

# MC74AC00, MC74ACT00

## Quad 2-Input NAND Gate High-Performance Silicon-Gate CMOS

- Output Drive Capability:  $\pm 24$  mA
- Operating Voltage Range: 2 to 6 V AC00; 4.5 to 5.5 ACT00
- Low Input Current: 1.0  $\mu$ A
- High Noise Immunity Characteristic of CMOS Devices
- In Compliance With the JEDEC Standard No. 7A Requirements
- Chip Complexity: 32 FETs
- Pb-Free Packages are Available

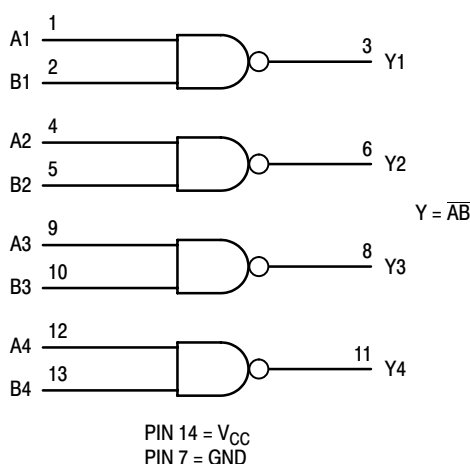


Figure 1. Logic Diagram

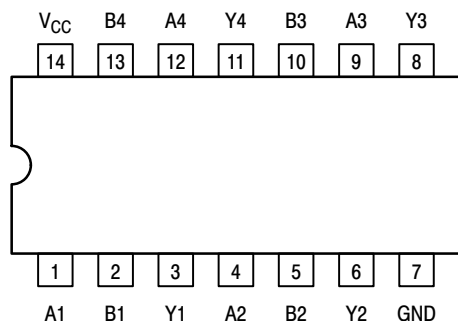


Figure 2. Pinout: 14-Lead Packages (Top View)

FUNCTION TABLE

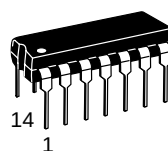
| Inputs |   | Output |
|--------|---|--------|
| A      | B | Y      |
| L      | L | H      |
| L      | H | H      |
| H      | L | H      |
| H      | H | L      |



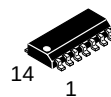
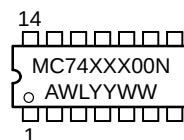
ON Semiconductor®

<http://onsemi.com>

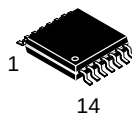
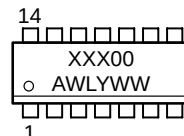
### MARKING DIAGRAMS



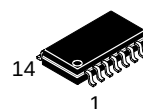
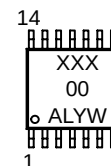
PDIP-14  
N SUFFIX  
CASE 646



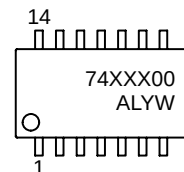
SOIC-14  
D SUFFIX  
CASE 751A



TSSOP-14  
DT SUFFIX  
CASE 948G



SOEIAJ-14  
M SUFFIX  
CASE 965



XXX = Specific Device Code  
A = Assembly Location  
WL or L = Wafer Lot  
YY or Y = Year  
WW or W = Work Week

### ORDERING INFORMATION

See detailed ordering and shipping information in the package dimensions section on page 5 of this data sheet.

\*For additional information on our Pb-Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

