FAIRCHILD SEMICONDUCTOR™

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DM74LS367A
Hex 3-STATE Buffer/Bus Driver

General Description

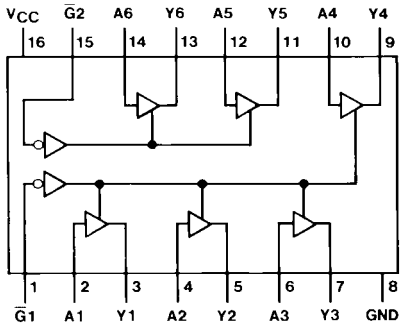
This device contains six independent gates each of which performs a non-inverting buffer function. The outputs have the 3-STATE feature. When enabled, the outputs exhibit the low impedance characteristics of a standard LS output with additional drive capability to permit the driving of bus lines without external resistors. When disabled, both the output transistors are turned OFF presenting a high-impedance state to the bus line. Thus the output will act neither as a significant load nor as a driver. To minimize the possibility that two outputs will attempt to take a common bus to opposite logic levels, the disable time is shorter than the enable time of the outputs.

Ordering Code:

Order Number	Package Number	Package Description
DM74LS367AM	M16A	16-Lead Small Outline Integrated Circuit (SOIC), JEDEC MS-012, 0.150 Narrow
DM74LS367AN	N16E	16-Lead Plastic Dual-In-Line Package (PDIP), JEDEC MS-001, 0.300 Wide

Devices also available in Tape and Reel. Specify by appending the suffix letter "X" to the ordering code.

Connection Diagram



Function Table

$Y = A$

Inputs		Output
A	$\overline{G}$	Y
L	L	L
H	L	H
X	H	Hi-Z

H = HIGH Logic Level
L = LOW Logic Level
X = Either LOW or HIGH Logic Level
Hi-Z = 3-STATE (Outputs are disabled)

Absolute Maximum Ratings(Note 1)

Supply Voltage	7V
Input Voltage	7V
Operating Free Air Temperature Range	0°C to +70°C
Storage Temperature Range	−65°C to +150°C

Note 1: 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 tables 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	Nom	Max	Units
V_{CC}	Supply Voltage	4.75	5	5.25	V
V_{IH}	HIGH Level Input Voltage	2			V
V_{IL}	LOW Level Input Voltage			0.8	V
I_{OH}	HIGH Level Output Current			−2.6	mA
I_{OL}	LOW Level Output Current			24	mA
T_A	Free Air Operating Temperature	0		70	°C

Electrical Characteristics

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

Symbol	Parameter	Conditions		Min	Typ (Note 2)	Max	Units
V_I	Input Clamp Voltage	V_{CC} = Min, I_I = −18 mA				−1.5	V
V_{OH}	HIGH Level Output Voltage	V_{CC} = Min, I_{OH} = Max V_{IL} = Max, V_{IH} = Min		2.4	3.4		V
V_{OL}	LOW Level Output Voltage	V_{CC} = Min, I_{OL} = Max V_{IL} = Max, V_{IH} = Min			0.35	0.5	V
		I_{OL} = 12 mA, V_{CC} = Min			0.25	0.4	
I_I	Input Current @ Max Input Voltage	V_{CC} = Max, V_I = 7V				0.1	mA
I_{IH}	HIGH Level Input Current	V_{CC} = Max, V_I = 2.7V				20	µA
I_{IL}	LOW Level Input Current	V_{CC} = Max, V_I = 0.5V (Note 5)	A Input			−20	µA
		V_{CC} = Max, V_I = 0.4V (Note 6)	A Input			−0.4	mA
		V_{CC} = Max, V_I = 0.4V	$\overline{G}$ Input			−0.4	
I_{OZH}	Off-State Output Current with HIGH Level Output Voltage Applied	V_{CC} = Max, V_O = 2.4V V_{IH} = Min, V_{IL} = Max				20	µA
I_{OZL}	Off-State Output Current with LOW Level Output Voltage Applied	V_{CC} = Max, V_O = 0.4V V_{IH} = Min, V_{IL} = Max				−20	µA
I_{OS}	Short Circuit Output Current	V_{CC} = Max (Note 3)		−20		−100	mA
I_{CC}	Supply Current	V_{CC} = Max (Note 4)			14	24	mA

Note 2: All typicals are at V_{CC} = 5V, T_A = 25°C.

Note 3: Not more than one output should be shorted at a time, and the duration should not exceed one second.

Note 4: I_{CC} is measured with the DATA inputs grounded and the OUTPUT CONTROLS at 4.5V.

Note 5: Both $\overline{G}$ inputs are at 2V.

Note 6: Both $\overline{G}$ inputs at 0.4V.

