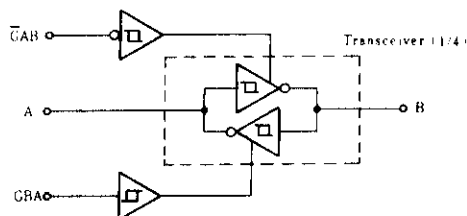
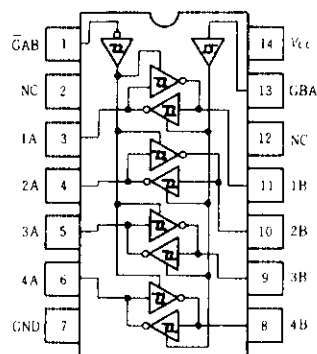


# HD74LS242 • Quadruple Bus Transceivers (with three-state outputs)

## ■ BLOCK DIAGRAM



## ■ PIN ARRANGEMENT



## ■ FUNCTION TABLE

Control input		Data port status	
$\bar{G}AB$	GBA	A	B
H	H	Inverting output	Input
L	H	*	
H	L	Isolated	Isolated
L	L	Input	Inverting output

- Notes) 1. H; high level, L; low level  
 2. \*: Possibly destructive oscillation may occur if the transceivers are enabled in both directions at once.

## ■ RECOMMENDED OPERATING CONDITIONS

Item	Symbol	min	typ	max	Unit
Output current	$I_{OH}$	-	-	15	mA
	$I_{OL}$	-	-	24	mA

## ■ ELECTRICAL CHARACTERISTICS ( $T_a = -20 \sim +75^\circ\text{C}$ )

Item	Symbol	Test Conditions	min	typ*	max	Unit	
Input voltage	$V_{IH}$		2.0	-	-	V	
	$V_{IL}$		-	-	0.8		
Hysteresis	$V_T^+ - V_T^-$	$V_{CC} = 4.75\text{V}$	0.2	0.4	-	V	
Output voltage	$V_{OH}$	$V_{CC} = 4.75\text{V}, V_{IH} = 2\text{V}, V_{IL} = 0.8\text{V}, I_{OH} = -3\text{mA}$	2.4	-	-	V	
		$V_{CC} = 4.75\text{V}, V_{IH} = 2\text{V}, V_{IL} = 0.5\text{V}, I_{OH} = -15\text{mA}$	2	-	-		
	$V_{OL}$	$V_{CC} = 4.75\text{V}, V_{IH} = 2\text{V}, V_{IL} = 0.8\text{V}$	-	-	0.4	V	
		$I_{OL} = 12\text{mA}$	-	-	0.5		
Output current	$I_{OZH}$	$V_{CC} = 5.25\text{V}, V_{IH} = 2\text{V}, V_{IL} = 0.8\text{V}$	$V_O = 2.7\text{V}$	-	-	40	$\mu\text{A}$
	$I_{OZL}$		$V_O = 0.4\text{V}$	-	-	200	
Input current	$I_{IH}$	$V_{CC} = 5.25\text{V}, V_I = 2.7\text{V}$	-	-	20	mA	
	A Input	$V_{CC} = 5.25\text{V}, V_I = 0.4\text{V}, \bar{G}AB \text{ and } GBA \text{ at GND}$	-	-	0.2		
	B Input	$V_{CC} = 5.25\text{V}, V_I = 0.4\text{V}, \bar{G}AB \text{ and } GBA \text{ at } 4.5\text{V}$	-	-	0.2		
	$\bar{G}AB$ or $GBA$	$V_{CC} = 5.25\text{V}, V_I = 0.4\text{V}$	-	-	0.2		
	A or B	$V_{CC} = 5.25\text{V}, V_I = 5.5\text{V}$	-	-	0.1		
$\bar{G}AB$ or $GBA$	$V_{CC} = 5.25\text{V}, V_I = 7\text{V}$	-	-	0.1			
Short-circuit output current	$I_{OS}$	$V_{CC} = 5.25\text{V}$	40	-	225	mA	
Supply current**	$I_{CCH}$	$V_{CC} = 5.25\text{V}$	-	22	38	mA	
	$I_{CCL}$		-	29	50		
	$I_{CCZ}$		-	29	50		
Input clamp voltage	$V_{IK}$	$V_{CC} = 4.75\text{V}, I_{IK} = -18\text{mA}$	-	-	1.5	V	

