

## DM74LS32 Quad 2-Input OR Gates

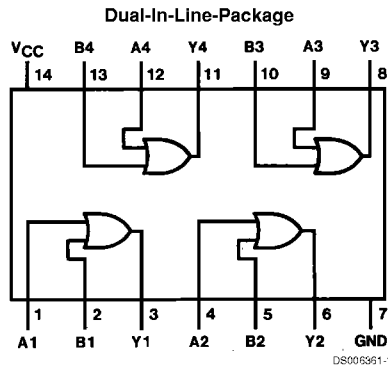
### General Description

This device contains four independent gates each of which performs the logic OR function.

### Features

- Alternate Military/Aerospace device (54LS32) is available. Contact a Fairchild Semiconductor Sales Office/Distributor for specifications.

### Connection Diagram



Order Number 54LS32DMQB, 54LS32FMQB, 54LS32LMQB,  
DM54LS32J, DM54LS32W, DM74LS32M or DM74LS32N  
See Package Number E20A, J14A, M14A, N14A or W14B

### Function Table

$$Y = A + B$$

Inputs		Output
A	B	Y
L	L	L
L	H	H
H	L	H
H	H	H

H = High Logic Level  
L = Low Logic Level

<b>Absolute Maximum Ratings</b> (Note 1)	DM54LS and 54LS	-55°C to +125°C
Supply Voltage	7V	DM74LS
Input Voltage	7V	Storage Temperature Range
Operating Free Air Temperature Range		0°C to +70°C
		-65°C to +150°C

## Recommended Operating Conditions

Symbol	Parameter	DM54LS32			DM74LS32			Units
		Min	Nom	Max	Min	Nom	Max	
V <sub>CC</sub>	Supply Voltage	4.5	5	5.5	4.75	5	5.25	V
V <sub>IH</sub>	High Level Input Voltage	2			2			V
V <sub>IL</sub>	Low Level Input Voltage			0.7			0.8	V
I <sub>OH</sub>	High Level Output Current			-0.4			-0.4	mA
I <sub>OL</sub>	Low Level Output Current			4			8	mA
T <sub>A</sub>	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 <sub>I</sub>	Input Clamp Voltage	V <sub>CC</sub> = Min, I <sub>I</sub> = -18 mA			-1.5	V
V <sub>OH</sub>	High Level Output Voltage	V <sub>CC</sub> = Min, I <sub>OH</sub> = Max V <sub>IH</sub> = Min	DM54 2.5	3.4		V
V <sub>OL</sub>	Low Level Output Voltage	V <sub>CC</sub> = Min, I <sub>OL</sub> = Max	DM54	0.25	0.4	V
		V <sub>IL</sub> = Max I <sub>OL</sub> = 4 mA, V <sub>CC</sub> = Min	DM74	0.35	0.5	
I <sub>I</sub>	Input Current @ Max Input Voltage	V <sub>CC</sub> = Max, V <sub>I</sub> = 7V			0.1	mA
I <sub>IH</sub>	High Level Input Current	V <sub>CC</sub> = Max, V <sub>I</sub> = 2.7V			20	µA
I <sub>IL</sub>	Low Level Input Current	V <sub>CC</sub> = Max, V <sub>I</sub> = 0.4V			-0.36	mA
I <sub>OS</sub>	Short Circuit Output Current	V <sub>CC</sub> = Max	DM54	-20	-100	mA
		(Note 3)	DM74	-20	-100	
I <sub>CCH</sub>	Supply Current with Outputs High	V <sub>CC</sub> = Max		3.1	6.2	mA
I <sub>CCL</sub>	Supply Current with Outputs Low	V <sub>CC</sub> = Max		4.9	9.8	mA