# MC74AC00, MC74ACT00

## MAXIMUM RATINGS (Note 1)

| Symbol                | Parameter                                                                                                     | Value                                          | Unit |
|-----------------------|---------------------------------------------------------------------------------------------------------------|------------------------------------------------|------|
| V <sub>CC</sub>       | DC Supply Voltage                                                                                             | − 0.5 to + 7.0                                 | V    |
| V <sub>I</sub>        | DC Input Voltage                                                                                              | − 0.5 ≤ V <sub>I</sub> ≤ V <sub>CC</sub> + 0.5 | V    |
| V <sub>O</sub>        | DC Output Voltage (Note 2)                                                                                    | − 0.5 ≤ V <sub>O</sub> ≤ V <sub>CC</sub> + 0.5 | V    |
| I <sub>IK</sub>       | DC Input Diode Current                                                                                        | ± 20                                           | mA   |
| I <sub>OK</sub>       | DC Output Diode Current                                                                                       | ± 50                                           | mA   |
| I <sub>O</sub>        | DC Output Sink/Source Current                                                                                 | ± 50                                           | mA   |
| I <sub>CC</sub>       | DC Supply Current per Output Pin                                                                              | ± 50                                           | mA   |
| I <sub>GND</sub>      | DC Ground Current per Output Pin                                                                              | ± 50                                           | mA   |
| T <sub>STG</sub>      | Storage Temperature Range                                                                                     | − 65 to + 150                                  | °C   |
| T <sub>L</sub>        | Lead temperature, 1 mm from Case for 10 Seconds                                                               | 260                                            | °C   |
| T <sub>J</sub>        | Junction temperature under Bias                                                                               | + 150                                          | °C   |
| θ <sub>JA</sub>       | Thermal resistance<br>PDIP<br>SOIC<br>TSSOP                                                                   | 78<br>125<br>170                               | °C/W |
| P <sub>D</sub>        | Power Dissipation in Still Air at 85°C<br>PDIP<br>SOIC<br>TSSOP                                               | 78<br>125<br>170                               | mW   |
| MSL                   | Moisture Sensitivity                                                                                          | Level 1                                        |      |
| F <sub>R</sub>        | Flammability Rating<br>Oxygen Index: 30% – 35%                                                                | UL 94 V-0 @ 0.125 in                           |      |
| V <sub>ESD</sub>      | ESD Withstand Voltage<br>Human Body Model (Note 3)<br>Machine Model (Note 4)<br>Charged Device Model (Note 5) | > 2000<br>> 200<br>> 1000                      | V    |
| I <sub>Latch-Up</sub> | Latch-Up Performance Above V <sub>CC</sub> and Below GND at 85°C (Note 6)                                     | ± 100                                          | mA   |

1. Absolute maximum continuous ratings are those values beyond which damage to the device may occur. Extended exposure to these conditions or conditions beyond those indicated may adversely affect device reliability. Functional operation under absolute maximum-rated conditions is not implied.
2. I<sub>O</sub> absolute maximum rating must be observed.
3. Tested to EIA/JESD22-A114-A.
4. Tested to EIA/JESD22-A115-A.
5. Tested to JESD22-C101-A.
6. Tested to EIA/JESD78.

## RECOMMENDED OPERATING CONDITIONS

| Symbol                             | Parameter                                                                                                                      | Min         | Typ             | Max             | Unit |
|------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|-------------|-----------------|-----------------|------|
| V <sub>CC</sub>                    | Supply Voltage<br>MC74AC00<br>MC74ACT00                                                                                        | 2.0<br>4.5  | 5.0<br>5.0      | 6.0<br>5.5      | V    |
| V <sub>in</sub> , V <sub>out</sub> | DC Input Voltage, Output Voltage (Ref. to GND)                                                                                 | 0           | –               | V <sub>CC</sub> | V    |
| t <sub>r</sub> , t <sub>f</sub>    | Input Rise and Fall Time (Note 7)<br>MC74AC00<br>V <sub>CC</sub> @ 3.0 V<br>V <sub>CC</sub> @ 4.5 V<br>V <sub>CC</sub> @ 5.5 V | –<br>–<br>– | 150<br>40<br>25 | –<br>–<br>–     | ns/V |
| t <sub>r</sub> , t <sub>f</sub>    | Input Rise and Fall Time (Note 8)<br>MC74ACT00<br>V <sub>CC</sub> @ 4.5 V<br>V <sub>CC</sub> @ 5.5 V                           | –<br>–      | 10<br>8.0       | –<br>–          | ns/V |
| T <sub>J</sub>                     | Junction Temperature                                                                                                           | –           | –               | 150             | °C   |
| T <sub>A</sub>                     | Operating Ambient Temperature Range                                                                                            | –55         | 25              | 125             | °C   |
| I <sub>OH</sub>                    | Output Current – High                                                                                                          | –           | –               | –24             | mA   |
| I <sub>OL</sub>                    | Output Current – Low                                                                                                           | –           | –               | 24              | mA   |

