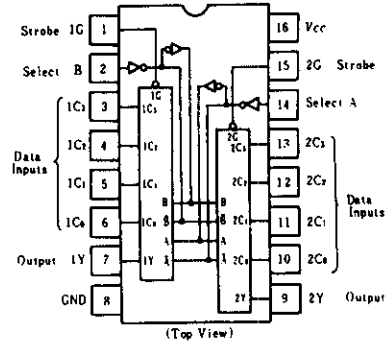


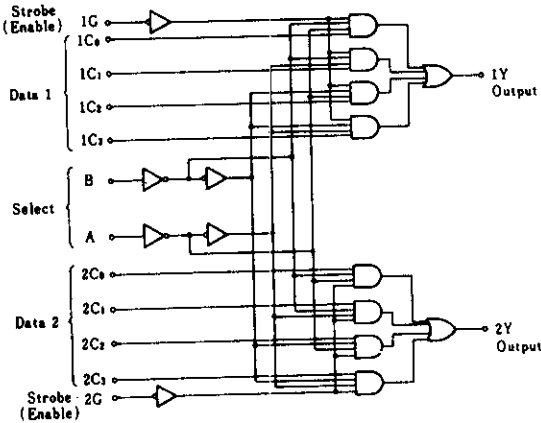
HD74LS153 • Dual 4-Line to 1-Line Data Selectors/Multiplexers

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

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

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

■ ELECTRICAL CHARACTERISTICS (T_a = -20 ~ +75°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} =4.75V, V _{IH} =2V, V _{IL} =0.8V, I _{OH} =-400μA	2.7	—	—	V
	V _{OL}	V _{CC} =4.75V, V _{IH} =2V, V _{IL} =0.8V	—	—	0.4	V
		I _{OL} =4mA	—	—	0.5	
Input current	I _{IH}	V _{CC} =5.25V, V _I =2.7V	—	—	20	μA
	I _{IL}	V _{CC} =5.25V, V _I =0.4V	—	—	-0.4	mA
	I _I	V _{CC} =5.25V, V _I =7V	—	—	0.1	mA
Short-circuit output current	I _{OS}	V _{CC} =5.25V	-20	—	-100	mA
Supply current**	I _{CC1}	V _{CC} =5.25V	—	6.2	10	mA
Input clamp voltage	V _{IK}	V _{CC} =4.75V, I _{IN} =-18mA	—	—	-1.5	V

* V_{CC}=5V, T_a=25°C

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

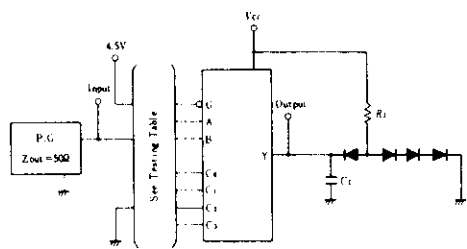
HD74LS153

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



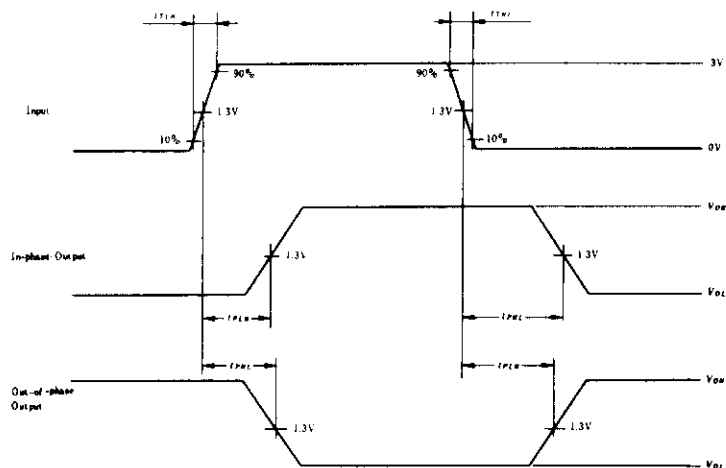
- Notes) 1. C_L includes probe and jig capacitance.
2. All diodes are 1S2074 (H).

