

DM74ALS1008A Quadruple 2-Input AND Buffer

General Description

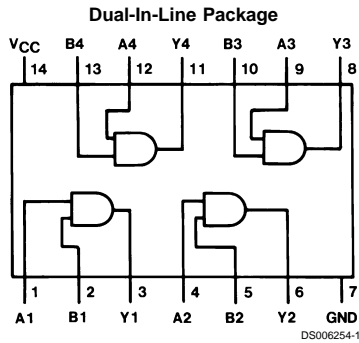
These devices contain four independent 2-input buffers, each of which performs the logic AND function. The 'ALS1008A is a buffer version of the 'ALS08.

- Switching specifications guaranteed over full temperature and V_{CC} range
- Advanced oxide-isolated, ion-implanted Schottky TTL process
- Improved line receiving characteristics

Features

- Switching specifications at 50 pF

Connection Diagram



Order Number DM74ALS1008AM
or DM74ALS1008AN
See Package Number M14A or N14A

Function Table

$$Y = AB$$

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

L = Low Logic Level
H = High Logic Level

Absolute Maximum Ratings (Note 1)

Supply Voltage	7V
Input Voltage	7V
Operating Free Air Temperature Range	
DM74ALS	0°C to +70°C

Storage Temperature Range

-65°C to +150°C

Typical θ_{JA}

N Package

83.0°C/W

M Package

114.0°C/W

Recommended Operating Conditions

Symbol	Parameter	DM74ALS1008A			Units
		Min	Nom	Max	
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
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

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. 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	$V_{CC} = 4.5V$, $I_I = -18 mA$			-1.5	V
V_{OH}	High Level Output Voltage	$V_{CC} = 4.5V$ $V_{IH} = 2V$	$I_{OH} = \text{Max}$	2.4	3.2	V
		$V_{CC} = 4.5V$ to $5.5V$	$I_{OH} = -400 \mu A$	$V_{CC} - 2$		V
V_{OL}	Low Level Output Voltage	$V_{CC} = 4.5V$ $V_{IL} = V_{IL} \text{ Max}$	$I_{OL} = 12 mA$	0.25	0.4	V
			$I_{OL} = 24 mA$	0.35	0.5	V
I_I	Input Current @ Max Input Voltage	$V_{CC} = 5.5V$, $V_{IH} = 7V$			0.1	mA
I_{IH}	High Level Input Current	$V_{CC} = 5.5V$, $V_{IH} = 2.7V$			20	μA
I_{IL}	Low Level Input Current	$V_{CC} = 5.5V$, $V_{IL} = 0.4V$			-0.1	mA
I_O	Output Drive Current	$V_{CC} = 5.5V$, $V_O = 2.25V$	-30		-112	mA
I_{CCH}	Supply Current with Outputs High	$V_{CC} = 5.5V$, $V_I = 4.5V$		1.8	3	mA
I_{CCL}	Supply Current with Outputs Low	$V_{CC} = 5.5V$, $V_I = 0V$		5.7	9.3	mA

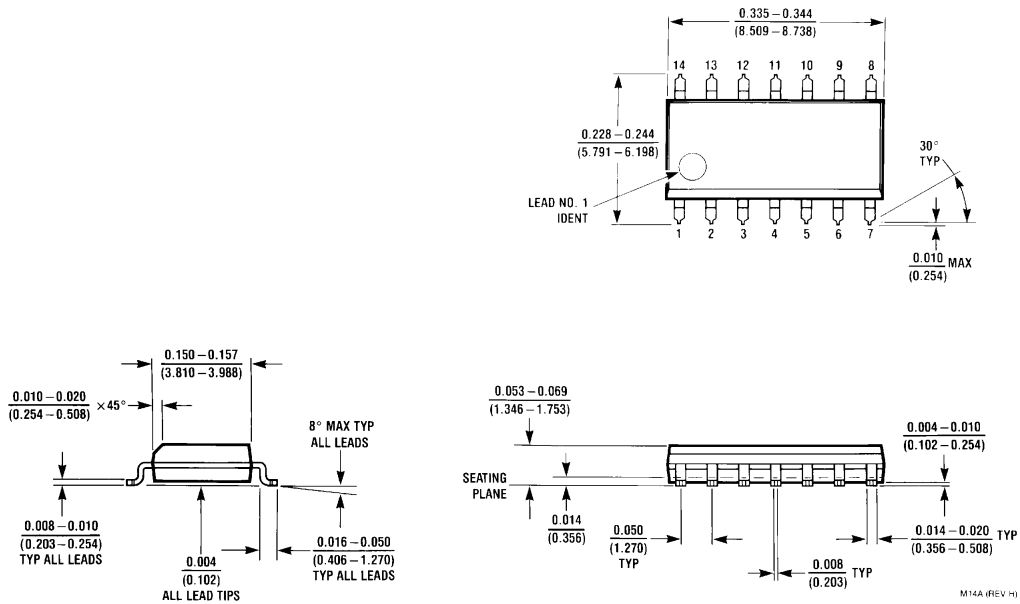
Switching Characteristics

over recommended operating free air temperature range (Note 2).

Symbol	Parameter	Conditions	DM74ALS1008A		Units
			Min	Max	
t_{PLH}	Propagation Delay Time Low to High Level Output	$V_{CC} = 4.5V$ to $5.5V$ $R_L = 500\Omega$	2	9	ns
t_{PHL}	Propagation Delay Time High to Low Level Output	$C_L = 50 pF$	3	9	ns

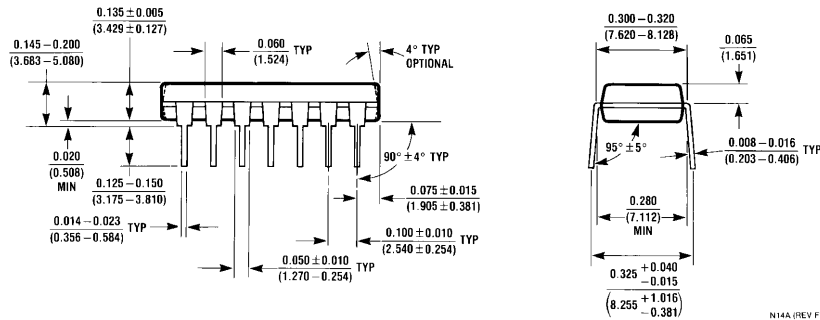
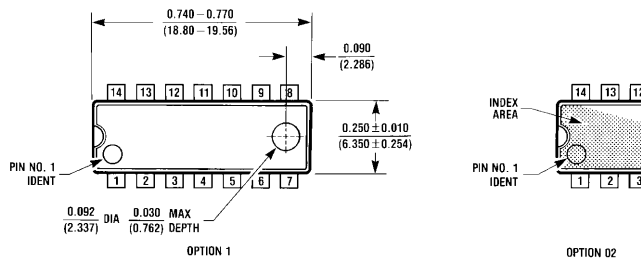
Note 2: See Section 1 for test waveforms and output load.

Physical Dimensions inches (millimeters) unless otherwise noted



M14A (REV H)

S.O. Package (M)
Order Number DM74ALS1008AM
Package Number M14A



N14A (REV F)

Molded Dual-In-Line Package (N)
Order Number DM74ALS1008AN
Package Number N14A

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