

To all our customers

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Renesas Technology Home Page: <http://www.renesas.com>

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

Cautions

Keep safety first in your circuit designs!

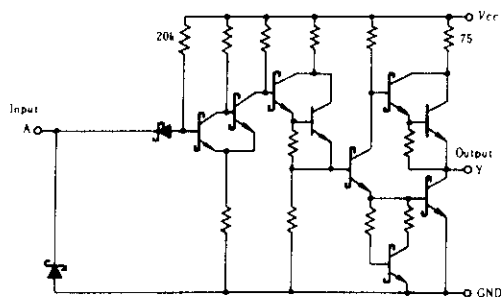
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Remember to give due consideration to safety when making your circuit designs, with appropriate measures such as (i) placement of substitutive, auxiliary circuits, (ii) use of nonflammable material or (iii) prevention against any malfunction or mishap.

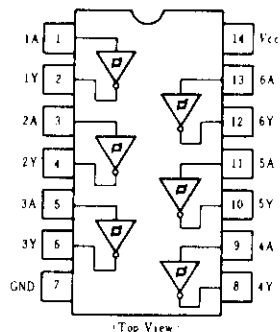
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■CIRCUIT SCHEMATIC (1/6)



■PIN ARRANGEMENT



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

Item	Symbol	Test Conditions	min	typ*	max	Unit
Input threshold voltage	V_{T^+}	$V_{CC}=5\text{V}$	1.4	1.6	1.9	V
	V_{T^-}	$V_{CC}=5\text{V}$	0.5	0.7	1.0	V
Hysteresis	$V_{T^+} - V_{T^-}$	$V_{CC}=5\text{V}$	0.4	0.9	—	V
Output voltage	V_{OH}	$V_{CC}=4.75\text{V}, V_I=0.5\text{V}, I_{OH}=-400\mu\text{A}$	2.7	—	—	V
	V_{OL}	$V_{CC}=4.75\text{V}, V_I=1.9\text{V}, I_{OL}=8\text{mA}$	—	—	0.50	V
		$I_{OL}=4\text{mA}$	—	—	0.40	
Input threshold current	I_{T^+}	$V_{CC}=5\text{V}, V_I=V_{T^+}$	—	-0.14	—	mA
	I_{T^-}	$V_{CC}=5\text{V}, V_I=V_{T^-}$	—	-0.18	—	mA
Input current	I_{IH}	$V_{CC}=5.25\text{V}, V_I=2.7\text{V}$	—	—	20	μA
	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_{CCH}	$V_{CC}=5.25\text{V}$	—	8.6	16	mA
	I_{CCL}	$V_{CC}=5.25\text{V}$	—	12	21	mA
Input clamp voltage	V_{IK}	$V_{CC}=4.75\text{V}, I_{IN}=-18\text{mA}$	—	—	-1.5	V

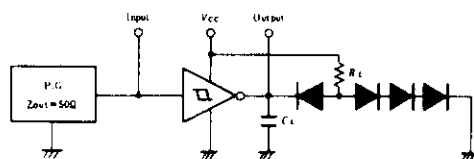
* $V_{CC}=5\text{V}, T_a=25^\circ\text{C}$

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

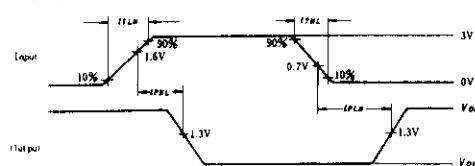
Item	Symbol	Test Conditions	min	typ	max	Unit
Propagation delay time	t_{PLH}	$C_L=15\text{pF}, R_L=2\text{k}\Omega$	—	15	22	ns
	t_{PHL}		—	15	22	ns

■TESTING METHOD

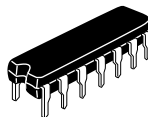
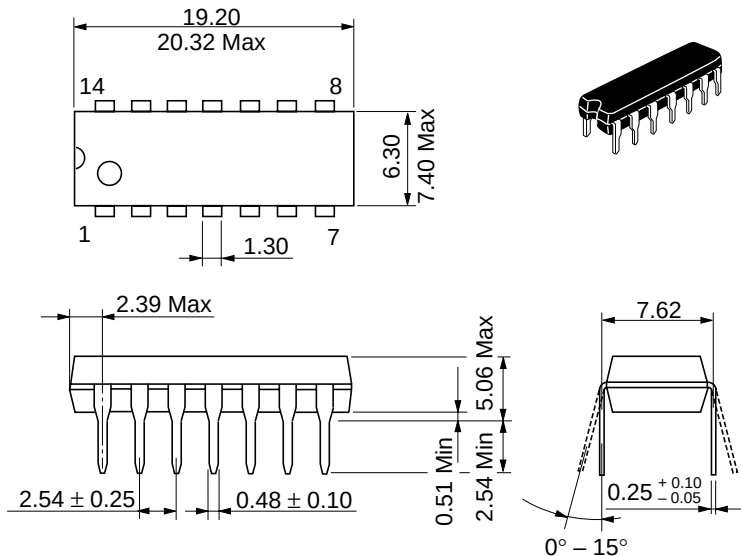
1. Test Circuit



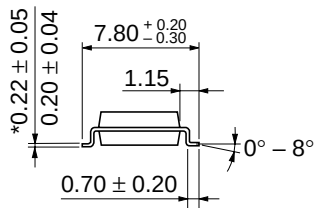
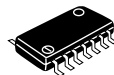
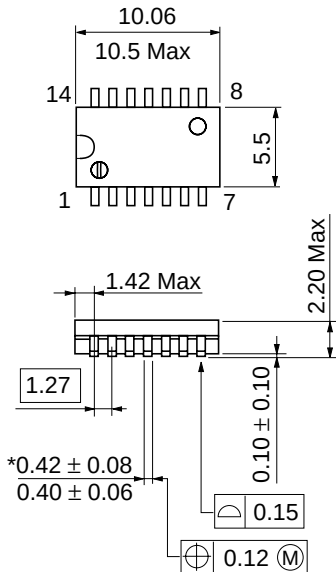
Waveform



- Notes) 1. Input pulse; $t_{PLH} \leq 15\text{ns}, t_{PHL} \leq 6\text{ns}, PRR=1\text{MHz}$, duty cycle=50%
 2. C_L includes probe and jig capacitance.
 3. All diodes are 1S2074.

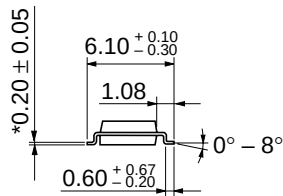
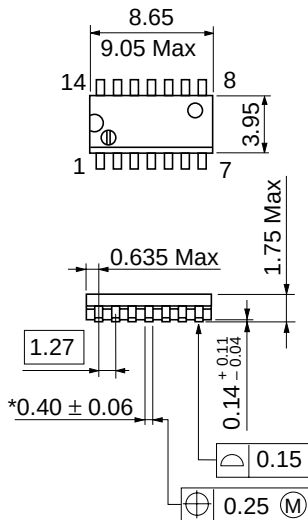


Hitachi Code	DP-14
JEDEC	Conforms
EIAJ	Conforms
Weight (reference value)	0.97 g



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

Cautions

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