

SN74LS153N

Ver 1.00

Product Introduction

The SN74LS153N is a Dual 4-Line to 1-Line Data Selectors/Multiplexers. Each of these data selectors/multiplexers 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.

Product Features

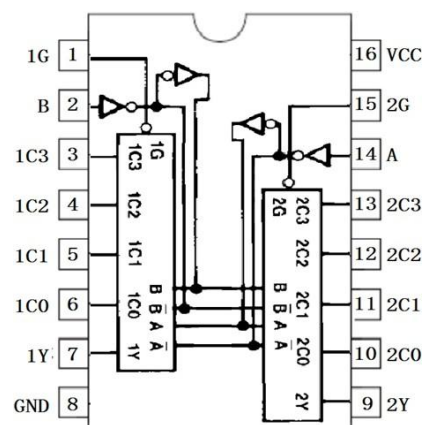
- Strobe (enable) line provided for cascading (N lines ton lines)
- Fully compatible with TTL input logic level
- High fan-out, low impedance, totem pole outputs
- Package format: DIP16, SOP16

Product Applications

- Digital logic driver
- Industrial control application
- Other application areas

Package and Pin Assignment

SOP16 or DIP16			
Pin NO	Pin Definition	Pin NO	Pin Definition
1	Strobe 1G	16	Supply VCC
2	Select B	15	Strobe 2G
3	Input 1C3	14	Select A
4	Input 1C2	13	Input 2C3
5	Input 1C1	12	Input 2C2
6	Input 1C0	11	Input 2C1
7	Output 1Y	10	Input 2C0
8	Supply GND	9	Output 2Y

