
HD74HC353

Dual 4-to-1-line Data Selectors/Multiplexers (with 3-state outputs)

HITACHI

Description

Each of these data selectors/multiplexers contains inverters and drivers to supply full binary decoding data selection to the AND-OR-invert gates. Separate strobe inputs (G) are provided for each of the two four-line sections.

The three-state outputs can interface with and drive data lines of bus-organized systems. With all but one of the common output disabled (at a high-impedance state) the low-impedance of the single enable output will drive the bus line to a high or low logic level. Each output has its own strobe (G). The output is disabled when its strobe is high.

Features

- High Speed Operation: t_{pd} (Data to Y) = 13 ns typ ($C_L = 50$ pF)
- High Output Current: Fanout of 10 LSTTL Loads
- Wide Operating Voltage: $V_{CC} = 2$ to 6 V
- Low Input Current: 1 μ A max
- Low Quiescent Supply Current: I_{CC} (static) = 4 μ A max ($T_a = 25^\circ\text{C}$)

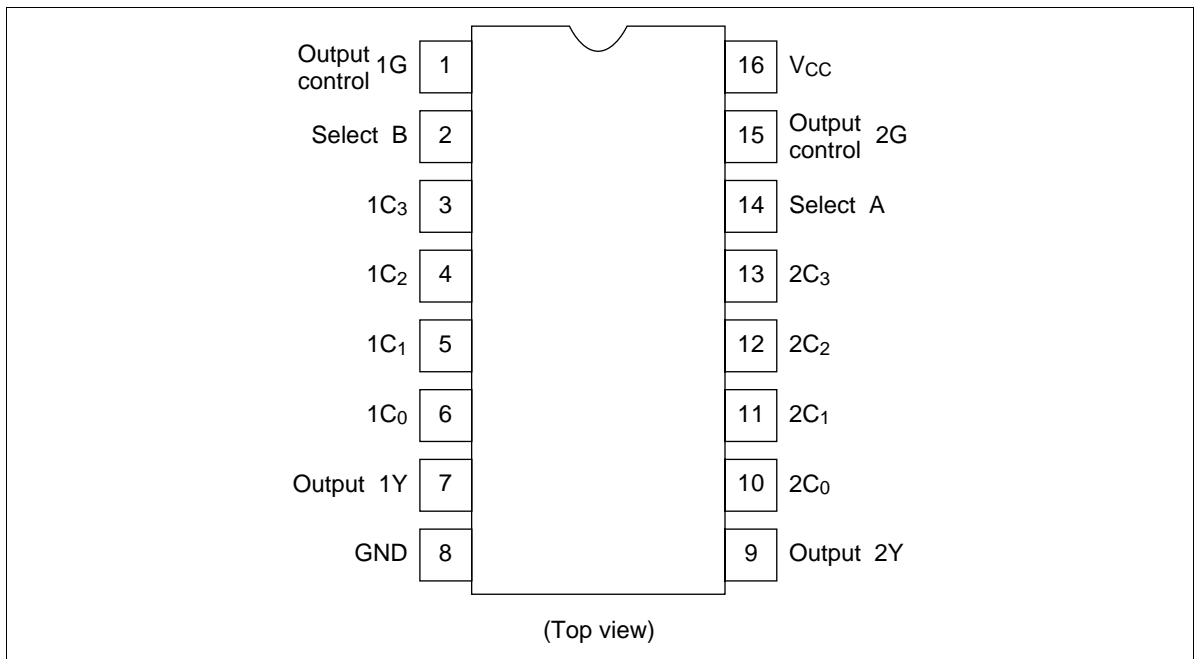
HD74HC353

Function Table

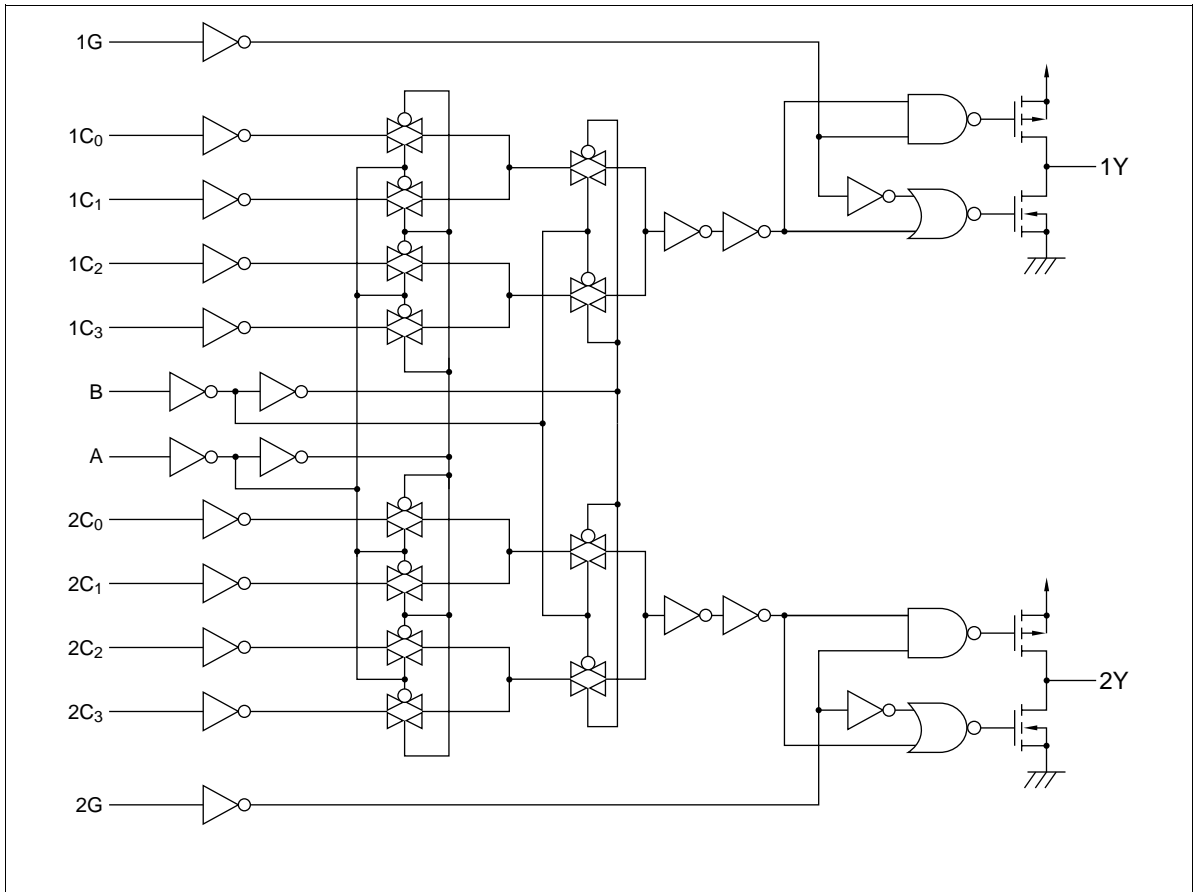
Select Input		Data Inputs				Output Control	Output
B	A	C ₀	C ₁	C ₂	C ₃	G	Y
X	X	X	X	X	X	H	Z
L	L	L	X	X	X	L	H
L	L	H	X	X	X	L	L
L	H	X	L	X	X	L	H
L	H	X	H	X	X	L	L
H	L	X	X	L	X	L	H
H	L	X	X	H	X	L	L
H	H	X	X	X	L	L	H
H	H	X	X	X	H	L	L

