

## DM74AS1804 Hex 2-Input NAND Driver

### General Description

These devices contain six independent 2-Input drivers each of which performs the logic NAND function. The DM74AS1804 is equivalent to the DM74AS804B 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

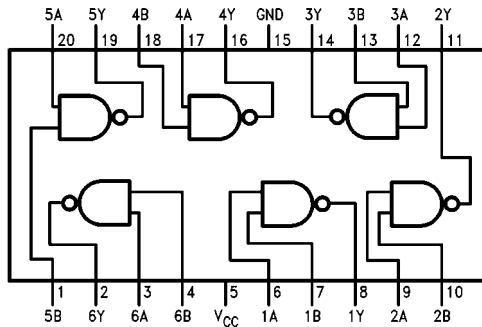
- Switching specifications at 50 pF
- Switching specifications guaranteed over full temperature and  $V_{CC}$  range
- Advanced oxide-isolated, ion-implanted Schottky TTL process
- Centered  $V_{CC}$  and GND configuration provides minimum lead inductance for high current switching applications
- High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

### Ordering Code:

Order Number	Package Number	Package Description
DM74AS1804WM	M20B	20-Lead Small Outline Integrated Circuit (SOIC), JEDEC MS-013, 0.300 Wide
DM74AS1804N	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	H
H	L	H
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 $\theta_{JA}$	
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 can not 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

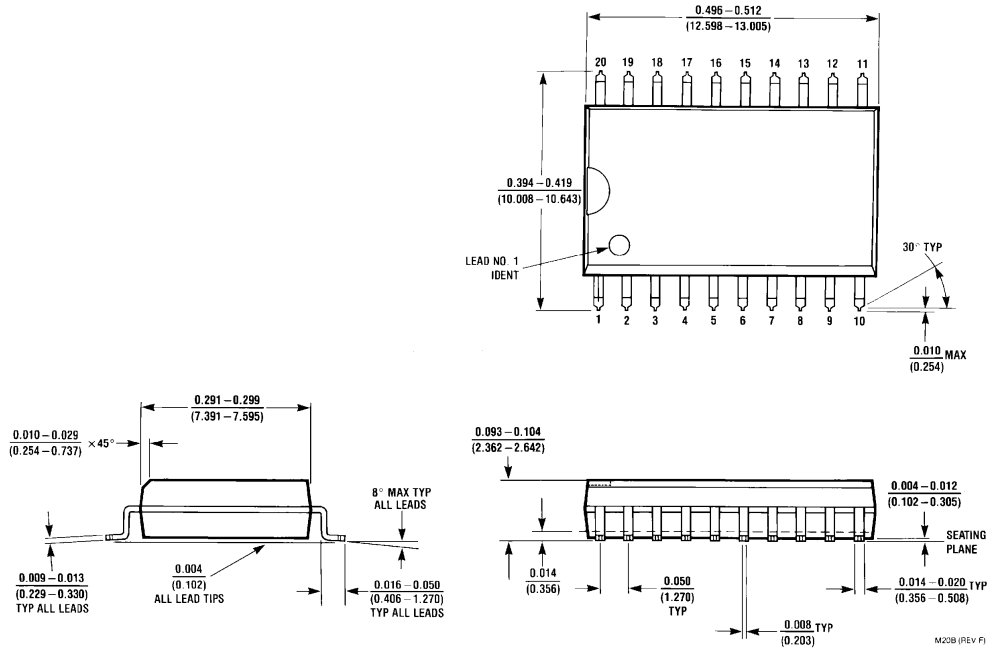
Symbol	Parameter	Conditions	Min	Typ	Max	Units
$V_{IK}$	Input Clamp Voltage	$V_{CC} = 4.5V, I_I = -18\text{ mA}$			-1.2	V
$V_{OH}$	HIGH Level Output Voltage	$I_{OH} = -2\text{ mA}, V_{CC} = 4.5V\text{ to }5.5V$	$V_{CC} - 2$			V
		$I_{OH} = -3\text{ mA}, V_{CC} = 4.5V$	2.4	3.2		
		$I_{OH} = \text{Max}, V_{CC} = 4.5V$	2			
$V_{OL}$	LOW Level Output Voltage	$V_{CC} = 4.5V, I_{OL} = \text{Max}, V_{IH} = 2V$			0.5	V
$I_I$	Input Current at Maximum Input Voltage	$V_{CC} = 5.5V, V_I = 7V$			100	$\mu\text{A}$
$I_{IH}$	HIGH Level Input Current	$V_{CC} = 5.5V, V_I = 2.7V$			20	$\mu\text{A}$
$I_{IL}$	LOW Level Input Current	$V_{CC} = 5.5V, V_I = 0.4V$			-500	$\mu\text{A}$
$I_O$	Output Drive Current	$V_{CC} = 5.5V, V_O = 2.25V$	-50	-135	-200	mA
$I_{CCH}$	Supply Current with Outputs HIGH	$V_{CC} = 5.5V$		3.5	5	mA
$I_{CCL}$	Supply Current with Outputs LOW	$V_{CC} = 5.5V$		16	27	mA

**Switching Characteristics**

over recommended operating free air temperature range

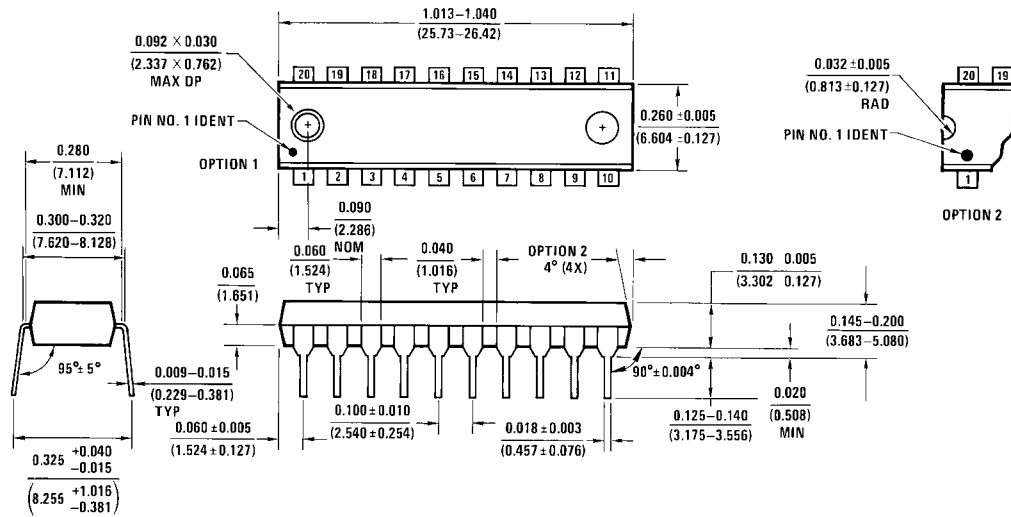
Symbol	Parameter	Conditions	Min	Max	Units
$t_{PLH}$	Propagation Delay Time	$V_{CC} = 4.5V\text{ to }5.5V$ $R_L = 500\Omega$	1	4	ns
	LOW-to-HIGH Level Output				
$t_{PHL}$	Propagation Delay Time	$C_L = 50\text{ pF}$	1	4	ns
	HIGH-to-LOW Level Output				

**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)



N20A (REV G)

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

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