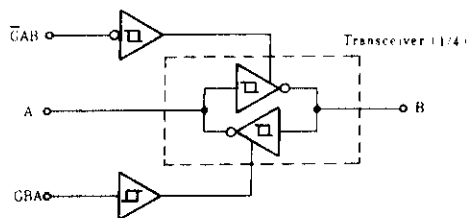
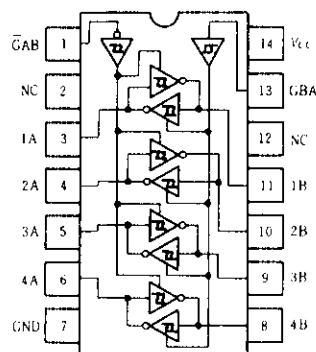


HD74LS242 • Quadruple Bus Transceivers (with three-state outputs)

■ BLOCK DIAGRAM



■ PIN ARRANGEMENT



(Top View)

■ 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	V
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
	V_{OL}	$V_{CC} = 4.75\text{V}, V_{IH} = 2\text{V}, V_{IL} = 0.8\text{V}, I_{OL} = 12\text{mA}$	—	—	0.4	V
		$I_{OL} = 24\text{mA}$	—	—	0.5	V
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	μA
	I_{OZL}	$V_O = 0.4\text{V}$	—	—	200	μA
	I_{IH}	$V_{CC} = 5.25\text{V}, V_I = 2.7\text{V}$	—	—	20	μA
Input current	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	mA
	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	
	$\bar{G}AB \text{ or } GBA$	$V_{CC} = 5.25\text{V}, V_I = 0.4\text{V}$	—	—	0.2	
	A or B	$V_{CC} = 5.25\text{V}, V_I = 5.5\text{V}$	—	—	0.1	mA
	$\bar{G}AB \text{ or } GBA$	$V_{CC} = 5.25\text{V}, V_I = 7\text{V}$	—	—	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

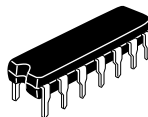
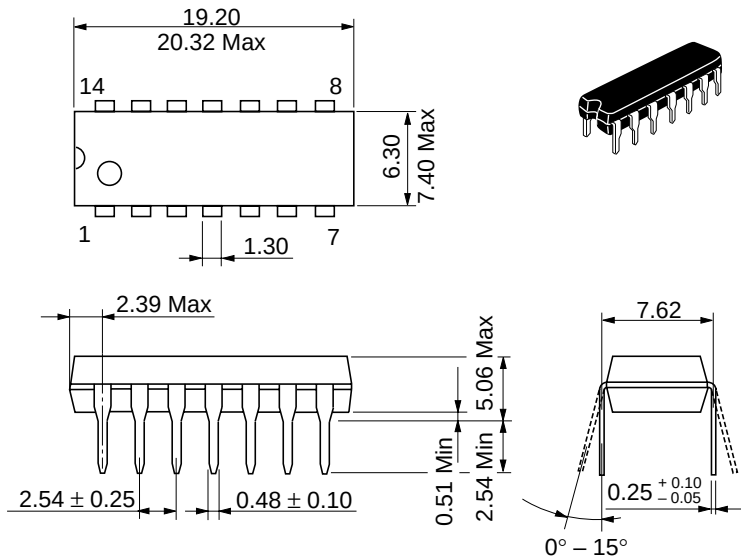
* $V_{CC} = 5\text{V}, T_a = 25^\circ\text{C}$

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

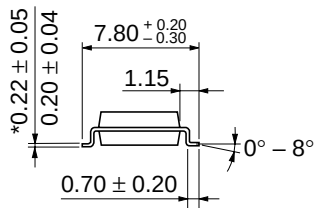
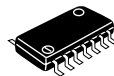
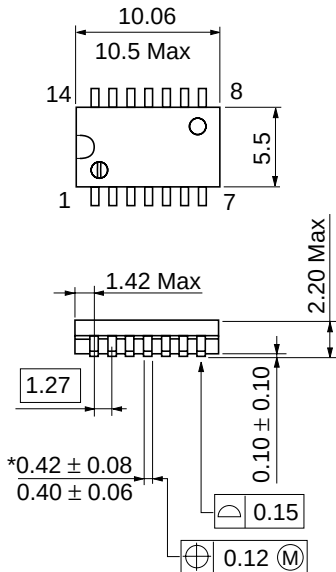
■ SWITCHING CHARACTERISTICS ($V_{CC}=5V$, $T_a=25^{\circ}C$)

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}	$C_L=5pF$ $R_L=667\Omega$	—	15	25	
	t_{HZ}		—	10	18	

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

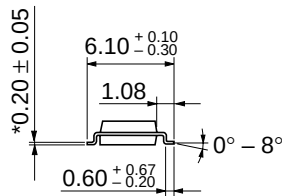
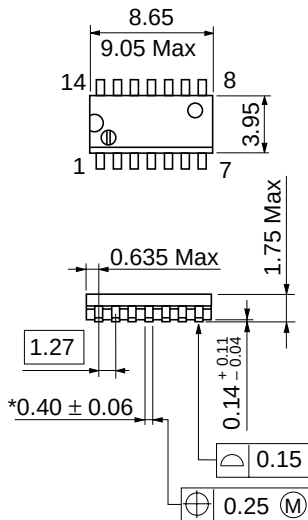


Hitachi Code	DP-14
JEDEC	Conforms
EIAJ	Conforms
Weight (reference value)	0.97 g



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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