

HD74LS245

Octal Bus Transceivers (with three-state outputs)

REJ03D0464-0300

Rev.3.00

Jul.15.2005

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.

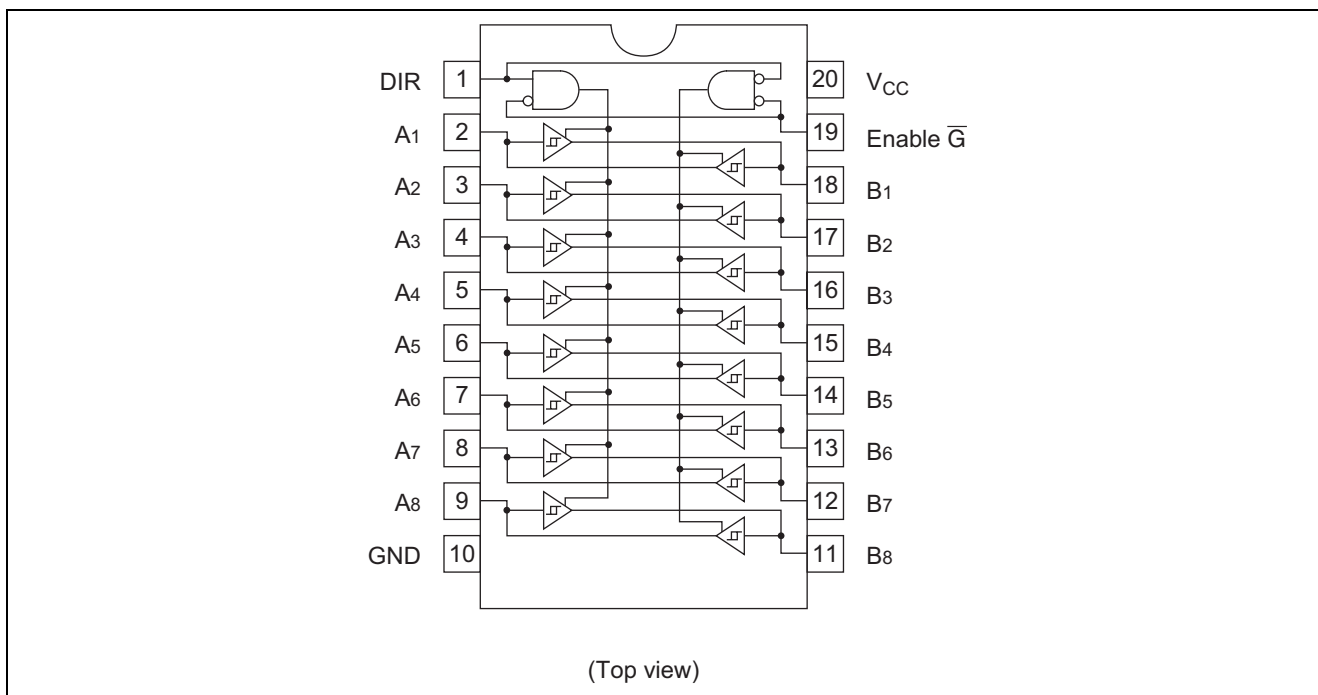
Features

- Ordering Information

Part Name	Package Type	Package Code (Previous Code)	Package Abbreviation	Taping Abbreviation (Quantity)
HD74LS245P	DILP-20 pin	PRDP0020AC-B (DP-20NEV)	P	—
HD74LS245FPEL	SOP-20 pin (JEITA)	PRSP0020DD-B (FP-20DAV)	FP	EL (2,000 pcs/reel)
HD74LS245RPEL	SOP-20 pin (JEDEC)	PRSP0020DC-A (FP-20DBV)	RP	EL (1,000 pcs/reel)

Note: Please consult the sales office for the above package availability.

