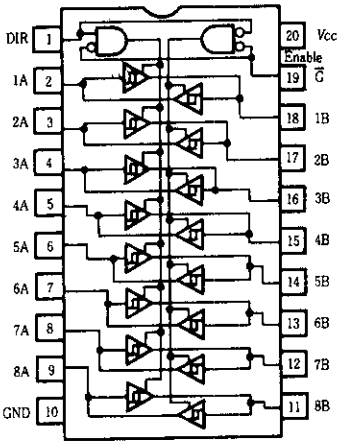
HD74LS641-1 ●Octal Bus Transceivers (non-inverted open-collector outputs)

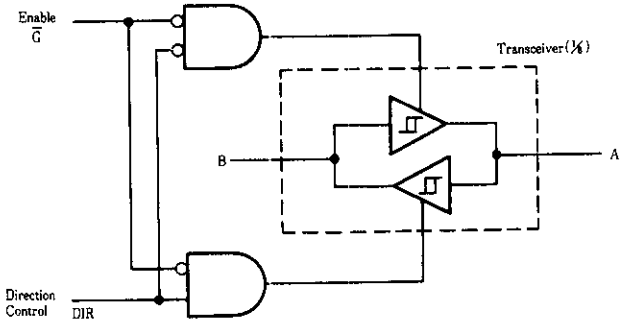
This octal bus transceivers is designed for asynchronous two-way communication between data buses. The devices transmit data, from the A bus to the B bus or from the B bus to the A bus depending upon the level at the direction control (DIR) input. The enable input ($\overline{G}$) can be used to disable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

■PIN ARRANGEMENT



(Top View)

■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	℃

■FUNCTION TABLE

Enable	Direction Control	Operation
$\overline{G}$	DIR	
L	L	B data to A bus
L	H	A data to B bus
H	×	Isolation

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

■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	—	—	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}	V_{CC}=4.75V, V_{IH}=2V, V_{IL}=0.8V	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_{CC}=5.25V	V_I=5.5V	—	—	0.1	mA
	DIR or $\overline{G}$			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

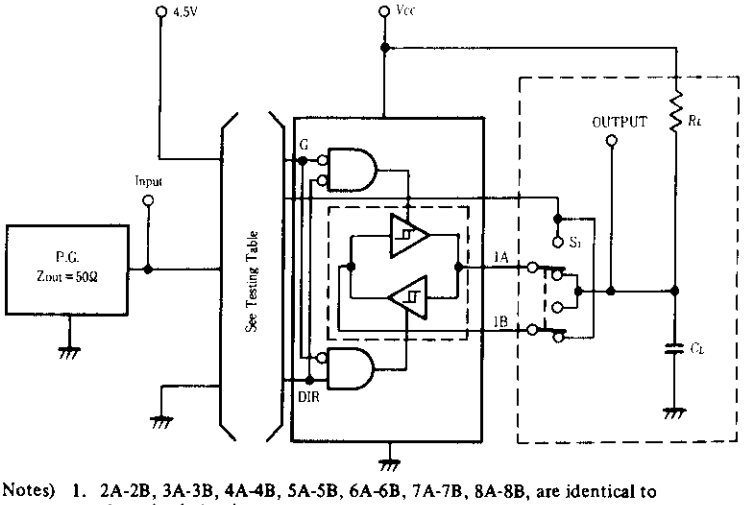
* V_{CC} = 5V, Ta = 25°C

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

Item	Symbol	INPUT	OUTPUT	Test Conditions	min	typ	max	Unit
Propagation delay time	t_{PLH}	A	B	C_L=45pF, R_L=667 Ω	—	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

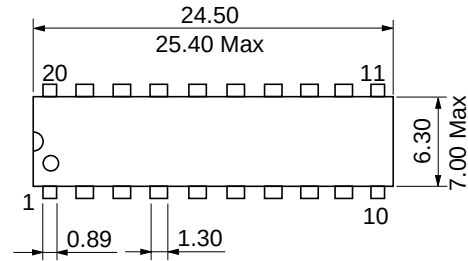
■TESTING METHOD

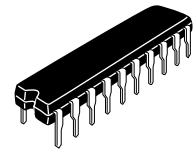
Test Circuit

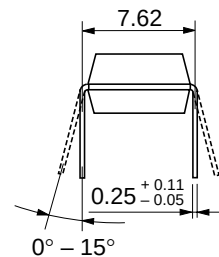


Notes) 1. 2A-2B, 3A-3B, 4A-4B, 5A-5B, 6A-6B, 7A-7B, 8A-8B, are identical to above load circuit.
2. C_L includes probe and jig capacitance.
3. S_1 is a input-output switch.

Unit: mm







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

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