

# HD74LS240

Octal Buffers / Line Drivers / Line Receivers  
(inverted three-state outputs)

REJ03D0459-0200

Rev.2.00

Feb.18.2005

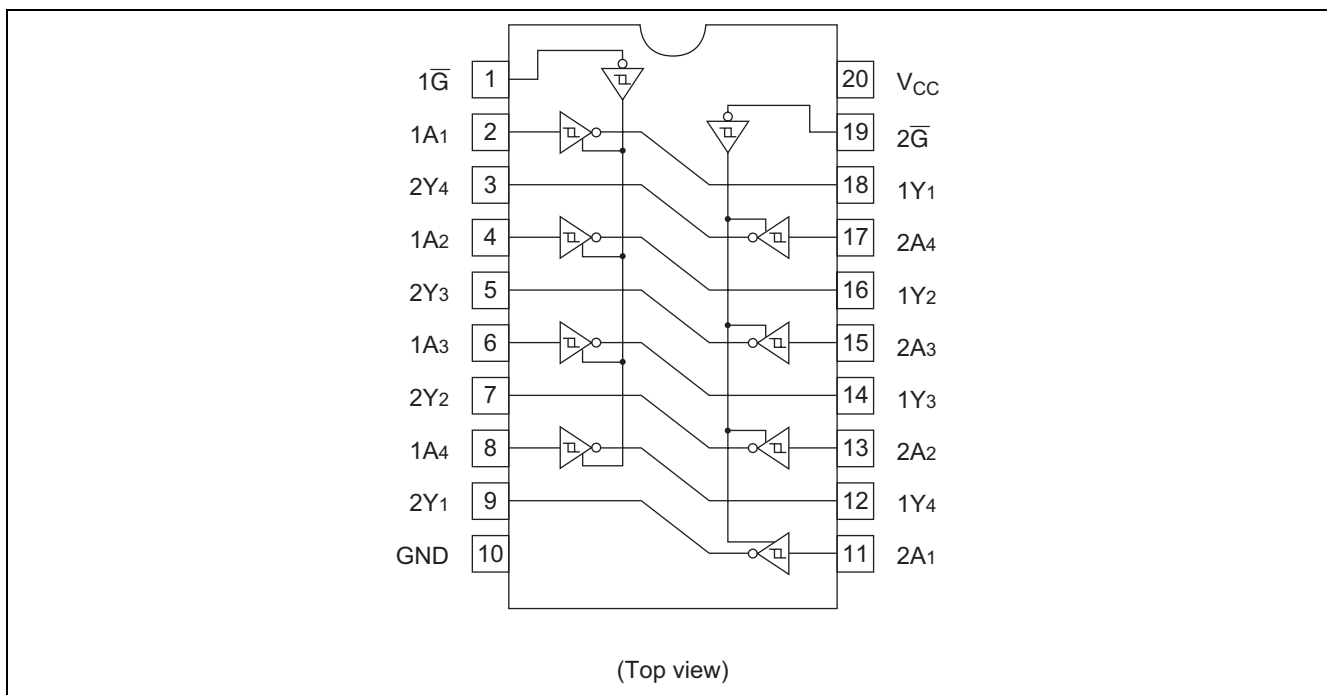
## Features

- Ordering Information

Part Name	Package Type	Package Code (Previous Code)	Package Abbreviation	Taping Abbreviation (Quantity)
HD74LS240P	DILP-20 pin	PRDP0020AC-B (DP-20NEV)	P	—
HD74LS240FPEL	SOP-20 pin (JEITA)	PRSP0020DD-B (FP-20DAV)	FP	EL (2,000 pcs/reel)
HD74LS240RPEL	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

