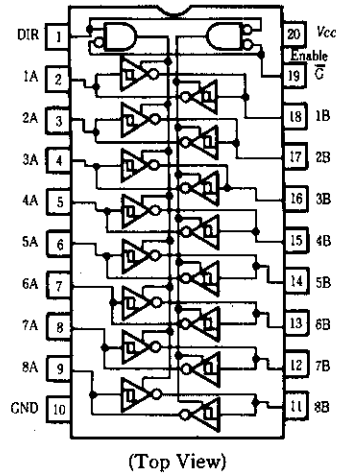


HD74LS642

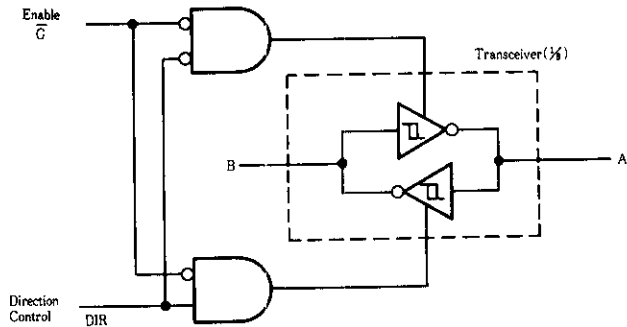
●Octal Bus Transceivers (inverted open-collector outputs)

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.

PIN ARRANGEMENT



BLOCK DIAGRAM



RECOMMENDED OPERATING CONDITIONS

Item	Symbol	min	typ	max	unit
Output current	V_{CC}	4.75	5.00	5.25	V
Output voltage	V_{OH}	—	—	5.5	V
Output current	I_{OL}	—	—	24	mA
Operating temperature range	T_{opr}	-20	25	75	°C

FUNCTION TABLE

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

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	
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	
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 DIR or $\overline{G}$	I_I	$V_{CC}=5.25V$	$V_I=5.5V$ $V_I=7V$	0.1 0.1	mA
Supply current**	I_{CCH}	$V_{CC}=5.25V$		48	70	mA
	I_{CCL}			62	90	
	I_{CCZ}			64	95	
Input clamp voltage	V_{IK}	$V_{CC}=4.75V, I_{IK}=-18mA$			-1.5	V

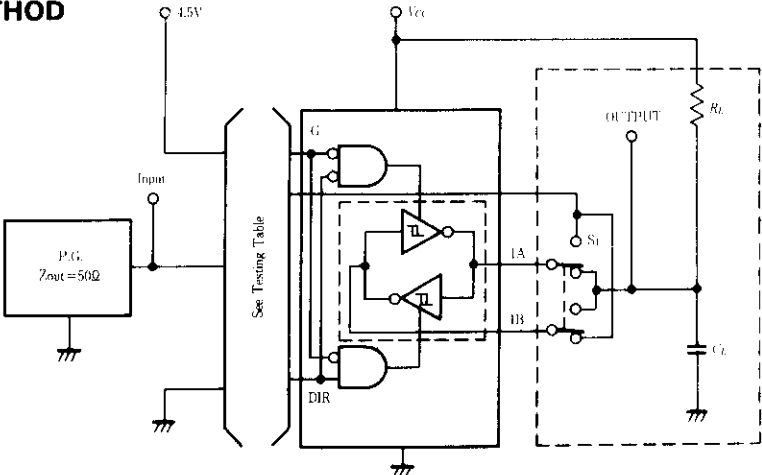
* $V_{CC}=5V, T_a=25^{\circ}C$
** I_{CC} is measured with all outputs open.

