

# Octal D-Type Flip-Flop with 3-State Outputs

## MC74AC374, MC74ACT374

The MC74AC374/74ACT374 is a high-speed, low-power octal D-type flip-flop featuring separate D-type inputs for each flip-flop and 3-state outputs for bus-oriented applications. A buffered Clock (CP) and Output Enable ( $\overline{OE}$ ) are common to all flip-flops.

### Features

- Buffered Positive Edge-Triggered Clock
- 3-State Outputs for Bus-Oriented Applications
- Outputs Source/Sink 24 mA
- See MC74AC273 for Reset Version
- See MC74AC377 for Clock Enable Version
- See MC74AC373 for Transparent Latch Version
- See MC74AC574 for Broadside Pinout Version
- See MC74AC564 for Broadside Pinout Version with Inverted Outputs
- 'ACT374 Has TTL Compatible Inputs
- These are Pb-Free Devices

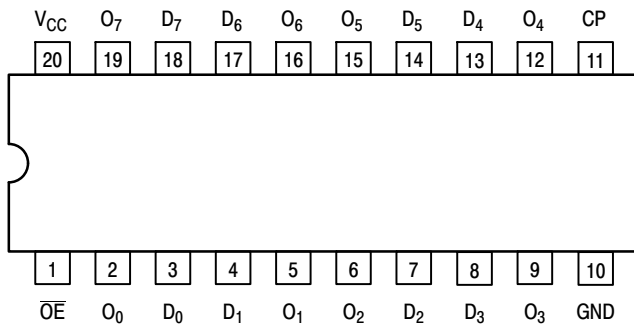


Figure 1. Pinout: 20 Lead Packages Conductors  
(Top View)

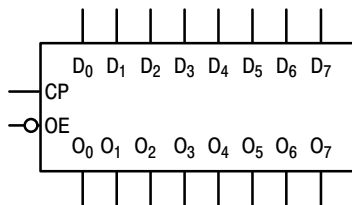
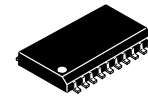


Figure 2. Logic Symbol

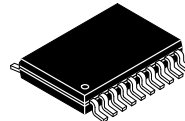
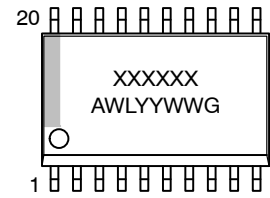
### PIN ASSIGNMENT

| PIN                            | FUNCTION                    |
|--------------------------------|-----------------------------|
| D <sub>0</sub> -D <sub>7</sub> | Data Inputs                 |
| CP                             | Clock Pulse Input           |
| $\overline{OE}$                | 3-State Output Enable Input |
| O <sub>0</sub> -O <sub>7</sub> | 3-State Outputs             |

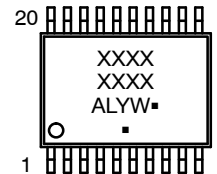
### MARKING DIAGRAMS



1  
SOIC-20W  
DW SUFFIX  
CASE 751D



1  
TSSOP-20  
DT SUFFIX  
CASE 948E



XXXXXX = Specific Device Code  
A = Assembly Location  
WL, L = Wafer Lot  
YY, Y = Year  
WW, W = Work Week  
G or ■ = Pb-Free Package  
(Note: Microdot may be in either location)

### DEVICE MARKING INFORMATION

See general marking information in the device marking section on page 6 of this data sheet.

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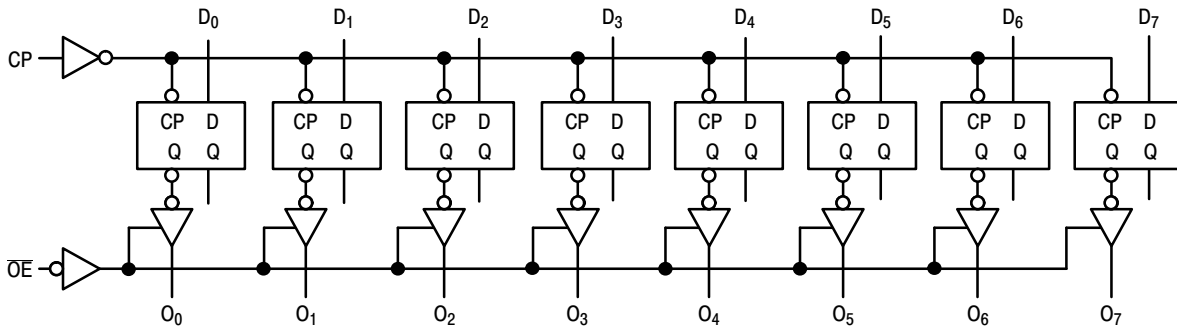
## TRUTH TABLE