7. V<sub>in</sub> from 30% to 70% V<sub>CC</sub>.

8. V<sub>in</sub> from 0.8 V to 2.0 V.

# MC74AC00, MC74ACT00

## DC CHARACTERISTICS

| Symbol           | Parameter                         | V <sub>CC</sub><br>(V) | MC74AC00               |                   |                                 |                                | Unit | Conditions                                                                                          |
|------------------|-----------------------------------|------------------------|------------------------|-------------------|---------------------------------|--------------------------------|------|-----------------------------------------------------------------------------------------------------|
|                  |                                   |                        | T <sub>A</sub> = +25°C |                   | T <sub>A</sub> = -40°C to +85°C | T <sub>A</sub> = -55°C + 125°C |      |                                                                                                     |
|                  |                                   |                        | Typ                    | Guaranteed Limits |                                 |                                |      |                                                                                                     |
| V <sub>IH</sub>  | Minimum High Level Input Voltage  | 3.0                    | 1.5                    | 2.1               | 2.1                             | 2.1                            | V    | V <sub>OUT</sub> = 0.1 V<br>or V <sub>CC</sub> - 0.1 V                                              |
|                  |                                   | 4.5                    | 2.25                   | 3.15              | 3.15                            | 3.15                           |      |                                                                                                     |
|                  |                                   | 5.5                    | 2.75                   | 3.85              | 3.85                            | 3.85                           |      |                                                                                                     |
| V <sub>IL</sub>  | Maximum Low Level Input Voltage   | 3.0                    | 1.5                    | 0.9               | 0.9                             | 0.9                            | V    | V <sub>OUT</sub> = 0.1 V<br>or V <sub>CC</sub> - 0.1 V                                              |
|                  |                                   | 4.5                    | 2.25                   | 1.35              | 1.35                            | 1.35                           |      |                                                                                                     |
|                  |                                   | 5.5                    | 2.75                   | 1.65              | 1.65                            | 1.65                           |      |                                                                                                     |
| V <sub>OH</sub>  | Minimum High Level Output Voltage | 3.0                    | 2.99                   | 2.9               | 2.9                             | 2.9                            | V    | I <sub>OUT</sub> = -50 μA                                                                           |
|                  |                                   | 4.5                    | 4.49                   | 4.4               | 4.4                             | 4.4                            |      |                                                                                                     |
|                  |                                   | 5.5                    | 5.49                   | 5.4               | 5.4                             | 5.4                            |      |                                                                                                     |
|                  |                                   | 3.0                    | –                      | 2.56              | 2.46                            | 2.4                            | V    | *V <sub>IN</sub> = V <sub>IL</sub> or V <sub>IH</sub><br>–12 mA<br>I <sub>OH</sub> –24 mA<br>–24 mA |
|                  |                                   | 4.5                    | –                      | 3.86              | 3.76                            | 3.7                            |      |                                                                                                     |
|                  |                                   | 5.5                    | –                      | 4.86              | 4.76                            | 4.7                            |      |                                                                                                     |
| V <sub>OL</sub>  | Maximum Low Level Output Voltage  | 3.0                    | 0.002                  | 0.1               | 0.1                             | 0.1                            | V    | I <sub>OUT</sub> = 50 μA                                                                            |
|                  |                                   | 4.5                    | 0.001                  | 0.1               | 0.1                             | 0.1                            |      |                                                                                                     |
|                  |                                   | 5.5                    | 0.001                  | 0.1               | 0.1                             | 0.1                            |      |                                                                                                     |
|                  |                                   | 3.0                    | –                      | 0.36              | 0.44                            | 0.5                            | V    | *V <sub>IN</sub> = V <sub>IL</sub> or V <sub>IH</sub><br>12 mA<br>I <sub>OL</sub> 24 mA<br>24 mA    |
|                  |                                   | 4.5                    | –                      | 0.36              | 0.44                            | 0.5                            |      |                                                                                                     |
|                  |                                   | 5.5                    | –                      | 0.36              | 0.44                            | 0.5                            |      |                                                                                                     |
| I <sub>IN</sub>  | Maximum Input Leakage Current     | 5.5                    | –                      | ±0.1              | ±1.0                            | ±1.0                           | μA   | V <sub>I</sub> = V <sub>CC</sub> , GND                                                              |
| I <sub>OLD</sub> | †Minimum Dynamic Output Current   | 5.5                    | –                      | –                 | 75                              | 50                             | mA   | V <sub>OLD</sub> = 1.65 V Max                                                                       |
| I <sub>OHD</sub> |                                   | 5.5                    | –                      | –                 | –75                             | –50                            | mA   | V <sub>OHD</sub> = 3.85 V Min                                                                       |
| I <sub>CC</sub>  | Maximum Quiescent Supply Current  | 5.5                    | –                      | 4.0               | 40                              | 40                             | μA   | V <sub>IN</sub> = V <sub>CC</sub> or GND                                                            |

\*All outputs loaded; thresholds on input associated with output under test.

†Maximum test duration 2.0 ms, one output loaded at a time.

NOTE: I<sub>IN</sub> and I<sub>CC</sub> @ 3.0 V are guaranteed to be less than or equal to the respective limit @ 5.5 V V<sub>CC</sub>.

