

# HD74LS368A

Hex Bus Drivers  
(inverted data outputs with three-state outputs)

REJ03D0481-0200

Rev.2.00

Feb.18.2005

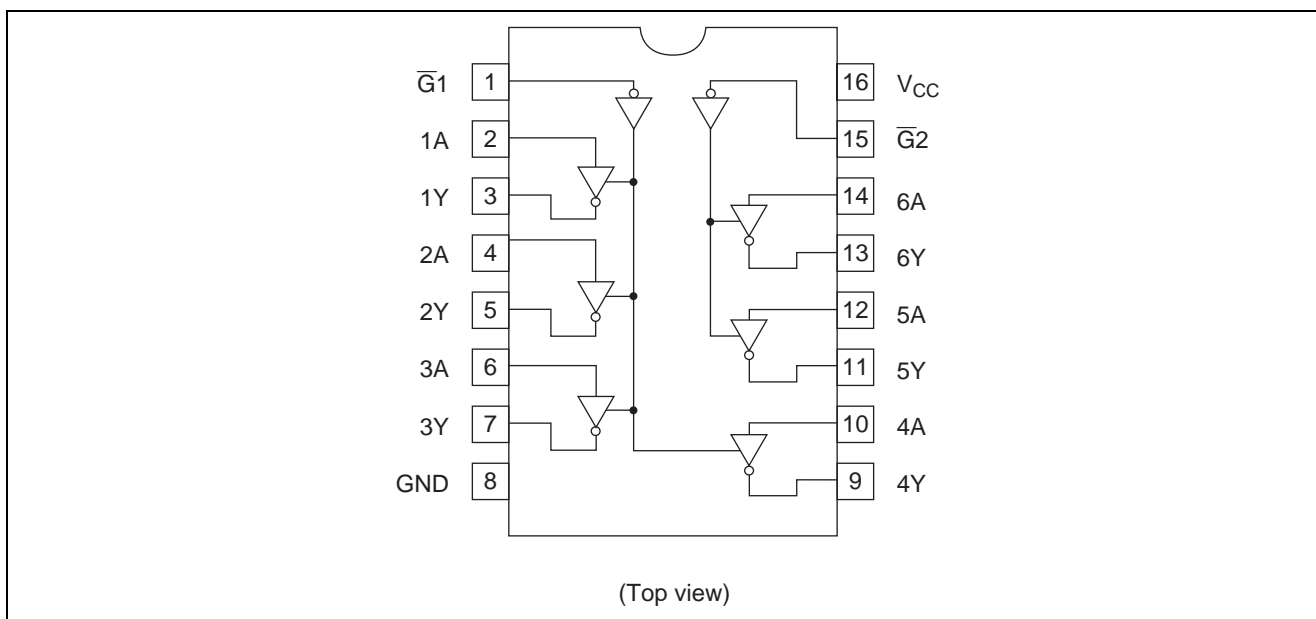
## Features

- Ordering Information

Part Name	Package Type	Package Code (Previous Code)	Package Abbreviation	Taping Abbreviation (Quantity)
HD74LS368AP	DILP-16 pin	PRDP0016AE-B (DP-16FV)	P	—
HD74LS368AFPEL	SOP-16 pin (JEITA)	PRSP0016DH-B (FP-16DAV)	FP	EL (2,000 pcs/reel)
HD74LS368ARPEL	SOP-16 pin (JEDEC)	PRSP0016DG-A (FP-16DNV)	RP	EL (2,500 pcs/reel)

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

## Pin Arrangement



## Function Table

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

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

## Absolute Maximum Ratings

Item	Symbol	Ratings	Unit
Supply voltage	$V_{CC}$	7	V
Input voltage	$V_{IN}$	7	V
Output voltage (off-state)	$V_{O(off)}$	5.5	V
Power dissipation	$P_T$	400	mW
Operating temperature	$T_{opr}$	-20 to +75	°C
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	$I_{OH}$	—	—	-2.6	mA
	$I_{OL}$	—	—	24	mA
Operating temperature	$T_{opr}$	-20	25	75	°C

## Electrical Characteristics

( $T_a = -20$  to  $+75$  °C)

