FAIRCHILD SEMICONDUCTOR™

July 1985
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DM74AS1805
Hex 2-Input NOR Driver

General Description

These devices contain six independent 2-Input drivers each of which performs the logic NOR function. The DM74AS1805 is equivalent to the DM74AS805B but the supply voltage and ground pins are centered in the package. This positioning of the supply voltage and ground pins reduce the lead inductance of these pins. This reduction of lead inductance will minimize noise generated onto either the supply voltage or ground bus which is significant in high current switching applications.

Features

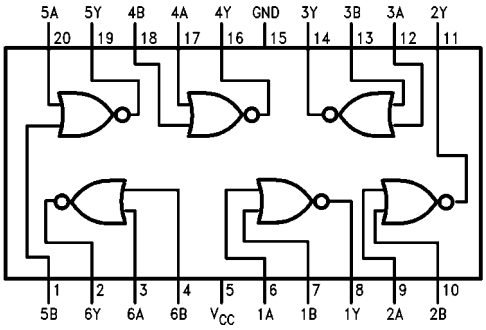
- Switching specifications at 50 pF
- Switching specifications guaranteed over full temperature and V_{CC} range
- Advanced oxide-isolated, ion-implanted Schottky TTL process
- Centered V_{CC} and GND configuration provides minimum lead inductance for high current switching applications
- High capacitive drive capability

Ordering Code:

Order Number	Package Number	Package Description
DM74AS1805WM	M20B	20-Lead Small Outline Integrated Circuit (SOIC), JEDEC MS-013, 0.300 Wide
DM74AS1805N	N20A	20-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

$$Y = \overline{A + B}$$

INPUTS		OUTPUT
A	B	Y
L	L	H
L	H	L
H	L	L
H	H	L

H = HIGH Logic Level
L = LOW Logic Level

Absolute Maximum Ratings(Note 1)

Supply Voltage	7V
Input Voltage	7V
Operating Free Air Temperature	0°C to 70°C
Storage Temperature Range	−65°C to +150°C
Typical θ_{JA}	
N Package	58.3°C/W
M Package	154.0°C/W

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	4.5	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			−48	mA
I_{OL}	LOW Level Output Current			48	mA
T_A	Operating Free Air Temperature Range	0		70	°C

Electrical Characteristics

over recommended operating free air temperature range

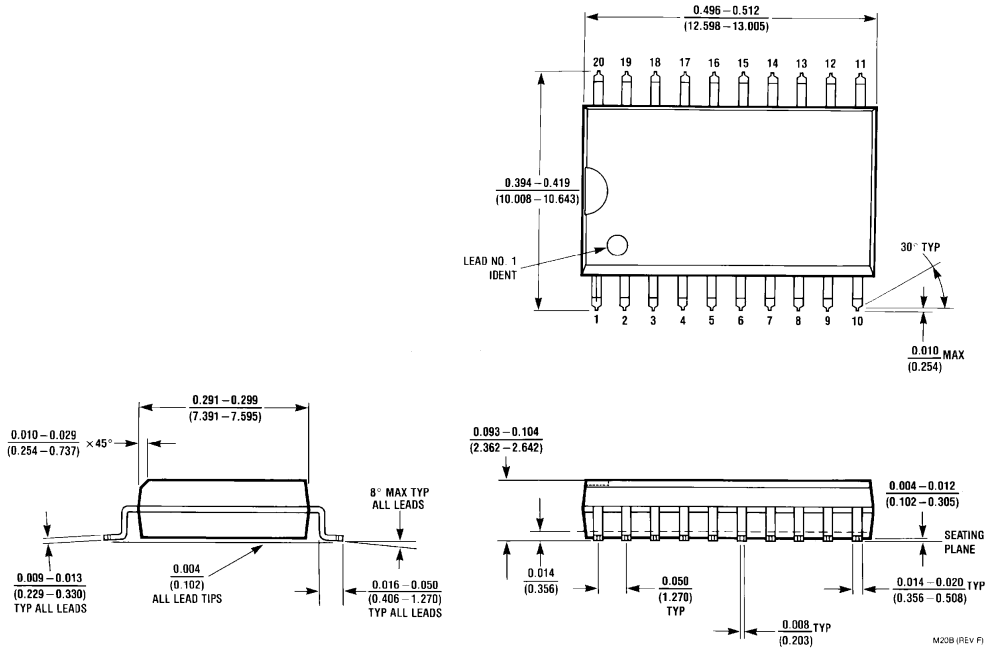
Symbol	Parameter	Conditions	Min	Typ	Max	Units
V_{IK}	Input Clamp Voltage	V_{CC} = 4.5V, I_I = −18 mA			−1.2	V
V_{OH}	HIGH Level Output Voltage	I_{OH} = −2 mA, V_{CC} = 4.5V to 5.5V	V_{CC} −2			V
		I_{OH} = −3 mA, V_{CC} = 4.5V	2.4	3.2		
		I_{OH} = Max, V_{CC} = 4.5V	2			
V_{OL}	LOW Level Output Voltage	V_{CC} = 4.5V, I_{OL} = Max, V_{IH} = 2V			0.5	V
I_I	Input Current at Maximum Input Voltage	V_{CC} = 5.5V, V_I = 7V			100	µA
I_{IH}	HIGH Level Input Current	V_{CC} = 5.5V, V_I = 2.7V			20	µA
I_{IL}	LOW Level Input Current	V_{CC} = 5.5V, V_I = 0.4V			−500	µA
I_O	Output Drive Current	V_{CC} = 5.5V, V_O = 2.25V	−50	−135	−200	mA
I_{CCH}	Supply Current with Outputs HIGH	V_{CC} = 5.5V		6.5	10	mA
I_{CCL}	Supply Current with Outputs LOW	V_{CC} = 5.5V		20	32	mA

