

# HD74HC32

## Quad. 2-input OR Gates

REJ03D0545-0200  
(Previous ADE-205-417)

Rev.2.00

Oct 06, 2005

### Features

- High Speed Operation:  $t_{pd} = 10 \text{ ns typ (} C_L = 50 \text{ pF)}$
- High Output Current: Fanout of 10 LSTTL Loads
- Wide Operating Voltage:  $V_{CC} = 2 \text{ to } 6 \text{ V}$
- Low Input Current:  $1 \mu\text{A max}$
- Low Quiescent Supply Current:  $I_{CC} \text{ (static)} = 1 \mu\text{A max (} T_a = 25^\circ\text{C)}$
- Ordering Information

Part Name	Package Type	Package Code (Previous Code)	Package Abbreviation	Taping Abbreviation (Quantity)
HD74HC32P	DILP-14 pin	PRDP0014AB-B (DP-14AV)	P	—
HD74HC32FPEL	SOP-14 pin (JEITA)	PRSP0014DF-B (FP-14DAV)	FP	EL (2,000 pcs/reel)
HD74HC32RPEL	SOP-14 pin (JEDEC)	PRSP0014DE-A (FP-14DNV)	RP	EL (2,500 pcs/reel)
HD74HC32TELL	TSSOP-14 pin	PTSP0014JA-B (TTP-14DV)	T	ELL (2,000 pcs/reel)

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

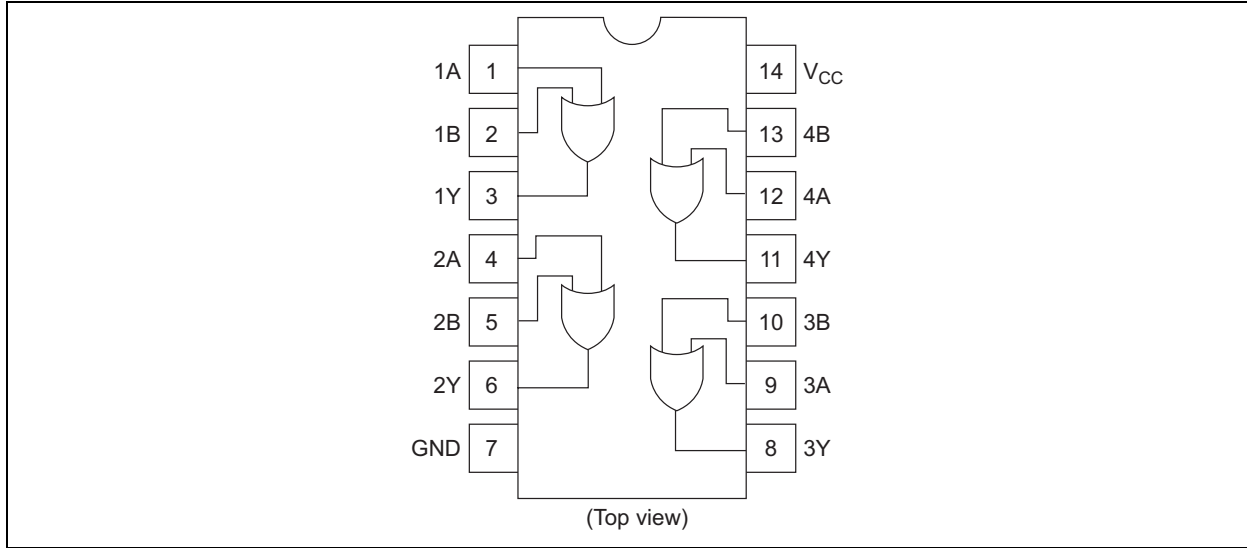
### Function Table

Inputs		Output
A	B	Y
L	L	L
H	L	H
L	H	H
H	H	H

H : High level

L : Low level

**Pin Arrangement**



**Absolute Maximum Ratings**

Item	Symbol	Ratings	Unit
Supply voltage range	$V_{CC}$	-0.5 to 7.0	V
Input / Output voltage	$V_{in}, V_{out}$	-0.5 to $V_{CC} + 0.5$	V
Input / Output diode current	$I_{IK}, I_{OK}$	$\pm 20$	mA
Output current	$I_O$	$\pm 25$	mA
$V_{CC}, GND$ current	$I_{CC}$ OR $I_{GND}$	$\pm 50$	mA
Power dissipation	$P_T$	500	mW
Storage temperature	$T_{stg}$	-65 to +150	$^{\circ}C$

Note: The absolute maximum ratings are values, which must not individually be exceeded, and furthermore, no two of which may be realized at the same time.