| Inputs         |    |                 | Outputs        |
|----------------|----|-----------------|----------------|
| D <sub>n</sub> | CP | $\overline{OE}$ | O <sub>n</sub> |
| H              | ⌄  | L               | H              |
| L              | ⌄  | L               | L              |
| X              | X  | H               | Z              |

H = HIGH Voltage Level  
 L = LOW Voltage Level  
 X = Immaterial  
 Z = High Impedance  
 ⌄ = LOW-to-HIGH Transition

## FUNCTIONAL DESCRIPTION

The MC74AC374/74ACT374 consists of eight edge-triggered flip-flops with individual D-type inputs and 3-state true outputs. The buffered clock and buffered Output Enable are common to all flip-flops. The eight flip-flops will store the state of their individual D inputs that meet the setup and hold time requirements on the LOW-to-HIGH Clock (CP) transition. With the Output Enable ( $\overline{OE}$ ) LOW, the contents of the eight flip-flops are available at the outputs. When the  $\overline{OE}$  is HIGH, the outputs go to the high impedance state. Operation of the  $\overline{OE}$  input does not affect the state of the flip-flops.



NOTE: That this diagram is provided only for the understanding of logic operations and should not be used to estimate propagation delays.

Figure 3. Logic Diagram

# MC74AC374, MC74ACT374

## MAXIMUM RATINGS

| Symbol               | Parameter                                       | Value  | Unit       |
|----------------------|---|--|------------|
| V <sub>CC</sub>      | DC Supply Voltage (Referenced to GND)           | -0.5 to +6.5   | V          |
| V <sub>IN</sub>      | DC Input Voltage (Referenced to GND)            | -0.5 to V <sub>CC</sub> +0.5   | V          |
| V <sub>OUT</sub>     | DC Output Voltage (Referenced to GND) (Note 1)  | -0.5 to 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>OUT</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               | ±100   | 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                 | 140  | °C         |
| θ <sub>JA</sub>      | Thermal Resistance (Note 2)                     | SOIC<br>TSSOP<br>96<br>150   | °C/W       |
| MSL                  | Moisture Sensitivity                            | Level 1  |            |
| F <sub>R</sub>       | Flammability Rating                             | Oxygen Index: 30% – 35%<br>UL 94 V-0 @ 0.125 in                                |            |
| V <sub>ESD</sub>     | ESD Withstand Voltage                           | Human Body Model (Note 3)<br>Charged Device Model (Note 4)<br>> 2000<br>> 1000 | V          |
| I <sub>Latchup</sub> | Latchup Performance                             | Above V <sub>CC</sub> and Below GND at 85°C (Note 5)                           | ±100<br>mA |

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

1. I<sub>OUT</sub> absolute maximum rating must be observed.
2. The package thermal impedance is calculated in accordance with JESD 51-7.
3. Tested to EIA/JESD22-A114-A.
4. Tested to JESD22-C101-A.
5. Tested to EIA/JESD78.

## RECOMMENDED OPERATING CONDITIONS

| Symbol                             | Parameter   | Min                     | Typ | Max             | Unit |      |
|------------------------------------|---|-------------------------|-----|-----------------|------|------|
| V <sub>CC</sub>                    | Supply Voltage  | 'AC                     | 2.0 | 5.0             | 6.0  | V    |
|                                    |   | 'ACT                    | 4.5 | 5.0             | 5.5  |      |
| 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 1)<br>'AC Devices except Schmitt Inputs  | V <sub>CC</sub> @ 3.0 V | -   | 150             | -    | ns/V |
|                                    |   | V <sub>CC</sub> @ 4.5 V | -   | 40              | -    |      |
|                                    |   | V <sub>CC</sub> @ 5.5 V | -   | 25              | -    |      |
| t <sub>r</sub> , t <sub>f</sub>    | Input Rise and Fall Time (Note 2)<br>'ACT Devices except Schmitt Inputs | V <sub>CC</sub> @ 4.5 V | -   | 10              | -    | ns/V |
|                                    |   | V <sub>CC</sub> @ 5.5 V | -   | 8.0             | -    |      |
| T <sub>A</sub>                     | Operating Ambient Temperature Range                                     | -40                     | 25  | 85              | °C   |      |
| I <sub>OH</sub>                    | Output Current – High   | -                       | -   | -24             | mA   |      |
| I <sub>OL</sub>                    | Output Current – Low  | -                       | -   | 24              | mA   |      |