## AC CHARACTERISTICS (t<sub>r</sub> = t<sub>f</sub> = 3.0 nS; C<sub>L</sub> = 50 pF; see Figures 3 and 4 for Waveforms)

| Symbol           | Parameter         | V <sub>CC</sub><br>(V) | MC74AC00               |     |     |                                 |      |                                   |      | Unit |
|------------------|-------------------|------------------------|------------------------|-----|-----|---------------------------------|------|-----------------------------------|------|------|
|                  |                   |                        | T <sub>A</sub> = +25°C |     |     | T <sub>A</sub> = −40°C to +85°C |      | T <sub>A</sub> = −55°C to + 125°C |      |      |
|                  |                   |                        | Min                    | Typ | Max | Min                             | Max  | Min                               | Max  |      |
| t <sub>PLH</sub> | Propagation Delay | 3.3                    | 2.0                    | 7.0 | 9.5 | 2.0                             | 10.0 | 1.0                               | 11.0 | ns   |
|                  |                   | 5.0                    | 1.5                    | 6.0 | 8.0 | 1.5                             | 8.5  | 1.0                               | 8.5  |      |
| t <sub>PHL</sub> | Propagation Delay | 3.3                    | 1.5                    | 5.5 | 8.0 | 1.0                             | 8.5  | 1.0                               | 9.0  | ns   |
|                  |                   | 5.0                    | 1.5                    | 4.5 | 6.5 | 1.0                             | 7.0  | 1.0                               | 7.0  |      |

\*Voltage Range 3.3 V is 3.3 V ± 0.3 V.

Voltage Range 5.0 V is 5.0 V ± 0.5 V.

# MC74AC00, MC74ACT00

## DC CHARACTERISTICS

| Symbol            | Parameter                              | V <sub>CC</sub><br>(V) | MC74ACT00              |                   |                                 |                                   | Unit | Conditions                                                                                |
|-------------------|----------------------------------------|------------------------|------------------------|-------------------|---------------------------------|-----------------------------------|------|-------------------------------------------------------------------------------------------|
|                   |                                        |                        | T <sub>A</sub> = +25°C |                   | T <sub>A</sub> = -40°C to +85°C | T <sub>A</sub> = -55°C to + 125°C |      |                                                                                           |
|                   |                                        |                        | Typ                    | Guaranteed Limits |                                 |                                   |      |                                                                                           |
| V <sub>IH</sub>   | Minimum High Level Input Voltage       | 4.5<br>5.5             | 1.5<br>1.5             | 2.0<br>2.0        | 2.0<br>2.0                      | 2.0<br>2.0                        | V    | V <sub>OUT</sub> = 0.1 V<br>or V <sub>CC</sub> - 0.1 V                                    |
| V <sub>IL</sub>   | Maximum Low Level Input Voltage        | 4.5<br>5.5             | 1.5<br>1.5             | 0.8<br>0.8        | 0.8<br>0.8                      | 0.8<br>0.8                        | V    | V <sub>OUT</sub> = 0.1 V<br>or V <sub>CC</sub> - 0.1 V                                    |
| V <sub>OH</sub>   | Minimum High Level Output Voltage      | 4.5<br>5.5             | 4.49<br>5.49           | 4.4<br>5.4        | 4.4<br>5.4                      | 4.4<br>5.4                        | V    | I <sub>OUT</sub> = -50 μA                                                                 |
|                   |                                        | 4.5<br>5.5             | -<br>-                 | 3.86<br>4.86      | 3.76<br>4.76                    | 3.7<br>4.7                        | V    | *V <sub>IN</sub> = V <sub>IL</sub> or V <sub>IH</sub><br>I <sub>OH</sub> -24 mA<br>-24 mA |
| V <sub>OL</sub>   | Maximum Low Level Output Voltage       | 4.5<br>5.5             | 0.001<br>0.001         | 0.1<br>0.1        | 0.1<br>0.1                      | 0.1<br>0.1                        | V    | I <sub>OUT</sub> = 50 μA                                                                  |
|                   |                                        | 4.5<br>5.5             | -<br>-                 | 0.36<br>0.36      | 0.44<br>0.44                    | 0.5<br>0.5                        | V    | *V <sub>IN</sub> = V <sub>IL</sub> or V <sub>IH</sub><br>I <sub>OL</sub> 24 mA<br>24 mA   |
| I <sub>IN</sub>   | Maximum Input Leakage Current          | 5.5                    | -                      | ±0.1              | ±1.0                            | ±1.0                              | μA   | V <sub>I</sub> = V <sub>CC</sub> , GND                                                    |
| ΔI <sub>CCT</sub> | Additional Max. I <sub>CC</sub> /Input | 5.5                    | 0.6                    | -                 | 1.5                             | 1.6                               | mA   | V <sub>I</sub> = V <sub>CC</sub> - 2.1 V                                                  |
| I <sub>OLD</sub>  | †Minimum Dynamic Output Current        | 5.5                    | -                      | -                 | 75                              | 50                                | mA   | V <sub>OLD</sub> = 1.65 V Max                                                             |
| I <sub>OHD</sub>  |                                        | 5.5                    | -                      | -                 | -75                             | -50                               | mA   | V <sub>OHD</sub> = 3.85 V Min                                                             |
| I <sub>CC</sub>   | Maximum Quiescent Supply Current       | 5.5                    | -                      | 4.0               | 40                              | 40                                | μA   | V <sub>IN</sub> = V <sub>CC</sub> or GND                                                  |

\*All outputs loaded; thresholds on input associated with output under test.