■SWITCHING CHARACTERISTICS (VCC=5V, Ta=25°C)

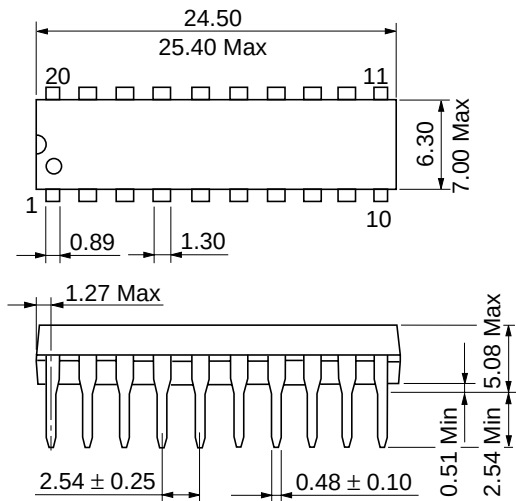
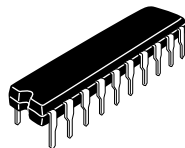
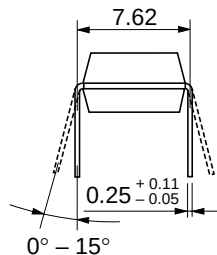
Item	Symbol	Input	Output	Test Conditions	min	typ	max	Unit
Propagation delay time	t_{PLH}	A	B	$C_L=45pF$ $R_L=667\Omega$	—	19	25	ns
		B	A		—	19	25	ns
	t_{PHL}	A	B		—	14	25	ns
		B	A		—	14	25	ns
Output enable time	t_{PLH}	$\overline{G}$	A		—	26	40	ns
		$\overline{G}$	B		—	28	40	ns
	t_{PHL}	$\overline{G}$	A		—	43	60	ns
		$\overline{G}$	B		—	39	60	ns

■TESTING METHOD

Test Circuit

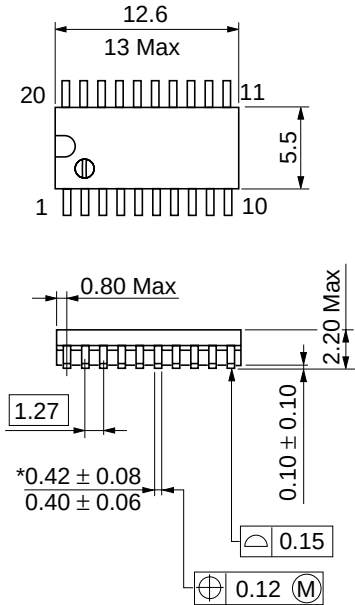
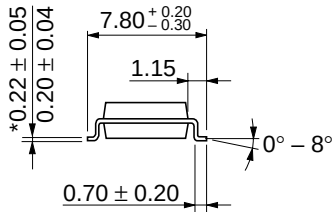


Notes) 1. 2A-2B, 3A-3B, 4A-4B, 5A-5B, 6A-6B, 7A-7B, 8A-8B are identical to above load circuit.
2. C_L includes probe and jig capacitance.
3. S_1 is an input-output switch.

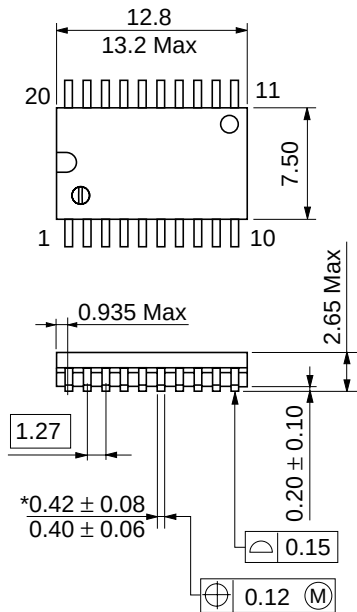
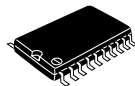
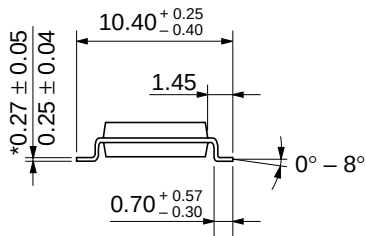


Hitachi Code	DP-20N
JEDEC	—
EIAJ	Conforms
Weight (reference value)	1.26 g

Unit: mm


$$\frac{\text{*Dimension including the plating thickness}}{\text{Base material dimension}}$$

Hitachi Code	FP-20DA
JEDEC	—
EIAJ	Conforms
Weight (reference value)	0.31 g



Hitachi Code	FP-20DB
JEDEC	Conforms
EIAJ	—
Weight (reference value)	0.52 g

*Dimension including the plating thickness
Base material dimension

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