

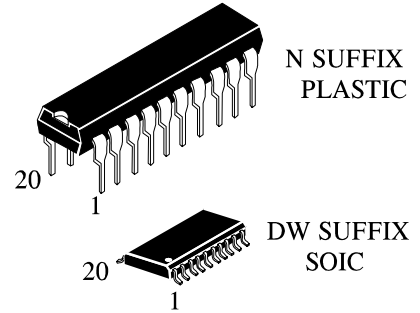
# IN74LV623

## OCTAL 3-STATE NONINVERTING BUS TRANSCEIVER

Microcircuits IN74LV623 are pin-to-pin compatible with microcircuits of series 74HC623A, 74HCT623A. Input voltage levels are compatible with standard C-MOS levels

### Features:

- Output voltage levels are compatible with input levels C-MOS, N-MOS and TTL microcircuits.
- Supply voltage range from 1.2 to 3.6 V.
- Maximum input current: 1.0 mA; 0.1 mA at T = 25 °C.
- Consumption current 8 mA.



### ORDERING INFORMATION

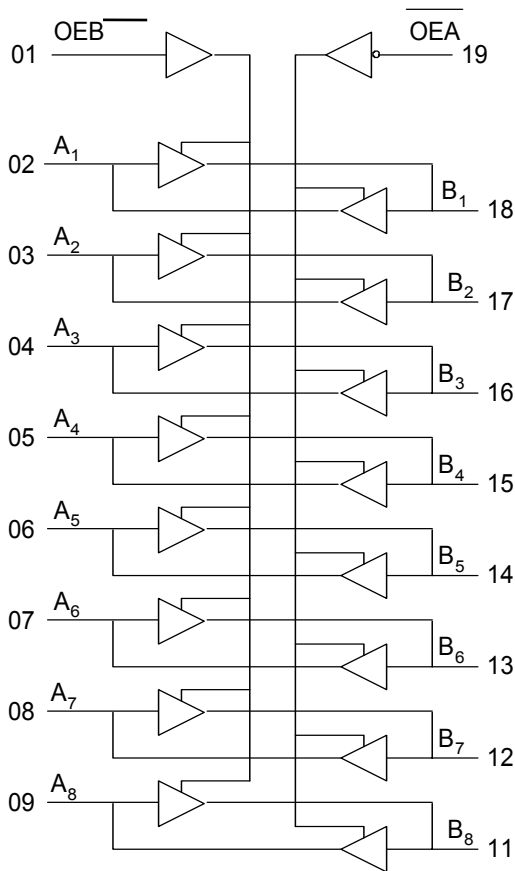
IN74LV623N Plastic

IN74LV623D SOIC

IZ74LV623 Chip

T<sub>A</sub> = -40° ÷ 125° C for all packages

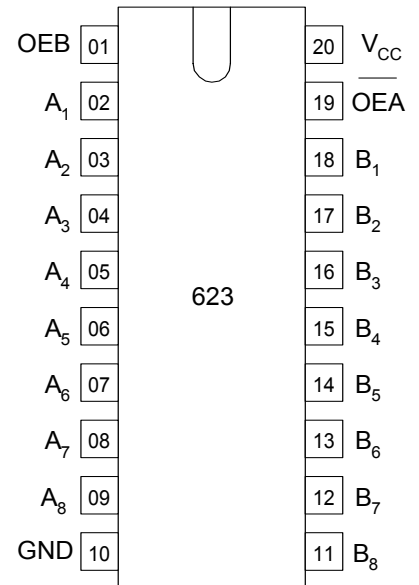
### Block diagram



### Truth table

Inputs		Inputs/Outputs	
OEB	OEA	A	B
L	L	A=B	Input
H	H	Input	B=A
L	H	Z	Z
H	H	A=B	B=A

### Pinout



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### Absolute maximum ratings\*

Symbol	Parameter	Value	Unit
$V_{CC}$	Supply voltage	from -0.5 to +5.0	V
$I_{IK}^{*1}$	Input diode current	$\pm 20$	mA
$I_{OK}^{*2}$	Output diode current	$\pm 50$	mA
$I_O^{*3}$	Output current source-drain	$\pm 35$	mA
$I_{CC}$	Supply output current	$\pm 70$	mA
$I_{GND}$	Common output current	$\pm 70$	mA
$P_D$	Dissipation power at free air change, Plastic DIP SOIC *4	750 500	mW
$T_{stg}$	Storage temperature	from -65 to +150	$^{\circ}C$
$T_L$		260	$^{\circ}C$

\* Under absolute maximum conditions operation of microcircuits is not guaranteed. Operation under maximum conditions is guaranteed.

\*1 If  $V_I < -0.5V$  or  $V_I > V_{CC} + 0.5 V$ .

\*2 If  $V_O < -0.5V$  or  $V_O > V_{CC} + 0.5 V$ .