†Maximum test duration 2.0 ms, one output loaded at a time.

## AC CHARACTERISTICS (t<sub>r</sub> = t<sub>f</sub> = 3.0 nS; C<sub>L</sub> = 50 pF; see Figures 3 and 4 for Waveforms)

| Symbol           | Parameter         | V <sub>CC</sub> *<br>(V) | MC74ACT00              |     |     |                                 |     |                                  |     | Unit |
|------------------|-------------------|--------------------------|------------------------|-----|-----|---------------------------------|-----|----------------------------------|-----|------|
|                  |                   |                          | T <sub>A</sub> = +25°C |     |     | T <sub>A</sub> = -40°C to +85°C |     | T <sub>A</sub> = -55°C to +125°C |     |      |
|                  |                   |                          | Min                    | Typ | Max | Min                             | Max | Min                              | Max |      |
| t <sub>PLH</sub> | Propagation Delay | 5.0                      | 1.5                    | 5.5 | 9.0 | 1.0                             | 9.5 | 1.0                              | 9.5 | ns   |
| t <sub>PHL</sub> | Propagation Delay | 5.0                      | 1.5                    | 4.0 | 7.0 | 1.0                             | 8.0 | 1.0                              | 8.0 | ns   |

\*Voltage Range 5.0 V is 5.0 V ± 0.5 V.

## CAPACITANCE

| Symbol          | Parameter                     | Value<br>Typ | Test Conditions         | Unit |
|-----------------|-------------------------------|--------------|-------------------------|------|
| C <sub>IN</sub> | Input Capacitance             | 4.5          | V <sub>CC</sub> = 5.0 V | pF   |
| C <sub>PD</sub> | Power Dissipation Capacitance | 30           | V <sub>CC</sub> = 5.0 V | pF   |

## MC74AC00, MC74ACT00

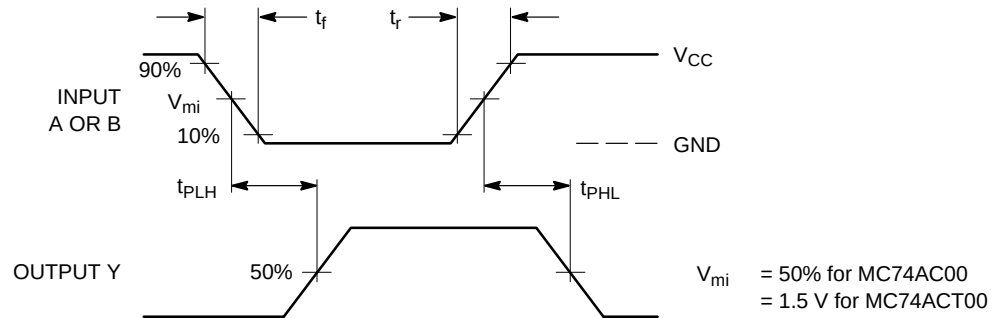
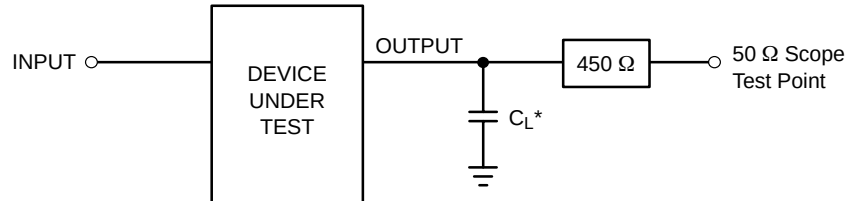


