HD74HC352

Dual 4-to-1-line Data Selectors/Multiplexers

REJ03D0611–0200
(Previous ADE-205-490)
Rev.2.00
Jan 31, 2006

Description

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

Features

- High Speed Operation: t_{pd} (Data to Y) = 16 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 µA max
- Low Quiescent Supply Current: I_{CC} (static) = 4 µA max (Ta = 25°C)
- Ordering Information

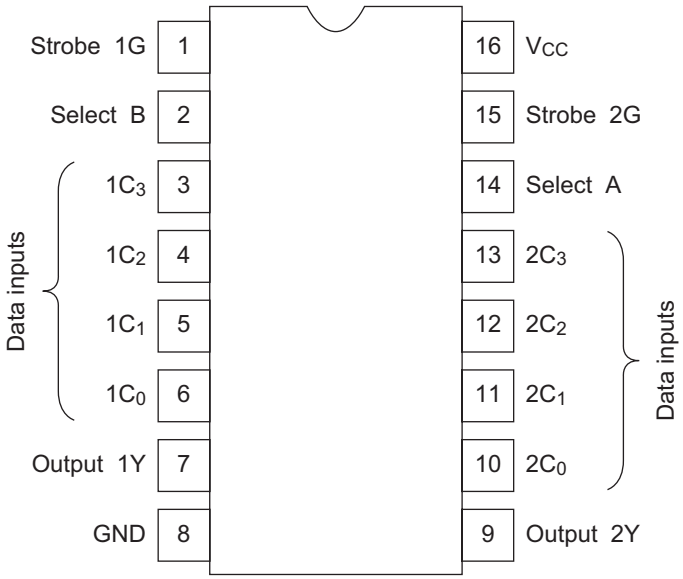
Part Name	Package Type	Package Code (Previous Code)	Package Abbreviation	Taping Abbreviation (Quantity)
HD74HC352RPEL	SOP-16 pin (JEDEC)	PRSP0016DG-A (FP-16DNV)	RP	EL (2,500 pcs/reel)

Function Table

Select Input		Data Inputs				Strobe	Output
B	A	C_0	C_1	C_2	C_3	G	Y
X	X	X	X	X	X	H	H
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

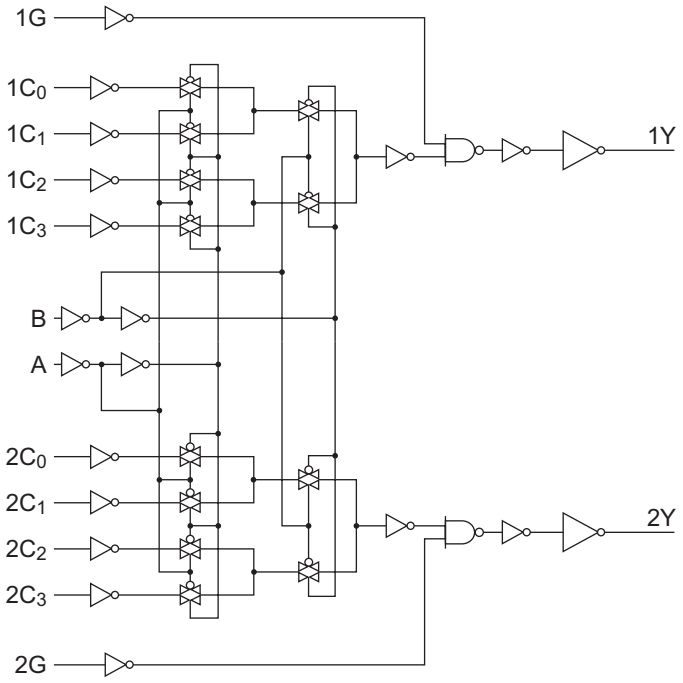
Select inputs A and B are common to both sections

Pin Arrangement



(Top view)

Logic Diagram



Absolute Maximum Ratings

Item	Symbol	Ratings	Unit
Supply voltage range	V_{CC}	–0.5 to 7.0	V
Input / Output voltage	V_{IN}, V_{OUT}	–0.5 to V_{CC} +0.5	V
Input / Output diode current	I_{IK}, I_{OK}	±20	mA
Output current	I_O	±25	mA
V_{CC}, GND current	I_{CC} or I_{GND}	±50	mA
Power dissipation	P_T	500	mW
Storage temperature	Tstg	–65 to +150	°C

Note: The absolute maximum ratings are values, which must not individually be exceeded, and furthermore, no two of which may be realized at the same time.

