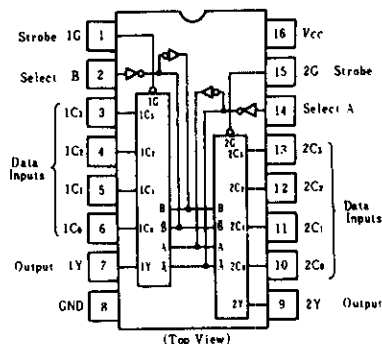


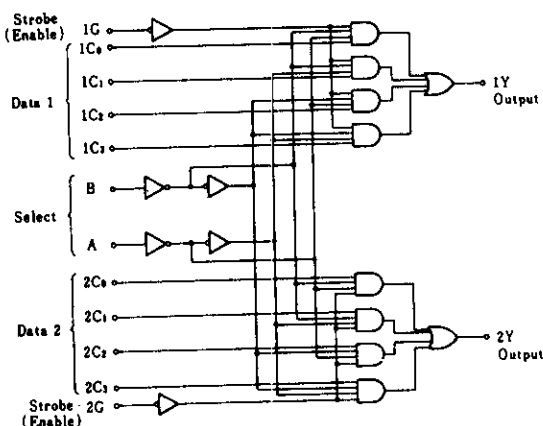
HD74LS153 • Dual 4-Line to 1-Line Data Selectors/Multiplexers

This data selector/multiplexer contains inverters and drivers to supply fully complementary, on-chip, binary decoding data selection to the AND-OR-INVERT gates. Separate strobe inputs are provided for each of the two four-line sections.

■ PIN ARRANGEMENT



■ BLOCK DIAGRAM



■ FUNCTION TABLE

Select		Data				Strobe	Outputs
B	A	C ₀	C ₁	C ₂	C ₃	G	Y
X	X	X	X	X	X	H	L
L	L	L	X	X	X	L	L
L	L	H	X	X	X	L	H
L	H	X	L	X	X	L	L
L	H	X	H	X	X	L	H
H	L	X	X	L	X	L	L
H	L	X	X	H	X	L	H
H	H	X	X	X	L	L	L
H	H	X	X	X	H	L	H

H; high level, L; low level, X; irrelevant

■ 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	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_{CC}	$V_{CC}=5.25\text{V}$	—	6.2	10	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.

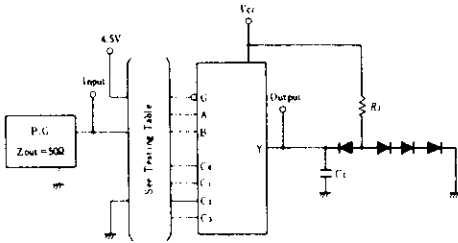
HD74LS153

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

Item	Symbol	Inputs	Outputs	Test Conditions	min	typ	max	Unit
Propagation delay time	t_{PLH}	Data	Y	$C_L=15pF$, $R_L=2k\Omega$	—	10	15	ns
	t_{PHL}	Data	Y		—	17	26	ns
	t_{PLH}	Select	Y		—	19	29	ns
	t_{PHL}	Select	Y		—	25	38	ns
	t_{PLH}	Strobe	Y		—	16	24	ns
	t_{PHL}	Strobe	Y		—	21	32	ns

TESTING METHOD

1) Test Circuit



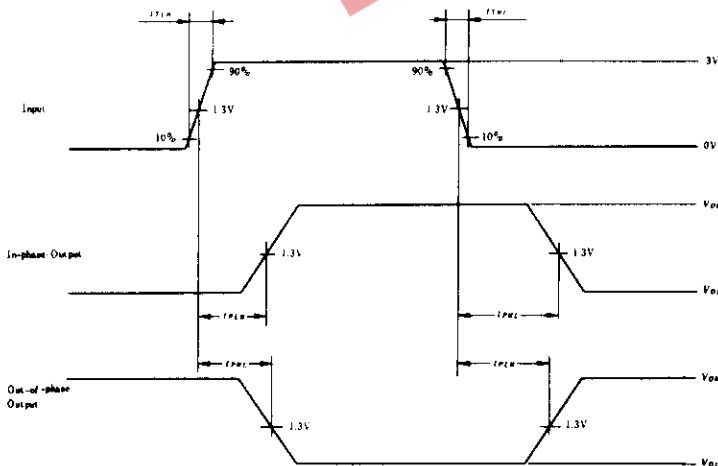
- Notes) 1. C_L includes probe and jig capacitance.
2. All diodes are 1S2074 (H).

