

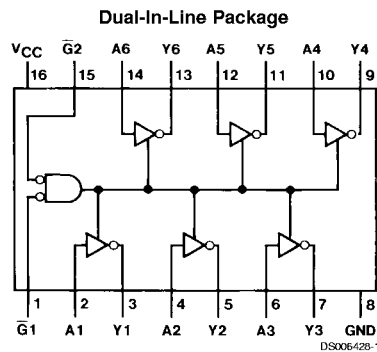
DM74LS366A Hex 3-STATE Inverting Buffer

General Description

This device contains six independent gates each of which performs an 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.

Connection Diagram



Order Number DM54LS366AJ, DM54LS366AW,
DM54LS366AE, DM74LS366AM or DM74LS366AN
See Package Number E20A, J16A, M16A, N16E or W16A

Function Table

$$Y = \bar{A}$$

Inputs		Output	
$\bar{G} 1$	$\bar{G} 2$	A	Y
H	X	X	Hi-Z
X	H	X	Hi-Z
L	L	L	H
L	L	H	L

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	DM54LS	-55°C to +125°C
Input Voltage	7V	DM74LS	0°C to +70°C
Operating Free Air Temperature Range		Storage Temperature Range	-65°C to +150°C

Recommended Operating Conditions

Symbol	Parameter	DM54LS366A			DM74LS366A			Units
		Min	Nom	Max	Min	Nom	Max	
V _{CC}	Supply Voltage	4.5	5	5.5	4.75	5	5.25	V
V _{IH}	High Level Input Voltage	2			2			V
V _{IL}	Low Level Input Voltage			0.7			0.8	V
I _{OH}	High Level Output Current			-1			-2.6	mA
I _{OL}	Low Level Output Current			12			24	mA
T _A	Free Air Operating Temperature	-55		125	0		70	°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" table are not guaranteed at the absolute maximum ratings. The "Recommended Operating Conditions" table will define the conditions for actual device operation.

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		0.25	0.4	V	
		V _{IL} = Max, V _{IH} = Min		0.35	0.5		
		I _{OL} = 12 mA, V _{CC} = Min	DM74	0.25	0.4		
I _I	Input Current @ Max Input Voltage	V _{CC} = Max, V _I = 7V			0.1	mA	
		V _{CC} = Max, V _I = 10.0V	DM74				
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	A Input			-20	mA
		(Note 5)					
		V _{CC} = Max, V _I = 0.4V	A Input			-0.4	
		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	DM54	-30		-130	mA
		(Note 3)	DM74	-20		-100	
I _{CC}	Supply Current	V _{CC} = Max (Note 4)		12	21	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.

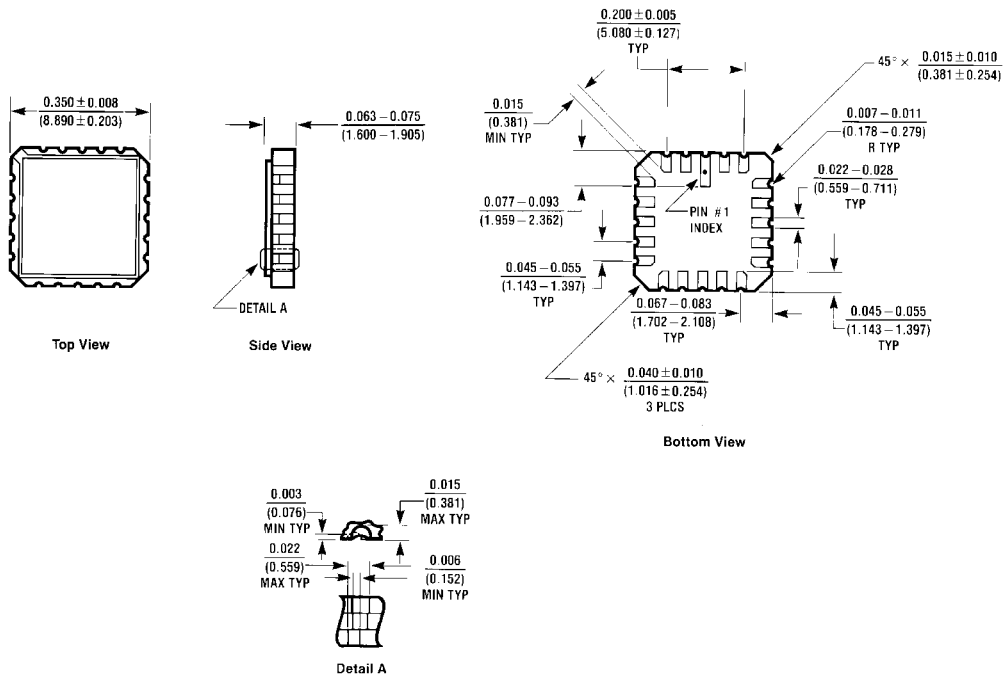
Switching Characteristics:

for test waveforms and output load. $V_{CC} = 5V$, $T_A = 25^\circ C$

Symbol	Parameter	DM54LS		DM74LS				Units
		$C_L = 50 \text{ pF}$		$R_L = 667\Omega$				
		Min	Max	$C_L = 50 \text{ pF}$		$C_L = 150 \text{ pF}$		
Min	Max			Min	Max			
t_{PLH}	Propagation Delay Time Low to High Level Output		12		15		25	ns
t_{PHL}	Propagation Delay Time High to Low Level Output		22		16		25	ns
t_{PZH}	Output Enable Time to High Level Output		24		30		35	ns
t_{PZL}	Output Enable Time to Low Level Output		30		30		40	ns
t_{PHZ}	Output Disable Time from High Level Output (Note 7)		25		20			ns
t_{PLZ}	Output Disable Time from Low Level Output (Note 7)		20		20			ns

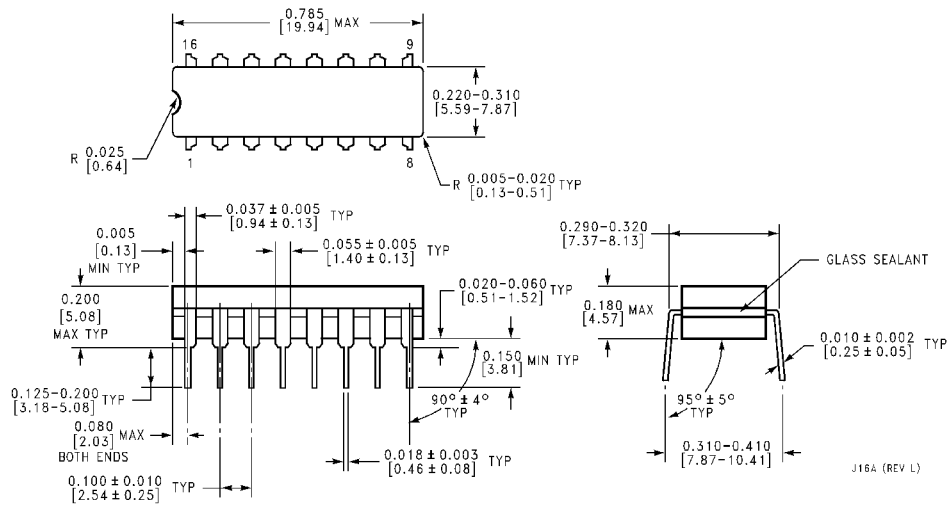
Note 7: $C_L = 5 \text{ pF}$.

Physical Dimensions inches (millimeters) unless otherwise noted



E20A (REV D)

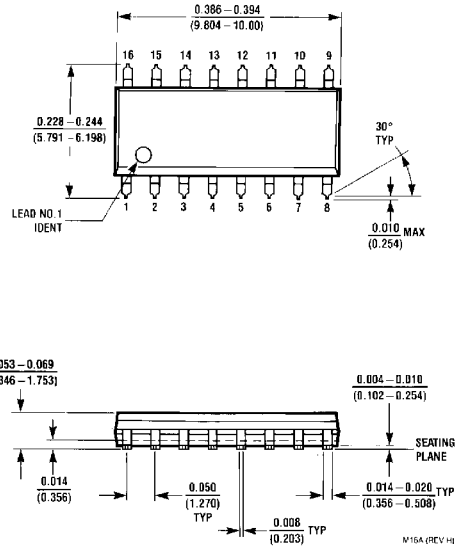
Ceramic Leadless Chip Carrier Package (E)
Order Number DM54LS366AE
Package Number E20A