Item	Symbol	min.	typ.*	max.	Unit	Condition	
Input voltage	$V_{IH}$	2.0	—	—	V		
	$V_{IL}$	—	—	0.8			
Output voltage	$V_{OH}$	2.4	—	—	V	$V_{CC} = 4.75$ V, $V_{IH} = 2$ V, $V_{IL} = 0.8$ V, $I_{OH} = -2.6$ mA	
	$V_{OL}$	—	—	0.4			$I_{OL} = 12$ mA
		—	—	0.5	$I_{OL} = 24$ mA		
Output current	$I_{OZH}$	—	—	20	$\mu$ A	$V_O = 2.4$ V	
	$I_{OZL}$	—	—	-20			$V_O = 0.4$ V
Input current	$I_{IH}$	—	—	20	$\mu$ A	$V_{CC} = 5.25$ V, $V_I = 2.7$ V	
	A inputs	$I_{IL}$	—	—	-20	$\mu$ A	$V_{CC} = 5.25$ V, $V_I = 0.5$ V, $\bar{G}$ input at 2 V
			—	—	-0.4	mA	$V_{CC} = 5.25$ V, $V_I = 0.4$ V, $\bar{G}$ inputs at 0.4 V
	$\bar{G}$ inputs	$I_{IL}$	—	—	-0.4	mA	$V_{CC} = 5.25$ V, $V_I = 0.4$ V
	$I_I$	—	—	0.1	mA	$V_{CC} = 5.25$ V, $V_I = 7$ V	
Short-circuit output current	$I_{OS}$	-40	—	-225	mA	$V_{CC} = 5.25$ V	
Supply current**	$I_{CC}$	—	12	21	mA	$V_{CC} = 5.25$ V	
Input clamp voltage	$V_{IK}$	—	—	-1.5	V	$V_{CC} = 4.75$ V, $I_{IN} = -18$ mA	

Notes: \*  $V_{CC} = 5$  V,  $T_a = 25$ °C

\*\* With all outputs open,  $I_{CC}$  is measured with all inputs grounded and all  $\bar{G}$  inputs at 4.5 V.

