

# CD74ACT14 Hex Schmitt-Trigger Inverter

## 1 Features

- Inputs are TTL-voltage compatible
- Speed of bipolar F, AS, and S, with significantly reduced power consumption
- Greater noise immunity than standard inverters
- Operates with much slower than standard input rise and fall slew rates
- $\pm 24\text{mA}$  output drive current
  - Fanout to 15 F devices
- SCR-latchup-resistant CMOS process and circuit design

## 2 Description

The CD74ACT14 contains six independent inverters. This device performs the Boolean function  $Y = \overline{A}$ .

### Package Information

| PART NUMBER | PACKAGE <sup>(1)</sup> | PACKAGE SIZE <sup>(2)</sup> | BODY SIZE <sup>(3)</sup> |
|-------------|------------------------|-----------------------------|--------------------------|
| CD74ACT14   | D (SOIC, 14)           | 8.65mm x 6mm                | 8.65mm x 3.9mm           |
|             | N (PDIP, 14)           | 19.3mm x 9.4mm              | 19.3mm x 6.35mm          |

- (1) For more information, see [Section 10](#).
- (2) The package size (length x width) is a nominal value and includes pins, where applicable.
- (3) The body size (length x width) is a nominal value and does not include pins.



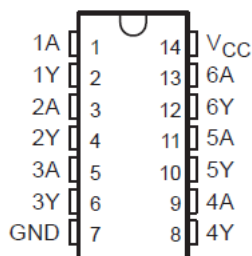
Logic Diagram (Positive Logic)



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## 3 Pin Configuration and Functions



**Figure 3-1. CD74ACT14 D or N Package, 14-Pin SOIC or PDIP (Top View)**

**Table 3-1. Pin Functions**

| PIN             |     | I/O    | DESCRIPTION         |
|-----------------|-----|--------|---------------------|
| NAME            | NO. |        |                     |
| 1A              | 1   | Input  | Channel 1, Input A  |
| 1Y              | 2   | Output | Channel 1, Output Y |
| 2A              | 3   | Input  | Channel 2, Input A  |
| 2Y              | 4   | Output | Channel 2, Output Y |
| 3A              | 5   | Input  | Channel 3, Input A  |
| 3Y              | 6   | Output | Channel 3, Output Y |
| GND             | 7   | —      | Ground              |
| 4Y              | 8   | Output | Channel 4, Output Y |
| 4A              | 9   | Input  | Channel 4, Input A  |
| 5Y              | 10  | Output | Channel 5, Output Y |
| 5A              | 11  | Input  | Channel 5, Input A  |
| 6Y              | 12  | Output | Channel 6, Output Y |
| 6A              | 13  | Input  | Channel 6, Input A  |
| V <sub>CC</sub> | 14  | —      | Positive Supply     |

## 4 Specifications

### 4.1 Absolute Maximum Ratings

over operating free-air temperature range (unless otherwise noted)<sup>(1)</sup>

|                                |                                                   |                                                           | MIN  | MAX  | UNIT |
|--------------------------------|---------------------------------------------------|-----------------------------------------------------------|------|------|------|
| V <sub>CC</sub>                | Supply voltage                                    |                                                           | -0.5 | 6    | V    |
| I <sub>IK</sub> <sup>(2)</sup> | Input clamp current                               | (V <sub>I</sub> < 0 or V <sub>I</sub> > V <sub>CC</sub> ) |      | ±20  | mA   |
| I <sub>OK</sub> <sup>(2)</sup> | Output clamp current                              | (V <sub>O</sub> < 0 or V <sub>O</sub> > V <sub>CC</sub> ) |      | ±50  | mA   |
| I <sub>O</sub>                 | Continuous output current                         | (V <sub>O</sub> = 0 to V <sub>CC</sub> )                  |      | ±50  | mA   |
|                                | Continuous current through V <sub>CC</sub> or GND |                                                           |      | ±100 | mA   |
| T <sub>stg</sub>               | Storage temperature                               |                                                           | -65  | 150  | °C   |

- (1) Stresses beyond those listed under "absolute maximum ratings" may cause permanent damage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated under "recommended operating conditions" is not implied. Exposure to absolute-maximum-rated conditions for extended periods may affect device reliability.
- (2) The input and output voltage ratings may be exceeded if the input and output current ratings are observed.