Recommended Operating Conditions

Item	Symbol	Ratings	Unit	Conditions
Supply voltage	V_{CC}	2 to 6	V	
Input / Output voltage	V_{IN}, V_{OUT}	0 to V_{CC}	V	
Operating temperature	Ta	–40 to 85	°C	
Input rise / fall time[*1]	t_r, t_f	0 to 1000	ns	V_{CC} = 2.0 V
		0 to 500		V_{CC} = 4.5 V
		0 to 400		V_{CC} = 6.0 V

Notes: 1. This item guarantees maximum limit when one input switches.
Waveform: Refer to test circuit of switching characteristics.

Electrical Characteristics

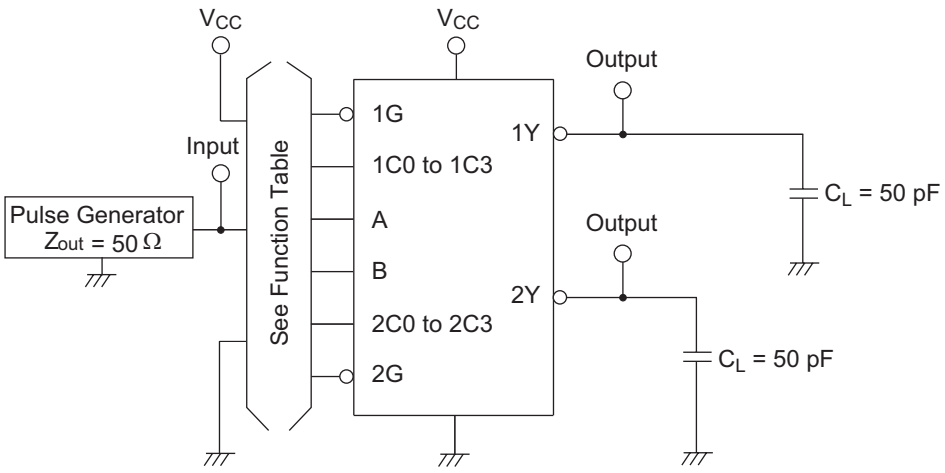
Item	Symbol	V_{CC} (V)	Ta = 25°C			Ta = –40 to+85°C		Unit	Test Conditions	
			Min	Typ	Max	Min	Max			
Input voltage	V_{IH}	2.0	1.5	—	—	1.5	—	V		
		4.5	3.15	—	—	3.15	—			
		6.0	4.2	—	—	4.2	—			
	V_{IL}	2.0	—	—	0.5	—	0.5	V		
		4.5	—	—	1.35	—	1.35			
		6.0	—	—	1.8	—	1.8			
Output voltage	V_{OH}	2.0	1.9	2.0	—	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_{OH} = 4 mA
		6.0	—	—	0.26	—	0.33			I_{OH} = 5.2 mA
Input current	Iin	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, Iout = 0 µA	

Switching Characteristics

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

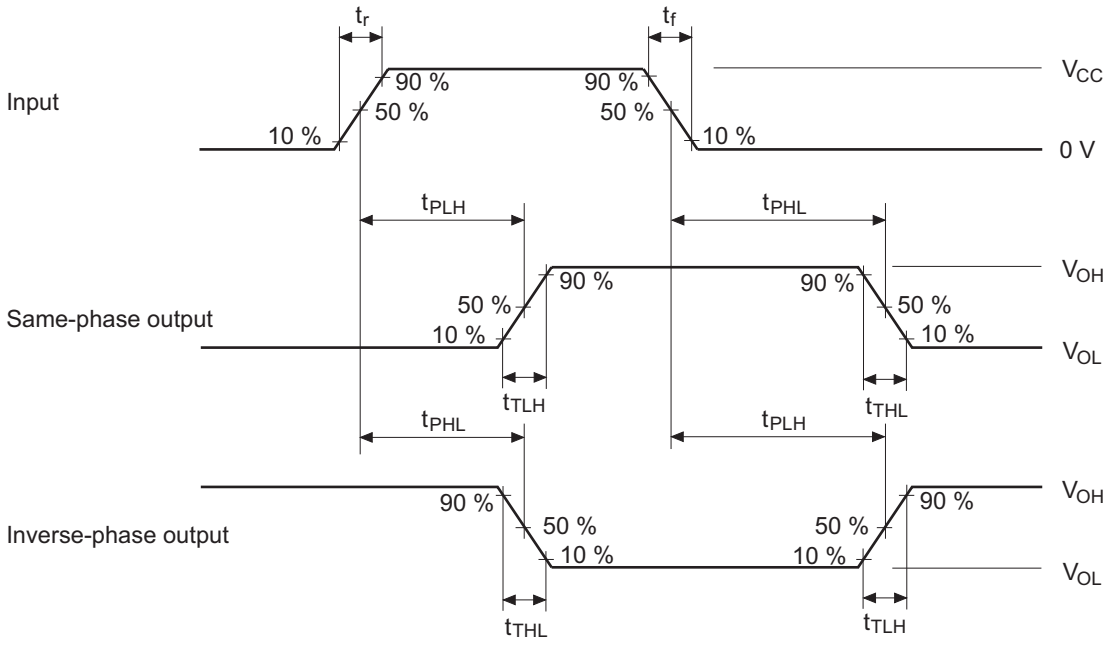
Item	Symbol	V_{CC} (V)	Ta = 25°C			Ta = –40 to +85°C		Unit	Test Conditions
			Min	Typ	Max	Min	Max		
Propagation delay time	t_{PLH} t_{PHL}	2.0	—	—	125	—	155	ns	Data to Y
		4.5	—	16	25	—	31		
		6.0	—	—	21	—	26		
		2.0	—	—	160	—	200	ns	A or B to Y
		4.5	—	18	32	—	40		
		6.0	—	—	27	—	34		
		2.0	—	—	100	—	125	ns	G to Y
		4.5	—	10	20	—	25		
		6.0	—	—	17	—	21		
Output rise/fall time	t_{TLH} t_{THL}	2.0	—	—	75	—	95	ns	
		4.5	—	5	15	—	19		
		6.0	—	—	13	—	16		
Input capacitance	Cin	—	—	5	10	—	10	pF	