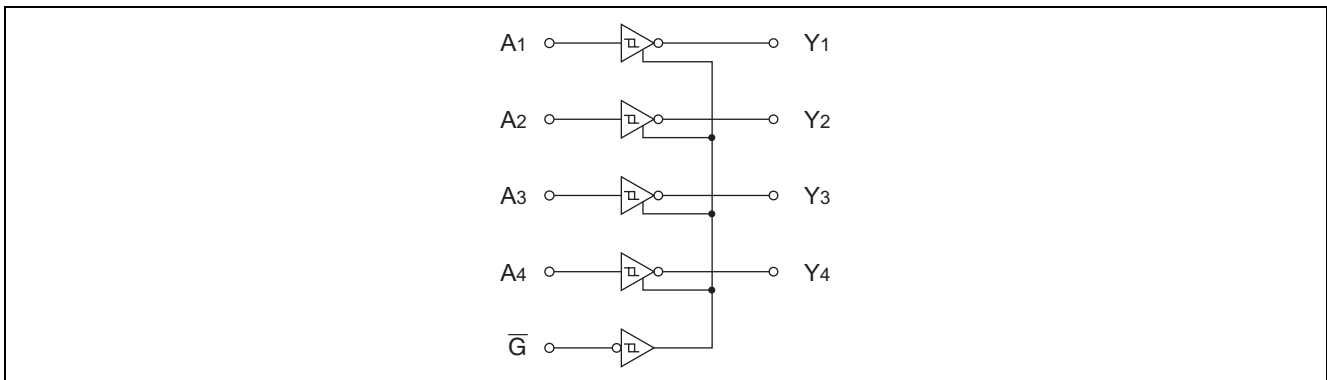


**Function Table**

Inputs		Output
$\bar{G}$	A	Y
H	X	Z
L	H	L
L	L	H

Note: H; high level, L; low level, X; irrelevant, Z; off (high-impedance) state of a 3-state output

**Block Diagram (1/2)**



**Absolute Maximum Ratings**

Item	Symbol	Ratings	Unit
Supply voltage	$V_{CC}$	7	V
Input voltage	$V_{IN}$	7	V
Power dissipation	$P_T$	400	mW
Storage temperature	$T_{stg}$	-65 to +150	°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 <sub>IH</sub>	2.0	—	—	V		
	V <sub>IL</sub>	—	—	0.8	V		
Hysteresis	V <sub>T+</sub> - V <sub>T-</sub>	0.2	0.4	—	V	V <sub>CC</sub> = 4.75 V	
Output voltage	V <sub>OH</sub>	2.4	—	—	V	V <sub>IL</sub> = 0.8 V, I <sub>OH</sub> = -3 mA	
		2.0	—	—		V <sub>IL</sub> = 0.5 V, I <sub>OH</sub> = -15 mA	
	V <sub>OL</sub>	—	—	0.4	V	I <sub>OL</sub> = 12 mA	
		—	—	0.5		I <sub>OL</sub> = 24 mA	
Off-state output current	I <sub>ozH</sub>	—	—	20	μA	V <sub>O</sub> = 2.7 V	
	I <sub>ozL</sub>	—	—	-20	μA	V <sub>O</sub> = 0.4 V	
Input current	I <sub>IH</sub>	—	—	20	μA	V <sub>CC</sub> = 5.25 V, V <sub>I</sub> = 2.7 V	
	I <sub>IL</sub>	—	—	-0.2	mA	V <sub>CC</sub> = 5.25 V, V <sub>I</sub> = 0.4 V	
	I <sub>I</sub>	—	—	0.1	mA	V <sub>CC</sub> = 5.25 V, V <sub>I</sub> = 7 V	
Short-circuit output current	I <sub>OS</sub>	-40	—	-225	mA	V <sub>CC</sub> = 5.25 V	
Supply current**	Outputs high	I <sub>CC</sub>	—	13	23	mA	V <sub>CC</sub> = 5.25 V
	Outputs low		—	26	44		
	All outputs disabled		—	29	50		
Input clamp voltage	V <sub>IK</sub>	—	—	-1.5	V	V <sub>CC</sub> = 4.75 V, I <sub>IN</sub> = -18 mA	

Notes: \* V<sub>CC</sub> = 5 V, Ta = 25°C

\*\* I<sub>CC</sub> is measured with all outputs open.