Functional operation above the stresses listed in the Recommended Operating Ranges is not implied. Extended exposure to stresses beyond the Recommended Operating Ranges limits may affect device reliability.

1. V<sub>IN</sub> from 30% to 70% V<sub>CC</sub>; see individual Data Sheets for devices that differ from the typical input rise and fall times.
2. V<sub>IN</sub> from 0.8 V to 2.0 V; see individual Data Sheets for devices that differ from the typical input rise and fall times.

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## DC CHARACTERISTICS

| Symbol           | Parameter                         | V <sub>CC</sub><br>(V) | 74AC                   |                   | 74AC                            |  | Unit | Conditions  |
|------------------|-----------------------------------|------------------------|------------------------|-------------------|---------------------------------|--|------|---|
|                  |                                   |                        | T <sub>A</sub> = +25°C |                   | T <sub>A</sub> = -40°C to +85°C |  |      |   |
|                  |                                   |                        | Typ                    | Guaranteed Limits |                                 |  |      |   |
| V <sub>IH</sub>  | Minimum High Level Input Voltage  | 3.0                    | 1.5                    | 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                            |  |      |   |
|                  |                                   | 5.5                    | 2.75                   | 3.85              | 3.85                            |  |      |   |
| V <sub>IL</sub>  | Maximum Low Level Input Voltage   | 3.0                    | 1.5                    | 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                            |  |      |   |
|                  |                                   | 5.5                    | 2.75                   | 1.65              | 1.65                            |  |      |   |
| V <sub>OH</sub>  | Minimum High Level Output Voltage | 3.0                    | 2.99                   | 2.9               | 2.9                             |  | V    | I <sub>OUT</sub> = -50 μA   |
|                  |                                   | 4.5                    | 4.49                   | 4.4               | 4.4                             |  |      |   |
|                  |                                   | 5.5                    | 5.49                   | 5.4               | 5.4                             |  |      |   |
|                  |                                   | 3.0                    | -                      | 2.56              | 2.46                            |  | 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                            |  |      |   |
|                  |                                   | 5.5                    | -                      | 4.86              | 4.76                            |  |      |   |
| V <sub>OL</sub>  | Maximum Low Level Output Voltage  | 3.0                    | 0.002                  | 0.1               | 0.1                             |  | V    | I <sub>OUT</sub> = 50 μA  |
|                  |                                   | 4.5                    | 0.001                  | 0.1               | 0.1                             |  |      |   |
|                  |                                   | 5.5                    | 0.001                  | 0.1               | 0.1                             |  |      |   |
|                  |                                   | 3.0                    | -                      | 0.36              | 0.44                            |  | 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                            |  |      |   |
|                  |                                   | 5.5                    | -                      | 0.36              | 0.44                            |  |      |   |
| I <sub>IN</sub>  | Maximum Input Leakage Current     | 5.5                    | -                      | ±0.1              | ±1.0                            |  | μA   | V <sub>I</sub> = V <sub>CC</sub> , GND  |
| I <sub>OZ</sub>  | Maximum 3-State Current           | 5.5                    | -                      | ±0.5              | ±5.0                            |  | μA   | V <sub>I</sub> (OE) = V <sub>IL</sub> , V <sub>IH</sub><br>V <sub>I</sub> = V <sub>CC</sub> , GND<br>V <sub>O</sub> = V <sub>CC</sub> , GND |
| I <sub>OLD</sub> | †Minimum Dynamic Output Current   | 5.5                    | -                      | -                 | 75                              |  | mA   | V <sub>OLD</sub> = 1.65 V Max   |
| I <sub>OHD</sub> |                                   | 5.5                    | -                      | -                 | -75                             |  | mA   | V <sub>OHD</sub> = 3.85 V Min   |
| I <sub>CC</sub>  | Maximum Quiescent Supply Current  | 5.5                    | -                      | 8.0               | 80                              |  | 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>.