2) Testing Table

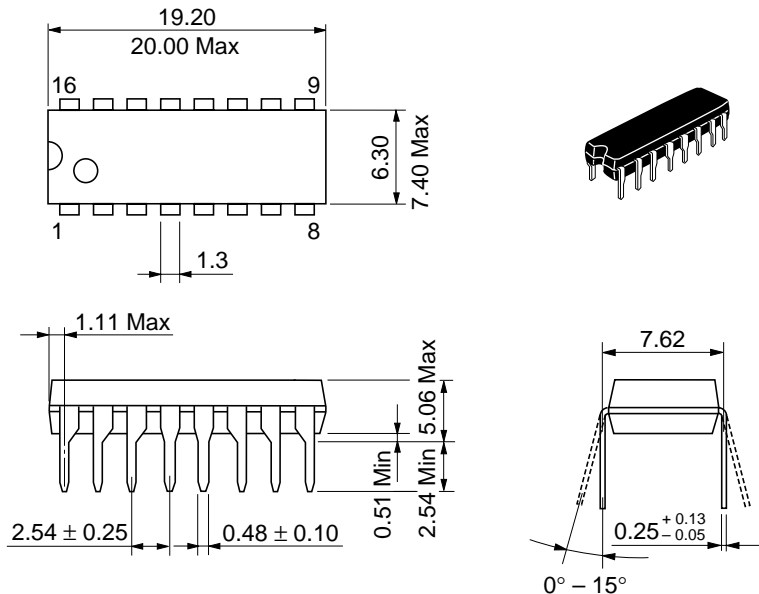
Item	Inputs							Output	
	B	A	C_0	C_1	C_2	C_3	G	Y	
t_{PLH}	GND	GND	IN	×	×	×	GND	OUT	
	GND	4.5V	×	IN	×	×	GND	OUT	
	4.5V	GND	×	×	IN	×	GND	OUT	
	4.5V	4.5V	×	×	×	IN	GND	OUT	
t_{PHL}	GND	IN	GND	4.5V	×	×	GND	OUT	
			4.5V	GND					
	IN	GND	GND	×	4.5V	×	GND	OUT	
			4.5V		GND				
	GND	GND	4.5V	×	×	×	IN	OUT	

X: "4.5V" or "GND"

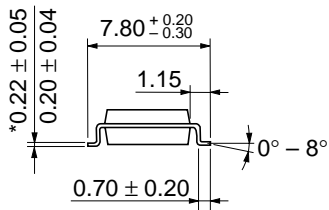
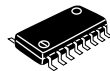
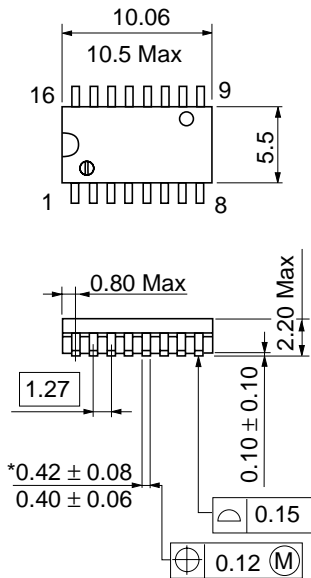
Waveform



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

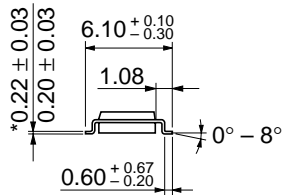
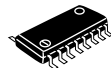
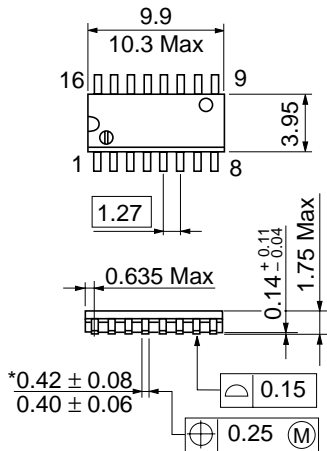


Hitachi Code	DP-16
JEDEC	Conforms
EIAJ	Conforms
Weight (reference value)	1.07 g



*Dimension including the plating thickness
Base material dimension

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



*Dimension including the plating thickness
Base material dimension

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

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