### 4.2 ESD Ratings

|                    |                         |                                                                             | VALUE | UNIT |
|--------------------|-------------------------|-----------------------------------------------------------------------------|-------|------|
| V <sub>(ESD)</sub> | Electrostatic discharge | Human body model (HBM), per ANSI/ESDA/JEDEC JS-001, all pins <sup>(1)</sup> | ±2000 | V    |

- (1) JEDEC document JEP155 states that 500-V HBM allows safe manufacturing with a standard ESD control process.

### 4.3 Recommended Operating Conditions

over operating free-air temperature range (unless otherwise noted)

|                    |                                    | TA = 25°C |                 | - 55°C to 125°C |                 | - 40°C to 85°C |                 | UNIT |
|--------------------|------------------------------------|-----------|-----------------|-----------------|-----------------|----------------|-----------------|------|
|                    |                                    | MIN       | MAX             | MIN             | MAX             | MIN            | MAX             |      |
| V <sub>CC</sub>    | Supply voltage                     | 4.5       | 5.5             | 4.5             | 5.5             | 4.5            | 5.5             | V    |
| V <sub>I</sub>     | Input voltage                      | 0         | V <sub>CC</sub> | 0               | V <sub>CC</sub> | 0              | V <sub>CC</sub> | V    |
| V <sub>O</sub>     | Output voltage                     | 0         | V <sub>CC</sub> | 0               | V <sub>CC</sub> | 0              | V <sub>CC</sub> | V    |
| I <sub>OH</sub>    | High-level output current          |           | -24             |                 | -24             |                | -24             | mA   |
| I <sub>OL</sub>    | Low-level output current           |           | 24              |                 | 24              |                | 24              | mA   |
| T <sub>Δt/Δv</sub> | Input transition rise or fall rate |           | 20              |                 | 20              |                | 20              | °C   |

### 4.4 Thermal Information

| THERMAL METRIC <sup>(1)</sup> |                                        | CD74ACT14 |          | UNIT |
|-------------------------------|----------------------------------------|-----------|----------|------|
|                               |                                        | N (PDIP)  | D (SOIC) |      |
|                               |                                        | 14 PINS   | 14 PINS  |      |
| R <sub>θJA</sub>              | Junction-to-ambient thermal resistance | 80        | 89.9     | °C/W |

- (1) For more information about traditional and new thermal metrics, see the [Semiconductor and IC Package Thermal Metrics](#) application report.

### 4.5 Electrical Characteristics

over recommended operating free-air temperature range (unless otherwise noted)

| PARAMETER                                   | TEST CONDITIONS | V <sub>CC</sub> | TA = 25°C |     | - 55°C TO 125°C |     | - 40°C TO 85°C |     | UNIT |
|---------------------------------------------|-----------------|-----------------|-----------|-----|-----------------|-----|----------------|-----|------|
|                                             |                 |                 | MIN       | MAX | MIN             | MAX | MIN            | MAX |      |
| V <sub>T+</sub><br>Positive-going threshold |                 | 5 V             | 1.4       | 2   | 1.4             | 2   | 1.4            | 2   | V    |
| V <sub>T-</sub><br>Negative-going threshold |                 | 5 V             | 0.8       | 1.3 | 0.8             | 1.3 | 0.8            | 1.3 | V    |

over recommended operating free-air temperature range (unless otherwise noted)