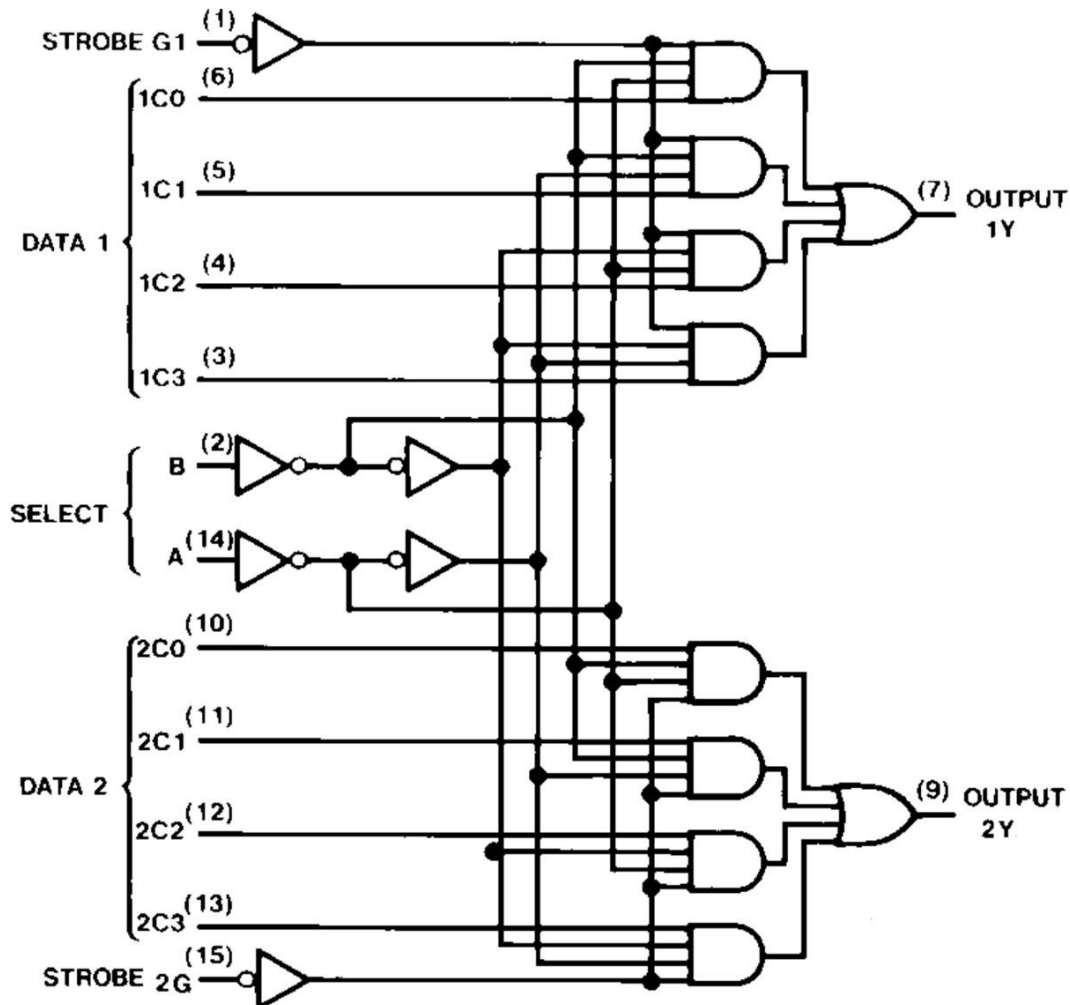


Absolute Maximum Ratings

Item	Symbol	Maximum Ratings	Unit
Supply voltage	V_{CC}	7	V
Input voltage	V_I	7	V
Power dissipation	P_D	500	mW
Operating temperature	T_A	0-70	°C
Storage temperature	T_S	-65-150	°C
Welding temperature	T_W	260, 10s	°C

Note: the limit parameter is the limit value that cannot be exceeded under any condition. Once this limit is exceeded, it may cause physical damage such as deterioration of the product. At the same time, the chip can not be guaranteed to work properly when it is close to the limit parameters.

■ Block Diagram



■ Function Table

SELECT INPUTS		STROBE INPUTS		OUTPUTS	
B	A	1G	2G	1Y	2Y
X	X	H	H	L	L
L	L	L	L	1C0	2C0
L	H	L	L	1C1	2C1
H	L	L	L	1C2	2C2
H	H	L	L	1C3	2C3

H : high level, L : low level, X : irrelevant C0-C3: data output

■ Recommended Operating Conditions

Item	Symbol	Min	Tpy	Max	Unit
Supply voltage	V _{CC}	4.75	5	5.25	V
Input voltage	V _{IH}	2	-	-	V
	V _{IL}	-	-	0.7	V
Output current	I _{OH}	-	-	-400	uA
	I _{OL}	-	-	8	mA
Operating temperature	T _A	0	-	60	°C

■ Electrical Characteristics (T_A=25°C, Unless specified)

Item	Symbol	Min	Tpy	Max	Unit	Conditions
Output voltage	V _{OH}	2.7	3.3	-	V	V _{CC} =4.75V, V _{IH} =2V V _{IL} =0.7V
	V _{OL}	-	0.35	0.5	V	
		-	0.8	0.9		
Input current	I _I	-	0.1	100	uA	V _{CC} =5.25V, V _I =7V
	I _{IH}	-	0.1	20	uA	V _{CC} =5.25V, V _I =2.7V
	I _{IL}	-	0.18	0.4	mA	V _{CC} =5.25V, V _I =0.4V
Short-circuit output current *	I _{OS}	-8	-31	-100	mA	V _{CC} =5.25V
Supply current **	I _{CC}	-	6.5	10	mA	V _{CC} =5.25V
Input clamp voltage	V _{IK}	-	1.0	-1.5	V	V _{CC} =4.75V, I _I = -18mA

Notes: * only one output port is short circuited each time, and the short circuit time is not more than one second.