Switching Characteristics

over recommended operating free air temperature range

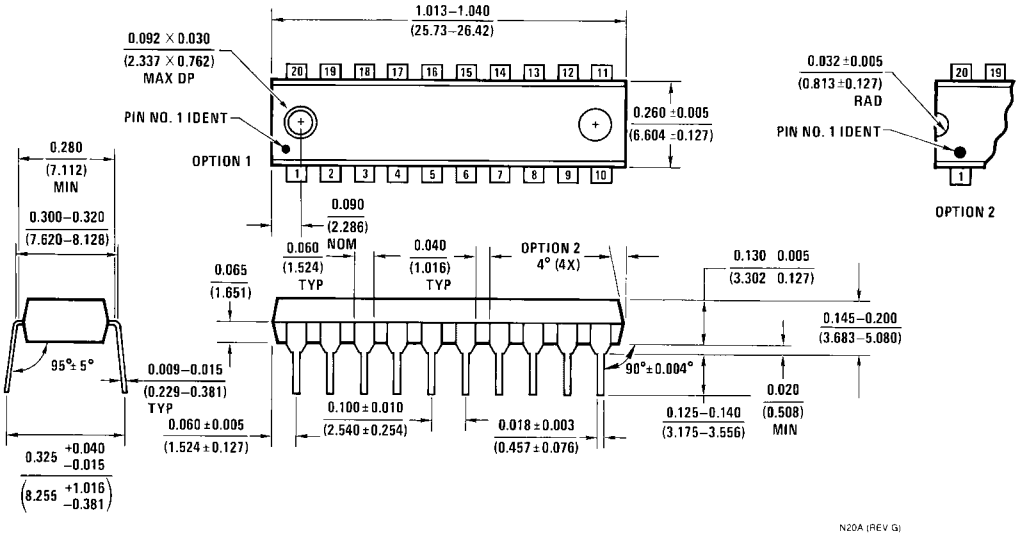
Symbol	Parameter	Conditions	Min	Max	Units
T_{PLH}	Propagation Delay Time LOW-to-HIGH Level Output	V_{CC} = 4.5V to 5.5V, R_L = 500Ω, C_L = 50 pF	1	4.3	ns
T_{PHL}	Propagation Delay Time HIGH-to-LOW Level Output		1	4.3	ns

Physical Dimensions inches (millimeters) unless otherwise noted



20-Lead Small Outline Integrated Circuit (SOIC), JEDEC MS-013, 0.300 Wide
Package Number M20B

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



20-Lead Plastic Dual-In-Line Package (PDIP), JEDEC MS-001, 0.300 Wide
Package Number N20A