Pin Arrangement

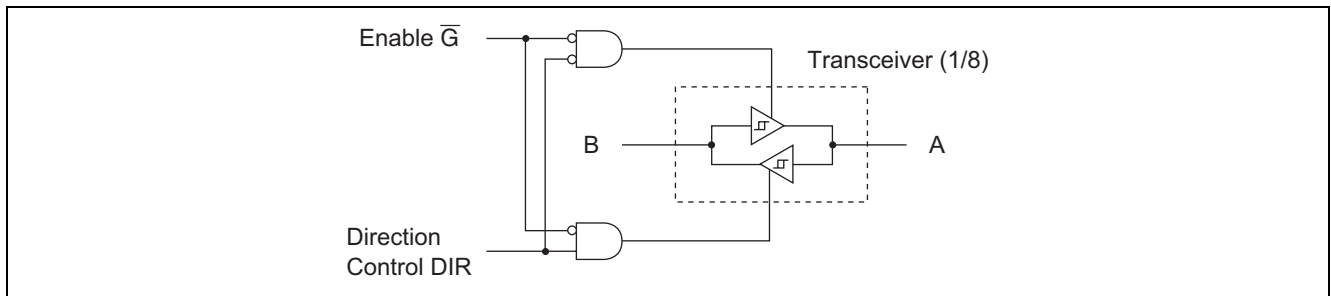


Function Table

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

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

Block Diagram



Absolute Maximum Ratings

Item	Symbol	Ratings	Unit
Supply voltage	V_{CC}	7	V
Input voltage	DIR, $\overline{G}$	7	V
	A, B	5.5	V
Power dissipation	P_T	400	mW
Storage temperature	T_{stg}	-65 to +150	°C
Operating temperature	T_{opr}	-20 to +75	°C

Note: Voltage value, unless otherwise noted, are with respect to network ground terminal.

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
	I_{OL}	—	—	24	mA
Operating temperature	T_{opr}	-20	25	75	°C

Electrical Characteristics

(Ta = -20 to +75 °C)

Item	Symbol	min.	typ.*	max.	Unit	Condition
Input voltage	V_{IH}	2.0	—	—	V	
	V_{IL}	—	—	0.8		
Hysteresis	$V_{T+} - V_{T-}$	0.2	0.4	—	V	$V_{CC} = 4.75$ V
Output voltage	V_{OH}	2.4	—	—	V	$I_{OH} = -3$ mA $I_{OH} = -15$ mA
		2	—	—		
	V_{OL}	—	—	0.4	V	$I_{OL} = 12$ mA $I_{OL} = 24$ mA
		—	—	0.5		
Off-state output current	I_{OZH}	—	—	20	μ A	$V_O = 2.7$ V $V_O = 0.4$ V
	I_{OZL}	—	—	-200		
Input current	I_{IH}	—	—	20	μ A	$V_{CC} = 5.25$ V, $V_I = 2.7$ V
		—	—	-0.2	mA	$V_{CC} = 5.25$ V, $V_I = 0.4$ V
	A or B	—	—	0.1	mA	$V_{CC} = 5.25$ V, $V_I = 5.5$ V
	DIR or $\overline{G}$	—	—	0.1		$V_{CC} = 5.25$ V, $V_I = 7$ V
Short-circuit output current	I_{OS}	-40	—	-225	mA	$V_{CC} = 5.25$ V
Supply current**	I_{CCH}	—	48	70	mA	$V_{CC} = 5.25$ V
	I_{CCL}	—	62	90		
	I_{CCZ}	—	64	95		
Input clamp voltage	V_{IK}	—	—	-1.5	V	$V_{CC} = 4.75$ V, $I_{IN} = -18$ mA

Notes: * $V_{CC} = 5$ V, Ta = 25°C** With all outputs open, I_{CC} is measured with transceivers enabled in one direction only, or with all transceivers disabled.

