

## DM74AS804B Hex 2-Input NAND Driver

### General Description

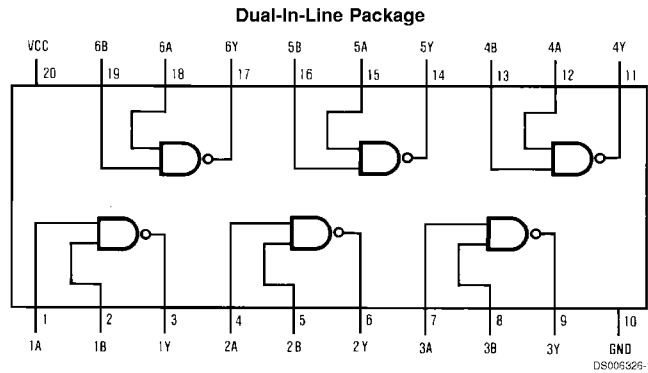
These devices contain six independent drivers, each of which performs the logic NAND function. Each driver has increased output drive capability to allow the driving of high capacitive loads.

- Switching specifications guaranteed over full temperature and  $V_{CC}$  range
- Advanced oxide-isolated, ion-implanted Schottky TTL process
- Functionally and pin for pin compatible with advanced low power Schottky TTL counterpart

### Features

- Switching specifications at 50 pF

### Connection Diagram



Order Number DM74AS804BWM or DM74AS804BN  
See Package Number M20B or N20A

### Function Table

$$Y = \overline{AB}$$

| 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 2)

|                                      |              |
|--------------------------------------|--------------|
| Supply Voltage                       | 7V           |
| Input Voltage                        | 7V           |
| Operating Free Air Temperature Range | 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       |

## 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    |
| $T_A$    | Free Air Operating Temperature | 0   |     | 70  | °C    |

**Note 1:** This product meets application requirements of 500 temperature cycles from -65°C to +150°C.

**Note 2:** 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               | $V_{CC} = 4.5V$ , $I_I = -18\text{ mA}$                  |              |      | -1.2 | V       |
| $V_{OH}$ | High Level Output Voltage         | $I_{OH} = -2\text{ mA}$ , $V_{CC} = 4.5V$ to $5.5V$      | $V_{CC} - 2$ |      |      | V       |
|          |                                   | $I_{OH} = -3\text{ mA}$ , $V_{CC} = 4.5V$                | 2.4          |      |      |         |
|          |                                   | $I_{OH} = \text{Max}$ , $V_{CC} = 4.5V$                  | 2            |      |      |         |
| $V_{OL}$ | Low Level Output Voltage          | $V_{CC} = 4.5V$ , $I_{OL} = \text{Max}$<br>$V_{IH} = 2V$ |              | 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   | $\mu A$ |
| $I_{IL}$ | Low Level Input Current           | $V_{CC} = 5.5V$ , $V_{IL} = 0.4V$                        |              |      | -0.5 | mA      |
| $I_O$    | Output Drive Current              | $V_{CC} = 5.5V$ , $V_O = 2.25V$                          | -50          | -135 | -200 | mA      |
| $I_{CC}$ | Supply Current                    | $V_{CC} = 5.5V$  | Outputs High | 3.5  | 5    | mA      |
|          |                                   | Outputs Low  | 16           | 27   | mA   |         |

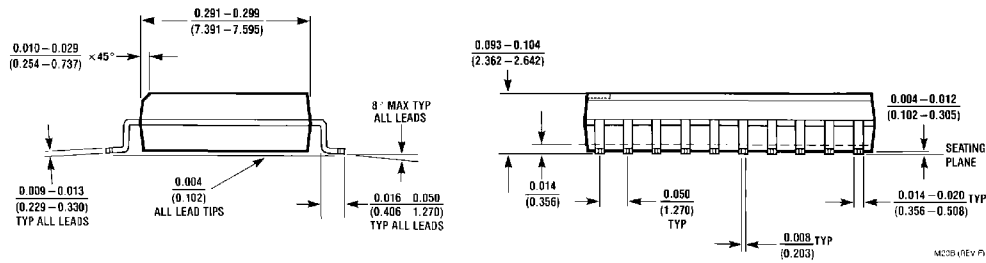
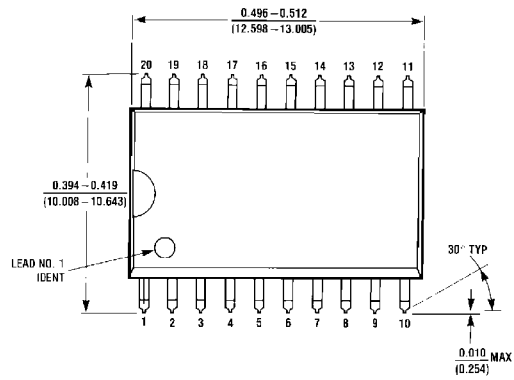
## Switching Characteristics