| PARAMETER                                                       | TEST CONDITIONS                                             | V <sub>CC</sub>                             | T <sub>A</sub> = 25°C |      | – 55°C TO 125°C |     | – 40°C TO 85°C |     | UNIT    |
|-----------------------------------------------------------------|-------------------------------------------------------------|---------------------------------------------|-----------------------|------|-----------------|-----|----------------|-----|---------|
|                                                                 |                                                             |                                             | MIN                   | MAX  | MIN             | MAX | MIN            | MAX |         |
| $\Delta V_T$<br>Hysteresis (V <sub>T+</sub> – V <sub>T–</sub> ) |                                                             | 5 V                                         | 0.4                   |      | 0.4             |     | 0.4            |     | V       |
| V <sub>OH</sub>                                                 | V <sub>I</sub> = V <sub>T+</sub>                            | I <sub>OH</sub> = –50 $\mu$ A               | 4.5 V                 | 4.4  | 4.4             |     | 4.4            |     | V       |
|                                                                 |                                                             | I <sub>OH</sub> = –24 mA                    | 4.5 V                 | 3.94 | 3.7             |     | 3.8            |     |         |
|                                                                 |                                                             | I <sub>OH</sub> = –50 mA <sup>(1)</sup>     | 5.5 V                 |      | 3.85            |     |                |     |         |
|                                                                 |                                                             | I <sub>OH</sub> = –75 mA <sup>(1)</sup>     | 5.5 V                 |      |                 |     | 3.85           |     |         |
| V <sub>OL</sub>                                                 | V <sub>I</sub> = V <sub>T–</sub>                            | I <sub>OL</sub> = 50 $\mu$ A <sup>(1)</sup> | 4.5 V                 | 0.1  | 0.1             |     | 0.1            |     | V       |
|                                                                 |                                                             | I <sub>OL</sub> = 24 mA <sup>(1)</sup>      | 4.5 V                 | 0.36 | 0.5             |     | 0.44           |     |         |
|                                                                 |                                                             | I <sub>OL</sub> = 50 mA <sup>(1)</sup>      | 5.5 V                 |      | 1.65            |     |                |     |         |
|                                                                 |                                                             | I <sub>OL</sub> = 75 mA <sup>(1)</sup>      | 5.5 V                 |      |                 |     | 1.65           |     |         |
| I <sub>I</sub>                                                  | V <sub>I</sub> = V <sub>CC</sub> or GND                     | 5.5 V                                       | $\pm 0.1$             |      | $\pm 1$         |     | $\pm 1$        |     | $\mu$ A |
| I <sub>CC</sub>                                                 | V <sub>I</sub> = V <sub>CC</sub> or GND, I <sub>O</sub> = 0 | 5.5 V                                       | 4                     |      | 80              |     | 40             |     | $\mu$ A |
| $\Delta I_{CC}$ <sup>(2)</sup>                                  | V <sub>I</sub> = V <sub>CC</sub> – 2.1 V                    | 4.5 V to 5.5 V                              | 2.4                   |      | 3               |     | 2.8            |     | mA      |
| C <sub>i</sub>                                                  |                                                             |                                             | 10                    |      | 10              |     | 10             |     | pF      |

- (1) Test one output at a time, not exceeding 1-second duration. Measurement is made by forcing indicated current and measuring voltage to minimize power dissipation. Test verifies a minimum 50- $\Omega$  transmission-line drive capability at 85°C and 75- $\Omega$  transmission-line drive capability at 125°C.
- (2) Additional quiescent supply current per input pin, TTL inputs high, 1 unit load.

**Table 4-1. Act Input Load  
Table**

| INPUT | UNIT LOAD |
|-------|-----------|
| A     | 0.21      |

1. Unit load is  $\Delta I_{CC}$  limit specified in electrical characteristics table (e.g., 2.4 mA at 25°C).

## 4.6 Switching Characteristics

over recommended operating free-air temperature range, V<sub>CC</sub> = 5 V  $\pm$  0.5 V (unless otherwise noted) (see [Load Circuit and Voltage Waveforms](#))

