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Renesas Technology Corp.
Customer Support Dept.
April 1, 2003

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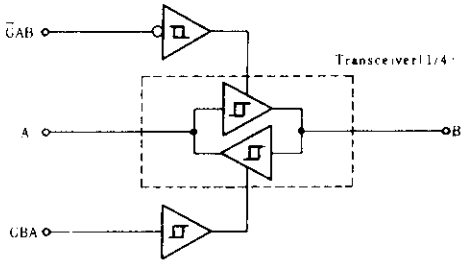
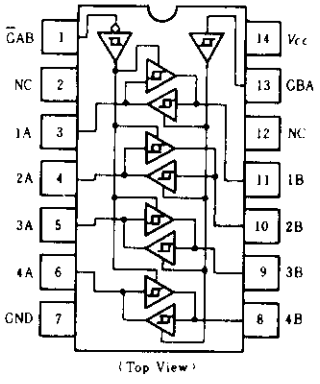
HD74LS243 ●Quadruple Bus Transceivers (with three-state outputs)

■BLOCK DIAGRAM



■PIN ARRANGEMENT



(Top View)

■FUNCTION TABLE

Control input		Data port status	
$\overline{G}AB$	GBA	A	B
H	H	Output	Input
L	H	*	
H	L	Isolated	Isolated
L	L	Input	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 (Ta = −20 ~ +75°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}=4.75V		0.2	0.4	–	V
Output voltage		V_{OH}	V_{CC}=4.75V, V_{IH}=2V, V_{IL}=0.8V, I_{OH}=−3mA		2.4	–	–	V
			V_{CC}=4.75V, V_{IH}=2V, V_{IL}=0.5V, I_{OH}=−15mA		2	–	–	
		V_{OL}	V_{CC}=4.75V, V_{IH}=2V, V_{IL}=0.8V	I_{OL}=12mA	–	–	0.4	V
				I_{OL}=24mA	–	–	0.5	
Output current		I_{OZH}	V_{CC}=5.25V, V_{IH}=2V, V_{IL}=0.8V	V_O=2.7V	–	–	40	μA
		I_{OZL}		V_O=0.4V	–	–	−200	
Input current		I_{IH}	V_{CC}=5.25V, V_I=2.7V		–	–	20	μA
	A input	I_{IL}	V_{CC}=5.25V, V_I=0.4V, $\overline{G}AB$ and GBA at GND		–	–	−0.2	mA
	B input		V_{CC}=5.25V, V_I=0.4V, $\overline{G}AB$ and GBA at 4.5V		–	–	−0.2	
	$\overline{G}AB$ or GBA		V_{CC}=5.25V, V_I=0.4V		–	–	−0.2	
	A or B	I_I	V_{CC}=5.25V, V_I=5.5V		–	–	0.1	mA
	$\overline{G}AB$ or GBA		V_{CC}=5.25V, V_I=7V		–	–	0.1	
Short-circuit output current		I_{OS}	V_{CC}=5.25V		−40	–	−225	mA
Supply current**		I_{CCH}	V_{CC}=5.25V		–	22	38	mA
		I_{CCL}			–	29	50	
		I_{CCZ}			–	32	54	
Input clamp voltage		V_{IK}	V_{CC}=4.75V, I_{IN}=−18mA		–	–	−1.5	V

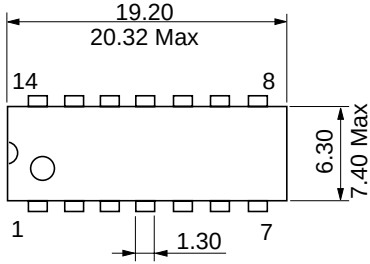
* V_{CC}=5V, Ta=25°C
** With all outputs open, I_{CC} is measured with transceivers enabled in one direction only, or with all transceivers disabled.

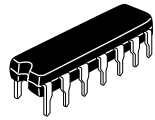
■SWITCHING CHARACTERISTICS (V_{CC}=5V, Ta=25°C)

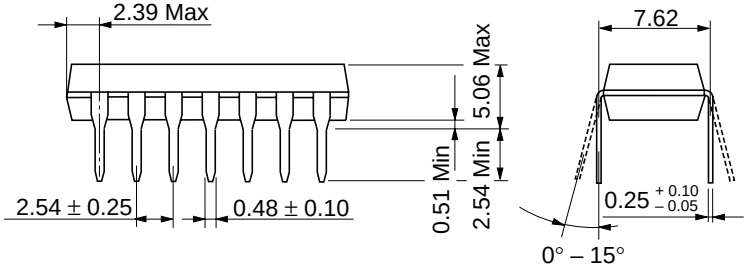
Item	Symbol	Test Conditions	min	typ	max	Unit
Propagation delay time	t_{PLH}	C_L=45pF R_L=667Ω	–	12	18	ns
	t_{PHL}		–	12	18	
Output enable time	t_{ZL}		–	20	30	
	t_{ZH}		–	15	23	
Output disable time	t_{LZ}	C_L=5pF R_L=667Ω	–	15	25	
	t_{HZ}		–	10	18	

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

Unit: mm

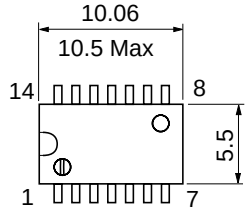


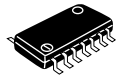


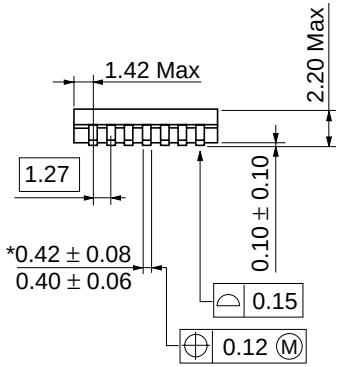


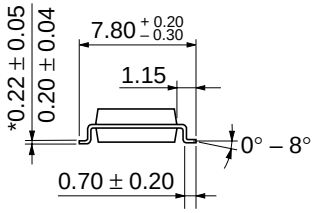
Hitachi Code	DP-14
JEDEC	Conforms
EIAJ	Conforms
Weight (reference value)	0.97 g

Unit: mm





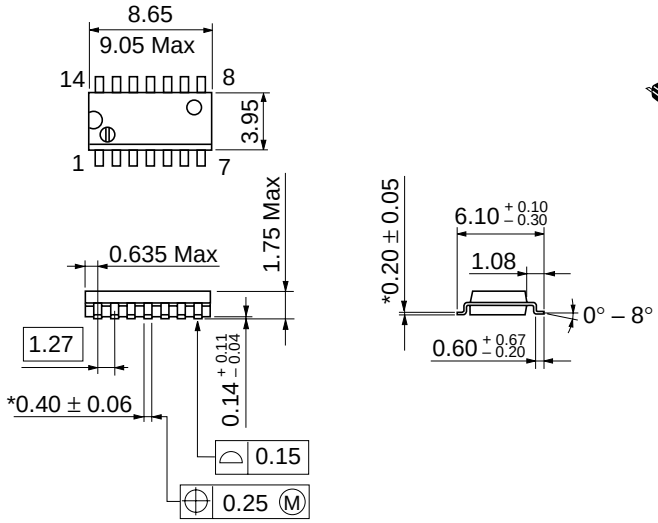




*Dimension including the plating thickness
Base material dimension

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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