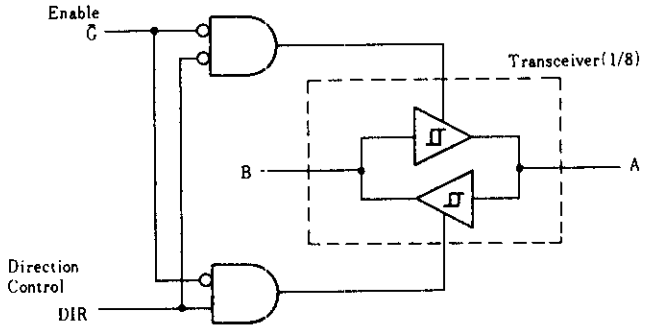
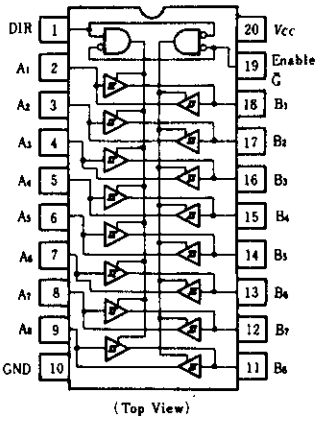
HD74LS245 ●Octal Bus Transceivers (with three-state outputs)

This octal bus transceiver is designed for synchronous two-way communication between data buses. The control function implementation minimizes external timing requirements. The device allows data transmission from the A bus to the B bus or from the B bus to the A bus depending upon the logic 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.

■BLOCK DIAGRAM



■PIN ARRANGEMENT



(Top View)

■FUNCTION TABLE

ENABLE $\overline{G}$	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

■ABSOLUTE MAXIMUM RATINGS

Item		Symbol	Ratings	Unit
Supply voltage		V_{CC}	7.0	V
Input voltage	DIR, $\overline{G}$	V_{IN}	7.0	V
	A, B		5.5	
Operating temperature range		T_{opr}	−20~+75	℃
Storage temperature range		T_{stg}	−65~+150	℃

■RECOMMENDED OPERATING CONDITIONS

Item	Symbol	min	typ	max	Unit
Output current	I_{OH}	−	−	−15	mA
	I_{OL}	−	−	24	mA

■ELECTRICAL CHARACTERISTICS ($Ta = -20 \sim +75°C$)

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	0.4	—	V
Output voltage		V_{OH}	$V_{CC} = 4.75V$, $V_{IH} = 2V$, $V_{IL} = 0.8V$	$I_{OH} = -3mA$	2.4	—	—	V
				$I_{OH} = -15mA$	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}	$V_{CC} = 5.25V$, $\overline{G} = 2V$	$V_O = 2.7V$	—	—	10	μA
		I_{OZL}		$V_O = 0.4V$	—	—	−200	
Input current		I_{IH}	$V_{CC} = 5.25V$, $V_I = 2.7V$		—	—	20	μA
		I_{IL}	$V_{CC} = 5.25V$, $V_I = 0.4V$		—	—	−0.2	mA
	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	
Short-circuit output current		I_{OS}	$V_{CC} = 5.25V$		−40	—	−225	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}	$V_{CC} = 4.75V$, $I_{IN} = -18mA$		—	—	−1.5	V

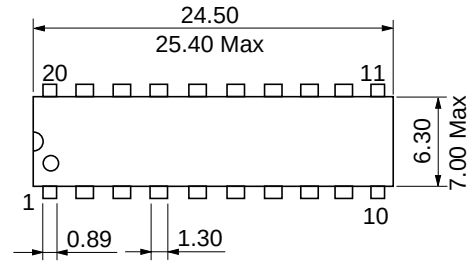
* V_{CC}=5V, Ta=25°C
** I_{CC} is measured with all outputs open.

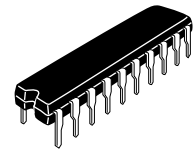
■SWITCHING CHARACTERISTICS ($V_{CC} = 5V$, $Ta = 25°C$)

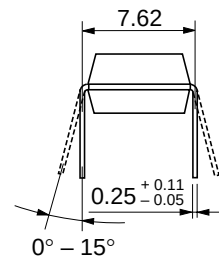
Item	Symbol	Test Conditions	min	typ	max	Unit
Propagation delay time	t_{PLH}	$C_L = 45pF$, $R_L = 667\Omega$	—	8	15	ns
	t_{PHL}		—	8	15	
Output enable time	t_{ZL}		—	27	40	
	t_{ZH}		—	25	40	
Output disable time	t_{LZ}	$C_L = 5pF$, $R_L = 667\Omega$	—	15	25	
	t_{HZ}		—	15	25	

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

Unit: mm

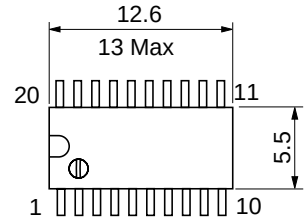


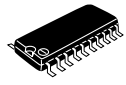


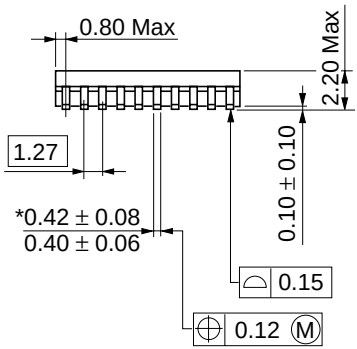


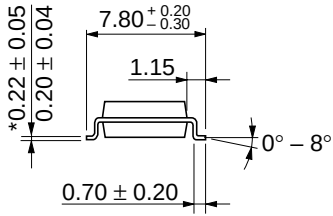
Hitachi Code	DP-20N
JEDEC	—
EIAJ	Conforms
Weight (reference value)	1.26 g

Unit: mm





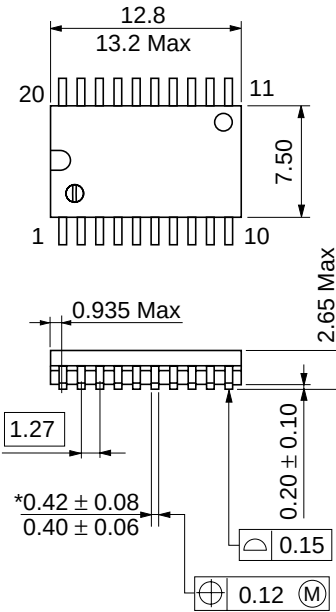


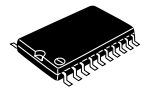


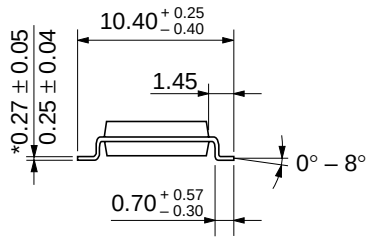
*Dimension including the plating thickness
Base material dimension

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

Unit: mm







*Dimension including the plating thickness
Base material dimension

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

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