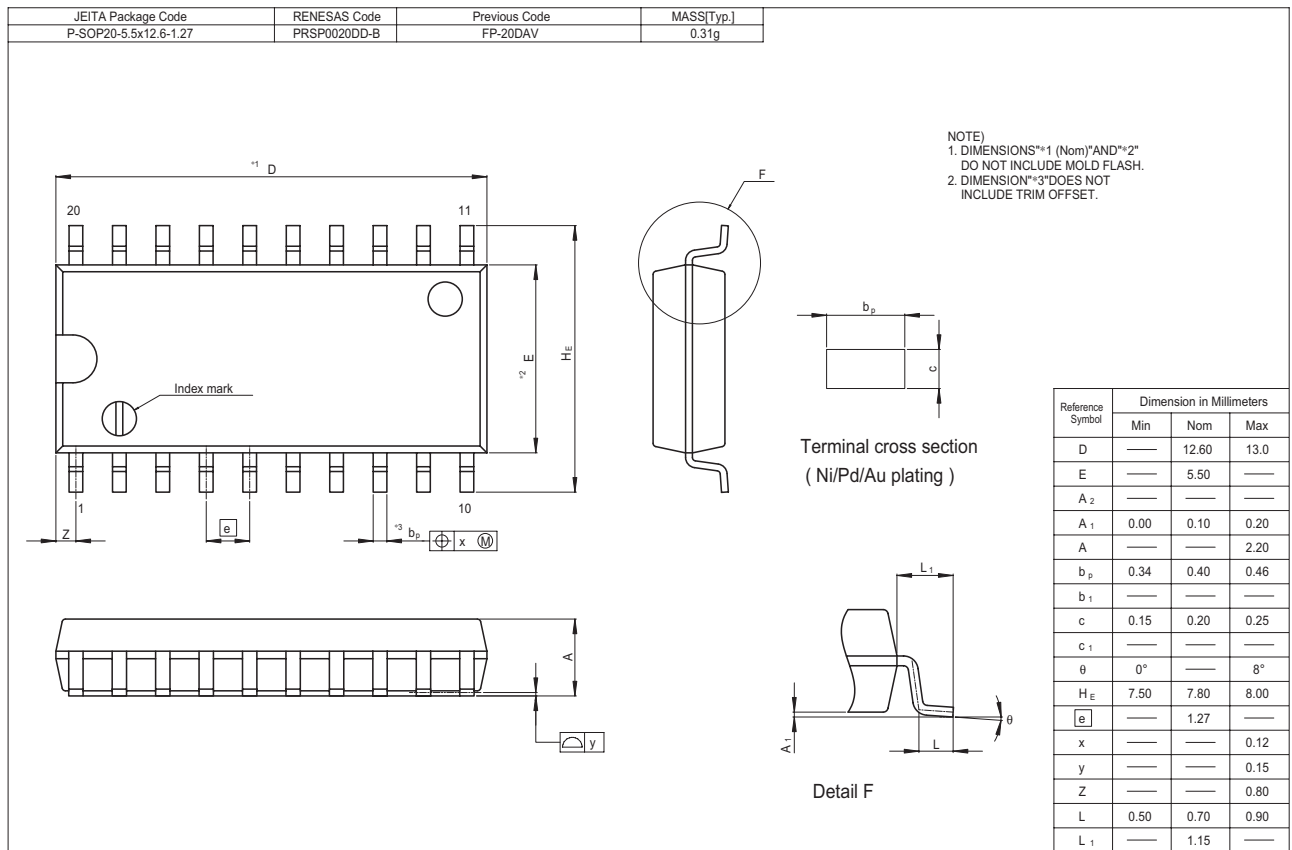