2) Testing Table

Item	Inputs							Output	
	B	A	C_0	C_1	C_2	C_3	G		
t_{PLH}	GND	GND	IN	×	×	×	GND	OUT	
	GND	4.5V	×	IN	×	×	GND	OUT	
	4.5V	GND	×	×	IN	×	GND	OUT	
	4.5V	4.5V	×	×	×	IN	GND	OUT	
	t_{PHL}	GND	IN	4.5V	GND	×	×	GND	OUT
		IN	GND	GND	×	4.5V	×	GND	OUT
	GND	GND	4.5V	×	×	×	IN	OUT	

X: "4.5V" or "GND"

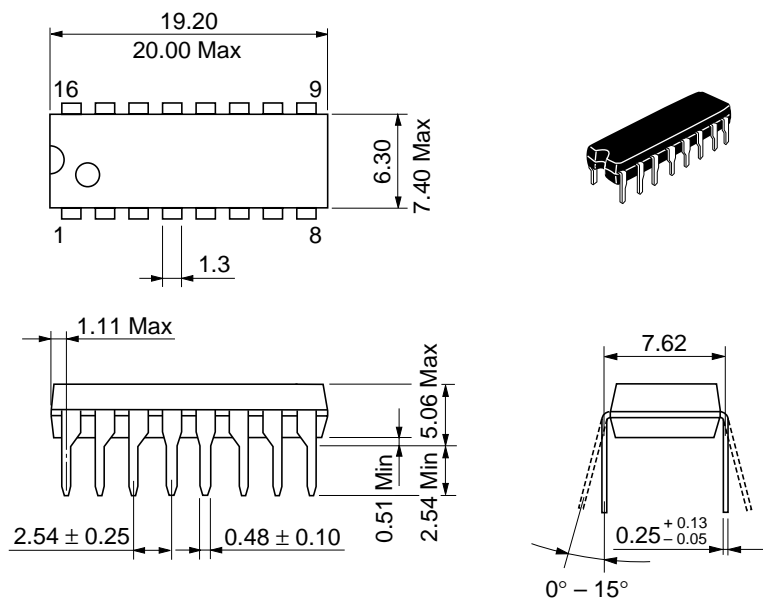
Waveform



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

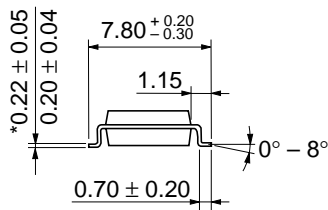
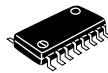
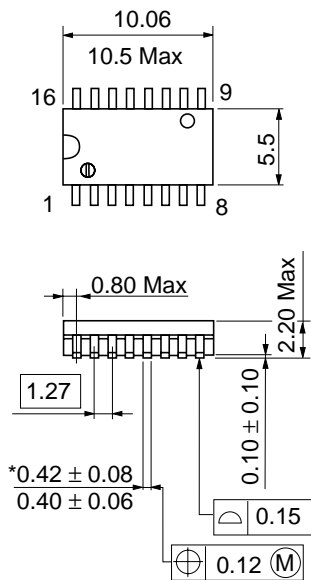
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Unit: mm



Hitachi Code	DP-16
JEDEC	Conforms
EIAJ	Conforms
Weight (reference value)	1.07 g

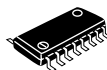
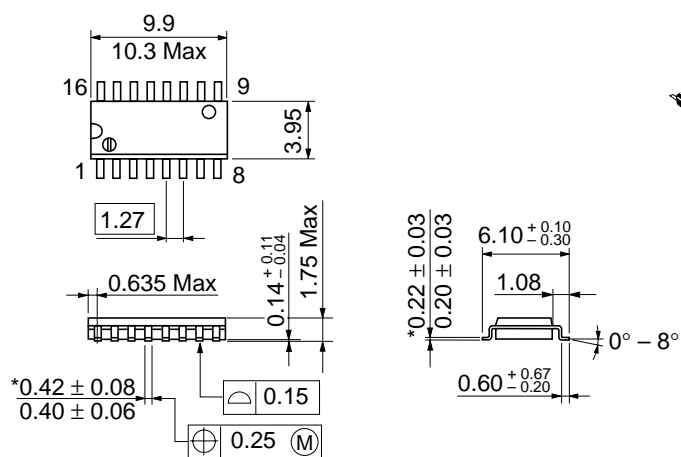
Unit: mm



Hitachi Code	FP-16DA
JEDEC	—
EIAJ	Conforms
Weight (reference value)	0.24 g

*Dimension including the plating thickness
Base material dimension

Unit: mm



Hitachi Code	FP-16DN
JEDEC	Conforms
EIAJ	Conforms
Weight (reference value)	0.15 g

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