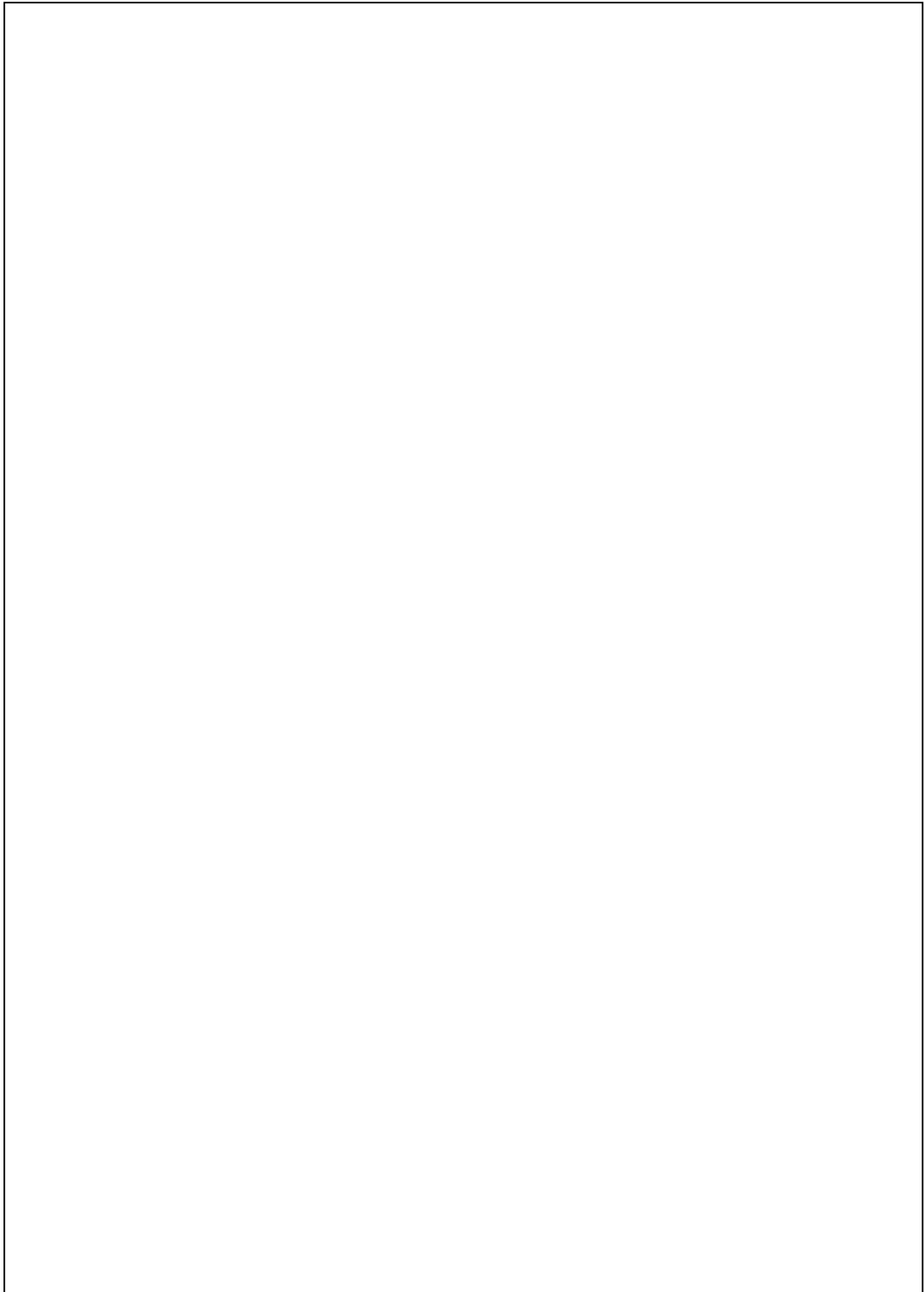
## Switching Characteristics

at V<sub>CC</sub> = 5V and T<sub>A</sub> = 25°C

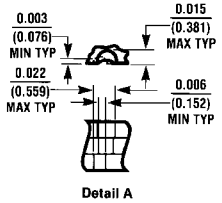
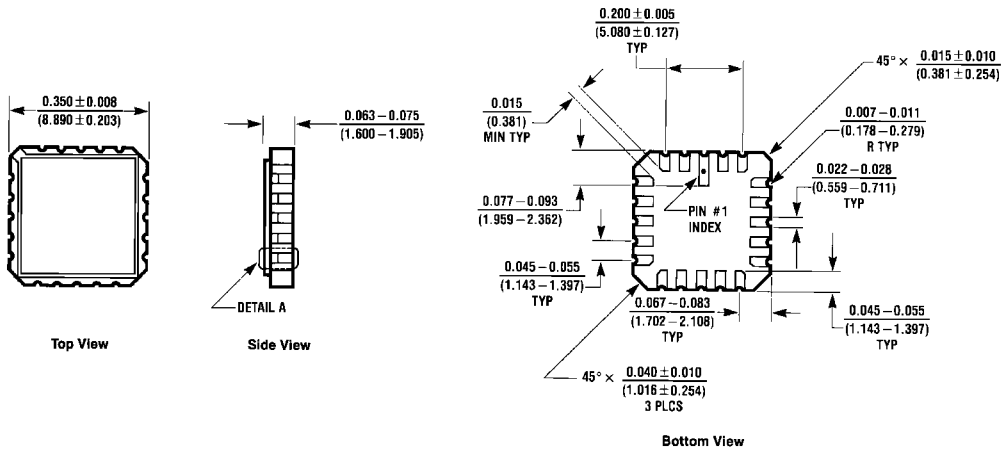
Symbol	Parameter	R <sub>L</sub> = 2 kΩ				Units
		C <sub>L</sub> = 15 pF		C <sub>L</sub> = 50 pF		
		Min	Max	Min	Max	
t <sub>PLH</sub>	Propagation Delay Time Low to High Level Output	3	11	4	15	ns
t <sub>PHL</sub>	Propagation Delay Time High to Low Level Output	3	11	4	15	ns