# MC74AC374, MC74ACT374

## AC CHARACTERISTICS (For Figures and Waveforms – See AND8277/D at www.onsemi.com)

| Symbol           | Parameter                                 | V <sub>CC</sub> *<br>(V) | 74AC   |             |             | 74AC   |              | Unit | Fig. No. |
|------------------|---|--------------------------|--|-------------|-------------|--|--------------|------|----------|
|                  |   |                          | T <sub>A</sub> = +25°C<br>C <sub>L</sub> = 50 pF |             |             | T <sub>A</sub> = -40°C<br>to +85°C<br>C <sub>L</sub> = 50 pF |              |      |          |
|                  |   |                          | Min  | Typ         | Max         | Min  | Max          |      |          |
| f <sub>max</sub> | Maximum Clock Frequency                   | 3.3<br>5.0               | 60<br>100  | 110<br>155  | –<br>–      | 60<br>100  | –<br>–       | MHz  | 3–3      |
| t <sub>PLH</sub> | Propagation Delay<br>CP to O <sub>n</sub> | 3.3<br>5.0               | 3.0<br>2.5                                       | 11<br>8.0   | 13.5<br>9.5 | 1.5<br>1.5   | 15.5<br>10.5 | ns   | 3–6      |
| t <sub>PHL</sub> | Propagation Delay<br>CP to O <sub>n</sub> | 3.3<br>5.0               | 2.5<br>2.0                                       | 10<br>7.0   | 12.5<br>9.0 | 2.0<br>1.5   | 14<br>10     | ns   | 3–6      |
| t <sub>PZH</sub> | Output Enable Time                        | 3.3<br>5.0               | 3.0<br>2.0                                       | 9.5<br>7.0  | 11.5<br>8.5 | 1.5<br>1.0   | 13<br>9.5    | ns   | 3–7      |
| t <sub>PZL</sub> | Output Enable Time                        | 3.3<br>5.0               | 2.5<br>2.0                                       | 9.0<br>6.5  | 11.5<br>8.5 | 1.5<br>1.0   | 13<br>9.5    | ns   | 3–8      |
| t <sub>PHZ</sub> | Output Disable Time                       | 3.3<br>5.0               | 3.0<br>2.0                                       | 10.5<br>8.0 | 12.5<br>11  | 2.0<br>2.0   | 14.5<br>12.5 | ns   | 3–7      |
| t <sub>PLZ</sub> | Output Disable Time                       | 3.3<br>5.0               | 2.0<br>1.5                                       | 8.0<br>6.5  | 11.5<br>8.5 | 1.0<br>1.0   | 12.5<br>10   | ns   | 3–8      |

\*Voltage Range 3.3 V is 3.3 V ±0.3 V.  
Voltage Range 5.0 V is 5.0 V ±0.5 V.

## AC OPERATING REQUIREMENTS

| Symbol         | Parameter                                       | V <sub>CC</sub> *<br>(V) | 74AC   |                    | 74AC   |    | Unit | Fig. No. |
|----------------|---|--------------------------|--|--------------------|--|----|------|----------|
|                |   |                          | T <sub>A</sub> = +25°C<br>C <sub>L</sub> = 50 pF |                    | T <sub>A</sub> = -40°C<br>to +85°C<br>C <sub>L</sub> = 50 pF |    |      |          |
|                |   |                          | Typ  | Guaranteed Minimum |  |    |      |          |
| t <sub>s</sub> | Setup Time, HIGH or LOW<br>D <sub>n</sub> to CP | 3.3<br>5.0               | 2.0<br>1.0                                       | 5.5<br>4.0         | 6.0<br>4.5   | ns | 3–9  |          |
| t <sub>h</sub> | Hold Time, HIGH or LOW<br>D <sub>n</sub> to CP  | 3.3<br>5.0               | -1.0<br>0  | 1.0<br>1.5         | 1.0<br>1.5   | ns | 3–9  |          |
| t <sub>w</sub> | CP Pulse Width<br>HIGH or LOW                   | 3.3<br>5.0               | 4.0<br>2.5                                       | 5.5<br>4.0         | 6.0<br>4.5   | ns | 3–6  |          |

\*Voltage Range 3.3 V is 3.3 V ±0.3 V.  
Voltage Range 5.0 V is 5.0 V ±0.5 V.

