

HD74LS645-1

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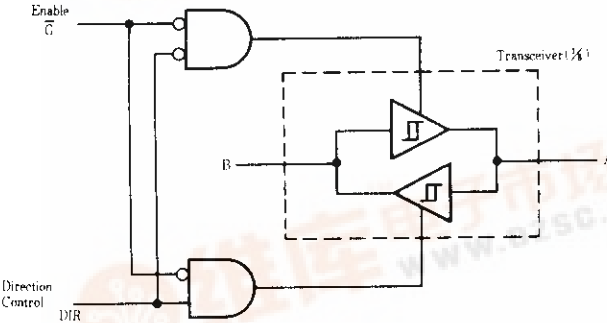
捷多邦，专业PCB打样工厂，24小时加急

Octal Bus Transceivers (non-inverted 3-state outputs)

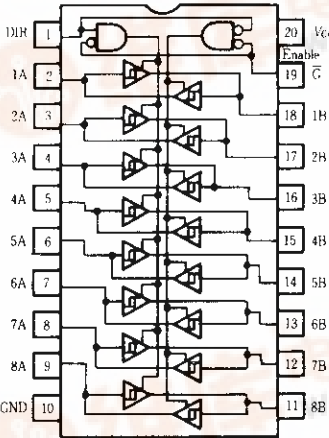
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This octal bus transceiver is designed for asynchronous two-way communication between data buses. The devices transmit data from the A bus to the B bus or from the B bus to the A bus depending upon the level at the direction control (DIR) input. The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

BLOCK DIAGRAM



PIN ARRANGEMENT



(Top View)

RECOMMENDED OPERATING CONDITIONS

Item	Symbol	min	typ	max	unit
Supply voltage	V_{CC}	4.75	5.00	5.25	V
Output current	I_{OH}	—	—	—15	mA
Output current	I_{OL}	—	—	48	mA
Operating temperature range	T_{opr}	—20	25	75	°C

FUNCTIONAL TABLE

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

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

■ 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	—	—	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
			$I_{OH} = -15\text{mA}$	2	—	
	V_{OL}	$V_{CC} = 4.75\text{V}$, $V_{IH} = 2\text{V}$, $V_{IL} = 0.8\text{V}$	$I_{OL} = 12\text{mA}$	—	—	V
			$I_{OL} = 24\text{mA}$	—	—	
			$I_{OL} = 48\text{mA}$	—	—	
Output current	I_{OZH}	$V_{CC} = 5.25\text{V}$	$V_O = 2.7\text{V}$	—	—	μA
	I_{OZL}	$\bar{G}$ input = 2V	$V_O = 0.4\text{V}$	—	—	
Input current	I_{IH}	$V_{CC} = 5.25\text{V}$, $V_I = 2.7\text{V}$	—	—	20	μA
	I_{IL}	$V_{CC} = 5.25\text{V}$, $V_I = 0.4\text{V}$	—	—	-400	μA
	A or B DIR or $\bar{G}$	I_I	$V_{CC} = 5.25\text{V}$	$V_I = 5.5\text{V}$	0.1	mA
				$V_I = 7\text{V}$	0.1	
Short-circuit output current	I_{OS}^{***}	$V_{CC} = 5.25\text{V}$	-40	—	-225	mA
Supply current **	I_{CCH}	$V_{CC} = 5.25\text{V}$, OUTPUT OPEN	—	48	70	mA
	I_{CCL}		—	62	90	
	I_{CCZ}		—	64	95	
Input clamp voltage	V_{IK}	$V_{CC} = 4.75\text{V}$, $I_{IN} = -18\text{mA}$	—	—	-1.5	V

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

** I_{CC} is measured with all outputs open.

*** Not more than one output should be shorted at a time, duration of short-circuit should not exceed one second.

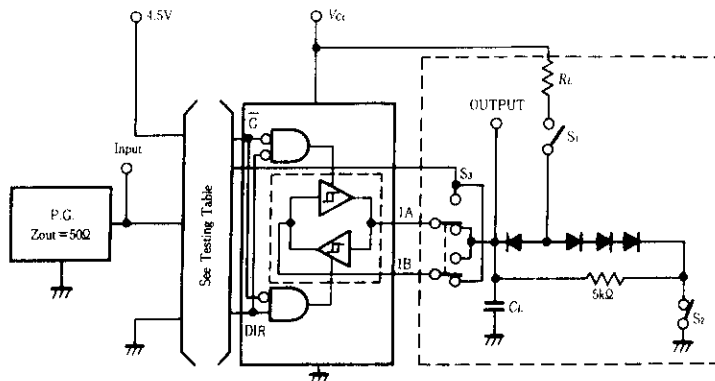
■ SWITCHING CHARACTERISTICS ($V_{CC} = 5\text{V}$, $T_a = 25^\circ\text{C}$)

Item	Symbol	Input	Output	Test Condition	min	typ	max	Unit
Propagation delay time	t_{PLH}	A	B	$C_L = 45\text{pF}$, $R_L = 667\ \Omega$	—	8	15	ns
		B	A		—	8	15	ns
	t_{PHL}	A	B		—	11	15	ns
		B	A		—	11	15	ns
Output enable time	t_{ZL}	$\bar{G}$	A		—	31	40	ns
		$\bar{G}$	B		—	31	40	ns
	t_{ZH}	$\bar{G}$	A		—	26	40	ns
		$\bar{G}$	B		—	26	40	ns
Output disable time	t_{LZ}	$\bar{G}$	A	$C_L = 5\text{pF}$, $R_L = 667\ \Omega$	—	15	25	ns
		$\bar{G}$	B		—	15	25	ns
	t_{HZ}	$\bar{G}$	A		—	15	25	ns
		$\bar{G}$	B		—	15	25	ns

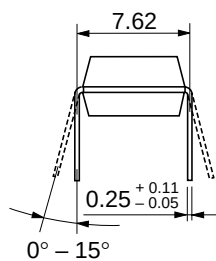
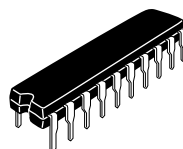
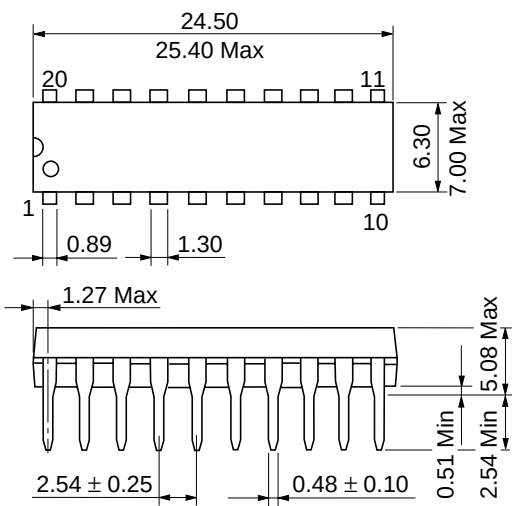
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■ TESTING METHOD

Test Circuit



- Notes)
1. C_L includes probe and jig capacitance.
 2. All diodes are 1S2074 Ⓢ .
 3. 2A-2B, 3A-3B, 4A-4B, 5A-5B, 6A-6B, 7A-7B, 8A-8B are identical to above load circuit.
 4. S_2 is an input-output switch.



Unit: mm

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