

SN74LS155N

Product Introduction

The SN74LS155N is a Dual 2-Line to 4-Line Decoders/Demultiplexers.circuit features dual 1-line-to-4-line demultiplexer with individual strobes and common binary-address input. When both sections are enabled by the strobes, the common binary-address inputs sequentially select and route associated input data to the appropriate output of each section. The individual strobes permit activating or inhibiting each of the 4-bit sections as desired. Data applied to input 1C is inverted through its outputs. The inverter following the 1C data input permits use as a 3-to-8-line decoder or 1-to-8-line demultiplexer without external gating.

Product Features

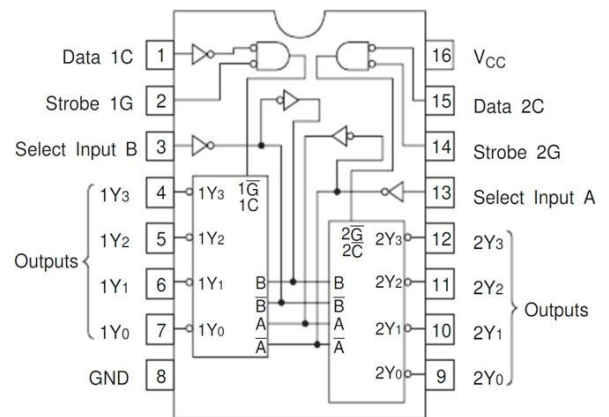
- Dual 2-Line to 4-Line Decoders/Demultiplexers
- Fully compatible with TTL input logic level
- The common binary-address inputs sequentially select
- Package format: DIP16, SOP16

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	1C	16	Supply VCC
2	1G	15	2C
3	Input B	14	2G
4	Output 1Y3	13	Input A
5	Output 1Y2	12	Output 2Y3
6	Output 1Y1	11	Output 2Y2
7	Output 1Y0	10	Output 2Y1
8	Supply GND	9	Output 2Y0

