

DM74AS2645 TRI-STATE® Bus Transceiver/MOS Driver

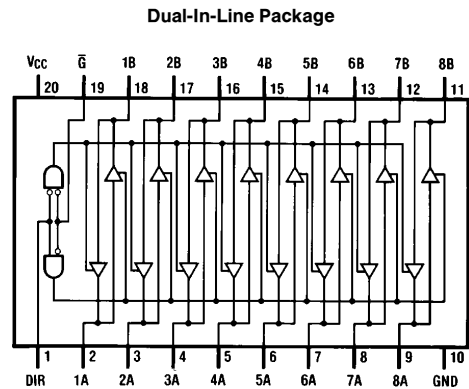
General Description

This device contains 8 pairs of logic elements configured as octal bus transceivers. They are designed to drive the capacitive input characteristics of MOS devices and allow asynchronous bidirectional communications between data buses. Data transmission from the A bus to the B bus or from the B bus to the A bus are selectively controlled by (DIR and \bar{G}) the direction and enable inputs. This enable input is also used to disable the device so that the buses are effectively isolated.

Features

- Bidirectional octal bus transceivers for driving MOS devices
- I/O ports have 25Ω series resistors so no external resistors are required
- Advanced oxide isolated, ion-implanted Schottky TTL process
- Switching response specified into $500\Omega/50$ pF load
- Switching specifications guaranteed over full temperature and V_{CC} range

Connection Diagram



TL/F/6343-1

Order Number DM74AS2645N
See NS Package Number N20A*

Function Table

Control Inputs		Operation
\bar{G}	DIR	
L	L	B Data to A Bus
L	H	A Data to B Bus
H	X	Hi-Z

L = Low Logic Level
H = High Logic Level
Hi-Z = High Impedance State
X = Either Low or High Logic Level

*Contact your local NSC representative about surface mount (M) package availability.

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Absolute Maximum Ratings

Supply Voltage, V_{CC}	7V
Input Voltage	
Control Inputs	7V
I/O Ports	5.5V
Operating Free Air Temperature Range	0°C to 70°C
Storage Temperature Range	-65°C to +150°C
Typical θ_{JA}	
N Package	51.5°C/W

Note: The "Absolute Maximum Ratings" are those values beyond which the safety of the device cannot be guaranteed. The device should not be operated at these limits. The parametric values defined in the "Electrical Characteristics" table are not guaranteed at the absolute maximum ratings. The "Recommended Operating Conditions" table will define the conditions for actual device operation.

Recommended Operating Conditions

Symbol	Parameter	Min	Typ	Max	Units
V_{CC}	Supply Voltage	4.5	5	5.5	V
V_{IH}	High Level Input Voltage	2			V
V_{IL}	Low Level Input Voltage			0.8	V
T_A	Operating Free Air Temperature	0		70	°C
I_{OL}	Low Level Output Current			12	mA

Electrical Characteristics

over recommended operating free air temperature range. All typical values are measured at $V_{CC} = 5V$, $T_A = 25^\circ C$.

Symbol	Parameter	Conditions	Min	Typ	Max	Units	
V_{IK}	Input Clamp Voltage	$V_{CC} = 4.5V$, $I_I = -18\text{ mA}$			-1.2	V	
V_{OH}	High Level Output Voltage	$V_{CC} = 4.5V$ to $5.5V$, $I_{OH} = -2\text{ mA}$	$V_{CC} - 2$			V	
V_{OL}	Low Level Output Voltage	$V_{CC} = 4.5V$	$I_{OL} = 1\text{ mA}$		0.25	0.4	V
			$I_{OL} = \text{Max}$		0.35	0.7	V
I_I	Input Current at Max Input Voltage	$V_{CC} = 5.5V$, $V_{IN} = 7V$ ($V_{IN} = 5.5V$ for A or B Ports)			0.1	mA	
I_{IH}	High Level Input Current	$V_{CC} = 5.5V$, $V_{IN} = 2.7V$	Control Inputs			20	μA
			A or B Ports			70	
I_{IL}	Low Level Input Current	$V_{CC} = 5.5V$, $V_{IN} = 0.4V$	Control Inputs			-0.5	mA
			A or B Ports			-0.75	
I_O	Output Drive Current	$V_{CC} = 5.5V$, $V_{OUT} = 2.25V$	-50		-150	mA	
I_{CC}	Supply Current	$V_{CC} = 5.5V$	Outputs High		58	95	mA
			Outputs Low		95	155	mA
			TRI-STATE		73	119	mA

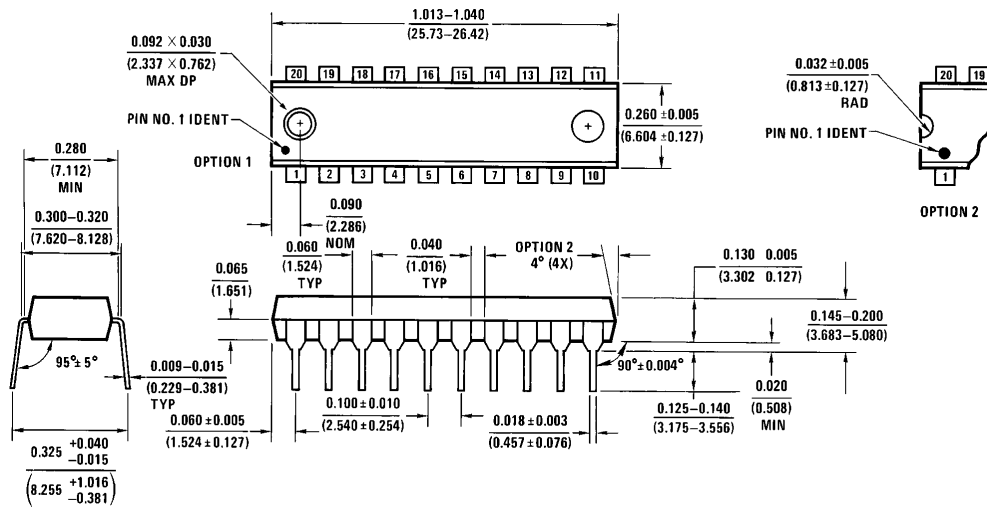
Switching Characteristics over recommended operating free air temperature range (Notes 1 and 2)

Symbol	Parameter	From (Input)	To (Output)	Min	Max	Units
t _{PLH}	Propagation Delay Time Low to High Level Output	A or B	B or A	1	10	ns
t _{PHL}	Propagation Delay Time High to Low Level Output	A or B	B or A	1	9.5	ns
t _{PZL}	Output Enable Time to Low Level	\bar{G}	A or B	1	10.5	ns
t _{PZH}	Output Enable Time to High Level	\bar{G}	A or B	1	11.5	ns
t _{PLZ}	Output Disable Time from Low Level	\bar{G}	A or B	1	12	ns
t _{PHZ}	Output Disable Time from High Level	\bar{G}	A or B	1	8	ns

Note 1: See Section 5 for test waveforms and output load.

Note 2: Switching characteristic conditions are $V_{CC} = 4.5V$ to $5.5V$, $R_L = 500\Omega$, $C_L = 50$ pF.

Physical Dimensions inches (millimeters)



Molded Dual-In-Line Package (N)
Order Number DM74AS2645N
NS Package Number N20A

N20A (REV G)

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