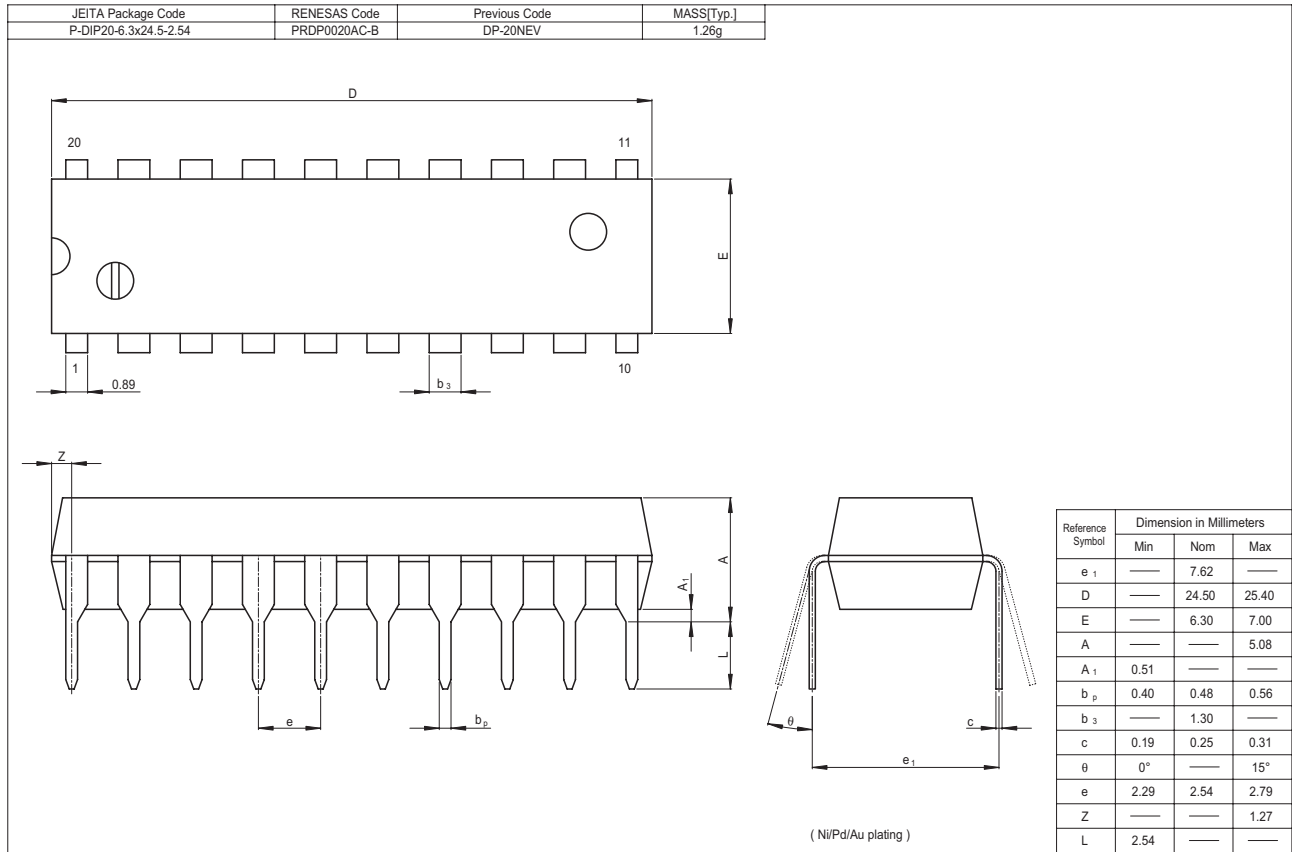
**Switching Characteristics**