**Note 2:** All typicals are at V<sub>CC</sub> = 5V, T<sub>A</sub> = 25°C.

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

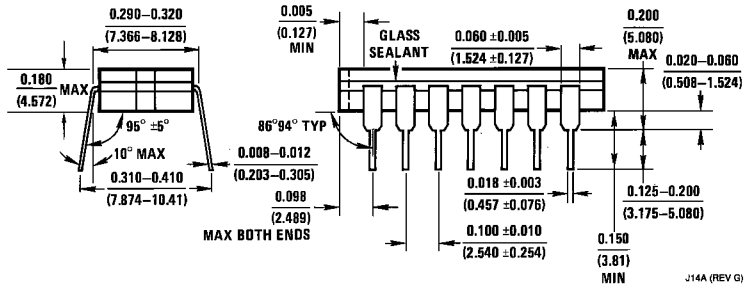
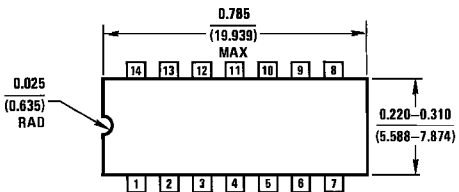


**Physical Dimensions** inches (millimeters) unless otherwise noted



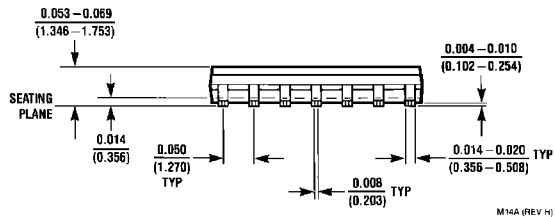
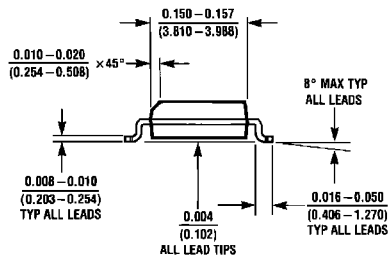
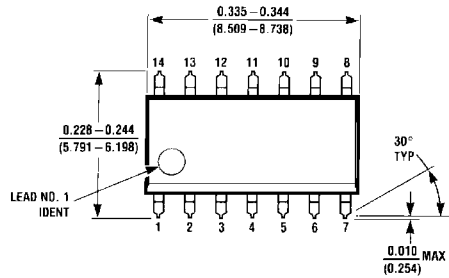
**Ceramic Leadless Chip Carrier Package (E)**  
**Order Number 54LS32LMQB**  
**Package Number E20A**

E20A (REV D)



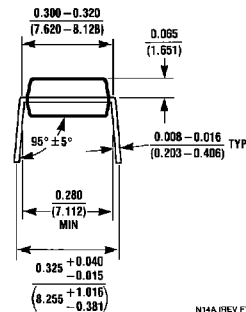
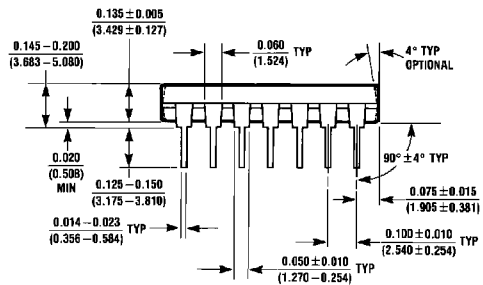
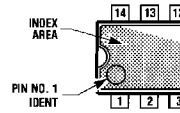
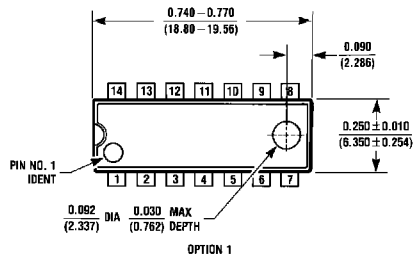
J14A (REV G)

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



M14A (REV. H)

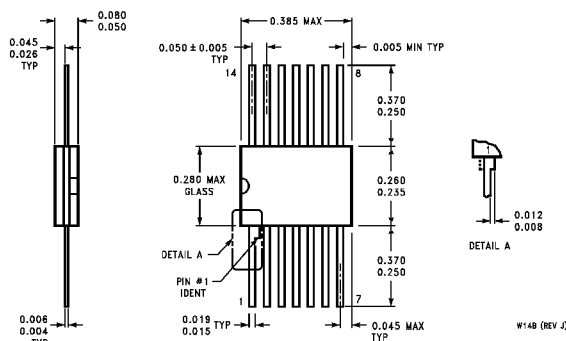
**14-Lead Small Outline Molded Package (M)**  
**Order Number DM74LS32M**  
**Package Number M14A**



N14A (REV. F)

**14-Lead Molded Dual-In-Line Package (N)**  
**Order Number DM74LS32N**  
**Package Number N14A**

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



**14-Lead Ceramic Flat Package (W)**  
**Order Number 54LS32FMQB or DM54LS32W**  
**Package Number W14B**

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2. A critical component in any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.

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