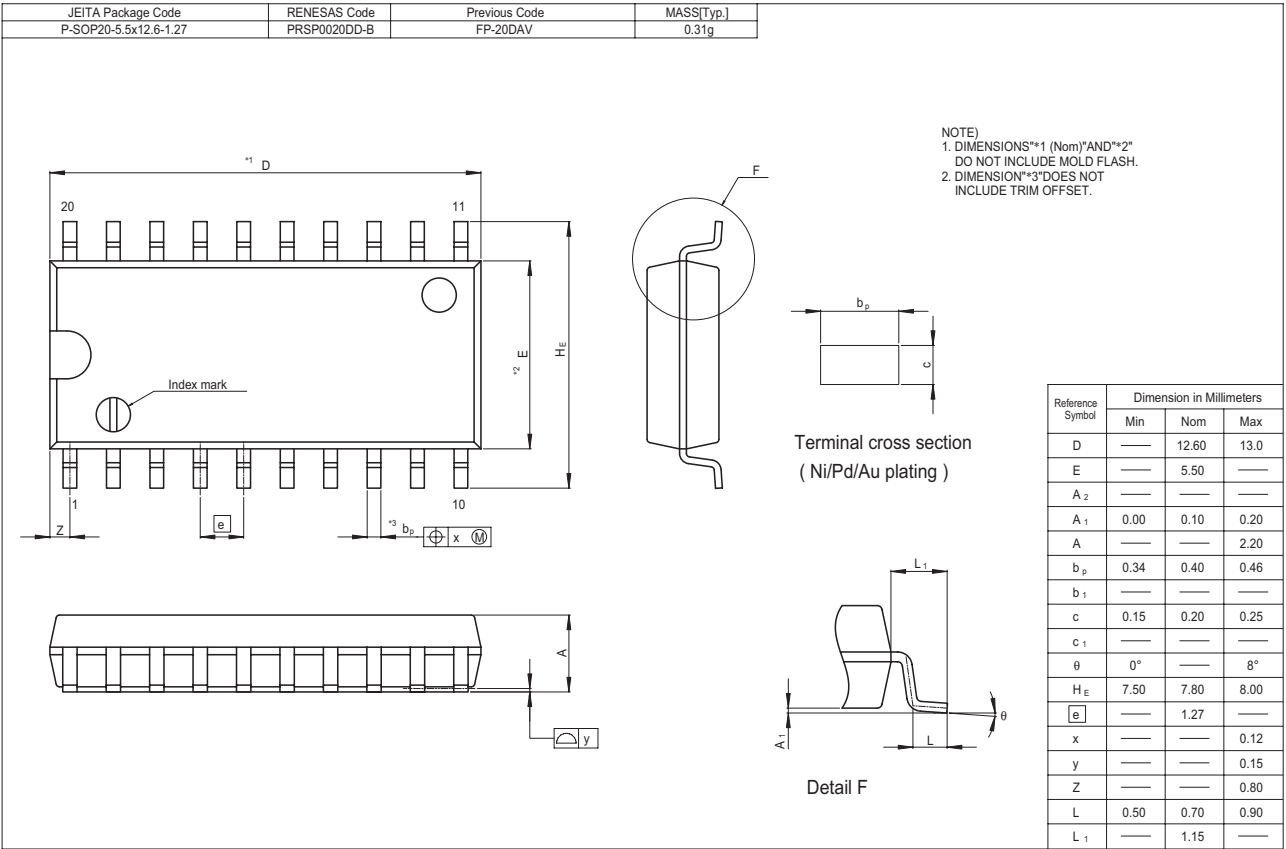
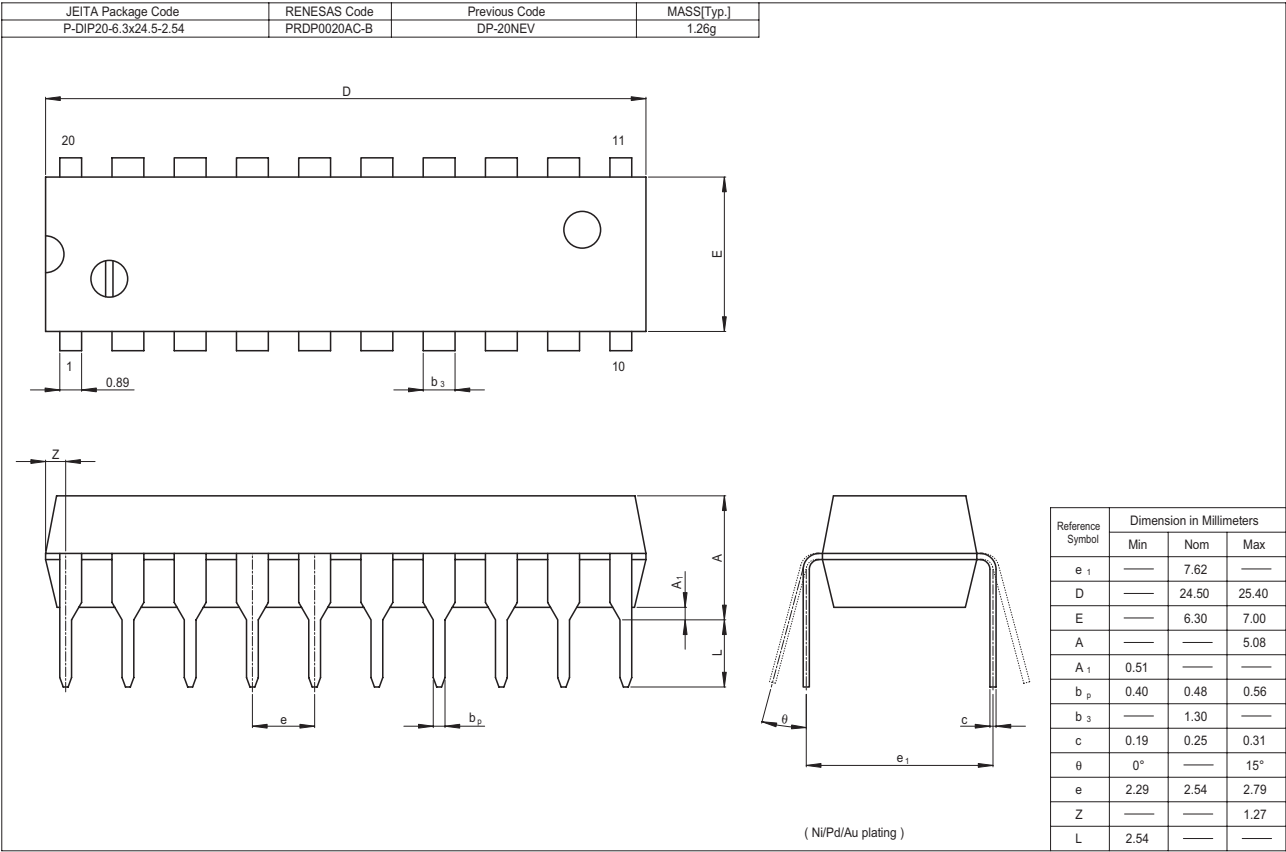
Switching Characteristics

