

To all our customers

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Renesas Technology Corp.  
Customer Support Dept.  
April 1, 2003

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Keep safety first in your circuit designs!

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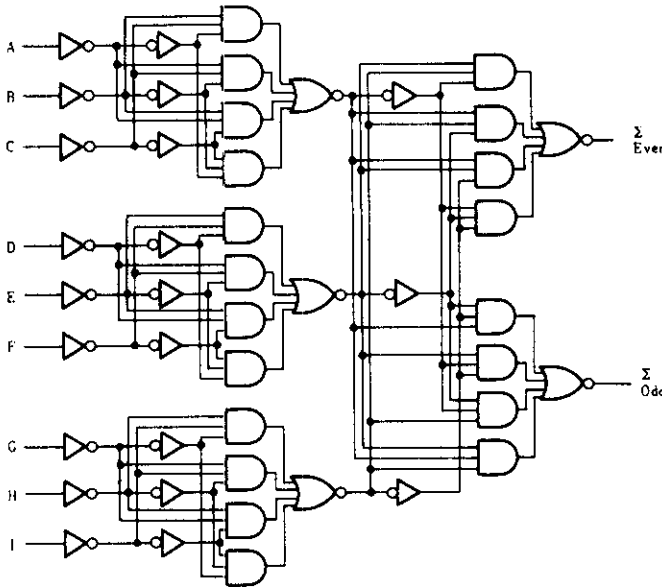
# HD74LS280 ● 9-bit Odd/Even Parity Generators/Checkers

This parity generator/checker offers the designer a trade-off between reduced power consumption and high performance. Although the HD74LS280 is implemented without expander inputs, the corresponding function is provided by the availability of an input at pin 4 and the absence of any internal connection at pin 3.

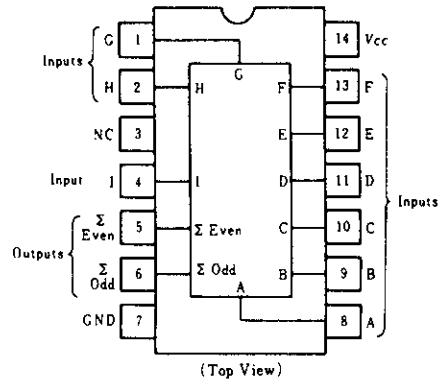
## ■ FUNCTION TABLE

Number of inputs A through I that are high	Outputs	
	$\Sigma$ Even	$\Sigma$ Odd
0, 2, 4, 6, 8	H	L
1, 3, 5, 7, 9	L	H

## ■ BLOCK DIAGRAM



## ■ PIN ARRANGEMENT



## ■ ELECTRICAL CHARACTERISTICS ( $T_a = -20 \sim +75^\circ\text{C}$ )

Item	Symbol	Test Conditions	min	typ*	max	Unit	
Input voltage	$V_{IH}$		2.0	—	—	V	
	$V_{IL}$		—	—	0.8	V	
Output voltage	$V_{OH}$	$V_{CC} = 4.75\text{V}, V_{IH} = 2\text{V}, V_{IL} = 0.8\text{V}, I_{OH} = -400\mu\text{A}$	2.7	—	—	V	
	$V_{OL}$	$V_{CC} = 4.75\text{V}, V_{IH} = 2\text{V}, V_{IL} = 0.8\text{V}$	$I_{OL} = 4\text{mA}$	—	—	0.4	V
			$I_{OL} = 8\text{mA}$	—	—	0.5	
Input current	$I_{IH}$	$V_{CC} = 5.25\text{V}, V_I = 2.7\text{V}$	—	—	20	$\mu\text{A}$	
	$I_{IL}$	$V_{CC} = 5.25\text{V}, V_I = 0.4\text{V}$	—	—	-0.4	mA	
	$I_I$	$V_{CC} = 5.25\text{V}, V_I = 7\text{V}$	—	—	0.1	mA	
Short-circuit output current	$I_{OS}$	$V_{CC} = 5.25\text{V}$	-20	—	-100	mA	
Supply current**	$I_{CC}$	$V_{CC} = 5.25\text{V}$	—	16	27	mA	
Input clamp voltage	$V_{IK}$	$V_{CC} = 4.75\text{V}, I_{IN} = -18\text{mA}$	—	—	-1.5	V	

\*  $V_{CC} = 5\text{V}, T_a = 25^\circ\text{C}$

\*\*  $I_{CC}$  is measured with all outputs open and all inputs grounded.