Test Circuit



Note : 1. C_L includes probe and jig capacitance.

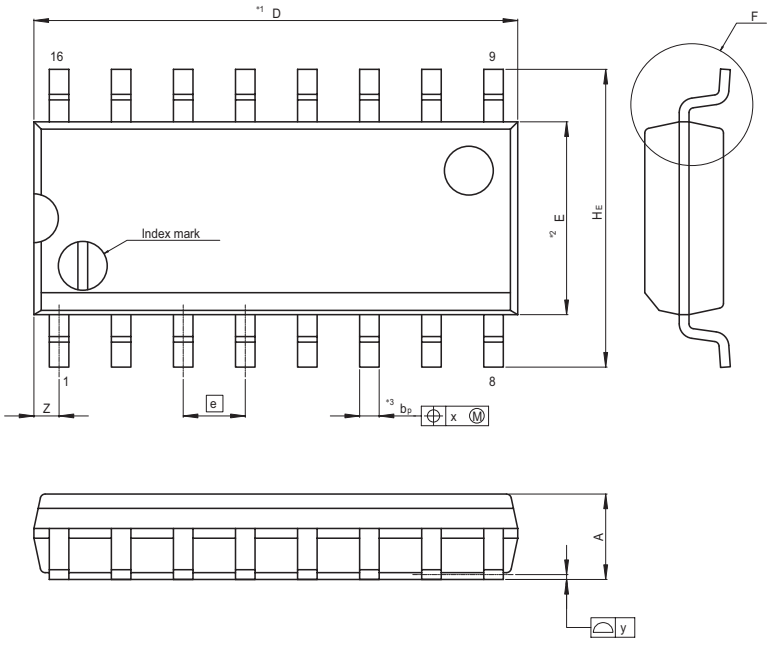
Waveforms



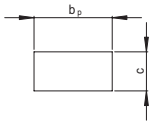
Notes: 1. Input waveform: PRR ≤ 1 MHz, Zo = 50 Ω, t_r ≤ 6 ns, t_f ≤ 6 ns
2. The output are measured one at a time with one transition per measurement.

Package Dimensions

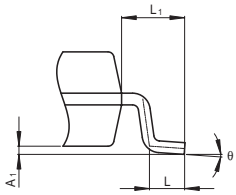
JEITA Package Code	RENESAS Code	Previous Code	MASS[Typ.]
P-SOP16-3.95x9.9-1.27	PRSP0016DG-A	FP-16DNV	0.15g



NOTE)
1. DIMENSIONS"*1 (Nom)"AND"*2" DO NOT INCLUDE MOLD FLASH.
2. DIMENSION"*3"DOES NOT INCLUDE TRIM OFFSET.



Terminal cross section
(Ni/Pd/Au plating)



Detail F

Reference Symbol	Dimension in Millimeters		
	Min	Nom	Max
D	——	9.90	10.30
E	——	3.95	——
A_2	——	——	——
A_1	0.10	0.14	0.25
A	——	——	1.75
b_p	0.34	0.40	0.46
b_1	——	——	——
c	0.15	0.20	0.25
c_1	——	——	——
θ	0°	——	8°
H_E	5.80	6.10	6.20
e	——	1.27	——
x	——	——	0.25
y	——	——	0.15
Z	——	——	0.635
L	0.40	0.60	1.27
L_1	——	1.08	——

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