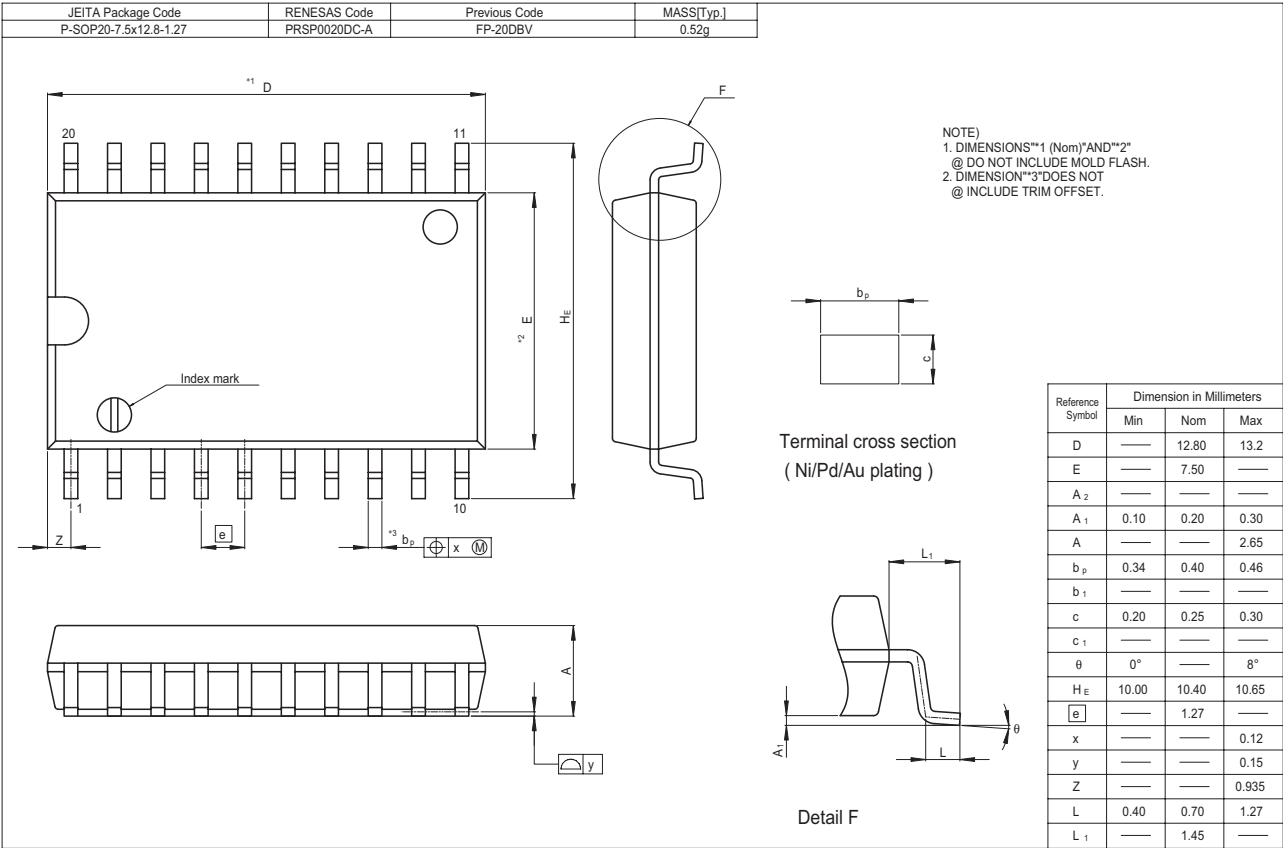
(V_{CC} = 5 V, Ta = 25°C)

Item	Symbol	min.	typ.	max.	Unit	Condition
Propagation delay time	t_{PLH}	—	8	15	ns	$C_L = 45$ pF, $R_L = 667$ Ω
	t_{PHL}	—	11	15		
Output enable time	t_{ZL}	—	27	40		
	t_{ZH}	—	25	40		
Output disable time	t_{LZ}	—	15	25		$C_L = 5$ pF, $R_L = 667$ Ω
	t_{HZ}	—	15	25		

Note: Refer to Test Circuit and Waveform of the Common Item "TTL Common Matter (Document No.: REJ27D0005-0100)".

Package Dimensions





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