Figure 3. Switching Waveforms



\*Includes all probe and jig capacitance

Figure 4. Test Circuit

### ORDER INFORMATION

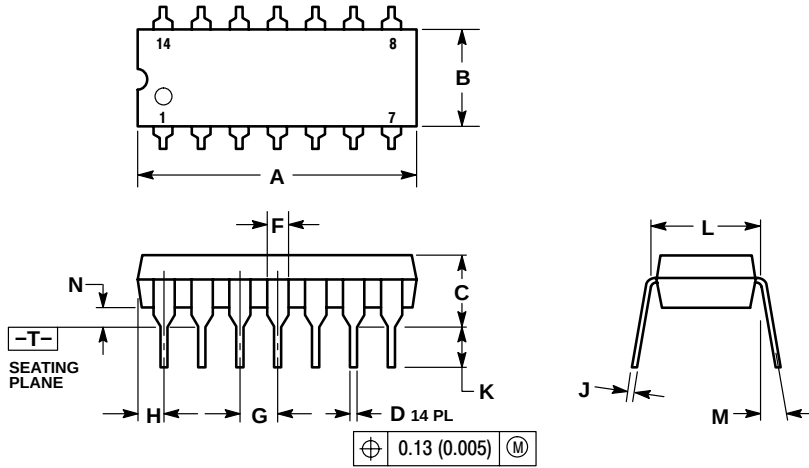
| Device        | Package                | Shipping <sup>†</sup> |
|---------------|------------------------|-----------------------|
| MC74AC00D     | SOIC-14                | 55 Units / Rail       |
| MC74AC00N     | PDIP-14                | 500 / Tape & Reel     |
| MC74AC00NG    | PDIP-14<br>(Pb-Free)   | 500 / Tape & Reel     |
| MC74AC00DR2   | SOIC-14                | 2500 / Tape and Reel  |
| MC74AC00DTR2  | TSSOP-14<br>(Pb-Free)  | 2500 / Tape and Reel  |
| MC74AC00MEL   | SOEIAJ-14<br>(Pb-Free) | 2000 Tape and Reel    |
| MC74ACT00N    | PDIP-14                | 2000 Units / Box      |
| MC74ACT00D    | SOIC-14                | 55 Units / Rail       |
| MC74ACT00DR2  | SOIC-14                | 2500 / Tape and Reel  |
| MC74ACT00DTR2 | TSSOP-14<br>(Pb-Free)  | 2500 / Tape and Reel  |
| MC74ACT00MEL  | SOEIAJ-14<br>(Pb-Free) | 2000 / Tape and Reel  |

<sup>†</sup>For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.

# MC74AC00, MC74ACT00

## PACKAGE DIMENSIONS

**PDIP-14**  
**N SUFFIX**  
CASE 646-06  
ISSUE N

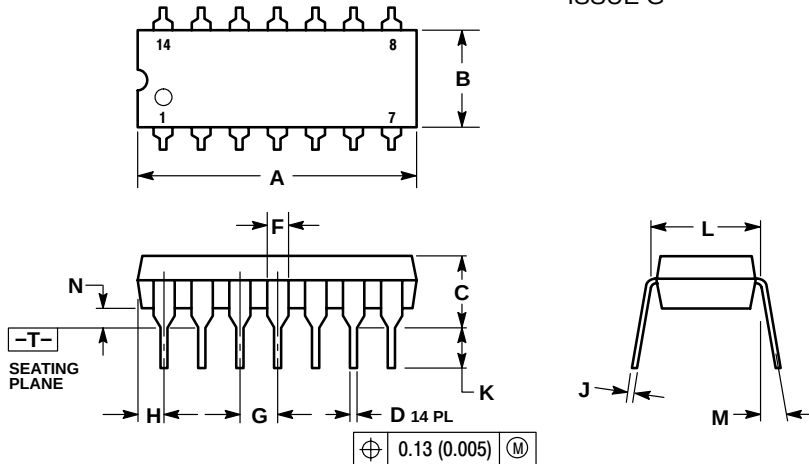


### NOTES:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. DIMENSION L TO CENTER OF LEADS WHEN FORMED PARALLEL.
4. DIMENSION B DOES NOT INCLUDE MOLD FLASH.
5. ROUNDED CORNERS OPTIONAL.

| DIM | INCHES    |       | MILLIMETERS |       |
|-----|-----------|-------|-------------|-------|
|     | MIN       | MAX   | MIN         | MAX   |
| A   | 0.715     | 0.770 | 18.16       | 18.80 |
| B   | 0.240     | 0.260 | 6.10        | 6.60  |
| C   | 0.145     | 0.185 | 3.69        | 4.69  |
| D   | 0.015     | 0.021 | 0.38        | 0.53  |
| F   | 0.040     | 0.070 | 1.02        | 1.78  |
| G   | 0.100 BSC |       | 2.54 BSC    |       |
| H   | 0.052     | 0.095 | 1.32        | 2.41  |
| J   | 0.008     | 0.015 | 0.20        | 0.38  |
| K   | 0.115     | 0.135 | 2.92        | 3.43  |
| L   | 0.290     | 0.310 | 7.37        | 7.87  |
| M   | ---       | 10 °  | ---         | 10 °  |
| N   | 0.015     | 0.039 | 0.38        | 1.01  |