**Recommended Operating Conditions**

Item	Symbol	Ratings	Unit	Conditions
Supply voltage	$V_{CC}$	2 to 6	V	
Input / Output voltage	$V_{IN}, V_{OUT}$	0 to $V_{CC}$	V	
Operating temperature	$T_a$	-40 to 85	$^{\circ}C$	
Input rise / fall time <sup>1</sup>	$t_r, t_f$	0 to 1000	ns	$V_{CC} = 2.0$ V
		0 to 500		$V_{CC} = 4.5$ V
		0 to 400		$V_{CC} = 6.0$ V

Note: 1. This item guarantees maximum limit when one input switches.  
 Waveform: Refer to test circuit of switching characteristics.

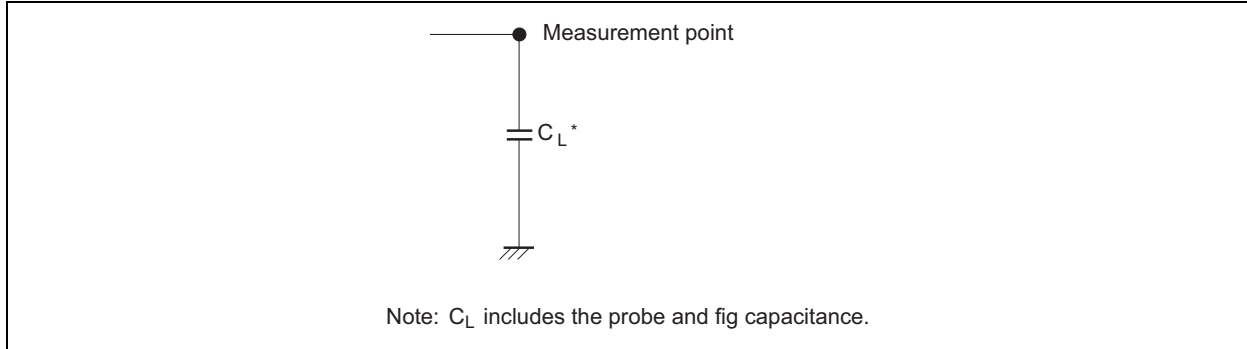
## Electrical Characteristics

Item	Symbol	V <sub>CC</sub> (V)	Ta = 25°C			Ta = -40 to +85°C		Unit	Test Conditions				
			Min	Typ	Max	Min	Max						
Input voltage	V <sub>IH</sub>	2.0	1.5	—	—	1.5	—	V					
		4.5	3.15	—	—	3.15	—						
		6.0	4.2	—	—	4.2	—						
	V <sub>IL</sub>	2.0	—	—	0.5	—	0.5				V		
		4.5	—	—	1.35	—	1.35						
		6.0	—	—	1.8	—	1.8						
Output voltage	V <sub>OH</sub>	2.0	1.9	2.0	—	1.9	—	V	Vin = V <sub>IH</sub> or V <sub>IL</sub>	I <sub>OH</sub> = -20 μA			
		4.5	4.4	4.5	—	4.4	—			I <sub>OH</sub> = -4 mA			
		6.0	5.9	6.0	—	5.9	—			I <sub>OH</sub> = -5.2 mA			
		4.5	4.18	—	—	4.13	—						
	V <sub>OL</sub>	2.0	—	0.0	0.1	—	0.1		V	Vin = V <sub>IH</sub> or V <sub>IL</sub>	I <sub>OL</sub> = 20 μA		
		4.5	—	0.0	0.1	—	0.1						
		6.0	—	0.0	0.1	—	0.1						
		4.5	—	—	0.26	—	0.33				I <sub>OL</sub> = 4 mA		
		6.0	—	—	0.26	—	0.33				I <sub>OL</sub> = 5.2 mA		
Input current	I <sub>in</sub>	6.0	—	—	±0.1	—	±1.0	μA	Vin = V <sub>CC</sub> or GND				
Quiescent supply current	I <sub>CC</sub>	6.0	—	—	1.0	—	10	μA	Vin = V <sub>CC</sub> or GND, I <sub>out</sub> = 0 μA				