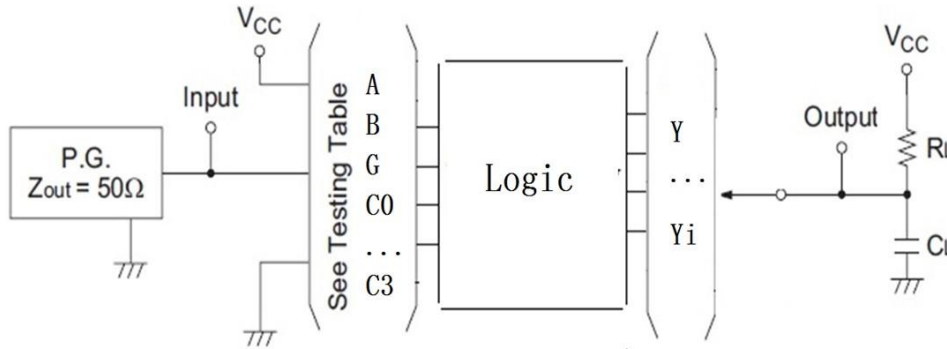
** ICC is measured with all outputs open and all other inputs grounded.

■ Switching Characteristics (T_A=25°C, Unless specified)

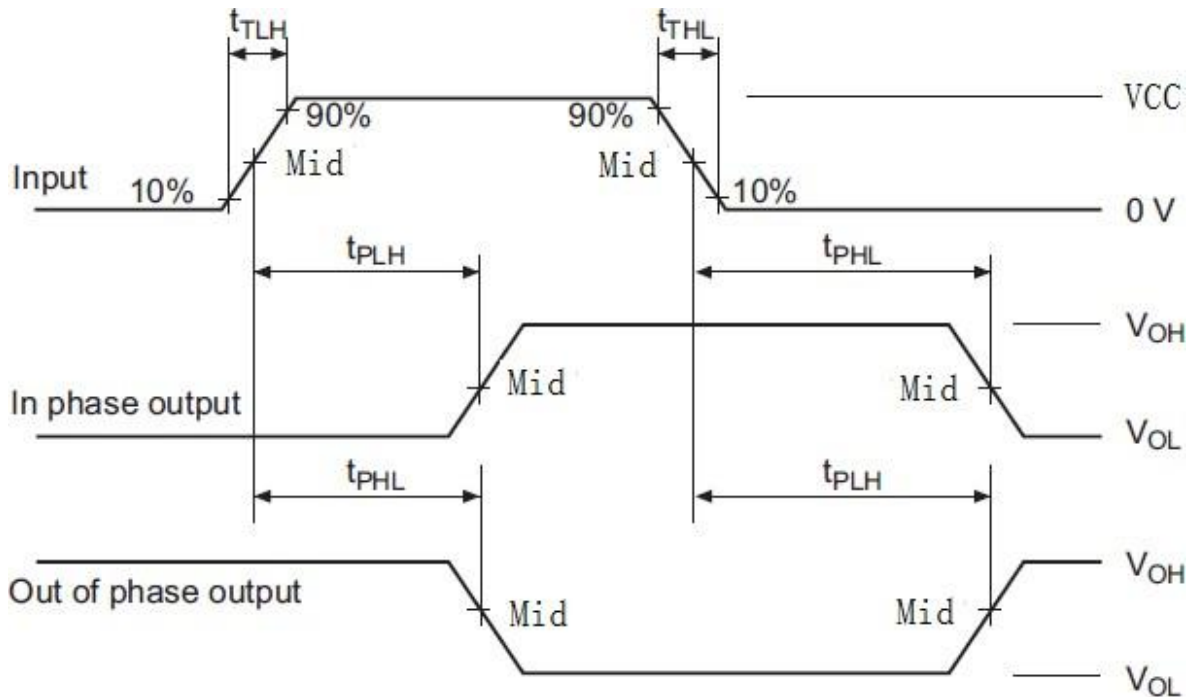
Item	Symbol	Min	Tpy	Max	Unit	Conditions
Propagation delay time Data Select Inputs (A、B) to Y	t _{PLH}	-	30	-	ns	V _{CC} =5V CL=16pF RL=2K Ω
	t _{PHL}	-	5	-	ns	
Propagation delay time Strobe (1G、2G) to Y	t _{PLH}	-	32	-	ns	
	t _{PHL}	-	4	-	ns	
Propagation delay time Data Inputs (C0 thru C3) to Y	t _{PLH}	-	9	-	ns	
	t _{PHL}	-	16	-	ns	