Select inputs A and B are common to both sections

Pin Arrangement



Logic Diagram

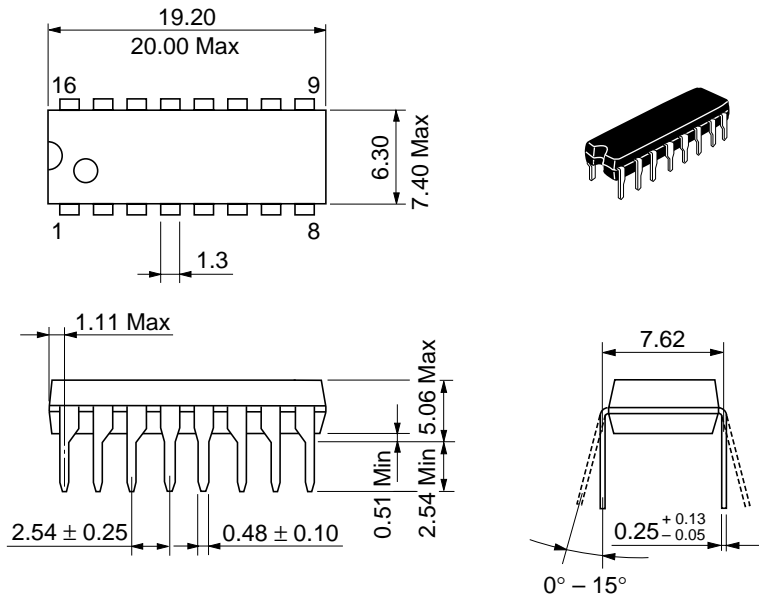


DC Characteristics

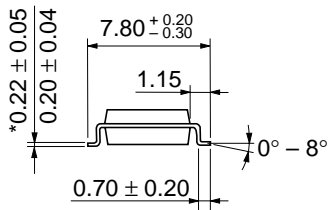
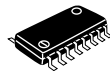
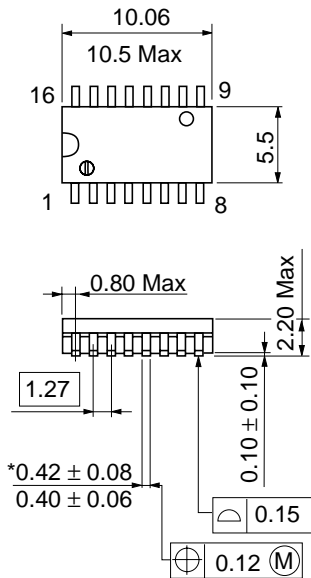
Item	Symbol	V _{CC} (V)	Ta = 25°C			Ta = -40 to +85°C		Unit	Test Conditions	
			Min	Typ	Max	Min	Max			
Input voltage	V _{IH}	2.0	1.5	—	—	1.5	—	V		
		4.5	3.15	—	—	3.15	—			
		6.0	4.2	—	—	4.2	—			
	V _{IL}	2.0	—	—	0.5	—	0.5			V
		4.5	—	—	1.35	—	1.35			
		6.0	—	—	1.8	—	1.8			
Output voltage	V _{OH}	2.0	1.9	2.0	—	1.9	—	V	Vin = V _{IH} or V _{IL} I _{OH} = -20 μA	
		4.5	4.4	4.5	—	4.4	—			
		6.0	5.9	6.0	—	5.9	—			
		4.5	4.18	—	—	4.13	—			I _{OH} = -4 mA
		6.0	5.68	—	—	5.63	—			I _{OH} = -5.2 mA
	V _{OL}	2.0	—	0.0	0.1	—	0.1	V	Vin = V _{IH} or V _{IL} I _{OL} = 20 μA	
		4.5	—	0.0	0.1	—	0.1			
		6.0	—	0.0	0.1	—	0.1			
		4.5	—	—	0.26	—	0.33			I _{OL} = 4 mA
		6.0	—	—	0.26	—	0.33			I _{OL} = 5.2 mA
Input current	I _{in}	6.0	—	—	±0.1	—	±1.0	μA	Vin = V _{CC} or GND	
Quiescent supply current	I _{CC}	6.0	—	—	4.0	—	40	μA	Vin = V _{CC} or GND, I _{out} = 0 μA	

AC Characteristics ($C_L = 50$ pF, Input $t_r = t_f = 6$ ns)

Item	Symbol	V_{CC} (V)	Ta = 25°C		Ta = -40 to +85°C		Unit	Test Conditions	
			Min	Typ	Max	Min			Max
Propagation delay time	t_{PLH}	2.0	—	—	125	—	155	ns	Data to Y
	t_{PHL}	4.5	—	13	25	—	31		
		6.0	—	—	21	—	26		
	t_{PHL}	2.0	—	—	160	—	200	ns	A or B to Y
		4.5	—	14	32	—	40		
		6.0	—	—	27	—	34		
Output enable time	t_{ZL}	2.0	—	—	100	—	125	ns	
	t_{ZH}	4.5	—	8	20	—	25		
		6.0	—	—	17	—	21		
Output disable time	t_{LZ}	2.0	—	—	150	—	190	ns	
	t_{HZ}	4.5	—	11	30	—	38		
		6.0	—	—	26	—	33		
Output rise/fall time	t_{TLH}	2.0	—	—	75	—	95	ns	
	t_{THL}	4.5	—	5	15	—	19		
		6.0	—	—	13	—	16		
Input capacitance	C_{in}	—	—	5	10	—	10	pF	

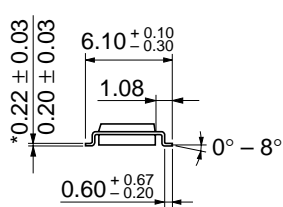
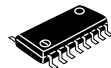
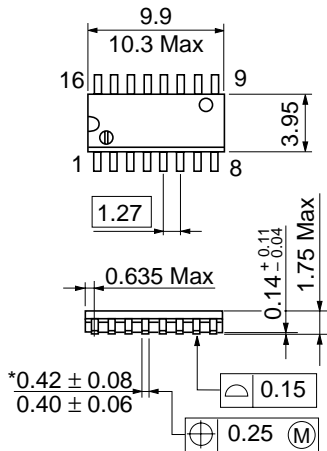


Hitachi Code	DP-16
JEDEC	Conforms
EIAJ	Conforms
Weight (reference value)	1.07 g



*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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