over recommended operating free air temperature range (Note 3)

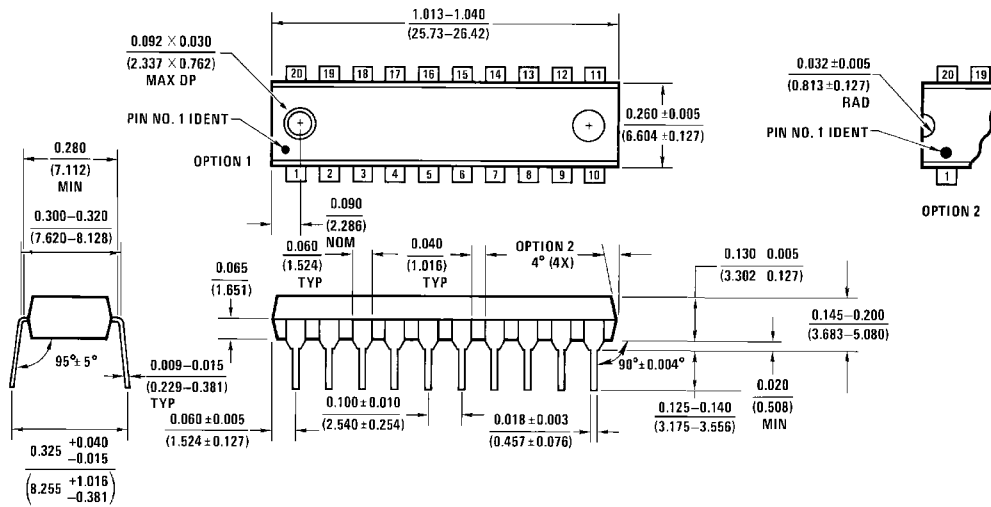
| Symbol    | Parameter                                       | Conditions                                     | Min | Max | Units |
|-----------|---|--|-----|-----|-------|
| $t_{PLH}$ | Propagation Delay Time Low to High Level Output | $V_{CC} = 4.5V$ to $5.5V$<br>$R_L = 500\Omega$ | 1   | 4   | ns    |
|           | Propagation Delay Time High to Low Level Output | $C_L = 50\text{ pF}$                           | 1   | 4   | ns    |

**Note 3:** See Section 5 for test waveforms and output load.

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



**Small Outline Package (M)**  
**Order Number DM74AS804BWM**  
**Package Number M20B**



**Molded Dual-In-Line Package (N)**  
**Order Number DM74AS804BN**  
**Package Number N20A**

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**Fairchild Semiconductor Corporation Americas**  
Customer Response Center  
Tel: 1-888-522-5372

**Fairchild Semiconductor Europe**  
Fax: +49 (0) 1 80-530 85 86  
Email: europe.support@nsc.com  
Deutsch Tel: +49 (0) 8 141-35-0  
English Tel: +44 (0) 1 793-85-68-56  
Italy Tel: +39 (0) 2 57 5631

**Fairchild Semiconductor Hong Kong Ltd.**  
13th Floor, Straight Block,  
Ocean Centre, 5 Canton Rd.  
Tsimshatsui, Kowloon  
Hong Kong  
Tel: +852 2737-7200  
Fax: +852 2314-0061

**National Semiconductor Japan Ltd.**  
Tel: 81-3-5620-6175  
Fax: 81-3-5620-6179

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