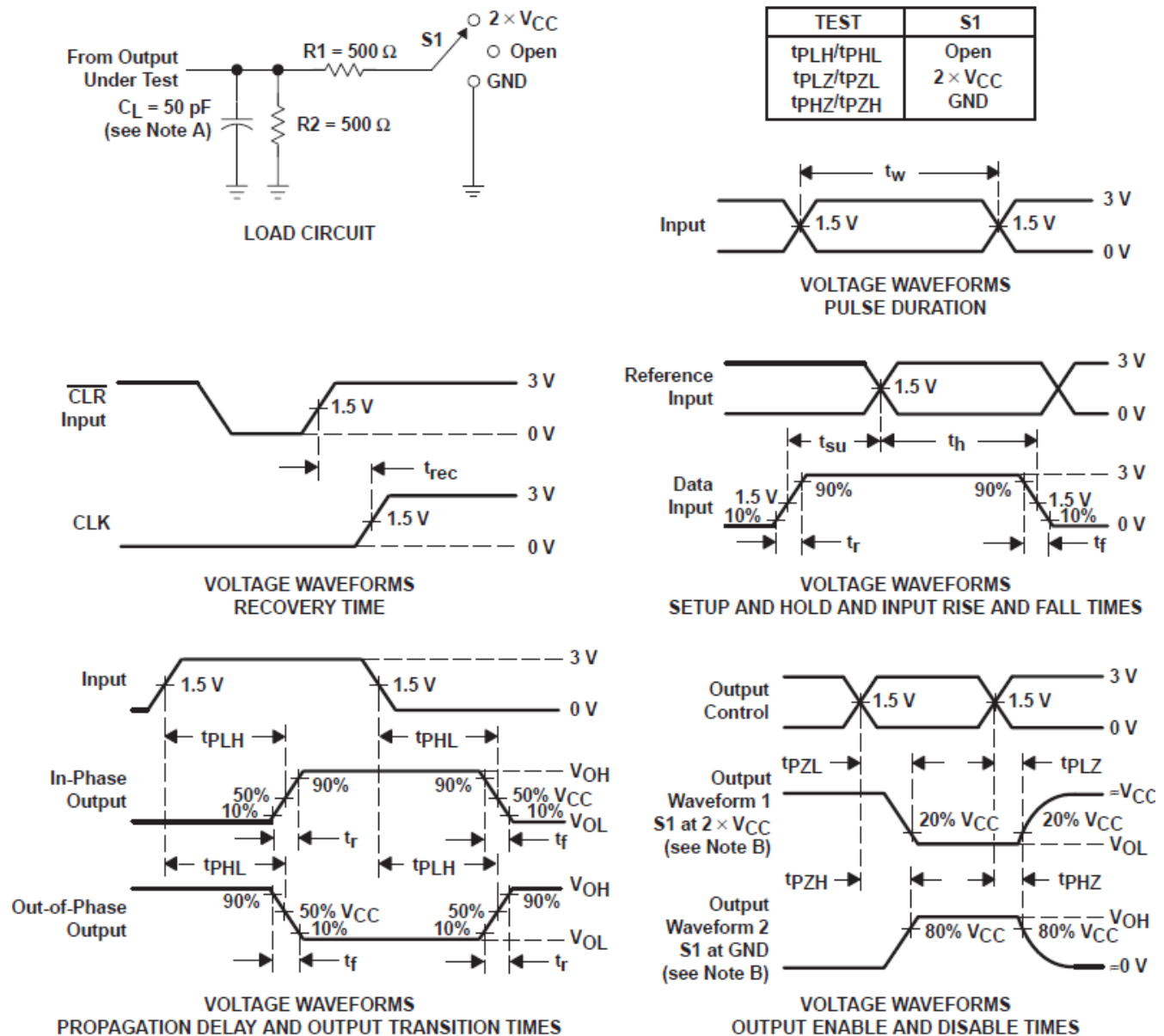
| PARAMETER        | FROM<br>(INPUT) | TO<br>(OUTPUT) | – 55°C to 125°C |      | – 40°C to 85°C |      | UNIT |
|------------------|-----------------|----------------|-----------------|------|----------------|------|------|
|                  |                 |                | MIN             | MAX  | MIN            | MAX  |      |
| t <sub>PLH</sub> | A               | Y              | 3.6             | 14.5 | 3.7            | 13.2 | ns   |
| t <sub>PHL</sub> |                 |                | 2.4             | 9.5  | 2.4            | 8.6  |      |

## 4.7 Operating Characteristics

V<sub>CC</sub> = 5 V, T<sub>A</sub> = 25°C

| PARAMETER       |                               | TYP | UNIT |
|-----------------|-------------------------------|-----|------|
| C <sub>pd</sub> | Power dissipation capacitance | 45  | pF   |

## 5 Parameter Measurement Information



- NOTES:
- $C_L$  includes probe and test-fixture capacitance.
  - Waveform 1 is for an output with internal conditions such that the output is low, except when disabled by the output control. Waveform 2 is for an output with internal conditions such that the output is high, except when disabled by the output control.
  - All input pulses are supplied by generators having the following characteristics:  $PRR \leq 1 \text{ MHz}$ ,  $Z_O = 50 \Omega$ ,  $t_r = 3 \text{ ns}$ ,  $t_f = 3 \text{ ns}$ . Phase relationships between waveforms are arbitrary.
  - For clock inputs,  $f_{max}$  is measured with the input duty cycle at 50%.
  - The outputs are measured one at a time, with one input transition per measurement.
  - $t_{PLH}$  and  $t_{PHL}$  are the same as  $t_{pd}$ .
  - $t_{PZL}$  and  $t_{PZH}$  are the same as  $t_{en}$ .
  - $t_{PLZ}$  and  $t_{PHZ}$  are the same as  $t_{dis}$ .