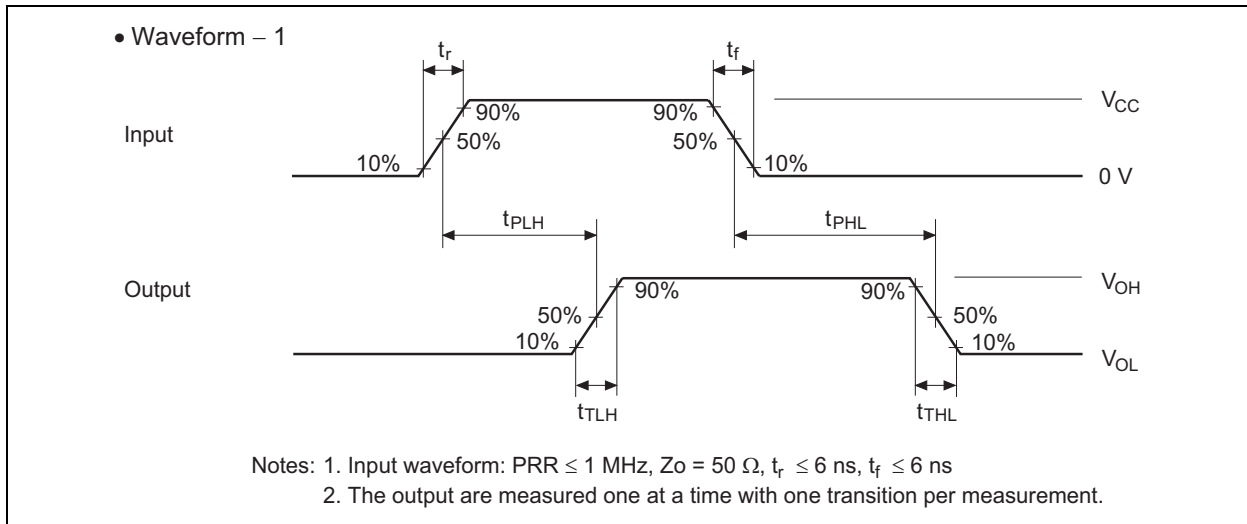
Switching Characteristics (C<sub>L</sub> = 50 pF, Input t<sub>r</sub> = t<sub>f</sub> = 6 ns)

Item	Symbol	V <sub>CC</sub> (V)	Ta = 25°C			Ta = -40 to +85°C		Unit	Test Conditions				
			Min	Typ	Max	Min	Max						
Propagation delay time	t <sub>PLH</sub>	2.0	—	—	100	—	125	ns					
		4.5	—	10	20	—	25						
		6.0	—	—	17	—	21						
	t <sub>PHL</sub>	2.0	—	—	100	—	125				ns		
		4.5	—	10	20	—	25						
		6.0	—	—	17	—	21						
Output rise time	t <sub>TLH</sub>	2.0	—	—	75	—	95	ns					
		4.5	—	5	15	—	19						
		6.0	—	—	13	—	16						
Output fall time	t <sub>THL</sub>	2.0	—	—	75	—	95				ns		
		4.5	—	5	15	—	19						
		6.0	—	—	13	—	16						
Input capacitance	C <sub>in</sub>	—	—	5	10	—	10	pF					