(V<sub>CC</sub> = 5 V, Ta = 25°C)

Item	Symbol	min.	typ.	max.	Unit	Condition
Propagation delay time	t <sub>PLH</sub>	—	9	14	ns	C <sub>L</sub> = 45 pF, R <sub>L</sub> = 667 Ω
	t <sub>PHL</sub>	—	12	18		
Output enable time	t <sub>ZL</sub>	—	20	30	ns	
	t <sub>ZH</sub>	—	15	23	ns	
Output disable time	t <sub>LZ</sub>	—	15	25	ns	C <sub>L</sub> = 5 pF, R <sub>L</sub> = 667 Ω
	t <sub>HZ</sub>	—	10	18	ns	

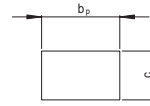
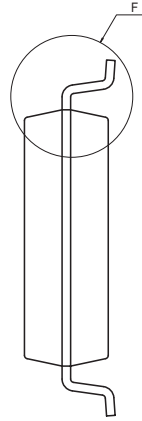
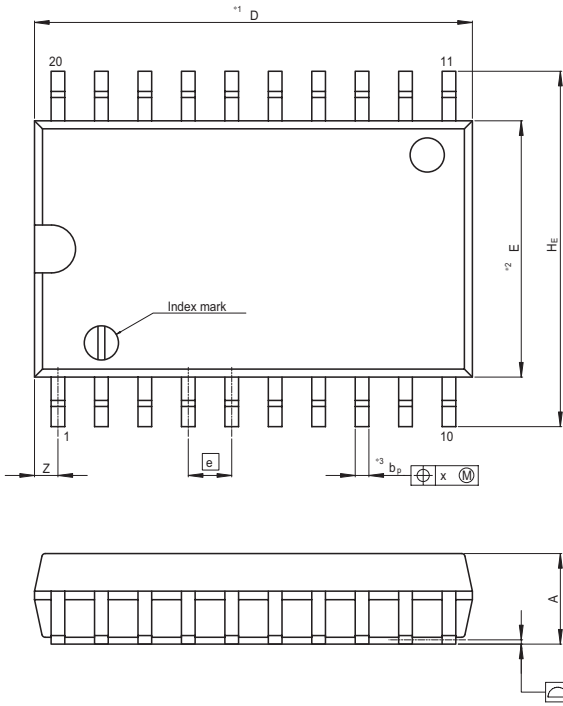
Note: Refer to Test Circuit and Waveform of the Common Item "TTL Common Matter (Document No.: REJ27D0005-0100)".

Package Dimensions

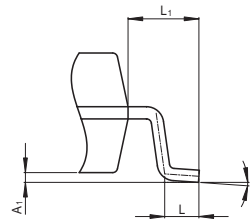


# HD74LS240

JEITA Package Code P-SOP20-7.5x12.8-1.27	RENESAS Code PRSP0020DC-A	Previous Code FP-20DBV	MASS[Typ.] 0.52g
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Terminal cross section  
( Ni/Pd/Au plating )



Detail F

NOTE)  
1. DIMENSIONS\*\*1 (Nom)\*\*AND\*\*2\*  
@ DO NOT INCLUDE MOLD FLASH.  
2. DIMENSION\*\*3\*DOES NOT  
@ INCLUDE TRIM OFFSET.

Reference Symbol	Dimension in Millimeters		
	Min	Nom	Max
D	—	12.80	13.2
E	—	7.50	—
A <sub>2</sub>	—	—	—
A <sub>1</sub>	0.10	0.20	0.30
A	—	—	2.65
b <sub>p</sub>	0.34	0.40	0.46
b <sub>1</sub>	—	—	—
c	0.20	0.25	0.30
c <sub>1</sub>	—	—	—
θ	0°	—	8°
H <sub>E</sub>	10.00	10.40	10.65
e	—	1.27	—
x	—	—	0.12
y	—	—	0.15
Z	—	—	0.935
L	0.40	0.70	1.27
L <sub>1</sub>	—	1.45	—

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