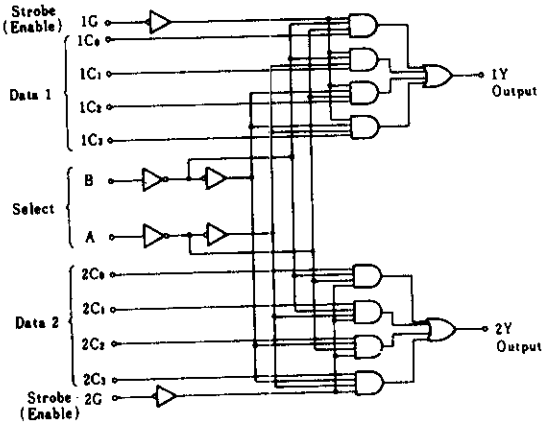
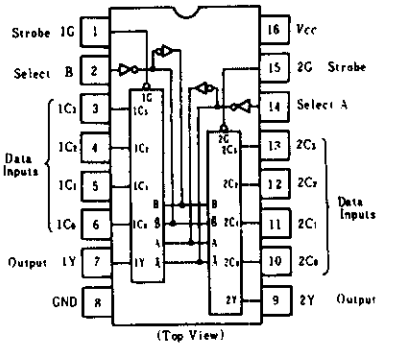
HD74LS153 ●Dual 4-Line to 1-Line Data Selectors/Multiplexers

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.

■BLOCK DIAGRAM



■PIN ARRANGEMENT



■FUNCTION TABLE

Inputs							Outputs
Select		Data				Strobe	
B	A	C_0	C_1	C_2	C_3	G	Y
×	×	×	×	×	×	H	L
L	L	L	×	×	×	L	L
L	L	H	×	×	×	L	H
L	H	×	L	×	×	L	L
L	H	×	H	×	×	L	H
H	L	×	×	L	×	L	L
H	L	×	×	H	×	L	H
H	H	×	×	×	L	L	L
H	H	×	×	×	H	L	H

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

■ELECTRICAL CHARACTERISTICS ($Ta = -20 \sim +75°C$)

Item	Symbol	Test Conditions		min	typ*	max	Unit
Input voltage	V_{IH}			2.0	–	–	V
	V_{IL}			–	–	0.8	V
Output voltage	V_{OH}	$V_{CC}=4.75V$, $V_{IH}=2V$, $V_{IL}=0.8V$, $I_{OH}=-400\mu A$		2.7	–	–	V
	V_{OL}	$V_{CC}=4.75V$, $V_{IH}=2V$, $V_{IL}=0.8V$	$I_{OL}=4mA$	–	–	0.4	V
			$I_{OL}=8mA$	–	–	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_{CCL}	$V_{CC}=5.25V$		–	6.2	10	mA
Input clamp voltage	V_{IK}	$V_{CC}=4.75V$, $I_{IN}=-18mA$		–	–	−1.5	V

* V_{CC}=5V, Ta=25°C

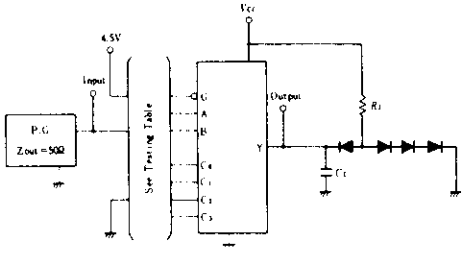
** I_{CC} is measured with all outputs open and all inputs grounded.

■SWITCHING CHARACTERISTICS (V_{CC}=5V, Ta=25℃)

Item	Symbol	Inputs	Outputs	Test Conditions	min	typ	max	Unit
Propagation delay time	t_{PLH}	Data	Y	C_L=15pF, R_L=2kΩ	–	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



