

INS8202/8203 TRI-STATE® Octal Buffers

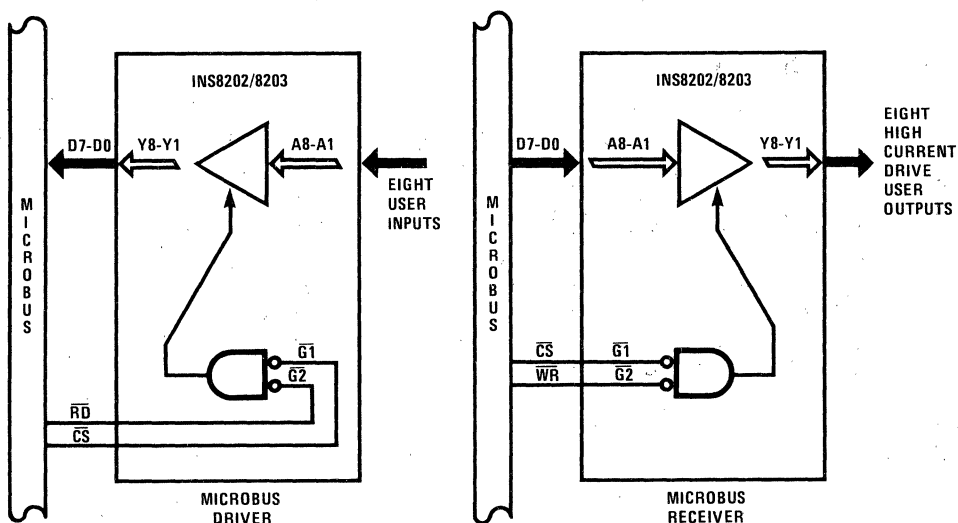
General Description

These devices provide eight two-input buffers in each package. All employ the newest low power Schottky TTL technology. One of the two inputs to each buffer is used as a control line to gate the output into the high-impedance state, while the other input passes the data through the buffer. The INS8202 presents true data at the outputs, while the INS8203 is inverting. All eight TRI-STATE enable lines are common, with access through a 2-input NOR gate. The outputs are placed in the TRI-STATE condition by applying a high logic level to the enable pins. These devices represent octal, low power Schottky versions of the very popular DM8095 and 96 TRI-STATE hex buffers.

Features

- Identical to DM81LS95 and DM81LS96
- Octal versions of popular DM80LS95, 80LS96
- Typical power dissipation
INS8202 — 80mW
INS8203 — 65mW
- Typical propagation delay
INS8202 — 13ns
INS8203 — 10ns
- Low power Schottky TRI-STATE technology
- MICROBUS™* compatible

INS8202/8203 MICROBUS Configuration



*Trademark, National Semiconductor Corp.

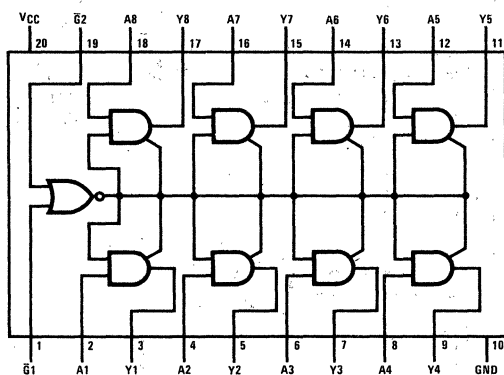
Electrical Characteristics over recommended operating free-air temperature range (unless otherwise noted)

	Parameter	Conditions	INS8202/8203			Units
			Min	Typ	Max	
V_{IH}	High Level Input Voltage		2			V
V_{IL}	Low Level Input Voltage				0.8	V
V_I	Input Clamp Voltage	$V_{CC} = \min, I_I = -18\text{mA}$			-1.5	V
I_{OH}	High Level Output Current				-2.6	mA
V_{OH}	High Level Output Voltage	$V_{CC} = \min, V_{IH} = 2\text{V}, V_{IL} = 0.8\text{V}$				V
		$I_{OH} = \max$	2.7			
		$I_{OH} = -5\text{mA}$	2.4			
I_{OL}	Low Level Output Current				16	mA
V_{OL}	Low Level Output Voltage	$V_{CC} = \min, V_{IH} = 2\text{V}, V_{IL} = 0.8\text{V}, I_{OL} = \max$			0.5	V
$I_{O(OFF)}$	Off-State (High-Impedance State) Output Current	$V_{CC} = \max, V_{IH} = 2\text{V}, V_{IL} = 0.8\text{V}$			-20	μA
					20	
I_I	Input Current at Maximum Input Voltage	$V_{CC} = \max, V_I = 7\text{V}$			0.1	mA
I_{IH}	High Level Input Current	$V_{CC} = \max, V_I = 2.7\text{V}$			20	μA
I_{IL}	Low Level Input Current	$V_{CC} = \max$	Both G Inputs at 2V $V_I = 0.5\text{V}$		-20	μA
			Both G Inputs at 0.4V $V_I = 0.4\text{V}$		-0.36	mA
			$V_I = 0.4\text{V}$		-0.36	
I_{OS}	Short Circuit Output Current	$V_{CC} = \max$ (Note 2)	-30	-60	-130	mA
I_{CC}	Supply Current	$V_{CC} = \max$		16	26	mA
		INS8203		13	21	

