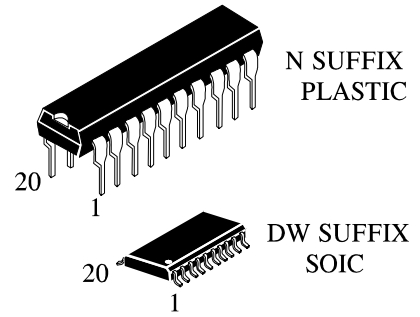# IN74LV620

OCTAL 3-STATE INVERTING BUS TRANSCEIVER

Microcircuits IN74LV620 are pin-to-pin compatible with microcircuits of series 74ALS620, 74HC620, 74HCT620. 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.
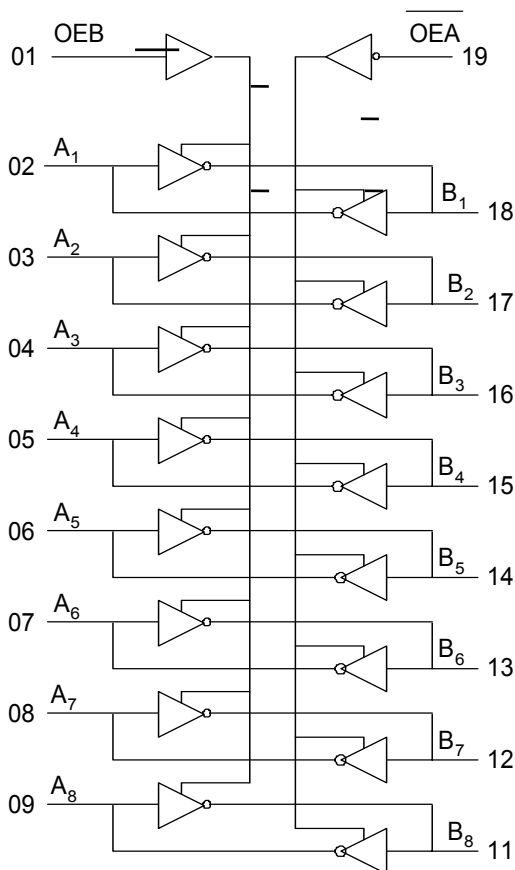Maximum input current: 1.0 mkA; 0.1 mkA at T = 25 °C.
Consumption current 8 mA.

N SUFFIX
PLASTIC

DW SUFFIX
SOIC

ORDERING INFORMATION

IN74LV620N   Plastic
IN74LV620D   SOIC
IZ74LV620   Chip
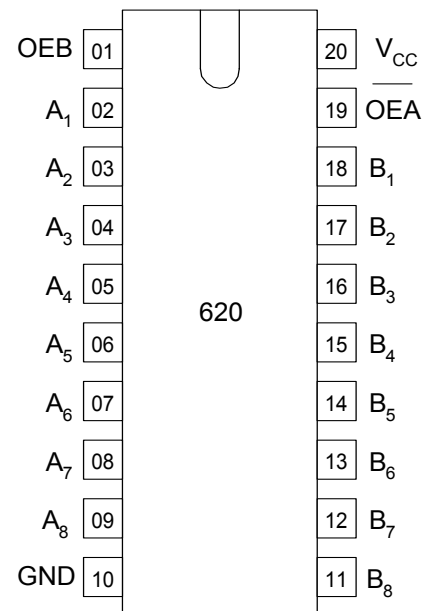T_A = -40° ÷ 125° C for all packages

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

OEB	01	20	V_{CC}
A_1	02	19	OEA
A_2	03	18	B_1
A_3	04	17	B_2
A_4	05	16	B_3
A_5	06	15	B_4
A_6	07	14	B_5
A_7	08	13	B_6
A_8	09	12	B_7
GND	10	11	B_8

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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	± 20	mA
I_{OK} *2	Output diode current	± 50	mA
I_O *3	Output current source-drain	± 35	mA
I_{CC}	Supply output current	± 70	mA
I_{GND}	Common output current	± 70	mA
P_D	Dissipation power at free air change, Plastic DIP *4 SOIC *4	750 500	mW
Tstg	Storage temperature	from -65 to +150	°C
T_L		260	°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°C to 125°C value of dissipation power drops down - to 10 mW/°C for Plastic DIP
- to 7 mW/°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	°C
t_{LH}, t_{HL}	Period of signal rise and fall edges (Figure 1)	V_{CC} =1.2 B	0	1000	ns
		V_{CC} =2.0 B		700	
		V_{CC} =3.0 B		500	
		V_{CC} =3.6 B		400	

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DC electrical characteristics

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	
V_{IH}	High input voltage	$V_O = V_{CC}$-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_{IL}	Low input voltage	V_O =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_{OH}	High output voltage	$V_I = V_{IH}$ or V_{IL} Io = -50 mkA	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	-	
		$V_I = V_{IH}$ or V_{IL} Io = -8 mA	3.0	2.48	-	2.34	-	2.20	-	V
V_{OL}	Low output voltage	$V_I = V_{IH}$ or V_{IL} Io = 50 mkA	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	
		$V_I = V_{IH}$ or V_{IL} Io = 8 mA	3.0	-	0.33	-	0.4	-	0.5	V
I_I	Input current	$V_I = V_{CC}$ or 0 V	3.6	-	±0.1	-	±1.0	-	±1.0	uA
I_{OZ}	Output current in «off» state	Outputs in the third state $V_I = V_{IL}$ or V_{IH} V_O =V_{CC} or 0 V	3.6	-	±0.5	-	±5	-	±10	uA
I_{CC}	Consumption current	V_I =V_{CC} or 0 V Io = 0 mkA	3.6	-	8.0	-	80	-	160	uA

