $\overline{\text{GAB}}$ ). G<sub>BA</sub> enables the A outputs and  $\overline{\text{GAB}}$  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  $\mu\text{A}$  max
- Low Quiescent Supply Current:  $I_{CC}$  (static) = 4  $\mu\text{A}$  max ( $T_a = 25^\circ\text{C}$ )

## Function Table

Control Inputs		HD74HCT242		HD74HCT243	
$\overline{\text{GAB}}$	G <sub>BA</sub>	Data Port Status		Data Port Status	
		A	B	A	B
H	H	$\overline{\text{O}}$	I	O	I
L	H	Z	Z	Z	Z
H	L	Z	Z	Z	Z
L	L	I	$\overline{\text{O}}$	I	O

I : Input

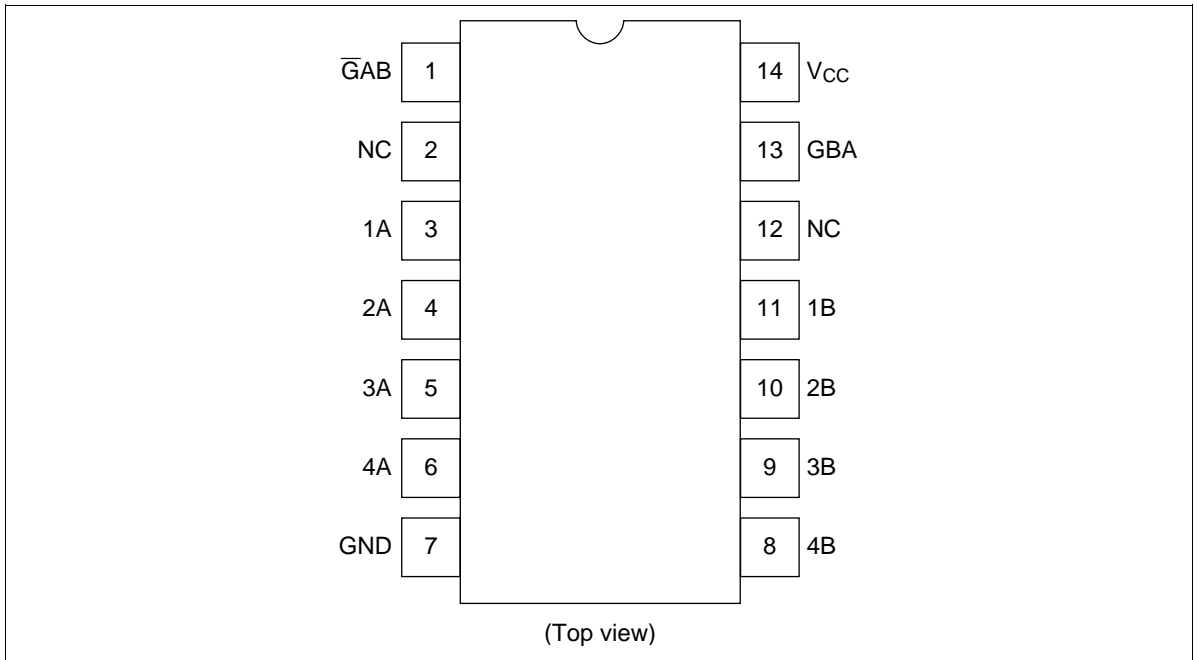
O : Output

