

To our customers,

Old Company Name in Catalogs and Other Documents

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Renesas Electronics website: <http://www.renesas.com>

April 1st, 2010
Renesas Electronics Corporation

Issued by: Renesas Electronics Corporation (<http://www.renesas.com>)

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Not recommended
for new design

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Renesas Technology Home Page: <http://www.renesas.com>

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

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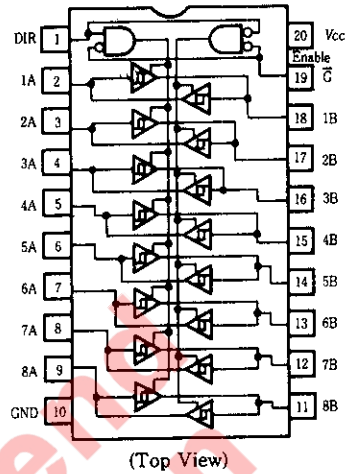
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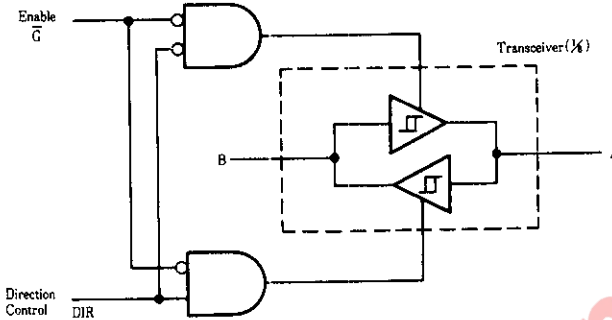
HD74LS641-1●Octal Bus Transceivers (non-inverted open-collector outputs)

This octal bus transceivers is designed for asynchronous two-way communication between data buses. The devices transmit data, from the A bus to the B bus or from the B bus to the A bus depending upon the level at the direction control (DIR) input. The enable input (\bar{G}) can be used to disable the device so that the buses are effectively isolated.

PIN ARRANGEMENT



BLOCK DIAGRAM



RECOMMENDED OPERATING CONDITIONS

Item	Symbol	min	typ	max	Unit
Supply voltage	V_{CC}	4.75	5.00	5.25	V
Output voltage	V_{OH}	—	—	5.5	V
Output current	I_{OL}	—	—	48	mA
Operating temperature range	T_{opr}	-20	25	75	°C

FUNCTION TABLE

Enable	Direction Control	Operation
\bar{G}	DIR	
L	L	B data to A bus
L	H	A data to B bus
H	X	Isolation

Notes) H; high level, L; low level, X; irrelevant

HD74LS641-1

■ 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	$V_T^+ - V_T^-$	$V_{CC}=4.75V$		0.2	—	—	V
Output current	I_{OH}	$V_{CC}=4.75V, V_{IH}=2V, V_{IL}=0.8V, V_{OH}=5.5V$		—	—	100	μA
Output voltage	V_{OL}		$I_{OL}=12mA$	—	—	0.4	V
			$I_{OL}=24mA$	—	—	0.5	V
			$I_{OL}=48mA$	—	—	0.5	V
Input current	I_{IH}	$V_{CC}=5.25V, V_I=2.7V$		—	—	20	μA
	I_{IL}	$V_{CC}=5.25V, V_I=0.4V$		—	—	—400	μA
	A or B	I_I	$V_I=5.5V$	—	—	0.1	mA
	DIR or \bar{G}		$V_I=7V$	—	—	0.1	mA
Supply current	I_{CCH}	$V_{CC}=5.25V$, output open		—	48	70	mA
	I_{CCL}			—	62	90	mA
	I_{CCZ}			—	64	95	mA
Input clamp voltage	V_{IK}	$V_{CC}=4.75V, I_{IN}=-18mA$		—	—	-1.5	V

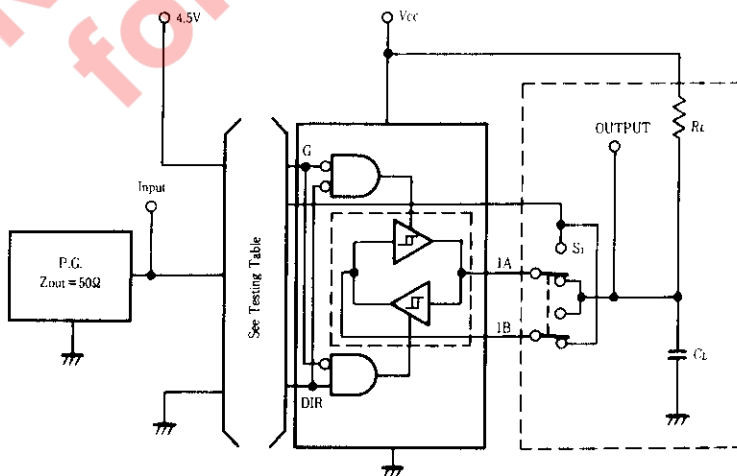
* $V_{CC} = 5V, T_a = 25^{\circ}C$

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

Item	Symbol	INPUT	OUTPUT	Test Conditions	min	typ	max	Unit
Propagation delay time	t_{PLH}	A	B	$C_L = 45\text{pF}, R_L = 667\ \Omega$	—	17	25	ns
		B	A		—	17	25	ns
	t_{PHL}	A	B		—	16	25	ns
		B	A		—	16	25	ns
Output enable time	t_{PLH}	\overline{G}	A		—	23	40	ns
		\overline{G}	B		—	25	40	ns
	t_{PHL}	\overline{G}	A		—	34	50	ns
		\overline{G}	B		—	37	50	ns

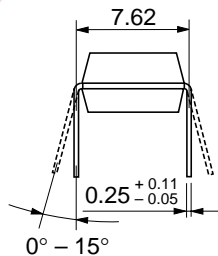
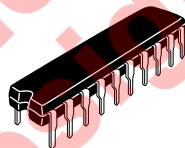
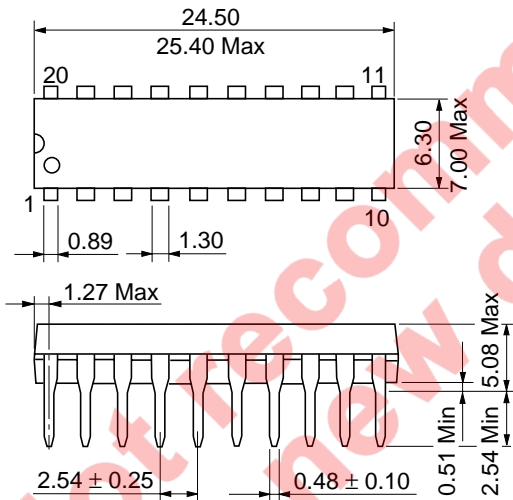
■ TESTING METHOD

Test Circuit



- Notes) 1. 2A-2B, 3A-3B, 4A-4B, 5A-5B, 6A-6B, 7A-7B, 8A-8B, are identical to above load circuit.
2. C_L includes probe and jig capacitance.
3. S_1 is a input-output switch.

Unit: mm



Hitachi Code	DP-20N
JEDEC	—
EIAJ	Conforms
Weight (reference value)	1.26 g

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