Figure 5-1. Load Circuit and Voltage Waveforms

## 6 Detailed Description

### 6.1 Overview

The CD74ACT14 contains six independent inverters. This device performs the Boolean function  $Y = \bar{A}$ .

Each circuit functions as an independent inverter, but because of the Schmitt action, the inverters have different input threshold levels for positive-going ( $V_{T+}$ ) and negative-going ( $V_{T-}$ ) signals.

### 6.2 Functional Block Diagram



**Figure 6-1. Logic Diagram, Each Inverter (Positive Logic)**

### 6.3 Device Functional Modes

**Table 6-1. Function Table (Each Inverter)**

| INPUT | OUTPUT |
|-------|--------|
| A     | Y      |
| H     | L      |
| L     | H      |

## 7 Application and Implementation

### Note

Information in the following applications sections is not part of the TI component specification, and TI does not warrant its accuracy or completeness. TI's customers are responsible for determining suitability of components for their purposes, as well as validating and testing their design implementation to confirm system functionality.

### 7.1 Power Supply Recommendations

The power supply can be any voltage between the MIN and MAX supply voltage rating located in the [Section 4.3](#) table.

Each  $V_{CC}$  pin should have a good bypass capacitor to prevent power disturbance. For devices with a single supply, 0.1  $\mu\text{F}$  is recommended. If there are multiple  $V_{CC}$  pins, 0.01  $\mu\text{F}$  or 0.022  $\mu\text{F}$  is recommended for each power pin. It is acceptable to parallel multiple bypass caps to reject different frequencies of noise. A 0.1  $\mu\text{F}$  and 1  $\mu\text{F}$  are commonly used in parallel. The bypass capacitor should be installed as close to the power pin as possible for best results.

### 7.2 Layout

#### 7.2.1 Layout Guidelines

When using multiple bit logic devices, inputs should not float. In many cases, functions or parts of functions of digital logic devices are unused. Some examples are when only two inputs of a triple-input AND gate are used, or when only 3 of the 4-buffer gates are used. Such input pins should not be left unconnected because the undefined voltages at the outside connections result in undefined operational states.

Specified in [Example Layout](#) are rules that must be observed under all circumstances. All unused inputs of digital logic devices must be connected to a high or low bias to prevent them from floating. The logic level that should be applied to any particular unused input depends on the function of the device. Generally they will be tied to GND or  $V_{CC}$ , whichever makes more sense or is more convenient. It is acceptable to float outputs unless the part is a transceiver. If the transceiver has an output enable pin, it will disable the outputs section of the part when asserted. This will not disable the input section of the I/Os so they also cannot float when disabled.

##### 7.2.1.1 Layout Example

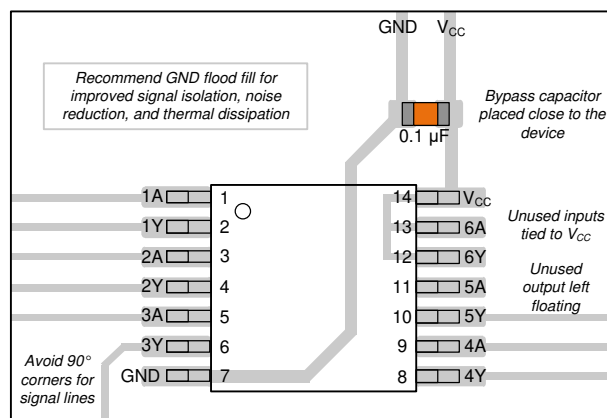


Figure 7-1. Layout Diagram

## 8 Device and Documentation Support

### 8.1 Documentation Support (Analog)

#### 8.1.1 Related Documentation

The table below lists quick access links. Categories include technical documents, support and community resources, tools and software, and quick access to sample or buy.