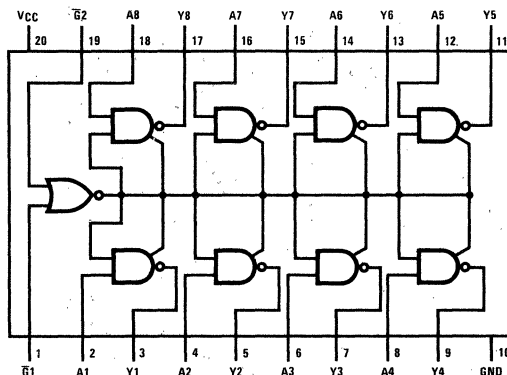
Note 1: All typical values are at $V_{CC} = 5\text{V}$, $T_A = 25^\circ\text{C}$.

Note 2: Not more than one output should be shorted at a time, and duration of the short circuit should not exceed one second.

Connection Diagrams



INS8202



INS8203

Switching Characteristics $V_{CC} = 5V, T_A = 25^\circ C$

Parameter		Conditions	INS8202			INS8203			Units
			Min	Typ	Max	Min	Typ	Max	
t_{PLH}	Propagation Delay Time, Low-to-High Level Output	$C_L = 15pF$ $R_L = 2k\Omega$		11	16		6	10	ns
t_{PHL}	Propagation Delay Time, High-to-Low Level Output			15	22		13	17	ns
t_{ZH}	Output Enable Time to High Level			16	25		17	27	ns
t_{ZL}	Output Enable Time to Low Level			13	20		16	25	ns
t_{HZ}	Output Disable Time from High Level	$C_L = 5pF, R_L = 2k\Omega$		13	20		13	20	ns
t_{LZ}	Output Disable Time from Low Level			19	27		18	27	ns

Truth Tables

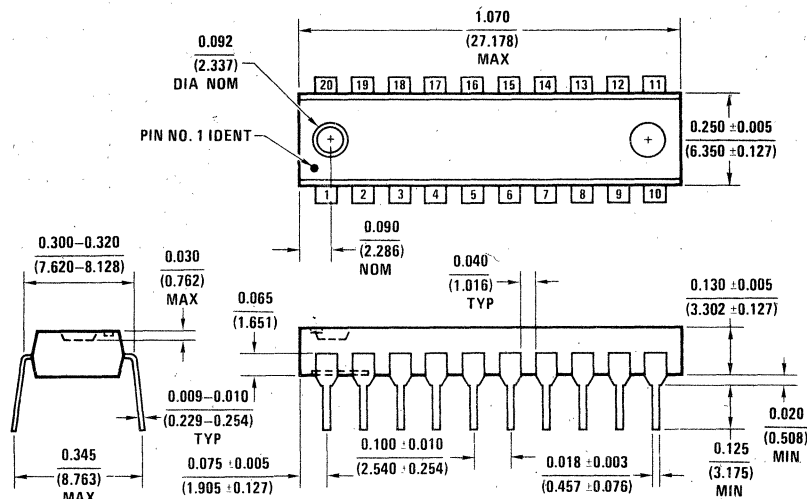
Inputs			Output Y
$\overline{G1}$	$\overline{G2}$	A	
H	X	X	Z
X	H	X	Z
L	L	H	H
L	L	L	L

20-Lead Dual-In-Line Package
Order Number INS8202(N)

Inputs			Output Y
$\overline{G1}$	$\overline{G2}$	A	
H	X	X	Z
X	H	X	Z
L	L	H	L
L	L	L	H

20-Lead Dual-In-Line Package
Order Number INS8203(N)

Physical Dimensions Inches (millimeters)



20-Lead Dual-In-Line Package
Order Number INS8203(N)
NS Package Number N20A



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