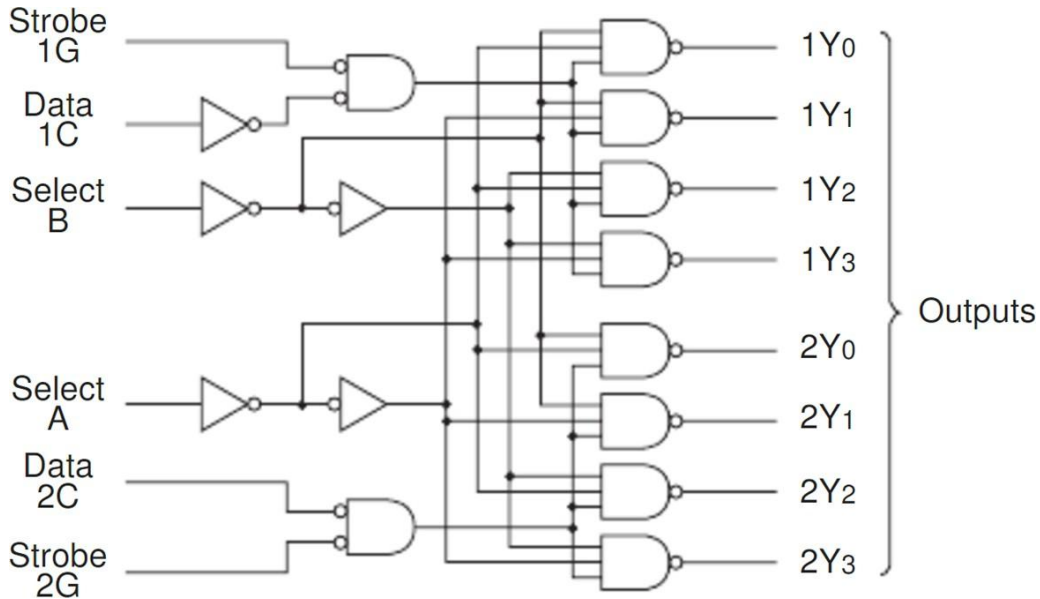


Absolute Maximum Ratings

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

2-line-to-4-line Decoder

1-line-to-4-line Demultiplexer

Inputs				Outputs			
Select	Strobe	Data		1Y0	1Y1	1Y2	1Y3
B	A	G1	C1				
X	X	H	X	H	H	H	H
L	L	L	H	L	H	H	H
L	H	L	H	H	L	H	H
H	L	L	H	H	H	L	H
H	H	L	H	H	H	H	L
X	X	X	L	H	H	H	H

2-line-to-4-line Decoder

1-line-to-4-line Demultiplexer

Inputs				Outputs			
Select	Strobe	Data		2Y0	2Y1	2Y2	2Y3
B	A	G2	C2				
X	X	H	X	H	H	H	H
L	L	L	L	L	H	H	H
L	H	L	L	H	L	H	H
H	L	L	L	H	H	L	H
H	H	L	L	H	H	H	L
X	X	X	H	H	H	H	H

3-line-to-8-line Decoder / 1-line-to-8-line Demultiplexer

Inputs				Outputs							
Select	Strobe Or Data			(0)	(1)	(2)	(3)	(4)	(5)	(6)	(7)
C	B	A	G	2Y0	2Y1	2Y2	2Y3	1Y0	1Y1	1Y2	1Y3
X	X	X	H	H	H	H	H	H	H	H	H
L	L	L	L	L	H	H	H	H	H	H	H
L	L	H	L	H	L	H	H	H	H	H	H
L	H	L	L	H	H	L	H	H	H	H	H
L	H	H	L	H	H	H	L	H	H	H	H
H	L	L	L	H	H	H	H	L	H	H	H
H	L	H	L	H	H	H	H	H	L	H	H
H	H	L	L	H	H	H	H	H	H	L	H
H	H	H	L	H	H	H	H	H	H	H	L

C = inputs C1 and C2 connected together
 G = inputs G1 and G2 connected together
 H = high level, L = low level, X = don't care

Recommended Operating Conditions

Item	Symbol	Min	Tpy	Max	Unit
Supply voltage	V _{CC}	4.75	5.00	5.25	V
Output current	I _{OH}	—	—	-400	uA
	I _{OL}	—	—	8	mA
Operating temperature	T _{opr}	0	25	60	°C

Electrical Characteristics

 (T_a=25°C, Unless specified)

Item	Symbol	Min	Tpy	Max	Unit	Conditions
Input voltage	V _{IH}	2	—	—	V	
	V _{IL}	—	—	0.7	V	
Output voltage	V _{OH}	2.7	3.3	—	V	I _{OH} =-400uA I _{OL} =4mA I _{OL} =8mA V _{CC} =4.75V, V _{IH} =2V, V _{IL} =0.7V
	V _{OL}	—	0.12	0.4	V	
		—	0.24	0.5		
Input current	I _{IH}	—	0.1	20	uA	V _{CC} =5.25V, V _I =2.7V
	I _{IL}	—	0.23	-0.4	mA	V _{CC} =5.25V, V _I =0.4V
	I _I	—	0.1	100	uA	V _{CC} =5.25V, V _I =7V
Short-circuit output current *	I _{OS}	0	-32	-100	mA	V _{CC} =5.25V
Supply current **	I _{CC}	—	6	10	mA	V _{CC} =5.25V
Input clamp voltage	V _{IK}	—	0.9	-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, A,B, and C1 inputs at 4.5V, and C2, G1, and G2 inputs grounded.

