DN74LS368A 74LS368A

Hex Bus Drivers (with 3-state Outputs)

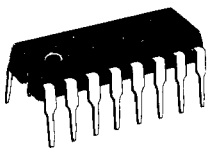
■ Description

DN74LS368A contains six 3-state output inverter buffer circuits with output-control inputs $\overline{G}_1$ and G_2 for four and two circuits respectively.

■ Features

- Common output-control inputs for four circuits and two circuits respectively
- High fan-out (I_{OL} = 24mA, I_{OH} = −2.6mA)

P-2



16-pin plastic DIL package

P-5

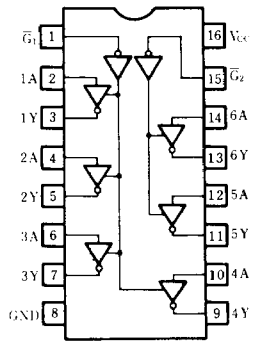
16-pin Panaflat package (SO-16D)

■ Truth tables

Inputs		Outputs
$\overline{G}$	A	Y
L	L	H
L	H	L
H	×	Z

Notes
1. H: HIGH voltage level.
2. L: LOW voltage level.
3. X: Either HIGH or LOW; doesn't matter.
4. Z: High impedance.

Pin configuration (top view)



■ Recommended operating conditions

Parameter	Sym	Min	Typ	Max	Unit
Supply voltage	V_{CC}	4.75	5.00	5.25	V
Output current	I_{OH}			−2.6	mA
	I_{OL}			24	mA
Operating temperature range	Topr	−20	25	75	℃

■ DC characteristics ($Ta = -20 \sim +75℃$)

Parameter		Sym	Test conditions		Min	Typ*	Max	Unit
Input voltage		V_{IH}			2.0			V
		V_{IL}					0.8	V
Output voltage		V_{OH}	$V_{CC}=4.75V$, $V_{IH}=2V$, $V_{IL}=0.8V$,	$I_{OH}=-2.6mA$	2.4	3.1		V
		V_{OL1}	$V_{CC}=4.75V$, $V_{IH}=2V$, $V_{IL}=0.8V$	$I_{OL}=12mA$		0.25	0.4	V
		V_{OL2}		$I_{OL}=24mA$		0.35	0.5	V
Output current		I_{OZH}	$V_{CC}=5.25V$, $V_{IH}=2V$, $V_{IL}=0.8V$	$V_O=2.4V$			20	μA
		I_{OZL}		$V_O=0.4V$			−20	μA
Input current		I_{IH}	$V_{CC}=5.25V$, $V_{IH}=2.7V$				20	μA
	A input	I_{IL}	$V_{CC}=5.25V$, either G input = 2V, $V_I=0.5V$,				−20	μA
	A input		$V_{CC}=5.25V$, both G inputs=0.4V $V_I=0.4V$,				−0.4	mA
	$\overline{G}$ input		$V_{CC}=5.25V$, $V_I=0.4V$				−0.4	mA
		I_I	$V_{CC}=5.25V$, $V_I=7V$				0.1	mA
Output short circuit current**		I_{OS}	$V_{CC}=5.25V$, $V_O=0V$		−15		−130	mA
Input clamp voltage		V_{IK}	$V_{CC}=4.75V$, $I_I=-18mA$				−1.5	V
Supply current***		I_{CC}	$V_{CC}=5.25V$			12	21	mA

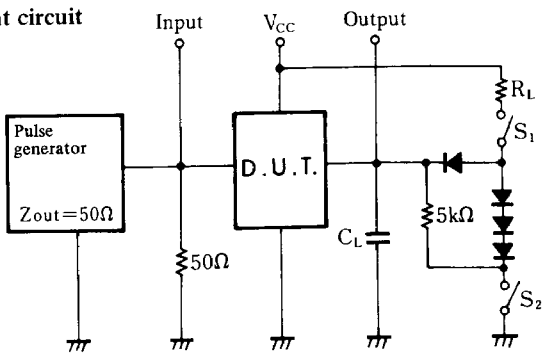
* When constant at V_{CC} = 5V, Ta = 25°C.
** Only one output at a time short circuited to GND. Also, short circuit time to GND within 1 second.
*** Measured with all outputs open, all inputs grounded, and 4.5V applied to all $\overline{G}$ inputs.

■ Switching characteristics ($V_{CC}=5V$, $Ta=25℃$)

Parameter	Sym	Test conditions	Min	Typ	Max	Unit
Propagation delay time	t_{PLH}	$C_L=45pF$, $R_L=667Ω$		7	15	ns
	t_{PHL}			12	18	ns
Output enable time	t_{PZH}			18	35	ns
	t_{PZL}			28	45	ns
Output disable time	t_{PHZ}	$C_L=5pF$, $R_L=667Ω$			32	ns
	t_{PLZ}				35	ns

※ Switching parameter measurement information

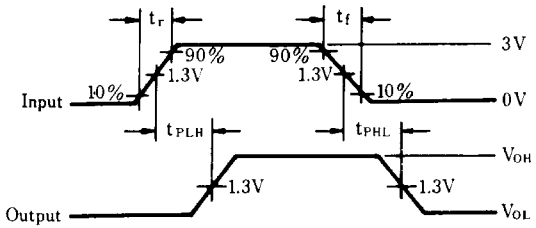
1. Measurement circuit



Notes
1. C_L includes probe and tool floating capacitance.
2. Diodes are all MA161.

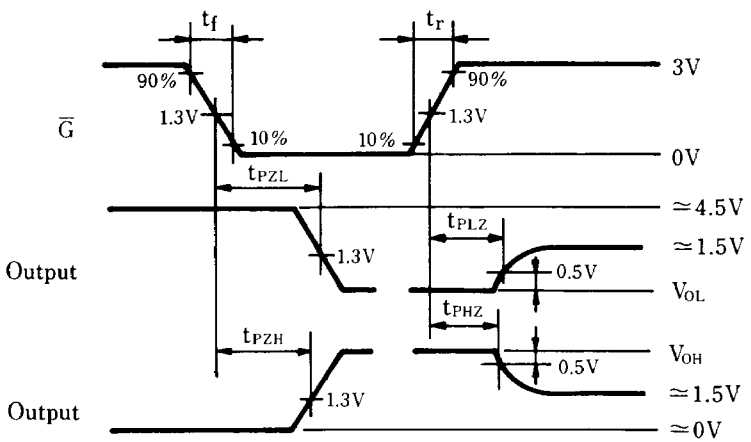
2. Waveforms

Waveforms-1



Notes
1. Input waveform: $t_r \leqq 15$ns, $t_f \leqq 6$ns, PRR = 1MHz, duty cycle = 50%.

Waveforms-2



Notes
1. Input waveform: $t_r \leqq 15$ns, $t_f \leqq 6$ns