■ Testing Method

1、Test Circuit



2、Waveform



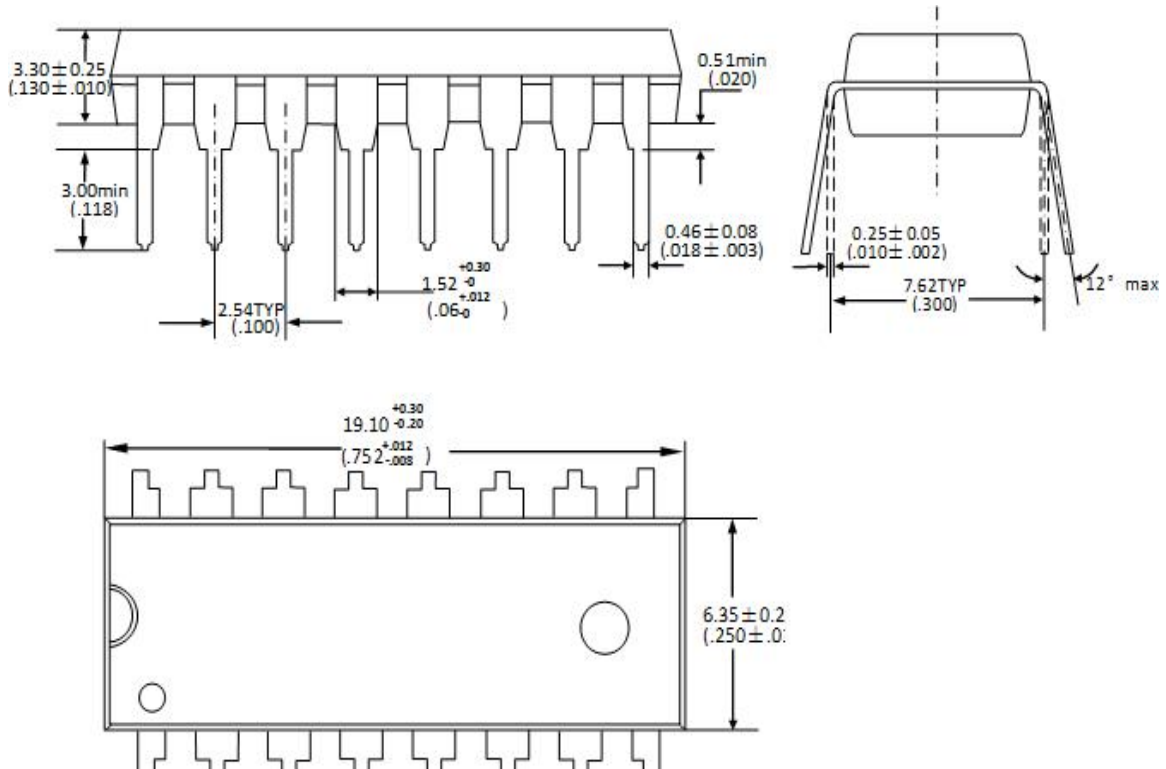
Notes:

1. See Testing Table refers to the corresponding test items in the switch characteristic table.
2. the C_L capacitor is an external patch capacitor (0603), which is connected to the output pin and the capacitor is near the chip GND.
3. Input: port input level, $f=1\text{MHz}$, $D=50\%$, $t_{TLH}=t_{THL}$ or less 20ns ;
4. Output: Y output test port (Out of Phase Output, In Phase Output)

■ Package Dimensions

Unit : mm /inch

DIP16



SOP16