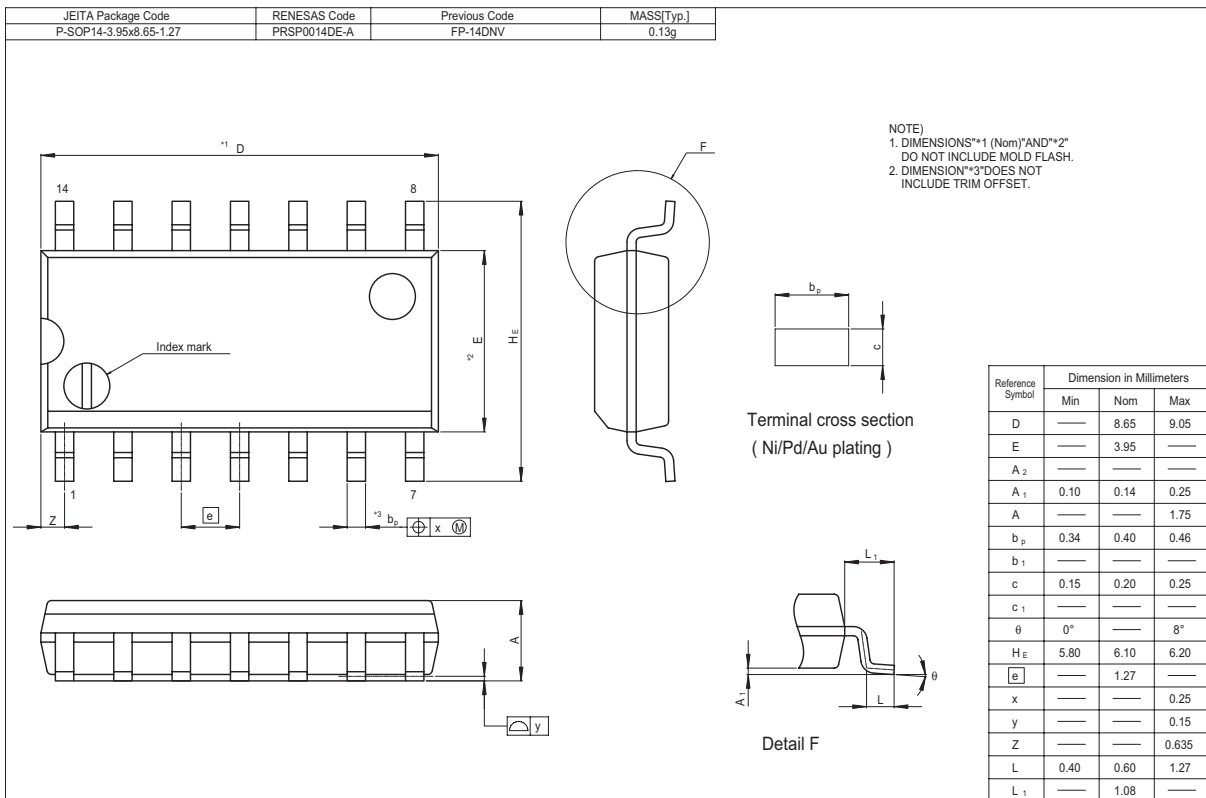