$\overline{\text{O}}$  : Inverting Output

Z : High Impedance

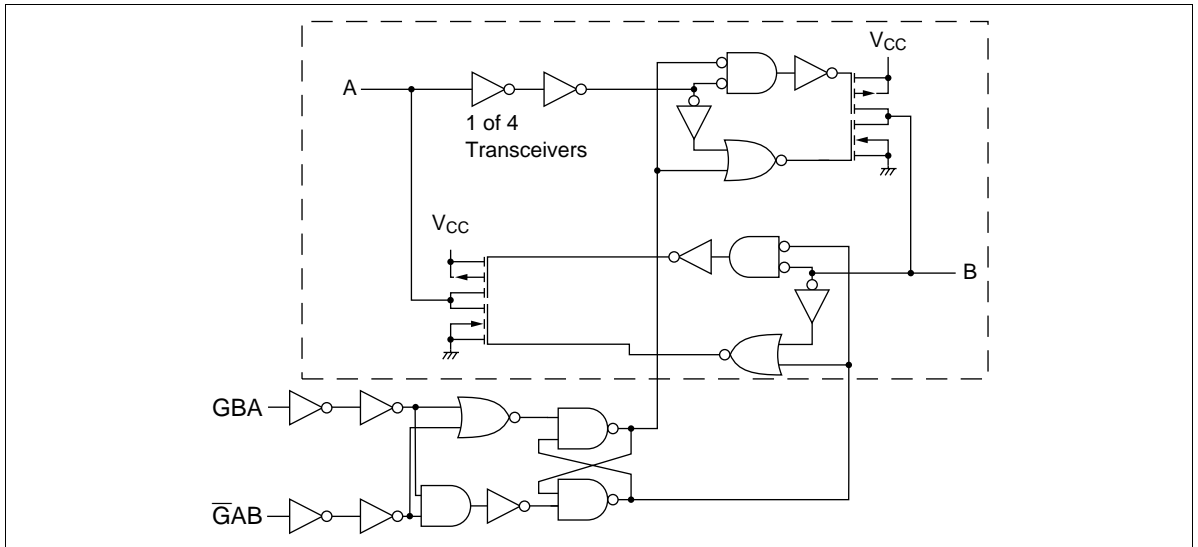
# HD74HCT242/HD74HCT243

## Pin Arrangement



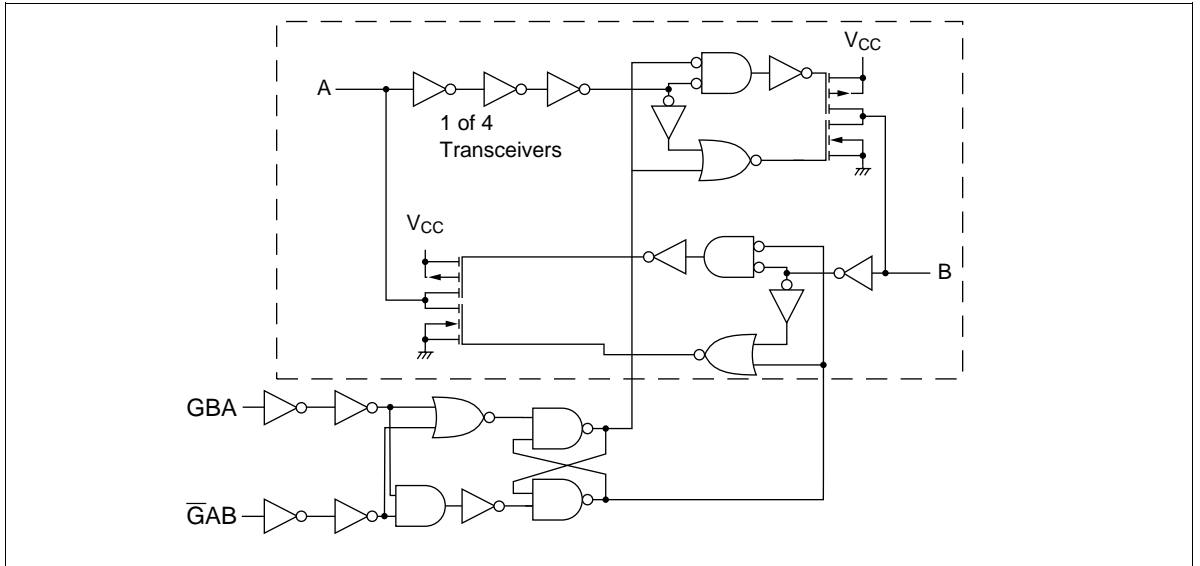
## Block Diagram

### HD74HCT242



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HD74HCT243



**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	$I_{OUT}$	$\pm 35$	mA
DC current drain per $V_{CC}$ , GND	$I_{CC}$ , $I_{GND}$	$\pm 75$	mA
DC input diode current	$I_{IK}$	$\pm 20$	mA
DC output diode current	$I_{OK}$	$\pm 20$	mA
Power dissipation per package	$P_T$	500	mW
Storage temperature	Tstg	-65 to +150	°C