\*3 If  $-0.5V < V_O < V_{CC} + 0.5 V$ .

\*4 Under operation in the temperature range from  $65^{\circ}C$  to  $125^{\circ}C$  value of dissipation power drops down - to  $10 \text{ mW}/^{\circ}C$  for Plastic DIP  
- to  $7 \text{ mW}/^{\circ}C$  for SOIC

### Maximum conditions

Symbol	Parameter	Min	Max	Unit	
$V_{CC}$	Supply voltage	1.2	3.6	V	
$V_{IN}$	Input voltage	0	$V_{CC}$	V	
$V_{OUT}$	Output voltage	0	$V_{CC}$	V	
$T_A$	Operation temperature. For all packages	-40	125	$^{\circ}C$	
$t_{LH}, t_{HL}$	Period of signal rise and fall edges (Figure 1)	$V_{CC} = 1.2 \text{ B}$	0	1000	ns
		$V_{CC} = 2.0 \text{ B}$		700	
		$V_{CC} = 3.0 \text{ B}$		500	
		$V_{CC} = 3.6 \text{ B}$		400	

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### DC electrical characteristics

Sym bol	Parameter	Test conditions	V <sub>CC</sub> , V	Value						Unit
				25°C		From -40°C to 85°C		From -40°C to 125°C		
				min	max	min	max	min	max	
V <sub>IH</sub>	High input voltage	V <sub>O</sub> = V <sub>CC</sub> -0.1 V	1.2	0.9	-	0.9	-	0.9	-	V
			2.0	1.4	-	1.4	-	1.4	-	
			3.0	2.1	-	2.1	-	2.1	-	
			3.6	2.5	-	2.5	-	2.5	-	
V <sub>IL</sub>	Low input voltage	V <sub>O</sub> =0.1 V	1.2	-	0.3	-	0.3	-	0.3	V
			2.0	-	0.6	-	0.6	-	0.6	
			3.0	-	0.9	-	0.9	-	0.9	
			3.6	-	1.1	-	1.1	-	1.1	
V <sub>OH</sub>	High output voltage	V <sub>I</sub> = V <sub>IH</sub> or V <sub>IL</sub> I <sub>o</sub> = -50 mA	1.2	1.11	-	1.1	-	1.1	-	V
			2.0	1.91	-	1.9	-	1.9	-	
			3.0	2.91	-	2.9	-	2.9	-	
			3.6	3.51	-	3.5	-	3.5	-	
			V <sub>I</sub> = V <sub>IH</sub> or V <sub>IL</sub> I <sub>o</sub> = -8 mA	3.0	2.48	-	2.34	-	2.20	-
V <sub>OL</sub>	Low output voltage	V <sub>I</sub> = V <sub>IH</sub> or V <sub>IL</sub> I <sub>o</sub> = 50 mA	1.2	-	0.09	-	0.1	-	0.1	V
			2.0	-	0.09	-	0.1	-	0.1	
			3.0	-	0.09	-	0.1	-	0.1	
			3.6	-	0.09	-	0.1	-	0.1	
			V <sub>I</sub> = V <sub>IH</sub> or V <sub>IL</sub> I <sub>o</sub> = 8 mA	3.0	-	0.33	-	0.4	-	0.5
I <sub>I</sub>	Input current	V <sub>I</sub> = V <sub>CC</sub> or 0 V	3.6	-	±0.1	-	±1.0	-	±1.0	µA
I <sub>OZ</sub>	Output current in «off» state	Outputs in the third state V <sub>I</sub> = V <sub>IL</sub> or V <sub>IH</sub> V <sub>O</sub> =V <sub>CC</sub> or 0 V	3.6	-	±0.5	-	±5	-	±10	µA
I <sub>CC</sub>	Consumption current	V <sub>I</sub> =V <sub>CC</sub> or 0 V I <sub>o</sub> = 0 mA	3.6	-	8.0	-	80	-	160	µA

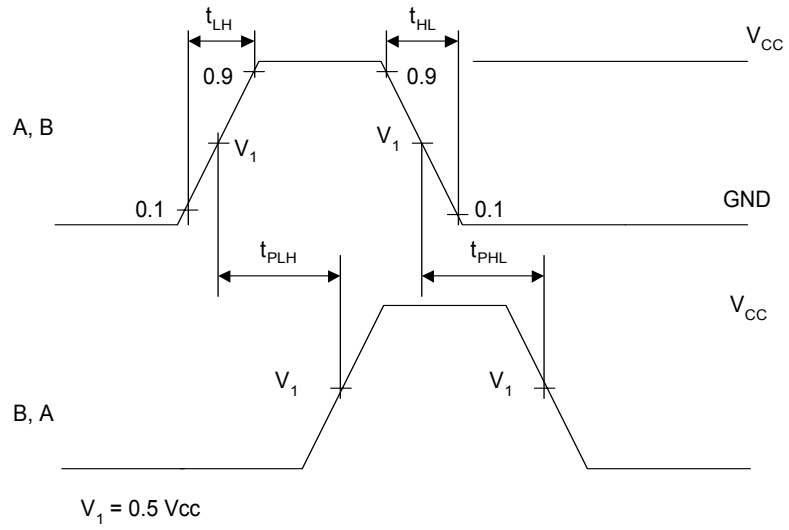
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**AC electrical characteristics** ( $C_L=50$  pF,  $t_{LH} = t_{HL} = 6.0$  ns)