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

Sym-bol	Parameter	Test conditions	V_{CC}, V	25°C		From -40°C to 85°C		From -40°C to 125°C		Unit
				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 2.0 3.0	- - -	100 23 14	- - -	125 28 18	- - -	140 34 21	ns
t_{PHZ} t_{PLZ} from OE to Y	Propagation delay time when switching from high, low levels into «off» state	Fig.2	1.2 2.0 3.0	- - -	120 30 20	- - -	140 37 24	- - -	160 43 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 2.0 3.0	- - -	120 28 17	- - -	140 35 21	- - -	160 43 26	
t_{THL}, t_{TLH}	Transition time when switching on, off	Fig.1	1.2 2.0 3.0	- - -	60 16 10	- - -	75 20 13	- - -	90 24 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	-	-	-	-	

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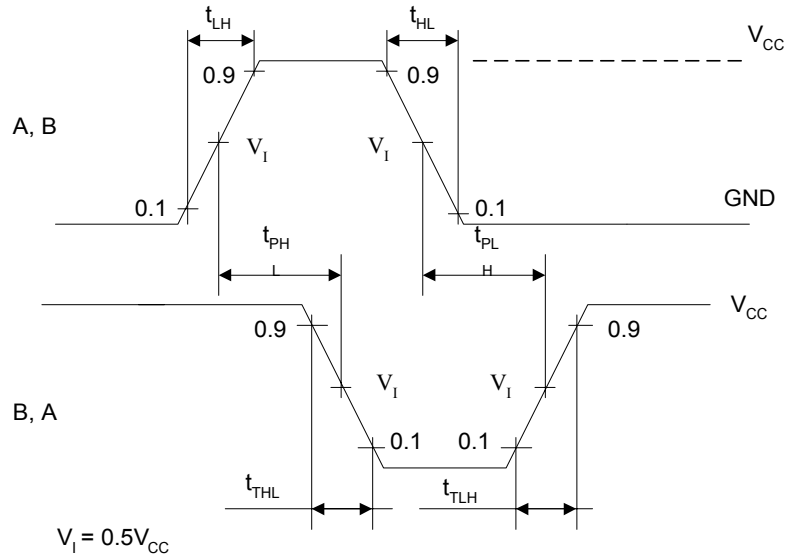*- Time diagram of control of AC characteristics t_{PLH}, t_{PHL}*

Fig.1

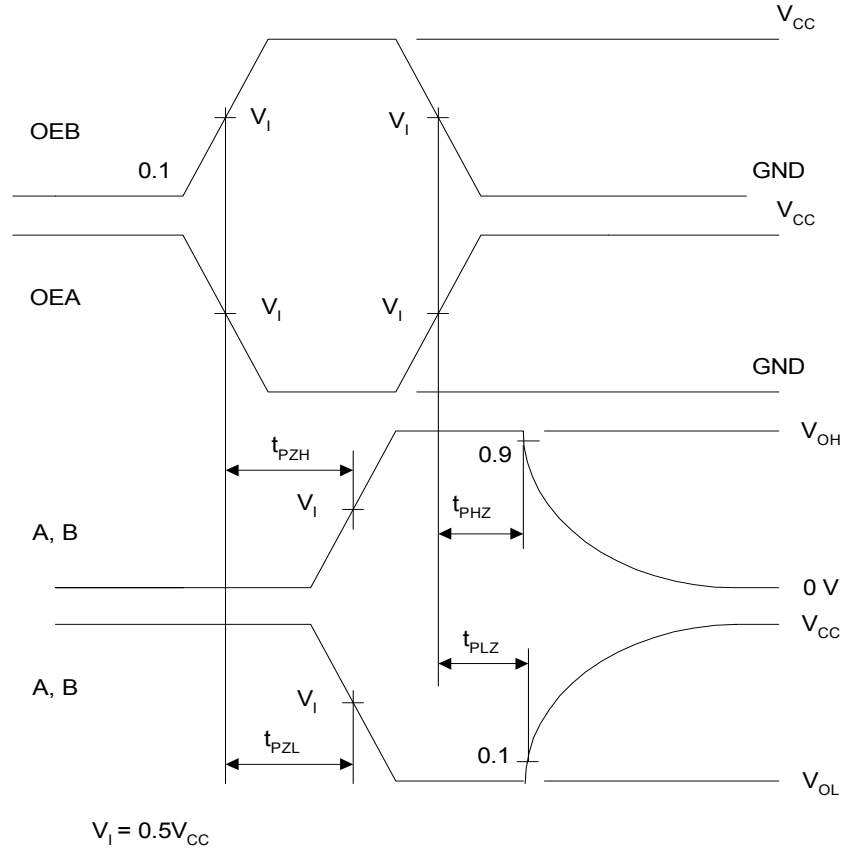*- Time diagram of control of AC characteristics t_{PLZ}, t_{PHZ}, t_{PZL}, t_{PZH}*

Fig.2

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