# MC74AC374, MC74ACT374

## DC CHARACTERISTICS

| Symbol            | Parameter                              | V <sub>CC</sub><br>(V) | 74ACT                  |                   | 74ACT                           |  | Unit | Conditions  |
|-------------------|--|------------------------|------------------------|-------------------|---------------------------------|--|------|---|
|                   |  |                        | T <sub>A</sub> = +25°C |                   | T <sub>A</sub> = -40°C to +85°C |  |      |   |
|                   |  |                        | Typ                    | Guaranteed Limits |                                 |  |      |   |
| V <sub>IH</sub>   | Minimum High Level Input Voltage       | 4.5                    | 1.5                    | 2.0               | 2.0                             |  | V    | V <sub>OUT</sub> = 0.1 V or V <sub>CC</sub> - 0.1 V   |
|                   |  | 5.5                    | 1.5                    | 2.0               | 2.0                             |  |      |   |
| V <sub>IL</sub>   | Maximum Low Level Input Voltage        | 4.5                    | 1.5                    | 0.8               | 0.8                             |  | V    | V <sub>OUT</sub> = 0.1 V or V <sub>CC</sub> - 0.1 V   |
|                   |  | 5.5                    | 1.5                    | 0.8               | 0.8                             |  |      |   |
| V <sub>OH</sub>   | Minimum High Level Output Voltage      | 4.5                    | 4.49                   | 4.4               | 4.4                             |  | V    | I <sub>OUT</sub> = -50 μA   |
|                   |  | 5.5                    | 5.49                   | 5.4               | 5.4                             |  |      |   |
|                   |  | 4.5                    | -                      | 3.86              | 3.76                            |  | V    | *V <sub>IN</sub> = V <sub>IL</sub> or V <sub>IH</sub><br>I <sub>OH</sub> = -24 mA   |
|                   |  | 5.5                    | -                      | 4.86              | 4.76                            |  |      |   |
| V <sub>OL</sub>   | Maximum Low Level Output Voltage       | 4.5                    | 0.001                  | 0.1               | 0.1                             |  | V    | I <sub>OUT</sub> = 50 μA  |
|                   |  | 5.5                    | 0.001                  | 0.1               | 0.1                             |  |      |   |
|                   |  | 4.5                    | -                      | 0.36              | 0.44                            |  | V    | *V <sub>IN</sub> = V <sub>IL</sub> or V <sub>IH</sub><br>I <sub>OL</sub> = 24 mA  |
|                   |  | 5.5                    | -                      | 0.36              | 0.44                            |  |      |   |
| I <sub>IN</sub>   | Maximum Input Leakage Current          | 5.5                    | -                      | ±0.1              | ±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                             |  | mA   | V <sub>I</sub> = V <sub>CC</sub> - 2.1 V  |
| I <sub>OZ</sub>   | Maximum 3-State Current                | 5.5                    | -                      | ±0.5              | ±5.0                            |  | μA   | V <sub>I</sub> (OE) = V <sub>IL</sub> , V <sub>IH</sub><br>V <sub>I</sub> = V <sub>CC</sub> , GND<br>V <sub>O</sub> = V <sub>CC</sub> , GND |
| I <sub>OLD</sub>  | †Minimum Dynamic Output Current        | 5.5                    | -                      | -                 | 75                              |  | mA   | V <sub>OLD</sub> = 1.65 V Max   |
| I <sub>OHD</sub>  |  | 5.5                    | -                      | -                 | -75                             |  | mA   | V <sub>OHD</sub> = 3.85 V Min   |
| I <sub>CC</sub>   | Maximum Quiescent Supply Current       | 5.5                    | -                      | 8.0               | 80                              |  | 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 (For Figures and Waveforms – See AND8277/D at [www.onsemi.com](http://www.onsemi.com))