**SOIC-14**  
**D SUFFIX**  
CASE 751A-03  
ISSUE G



### NOTES:

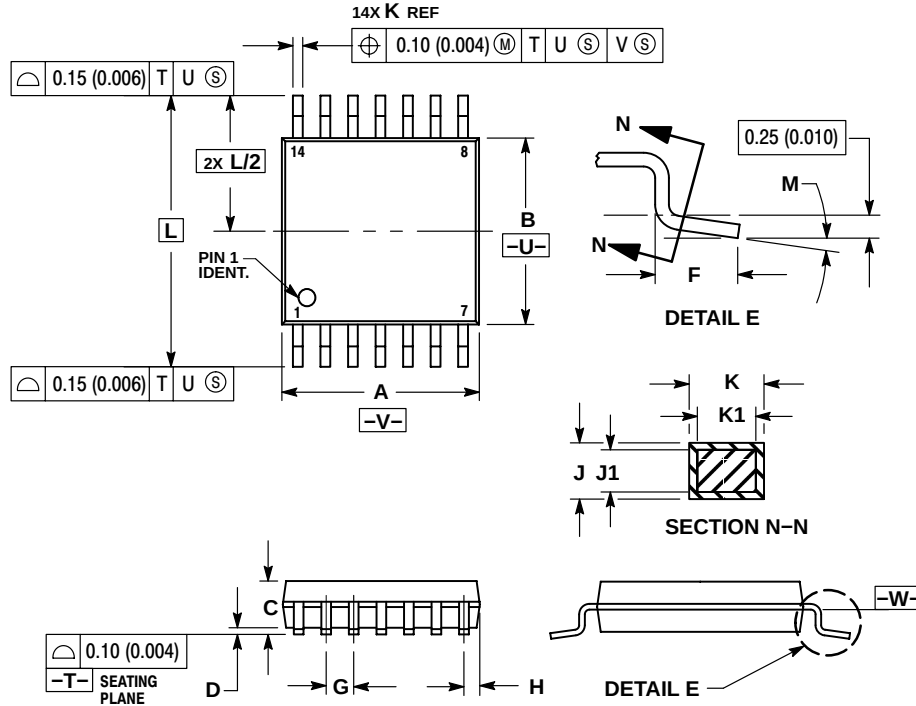
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
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| DIM | INCHES    |       | MILLIMETERS |       |
|-----|-----------|-------|-------------|-------|
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| A   | 0.715     | 0.770 | 18.16       | 18.80 |
| B   | 0.240     | 0.260 | 6.10        | 6.60  |
| C   | 0.145     | 0.185 | 3.69        | 4.69  |
| D   | 0.015     | 0.021 | 0.38        | 0.53  |
| F   | 0.040     | 0.070 | 1.02        | 1.78  |
| G   | 0.100 BSC |       | 2.54 BSC    |       |
| H   | 0.052     | 0.095 | 1.32        | 2.41  |
| J   | 0.008     | 0.015 | 0.20        | 0.38  |
| K   | 0.115     | 0.135 | 2.92        | 3.43  |
| L   | 0.290     | 0.310 | 7.37        | 7.87  |
| M   | ---       | 10 °  | ---         | 10 °  |
| N   | 0.015     | 0.039 | 0.38        | 1.01  |