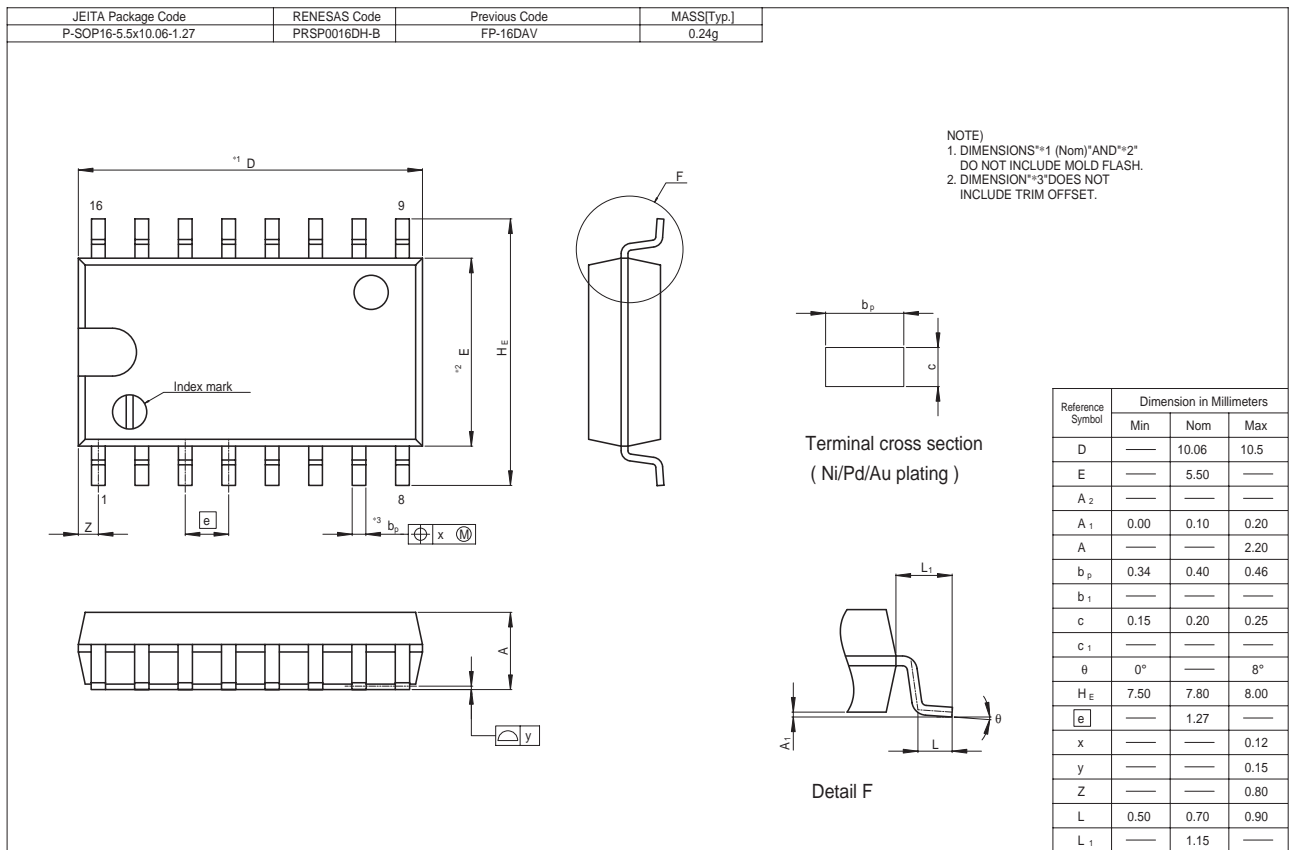
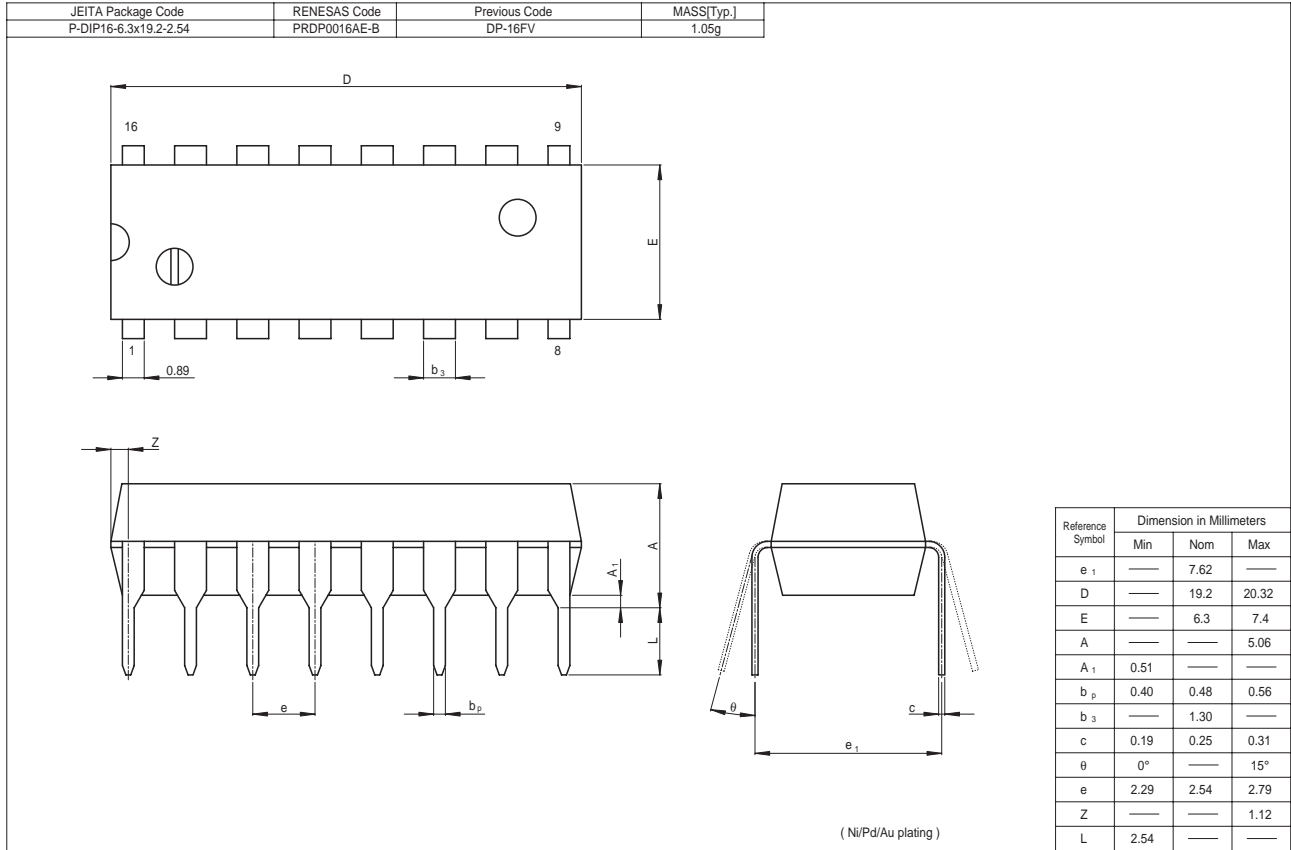
## Switching Characteristics