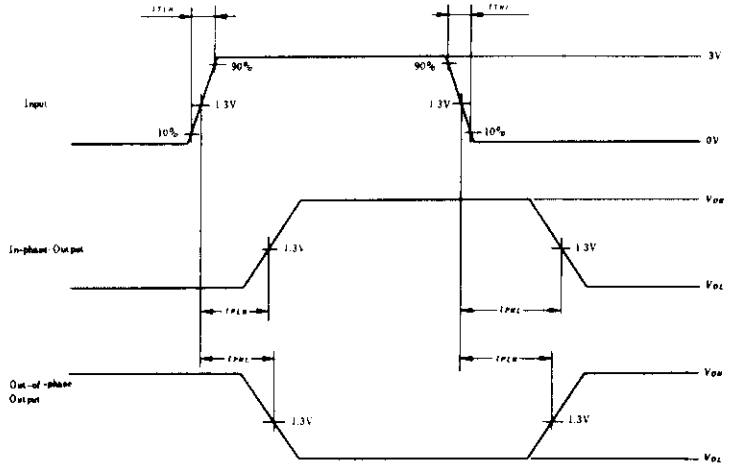
Notes) 1. C_L includes probe and jig capacitance.
2. All diodes are 1S2074 Ⓗ.

2) Testing Table

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

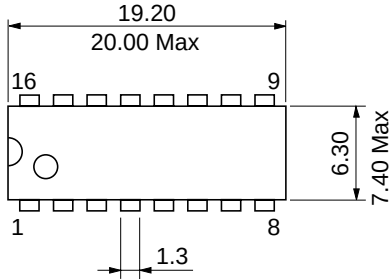
X: "4.5V" or "GND"

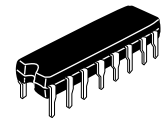
Waveform

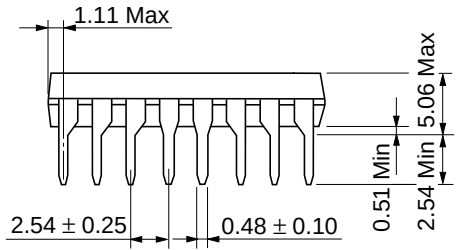


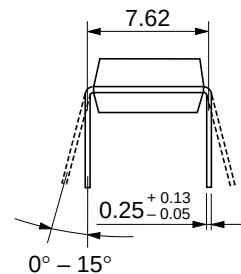
Input pulse; t_{TLH}≦15ns, t_{THL}≦6ns,
PRR=1MHz, duty cycle 50%.

Unit: mm



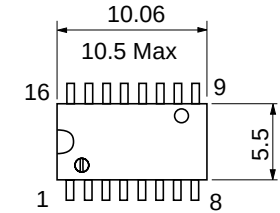


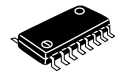


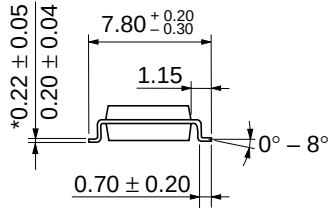


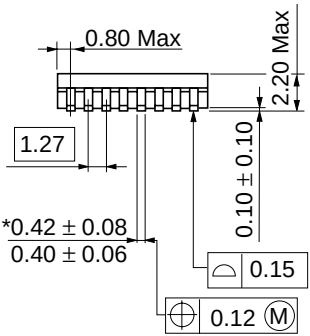
Hitachi Code	DP-16
JEDEC	Conforms
EIAJ	Conforms
Weight (reference value)	1.07 g

Unit: mm





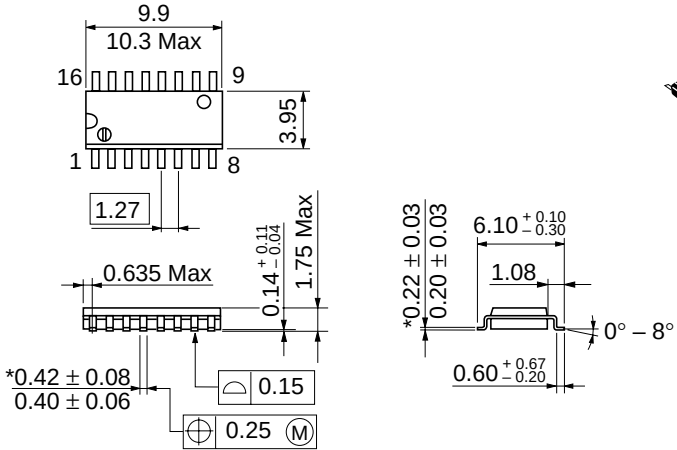


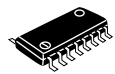


*Dimension including the plating thickness
Base material dimension

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

Unit: mm





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

*Dimension including the plating thickness
Base material dimension

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