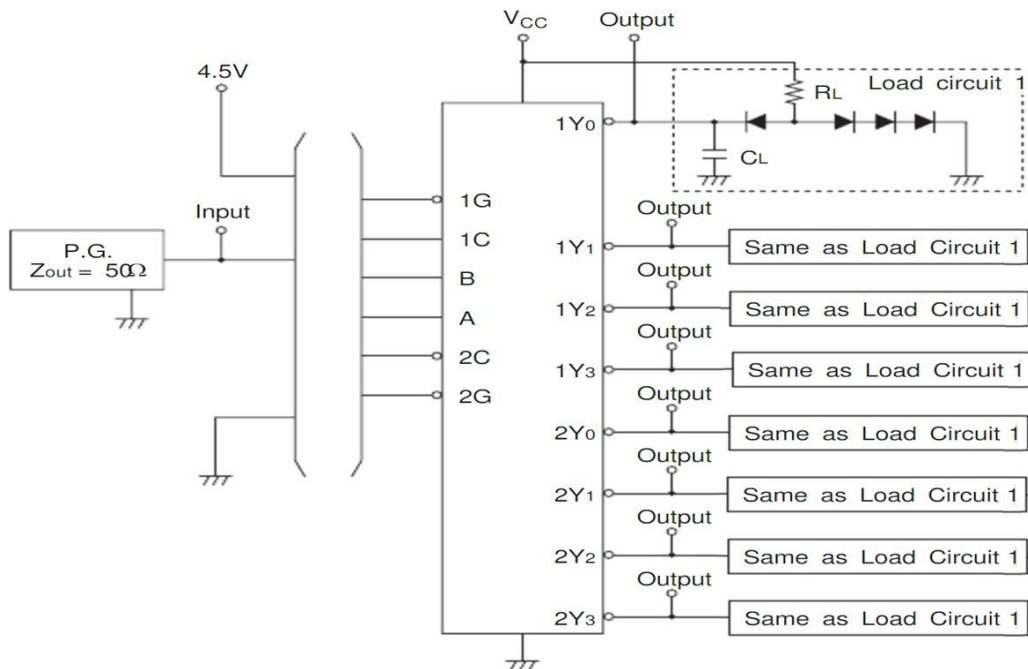
Switching Characteristics

 (T_a=25°C, Unless specified)

Item	Symbol	Min	Tpy	Max	Unit	Conditions
Propagation delay time A、 B、 2C、 1G or 2G	t _{PLH}	—	13	—	ns	V _{CC} =5V C _L =16pF R _L =2K
	t _{PHL}	—	25	—	ns	
Propagation delay time A or B to Outputs	t _{PLH}	—	16	—	ns	
	t _{PHL}	—	9	—	ns	
Propagation delay time 1C to Outputs	t _{PLH}	—	13	—	ns	
	t _{PHL}	—	8	—	ns	

■ Testing Method

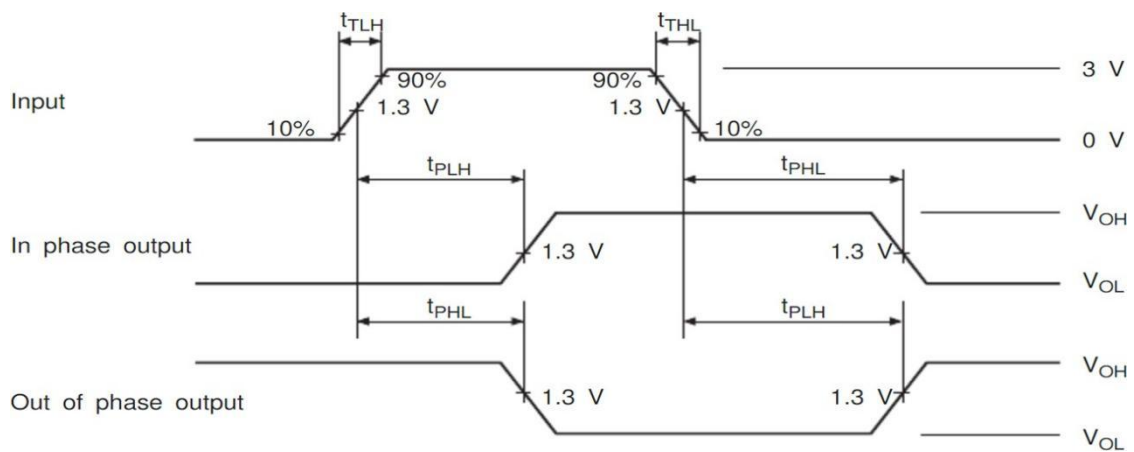
1、Test Circuit



Notes:

- A. Input signal pulse: $f=1\text{MHz}$, $D=50\%$, $t_{\text{LH}}=t_{\text{HL}}$ is less than 20ns. except for special regulations.
- B. The CL capacitor is an external patch capacitor (0603), which is connected to the output pin and the capacitor is near the chip GND.
- C. All diode models are 1S2074 (H).

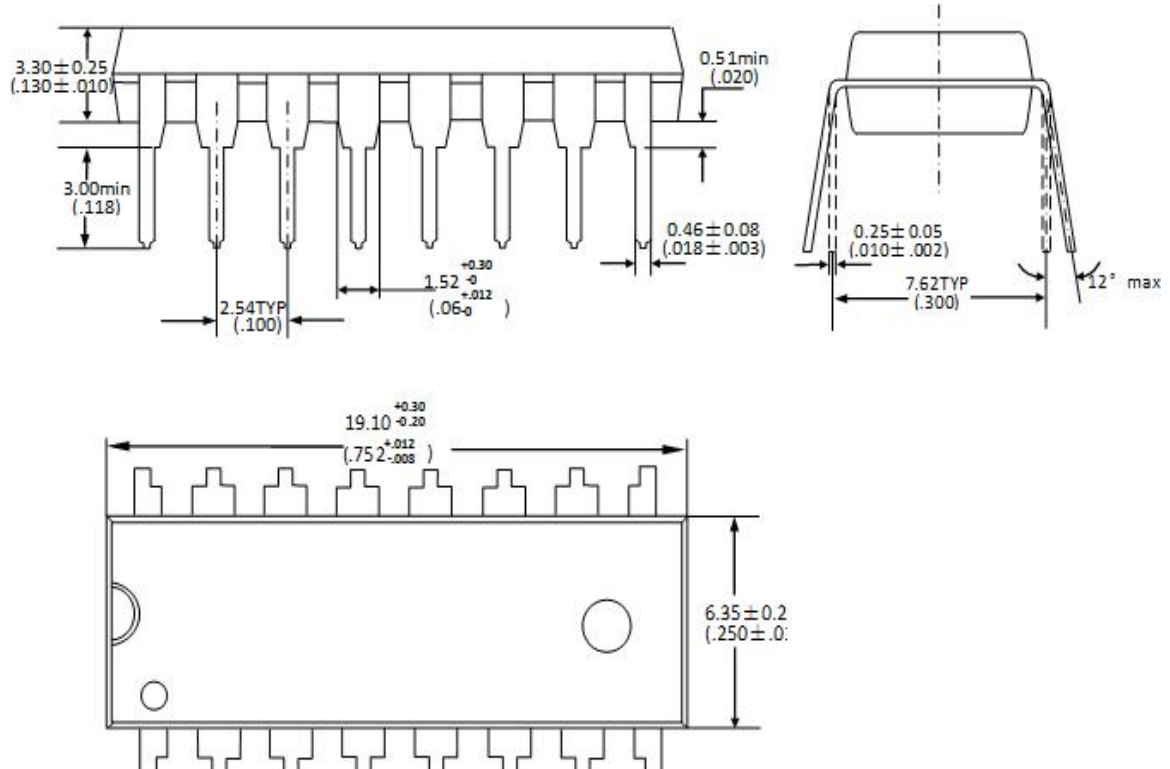
2、Waveform



■ Package Dimensions

Unit : mm / inch

DIP16



SOP16