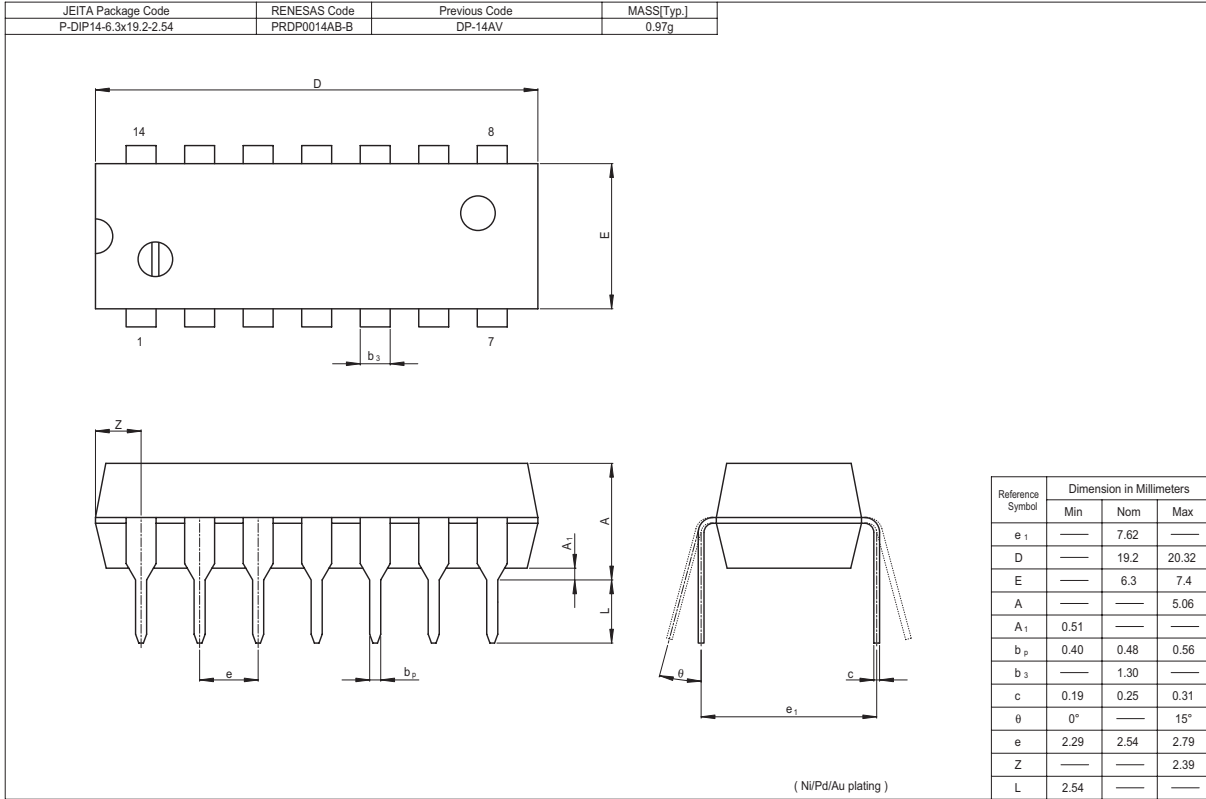
Test Circuit