| Symbol           | Parameter                              | V <sub>CC</sub> *<br>(V) | 74ACT  |     |      | 74ACT   |      | Unit | Fig. No. |
|------------------|--|--------------------------|--|-----|------|---|------|------|----------|
|                  |  |                          | T <sub>A</sub> = +25°C<br>C <sub>L</sub> = 50 pF |     |      | T <sub>A</sub> = -40°C to +85°C<br>C <sub>L</sub> = 50 pF |      |      |          |
|                  |  |                          | Min  | Typ | Max  | Min   | Max  |      |          |
| f <sub>max</sub> | Maximum Clock Frequency                | 5.0                      | 100  | 160 | -    | 90  | -    | MHz  | 3-3      |
| t <sub>PLH</sub> | Propagation Delay CP to O <sub>n</sub> | 5.0                      | 2.0  | 8.5 | 10   | 2.0   | 11.5 | ns   | 3-6      |
| t <sub>PHL</sub> | Propagation Delay CP to O <sub>n</sub> | 5.0                      | 2.0  | 8.0 | 9.5  | 1.5   | 11   | ns   | 3-6      |
| t <sub>PZH</sub> | Output Enable Time                     | 5.0                      | 2.0  | 8.0 | 9.5  | 1.5   | 10.5 | ns   | 3-7      |
| t <sub>PZL</sub> | Output Enable Time                     | 5.0                      | 1.5  | 8.0 | 9.0  | 1.5   | 10.5 | ns   | 3-8      |
| t <sub>PHZ</sub> | Output Disable Time                    | 5.0                      | 1.5  | 8.5 | 11.5 | 1.0   | 12.5 | ns   | 3-7      |
| t <sub>PLZ</sub> | Output Disable Time                    | 5.0                      | 1.5  | 7.0 | 8.5  | 1.0   | 10   | ns   | 3-8      |

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

# MC74AC374, MC74ACT374

## AC OPERATING REQUIREMENTS (For Figures and Waveforms – See AND8277/D at www.onsemi.com)

| Symbol         | Parameter                                       | V <sub>CC</sub> *<br>(V) | 74ACT  |                    | 74ACT  |  | Unit | Fig. No. |
|----------------|---|--------------------------|--|--------------------|--|--|------|----------|
|                |   |                          | T <sub>A</sub> = +25°C<br>C <sub>L</sub> = 50 pF |                    | T <sub>A</sub> = -40°C<br>to +85°C<br>C <sub>L</sub> = 50 pF |  |      |          |
|                |   |                          | Typ  | Guaranteed Minimum |  |  |      |          |
| t <sub>s</sub> | Setup Time, HIGH or LOW<br>D <sub>n</sub> to CP | 5.0                      | 1.0  | 5.0                | 5.5  |  | ns   | 3-9      |
| t <sub>h</sub> | Hold Time, HIGH or LOW<br>D <sub>n</sub> to CP  | 5.0                      | 0  | 1.5                | 1.5  |  | ns   | 3-9      |
| t <sub>w</sub> | CP Pulse Width<br>HIGH or LOW                   | 5.0                      | 2.5  | 5.0                | 5.0  |  | ns   | 3-6      |

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

## CAPACITANCE

| Symbol          | Parameter                     | Value<br>Typ | Unit | Test Conditions         |
|-----------------|-------------------------------|--------------|------|-------------------------|
| C <sub>IN</sub> | Input Capacitance             | 4.5          | pF   | V <sub>CC</sub> = 5.0 V |
| C <sub>PD</sub> | Power Dissipation Capacitance | 80           | pF   | V <sub>CC</sub> = 5.0 V |

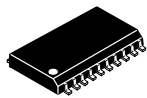
## MC74AC374, MC74ACT374

### ORDERING INFORMATION

| Device          | Marking    | Package  | Shipping†          |
|-----------------|------------|----------|--------------------|
| MC74AC374DWG    | AC374      | SOIC-20  | 38 Units / Rail    |
| MC74AC374DWR2G  | AC374      | SOIC-20  | 1000 / Tape & Reel |
| MC74ACT374DWG   | ACT374     | SOIC-20  | 38 Units / Rail    |
| MC74ACT374DWR2G | ACT374     | SOIC-20  | 1000 / Tape & Reel |
| MC74AC374DTR2G  | AC<br>374  | TSSOP-20 | 2500 / Tape & Reel |
| MC74ACT374DTR2G | ACT<br>374 | TSSOP-20 | 2500 / Tape & Reel |

†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.

