

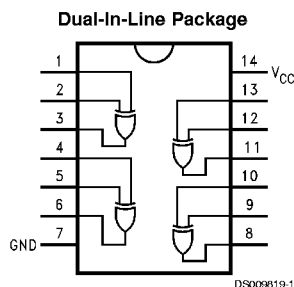
# DM74LS136

## Quad 2-Input Exclusive-OR Gate with Open-Collector Outputs

### General Description

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

### Connection Diagram



Order Number DM74LS136M or DM74LS136N  
See Package Number M14A or N14A

### Truth Table

Inputs		Output
A	B	Z
L	L	L
L	H	H
H	L	H
H	H	L

H = HIGH Voltage Level  
L = LOW Voltage Level

DM74LS136 Quad 2-Input Exclusive-OR Gate with Open-Collector Outputs

## 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

## Recommended Operating Conditions

Symbol	Parameter	Min	Nom	Max	Units
V <sub>CC</sub>	Supply Voltage	4.75	5	5.25	V
V <sub>IH</sub>	High Level Input Voltage	2			V
V <sub>IL</sub>	Low Level Input Voltage			0.8	V
I <sub>OL</sub>	Low Level Output Current			8	mA
T <sub>A</sub>	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 (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
I <sub>CEX</sub>	High Level Output Current	V <sub>CC</sub> = Min, V <sub>O</sub> = 5.5V			100	μA
V <sub>OL</sub>	Low Level Output Voltage	V <sub>CC</sub> = Min, I <sub>OL</sub> = Max V <sub>IH</sub> = Min		0.35	0.5	V
		I <sub>OL</sub> = 4 mA, V <sub>CC</sub> = Min		0.25	0.4	
I <sub>I</sub>	Input Current @ Max Input Voltage	V <sub>CC</sub> = Max, V <sub>I</sub> = 7V			0.2	mA
I <sub>IH</sub>	High Level Input Current	V <sub>CC</sub> = Max, V <sub>I</sub> = 2.7V			40	μA
I <sub>IL</sub>	Low Level Input Current	V <sub>CC</sub> = Max, V <sub>I</sub> = 0.4V			-0.6	mA
I <sub>CC</sub>	Supply Current	V <sub>CC</sub> = Max			10	mA

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

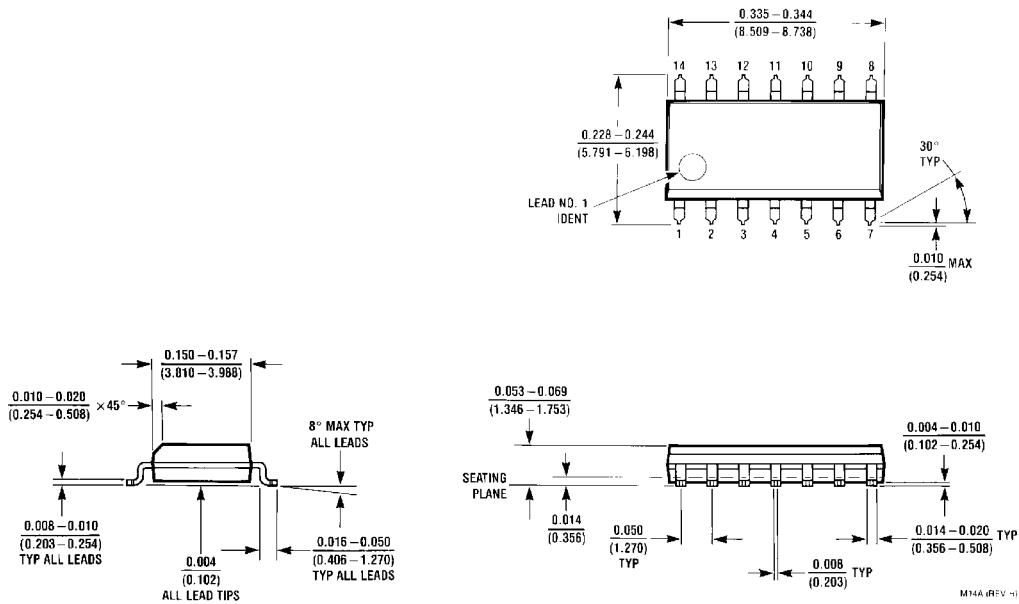
**Note 3:** Not more than one output should be shorted at a time, and the duration should not exceed one second.

## Switching Characteristics

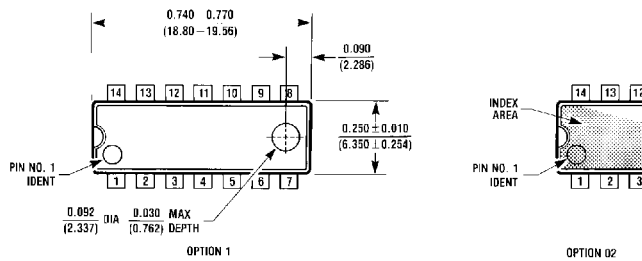
at V<sub>CC</sub> = 5V and T<sub>A</sub> = 25°C (for Test Waveforms and Output Load)

Symbol	Parameter	R <sub>L</sub> = 2 kΩ C <sub>L</sub> = 15 pF		Units
		Min	Max	
t <sub>PLH</sub>	Propagation Delay Time Low to High Level Output		23	ns
t <sub>PHL</sub>	Propagation Delay Time High to Low Level Output		23	ns

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



**14-Lead Small Outline Molded Package (M)**  
**Order Number DM74LS136M**  
**Package Number M14A**



**14-Lead Molded Dual-In-Line Package (N)**  
**Order Number DM74LS136N**  
**Package Number N14A**