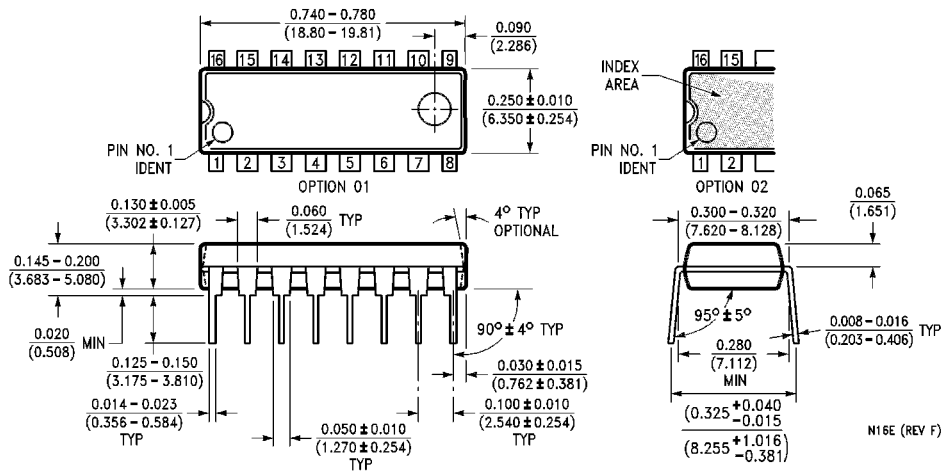
J16A (REV L)

16-Lead Ceramic Dual-In-Line Package (J)
Order Number DM54LS366AJ
Package Number J16A

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



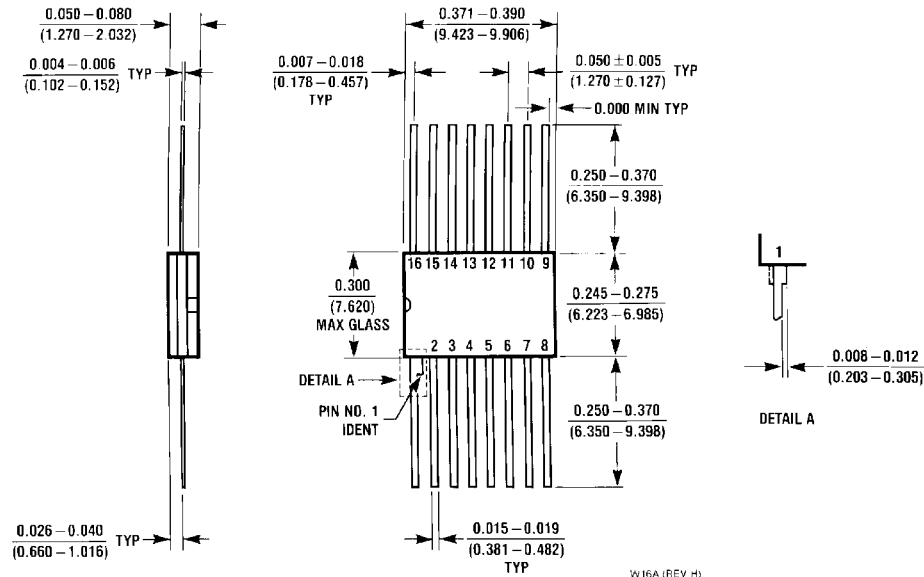
16-Lead Small Outline Molded Package (M)
Order Number DM74LS366AM
Package Number M16A



16-Lead Molded Dual-In-Line Package (N)
Order Number DM74LS366AN
Package Number N16E

DM74LS366A Hex 3-STATE Inverting Buffer

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



16-Lead Ceramic Flat Package (W)
Order Number DM54LS366AW
Package Number W16A

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