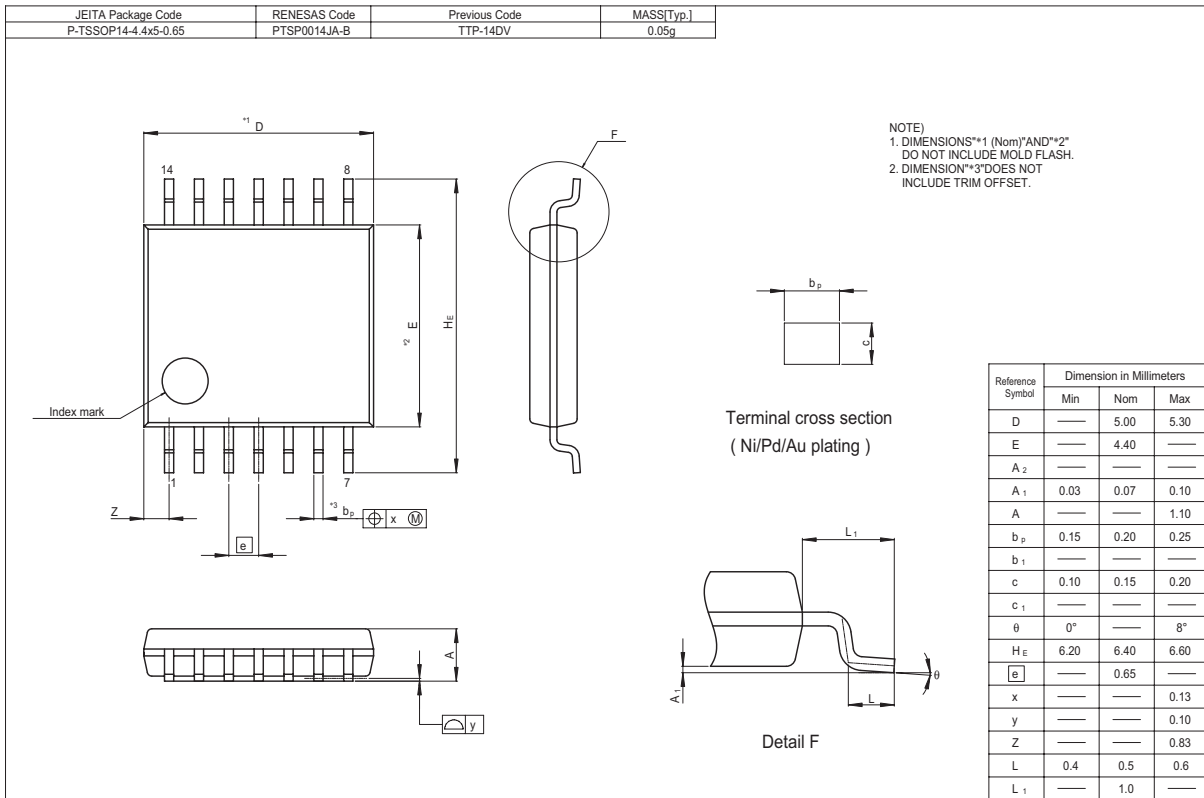
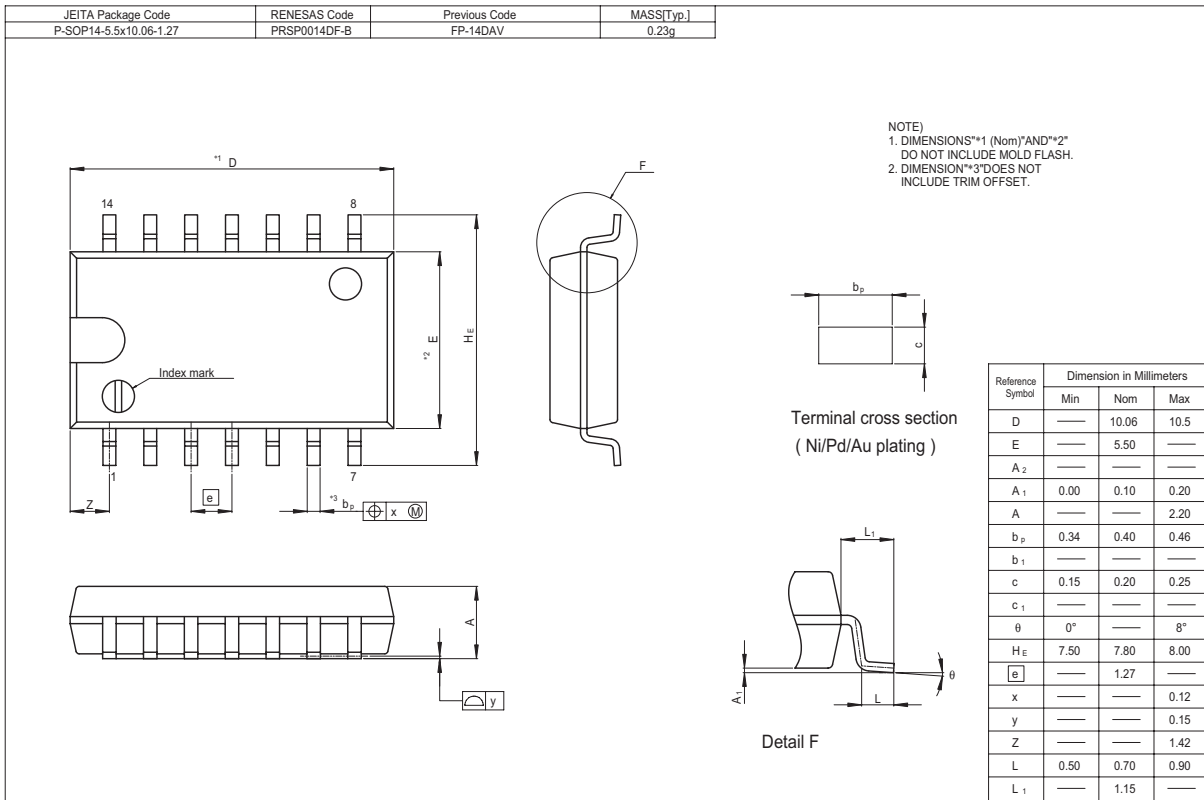


Waveforms



Package Dimensions





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