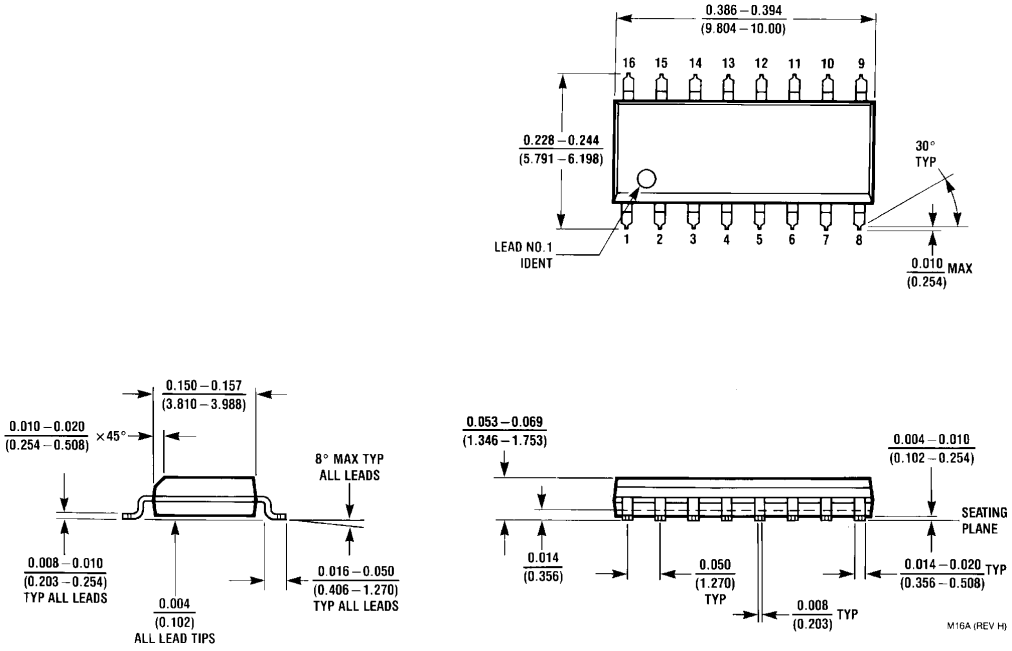
Switching Characteristics

at V_{CC} = 5V and T_A = 25°C

Symbol	Parameter	R_L = 667Ω				Units
		C_L = 50 pF		C_L = 150 pF		
		Min	Max	Min	Max	
t_{PLH}	Propagation Delay Time LOW-to-HIGH Level Output		16		25	ns
t_{PHL}	Propagation Delay Time HIGH-to-LOW Level Output		16		25	ns
t_{PZH}	Output Enable Time to HIGH Level Output		30		40	ns
t_{PZL}	Output Enable Time to LOW Level Output		30		40	ns
t_{PHZ}	Output Disable Time from HIGH Level Output (Note 7)		20			ns
t_{PLZ}	Output Disable Time from LOW Level Output (Note 7)		20			ns

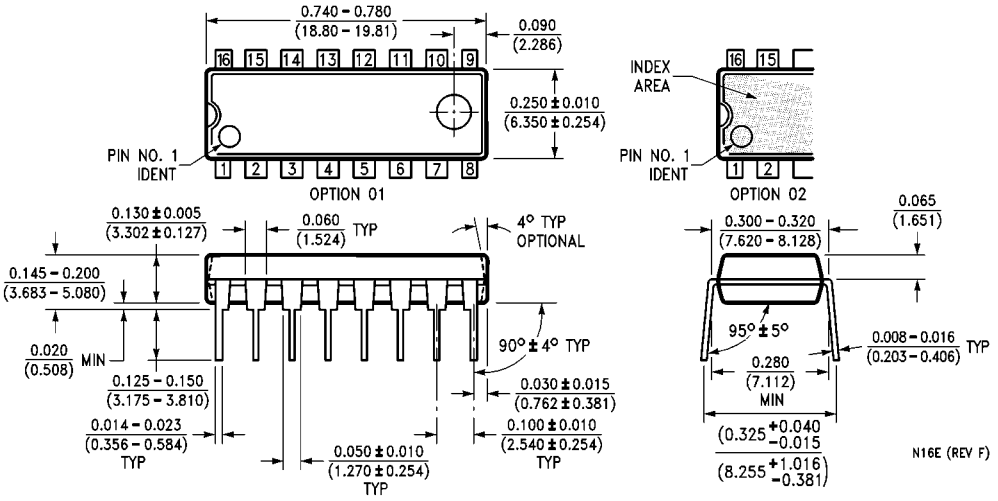
Note 7: C_L = 5 pF.

Physical Dimensions inches (millimeters) unless otherwise noted



16-Lead Small Outline Integrated Circuit (SOIC), JEDEC MS-012, 0.150 Narrow
Package Number M16A

Physical Dimensions inches (millimeters) unless otherwise noted (Continued)



16-Lead Plastic Dual-In-Line Package (PDIP), JEDEC MS-001, 0.300 Wide
Package Number N16E