(V<sub>CC</sub> = 5 V, Ta = 25°C)

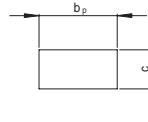
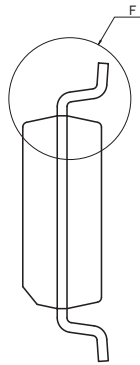
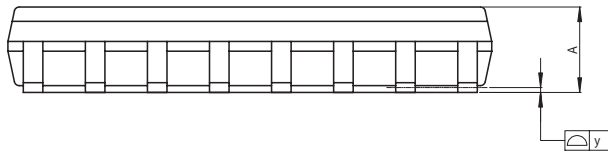
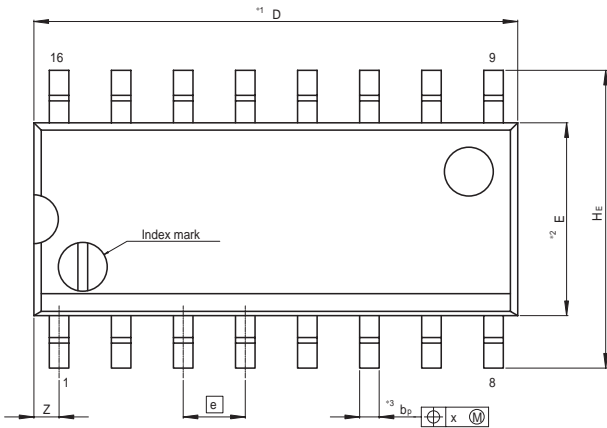
Item	Symbol	min.	typ.	max.	Unit	Condition
Propagation delay time	t <sub>PLH</sub>	—	7	15	ns	C <sub>L</sub> = 45 pF, R <sub>L</sub> = 667 Ω
	t <sub>PHL</sub>	—	12	18		
Output enable time	t <sub>ZH</sub>	—	18	35		
	t <sub>ZL</sub>	—	28	45		
Output disable time	t <sub>HZ</sub>	—	—	32		C <sub>L</sub> = 5 pF, R <sub>L</sub> = 667 Ω
	t <sub>LZ</sub>	—	—	35		

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

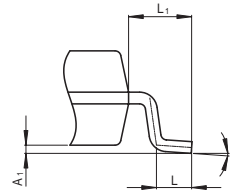
Package Dimensions



JEITA Package Code P-SOP16-3.95x9.9-1.27	RENESAS Code PRSP0016DG-A	Previous Code FP-16DNV	MASS[Typ.] 0.15g
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Terminal cross section  
( Ni/Pd/Au plating )



Detail F

NOTE)  
1. DIMENSIONS  $^{*1}$  (Nom)  $^{*2}$  AND  $^{*3}$   
DO NOT INCLUDE MOLD FLASH.  
2. DIMENSION  $^{*3}$  DOES NOT  
INCLUDE TRIM OFFSET.

Reference Symbol	Dimension in Millimeters		
	Min	Nom	Max
D	—	9.90	10.30
E	—	3.95	—
A <sub>2</sub>	—	—	—
A <sub>1</sub>	0.10	0.14	0.25
A	—	—	1.75
b <sub>p</sub>	0.34	0.40	0.46
b <sub>1</sub>	—	—	—
c	0.15	0.20	0.25
c <sub>1</sub>	—	—	—
$\theta$	0°	—	8°
H <sub>E</sub>	5.80	6.10	6.20
e	—	1.27	—
x	—	—	0.25
y	—	—	0.15
Z	—	—	0.635
L	0.40	0.60	1.27
L <sub>1</sub>	—	1.08	—

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