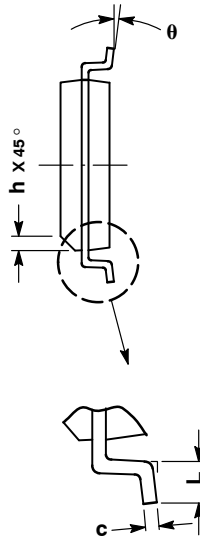
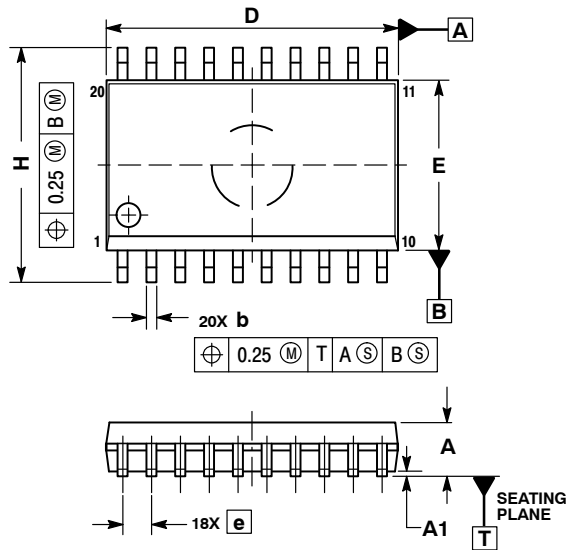




SCALE 1:1

SOIC-20 WB  
CASE 751D-05  
ISSUE H

DATE 22 APR 2015

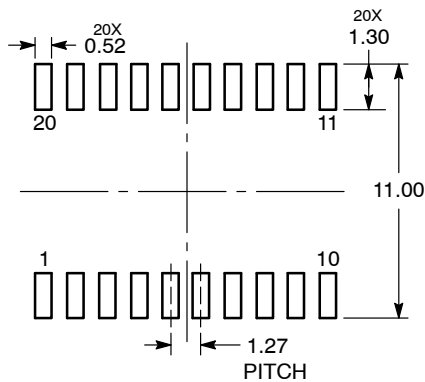


NOTES:

1. DIMENSIONS ARE IN MILLIMETERS.
2. INTERPRET DIMENSIONS AND TOLERANCES PER ASME Y14.5M, 1994.
3. DIMENSIONS D AND E DO NOT INCLUDE MOLD PROTRUSION.
4. MAXIMUM MOLD PROTRUSION 0.15 PER SIDE.
5. DIMENSION B DOES NOT INCLUDE DAMBAR PROTRUSION. ALLOWABLE PROTRUSION SHALL BE 0.13 TOTAL IN EXCESS OF B DIMENSION AT MAXIMUM MATERIAL CONDITION.

| DIM | MILLIMETERS |       |
|-----|-------------|-------|
|     | MIN         | MAX   |
| A   | 2.35        | 2.65  |
| A1  | 0.10        | 0.25  |
| b   | 0.35        | 0.49  |
| c   | 0.23        | 0.32  |
| D   | 12.65       | 12.95 |
| E   | 7.40        | 7.60  |
| e   | 1.27 BSC    |       |
| H   | 10.05       | 10.55 |
| h   | 0.25        | 0.75  |
| L   | 0.50        | 0.90  |
| θ   | 0°          | 7°    |

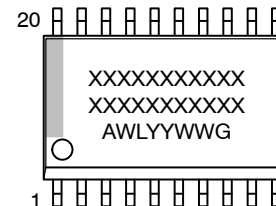
RECOMMENDED  
SOLDERING FOOTPRINT\*



DIMENSIONS: MILLIMETERS

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

GENERIC  
MARKING DIAGRAM\*



- XXXXXX = Specific Device Code
- A = Assembly Location
- WL = Wafer Lot
- YY = Year
- WW = Work Week
- G = Pb-Free Package

\*This information is generic. Please refer to device data sheet for actual part marking. Pb-Free indicator, "G" or microdot "▪", may or may not be present. Some products may not follow the Generic Marking.