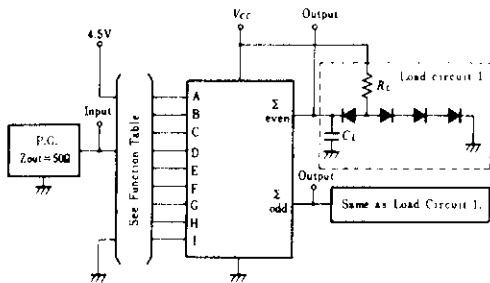
# HD74LS280

## SWITCHING CHARACTERISTICS ( $V_{CC}=5V, T_a=25^\circ C$ )

Item	Symbol	Outputs	Test Conditions	min	typ	max	Unit
Propagation delay time	$t_{PLH}$	$\Sigma$ Even	$C_L=15pF, R_L=2k\Omega$	—	33	50	ns
	$t_{PHL}$			—	29	45	ns
	$t_{PLH}$	$\Sigma$ Odd		—	23	45	ns
	$t_{PHL}$			—	31	50	ns

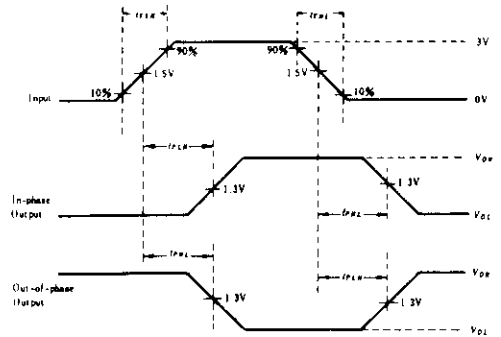
## TESTING METHOD

### 1) Test circuit

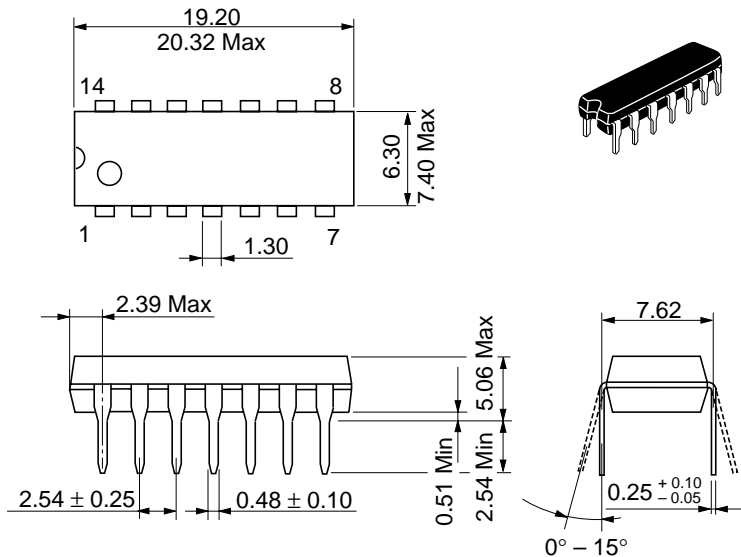


- Notes) 1.  $C_L$  includes probe and jig capacitance.  
2. All diodes are 1S2074 (H)

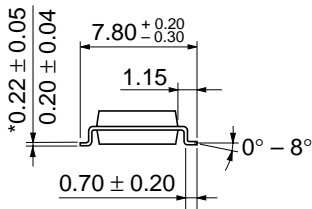
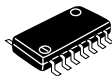
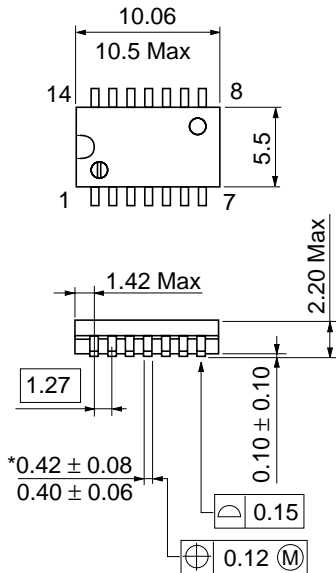
### Waveform



Input pulse;  $t_{TLH} \leq 15ns, t_{THL} \leq 6ns,$   
 $PRR=1MHz, \text{duty cycle } 50\%.$

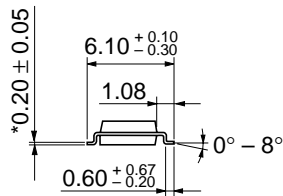
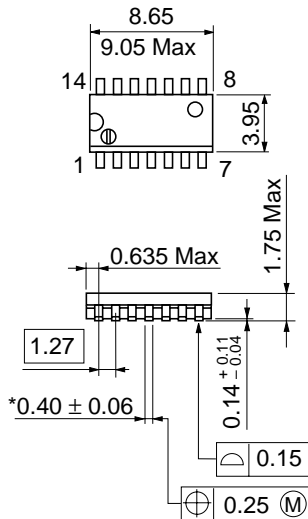


Hitachi Code	DP-14
JEDEC	Conforms
EIAJ	Conforms
Weight (reference value)	0.97 g



Hitachi Code	FP-14DA
JEDEC	—
EIAJ	Conforms
Weight (reference value)	0.23 g

\*Dimension including the plating thickness  
Base material dimension



Hitachi Code	FP-14DN
JEDEC	Conforms
EIAJ	Conforms
Weight (reference value)	0.13 g

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