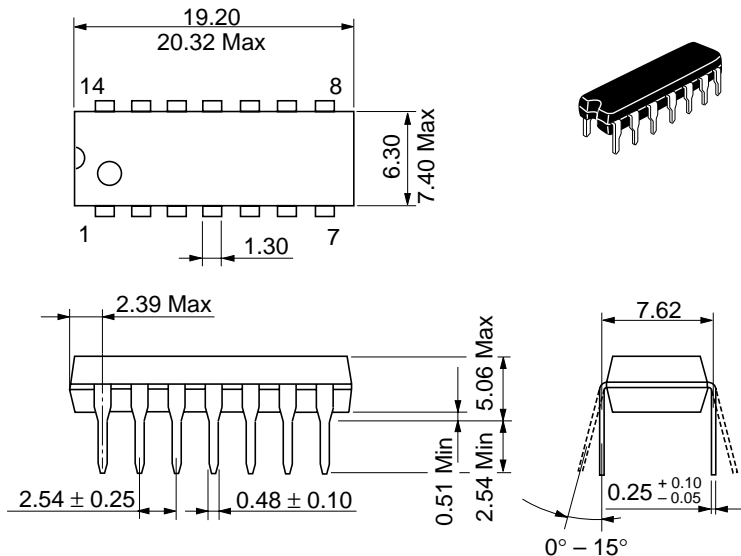
# HD74HCT242/HD74HCT243

## DC Characteristics

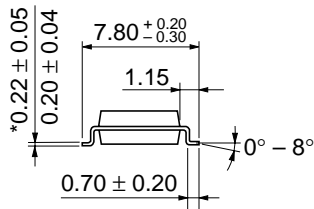
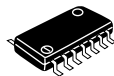
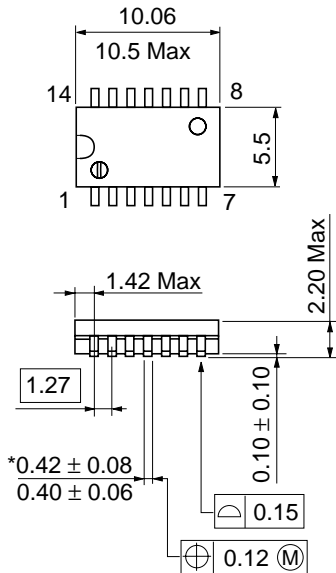
Item	Symbol	Ta = 25°C		Ta = -40 to +85°C		Unit	Test Conditions		
		Min	Typ	Max	Min		Max	V <sub>CC</sub> (V)	
Input voltage	V <sub>IH</sub>	2.0	—	—	2.0	—	V	4.5 to 5.5	
	V <sub>IL</sub>	—	—	0.8	—	0.8	V	4.5 to 5.5	
Output voltage	V <sub>OH</sub>	4.4	—	—	4.4	—	V	4.5	Vin = V <sub>IH</sub> or V <sub>IL</sub>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

## AC Characteristics (C<sub>L</sub> = 50 pF, Input t<sub>r</sub> = t<sub>f</sub> = 6 ns)

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

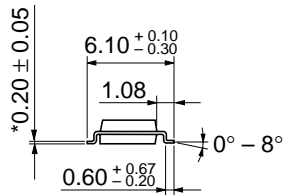
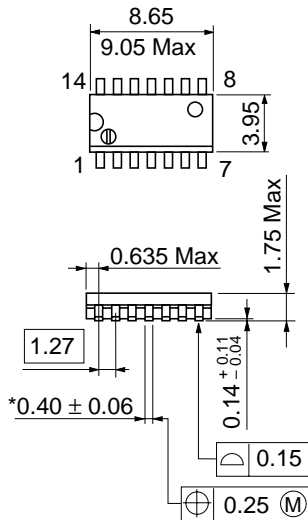


Hitachi Code	DP-14
JEDEC	Conforms
EIAJ	Conforms
Weight (reference value)	0.97 g



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

\*Dimension including the plating thickness  
Base material dimension



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

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