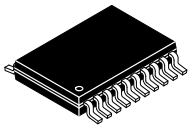
|                  |             |   |
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| DESCRIPTION:     | SOIC-20 WB  | PAGE 1 OF 1   |

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# MECHANICAL CASE OUTLINE

## PACKAGE DIMENSIONS

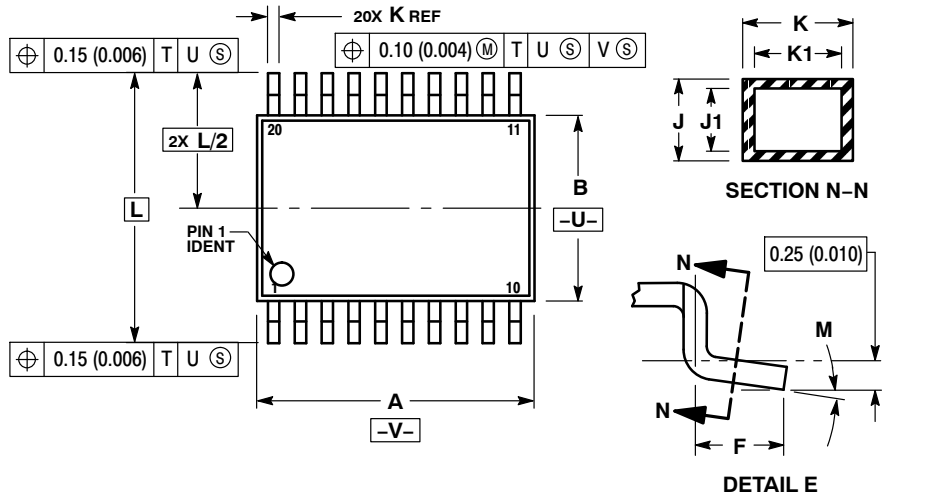
ON Semiconductor®



TSSOP-20 WB  
CASE 948E  
ISSUE D

DATE 17 FEB 2016

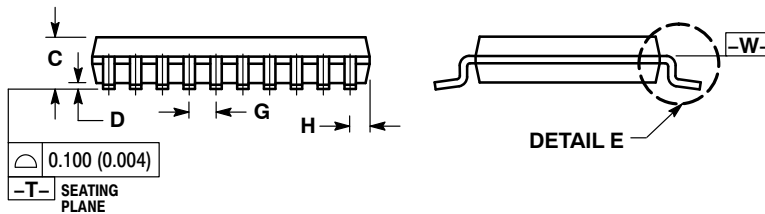
SCALE 2:1



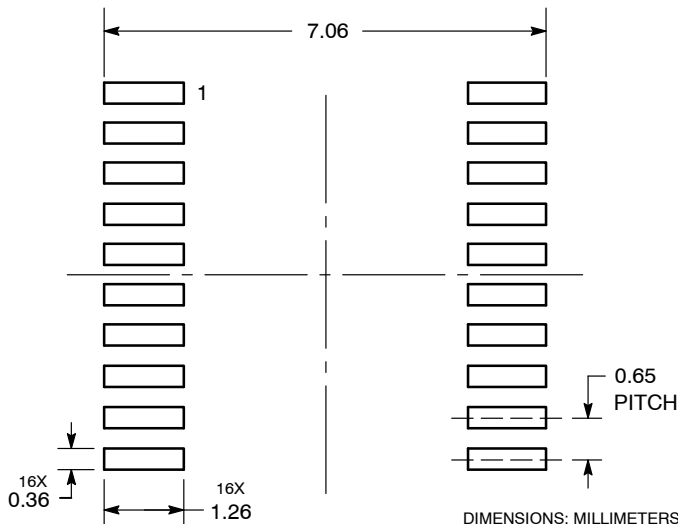
NOTES:

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-.

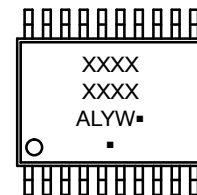
| DIM | MILLIMETERS |      | INCHES    |       |
|-----|-------------|------|-----------|-------|
|     | MIN         | MAX  | MIN       | MAX   |
| A   | 6.40        | 6.60 | 0.252     | 0.260 |
| B   | 4.30        | 4.50 | 0.169     | 0.177 |
| C   | ---         | 1.20 | ---       | 0.047 |
| D   | 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   | 0.27        | 0.37 | 0.011     | 0.015 |
| 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°    |



SOLDERING FOOTPRINT



GENERIC MARKING DIAGRAM\*



- A = Assembly Location
- L = Wafer Lot
- Y = Year
- W = Work Week
- = Pb-Free Package

(Note: Microdot may be in either location)

\*This information is generic. Please refer to device data sheet for actual part marking. Pb-Free indicator, "G" or microdot "▪", may or may not be present.

|                  |             |  |
|------------------|-------------|--|
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