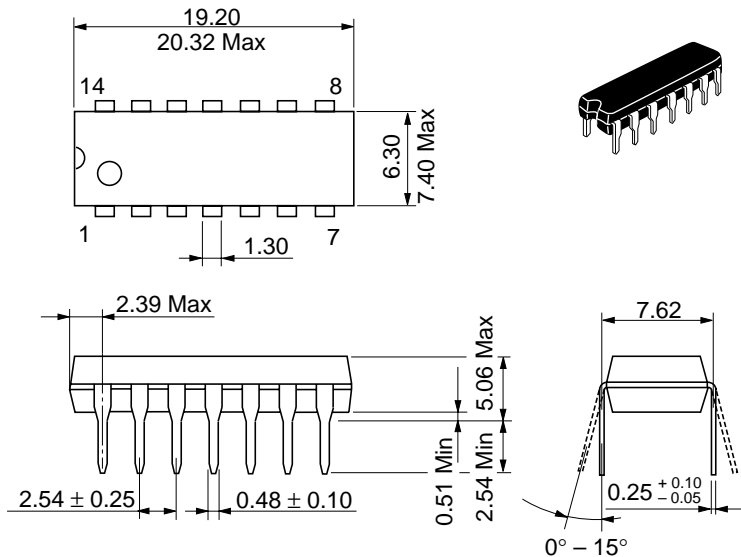
\*  $V_{CC} = 5\text{V}, T_a = 25^\circ\text{C}$

\*\* With all outputs open,  $I_{CC}$  is measured with transceivers enabled in one direction only, or with all transceivers disabled.

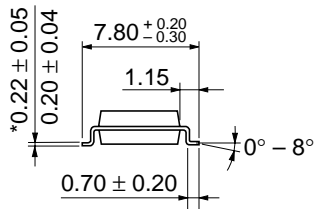
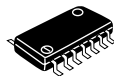
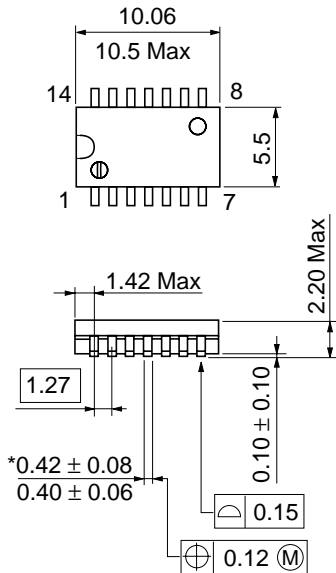
## ■ SWITCHING CHARACTERISTICS ( $V_{CC}=5V$ , $T_a=25^{\circ}C$ )

Item	Symbol	Test Conditions	min	typ	max	Unit
Propagation delay time	$t_{PLH}$	$C_L = 45pF$ $R_L = 667\Omega$	—	9	14	ns
	$t_{PHL}$		—	12	18	
Output enable time	$t_{ZL}$		—	20	30	
	$t_{ZH}$		—	15	23	
Output disable time	$t_{LZ}$	$C_L = 5pF$	—	15	25	
	$t_{HZ}$	$R_L = 667\Omega$	—	10	18	

Note) Refer to Test Circuit and Waveform of the Common Item

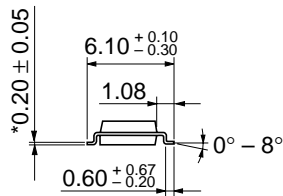
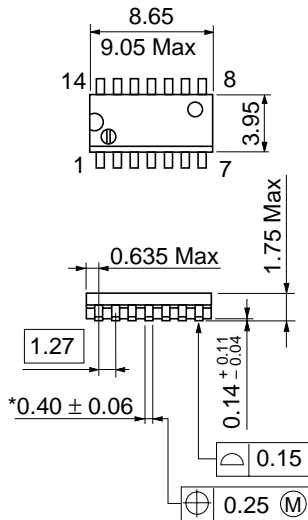


Hitachi Code	DP-14
JEDEC	Conforms
EIAJ	Conforms
Weight (reference value)	0.97 g



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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