# MC74AC00, MC74ACT00

## PACKAGE DIMENSIONS

TSSOP-14  
DT SUFFIX  
CASE 948G-01  
ISSUE O

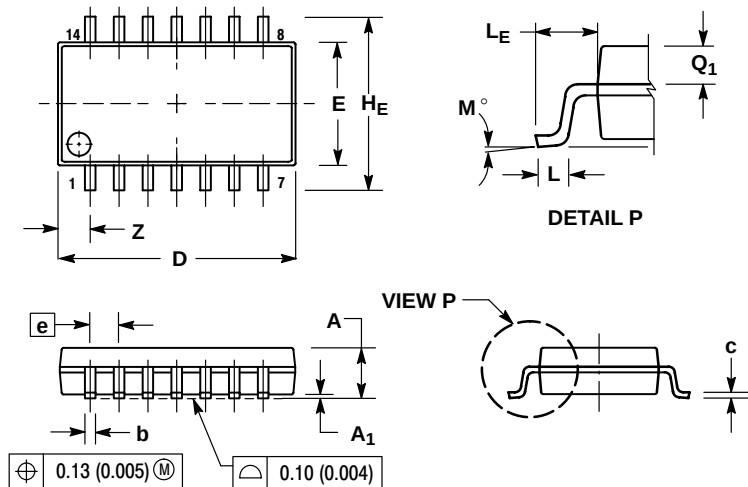


### NOTES:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: MILLIMETER.
3. DIMENSION A DOES NOT INCLUDE MOLD FLASH, PROTRUSIONS OR GATE BURRS. MOLD FLASH OR GATE BURRS SHALL NOT EXCEED 0.15 (0.006) PER SIDE.
4. DIMENSION B DOES NOT INCLUDE INTERLEAD FLASH OR PROTRUSION. INTERLEAD FLASH OR PROTRUSION SHALL NOT EXCEED 0.25 (0.010) PER SIDE.
5. DIMENSION K DOES NOT INCLUDE DAMBAR PROTRUSION. ALLOWABLE DAMBAR PROTRUSION SHALL BE 0.08 (0.003) TOTAL IN EXCESS OF THE K DIMENSION AT MAXIMUM MATERIAL CONDITION.
6. TERMINAL NUMBERS ARE SHOWN FOR REFERENCE ONLY.
7. DIMENSION A AND B ARE TO BE DETERMINED AT DATUM PLANE -W-.

| DIM | MILLIMETERS |      | INCHES    |       |
|-----|-------------|------|-----------|-------|
|     | MIN         | MAX  | MIN       | MAX   |
| A   | 4.90        | 5.10 | 0.193     | 0.200 |
| B   | 4.30        | 4.50 | 0.169     | 0.177 |
| C   | ---         | 1.20 | ---       | 0.047 |
| D   | 0.05        | 0.15 | 0.002     | 0.006 |
| F   | 0.50        | 0.75 | 0.020     | 0.030 |
| G   | 0.65 BSC    |      | 0.026 BSC |       |
| H   | 0.50        | 0.60 | 0.020     | 0.024 |
| J   | 0.09        | 0.20 | 0.004     | 0.008 |
| J1  | 0.09        | 0.16 | 0.004     | 0.006 |
| K   | 0.19        | 0.30 | 0.007     | 0.012 |
| K1  | 0.19        | 0.25 | 0.007     | 0.010 |
| L   | 6.40 BSC    |      | 0.252 BSC |       |
| M   | 0°          | 8°   | 0°        | 8°    |

SOEIAJ-14  
M SUFFIX  
CASE 965-01  
ISSUE O



### NOTES:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: MILLIMETER.
3. DIMENSIONS D AND E DO NOT INCLUDE MOLD FLASH OR PROTRUSIONS AND ARE MEASURED AT THE PARTING LINE. MOLD FLASH OR PROTRUSIONS SHALL NOT EXCEED 0.15 (0.006) PER SIDE.
4. TERMINAL NUMBERS ARE SHOWN FOR REFERENCE ONLY.
5. THE LEAD WIDTH DIMENSION (b) DOES NOT INCLUDE DAMBAR PROTRUSION. ALLOWABLE DAMBAR PROTRUSION SHALL BE 0.08 (0.003) TOTAL IN EXCESS OF THE LEAD WIDTH DIMENSION AT MAXIMUM MATERIAL CONDITION. DAMBAR CANNOT BE LOCATED ON THE LOWER RADIUS OR THE FOOT. MINIMUM SPACE BETWEEN PROTRUSIONS AND ADJACENT LEAD TO BE 0.46 (0.018).

| DIM            | MILLIMETERS |       | INCHES    |       |
|----------------|-------------|-------|-----------|-------|
|                | MIN         | MAX   | MIN       | MAX   |
| A              | ---         | 2.05  | ---       | 0.081 |
| A <sub>1</sub> | 0.05        | 0.20  | 0.002     | 0.008 |
| b              | 0.35        | 0.50  | 0.014     | 0.020 |
| c              | 0.18        | 0.27  | 0.007     | 0.011 |
| D              | 9.90        | 10.50 | 0.390     | 0.413 |
| E              | 5.10        | 5.45  | 0.201     | 0.215 |
| e              | 1.27 BSC    |       | 0.050 BSC |       |
| H <sub>E</sub> | 7.40        | 8.20  | 0.291     | 0.323 |
| 0.50           | 0.50        | 0.85  | 0.020     | 0.033 |
| L <sub>E</sub> | 1.10        | 1.50  | 0.043     | 0.059 |
| M              | 0°          | 10°   | 0°        | 10°   |
| Q <sub>1</sub> | 0.70        | 0.90  | 0.028     | 0.035 |
| Z              | ---         | 1.42  | ---       | 0.056 |

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