Symbol	Parameter	Test conditions	$V_{CC}$ , V	Value						Unit
				25°C		From -40°C to 85°C		From -40°C to 125°C		
				min	max	min	max	min	max	
$t_{PHL}$ , $t_{PLH}$ from A to B; from B to A	Propagation delay time in «on» and «off» states	Fig. 1	1.2	-	100	-	125	-	140	ns
			2.0	-	23	-	28	-	34	
			3.0	-	14	-	18	-	21	
$t_{PHZ}$ , $t_{PLZ}$ from OE to Y	Propagation delay time when switching from high, low levels into «off» state	Fig. 2	1.2	-	120	-	140	-	160	ns
			2.0	-	30	-	37	-	43	
			3.0	-	20	-	24	-	28	
$t_{PZH}$ , $t_{PZL}$ from OE to Y	Propagation delay time when switching from «off» state into high, low levels	Fig. 2	1.2	-	120	-	140	-	160	ns
			2.0	-	28	-	35	-	43	
			3.0	-	17	-	21	-	26	
$t_{THL}$ , $t_{TLH}$	Transition time when switching on, off	Fig. 1	1.2	-	60	-	75	-	90	ns
			2.0	-	16	-	20	-	24	
			3.0	-	10	-	13	-	15	
$C_I$	Input capacitance		3.0	-	7	-	-	-	pF	
$C_{PD}$	Dynamic capacitance (for one channel)	$V_I = 0$ V or $V_{CC}$	3.0	-	50	-	-	-	pF	

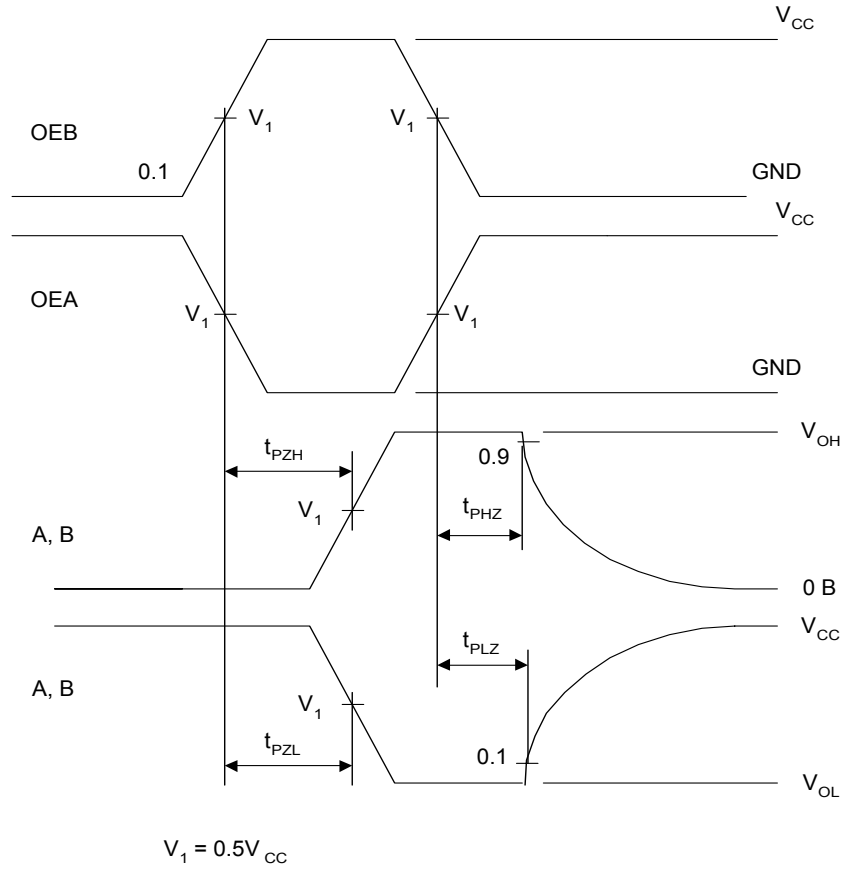
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## - Time diagram of control of AC characteristics $t_{PLH}$ , $t_{PHL}$



**Fig. 1**

## - Time diagram of control of AC characteristics $t_{PLZ}$ , $t_{PHZ}$ , $t_{PZL}$ , $t_{PZH}$



**Fig. 2**