**Table 8-1. Related Links**

| PARTS     | PRODUCT FOLDER             | SAMPLE & BUY               | TECHNICAL DOCUMENTS        | TOOLS & SOFTWARE           | SUPPORT & COMMUNITY        |
|-----------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|
| CD74ACT14 | <a href="#">Click here</a> | <a href="#">Click here</a> | <a href="#">Click here</a> | <a href="#">Click here</a> | <a href="#">Click here</a> |

### 8.2 Receiving Notification of Documentation Updates

To receive notification of documentation updates, navigate to the device product folder on [ti.com](#). Click on *Notifications* to register and receive a weekly digest of any product information that has changed. For change details, review the revision history included in any revised document.

### 8.3 Support Resources

[TI E2E™ support forums](#) are an engineer's go-to source for fast, verified answers and design help — straight from the experts. Search existing answers or ask your own question to get the quick design help you need.

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### 8.4 Trademarks

TI E2E™ is a trademark of Texas Instruments.

All trademarks are the property of their respective owners.

### 8.5 Electrostatic Discharge Caution



This integrated circuit can be damaged by ESD. Texas Instruments recommends that all integrated circuits be handled with appropriate precautions. Failure to observe proper handling and installation procedures can cause damage.

ESD damage can range from subtle performance degradation to complete device failure. Precision integrated circuits may be more susceptible to damage because very small parametric changes could cause the device not to meet its published specifications.

### 8.6 Glossary

[TI Glossary](#) This glossary lists and explains terms, acronyms, and definitions.

## 9 Revision History

NOTE: Page numbers for previous revisions may differ from page numbers in the current version.

| Changes from Revision B (August 2023) to Revision C (August 2024) | Page |
|-------------------------------------------------------------------|------|
| • Added body size to <i>Package Information</i> table.....        | 1    |
| • Updated RθJA values: D = 86 to 89.9, all values in °C/W.....    | 4    |
| • Updated packages from E and M to N and D .....                  | 4    |

| Changes from Revision A (November 2004) to Revision B (August 2023)                                                                                                                                                                                                                           | Page |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|
| • Added <i>Package Information</i> table, <i>Pin Functions</i> table, <i>ESD Ratings</i> table, <i>Thermal Information</i> table, <i>Device Functional Modes</i> , <i>Device and Documentation Support</i> section, and <i>Mechanical, Packaging, and Orderable Information</i> section ..... | 1    |

## 10 Mechanical, Packaging, and Orderable Information

The following pages include mechanical, packaging, and orderable information. This information is the most current data available for the designated devices. This data is subject to change without notice and revision of this document. For browser-based versions of this data sheet, refer to the left-hand navigation.

## PACKAGING INFORMATION

| Orderable part number        | Status<br>(1) | Material type<br>(2) | Package   Pins | Package qty   Carrier | RoHS<br>(3) | Lead finish/<br>Ball material<br>(4) | MSL rating/<br>Peak reflow<br>(5) | Op temp (°C) | Part marking<br>(6) |
|------------------------------|---------------|----------------------|----------------|-----------------------|-------------|--------------------------------------|-----------------------------------|--------------|---------------------|
| <a href="#">CD74ACT14E</a>   | Active        | Production           | PDIP (N)   14  | 25   TUBE             | Yes         | NIPDAU                               | N/A for Pkg Type                  | -55 to 125   | CD74ACT14E          |
| CD74ACT14E.A                 | Active        | Production           | PDIP (N)   14  | 25   TUBE             | Yes         | NIPDAU                               | N/A for Pkg Type                  | -55 to 125   | CD74ACT14E          |
| <a href="#">CD74ACT14M96</a> | Active        | Production           | SOIC (D)   14  | 2500   LARGE T&R      | Yes         | NIPDAU                               | Level-1-260C-UNLIM                | -55 to 125   | ACT14M              |
| CD74ACT14M96.A               | Active        | Production           | SOIC (D)   14  | 2500   LARGE T&R      | Yes         | NIPDAU                               | Level-1-260C-UNLIM                | -55 to 125   | ACT14M              |
| CD74ACT14M96.B               | Active        | Production           | SOIC (D)   14  | 2500   LARGE T&R      | Yes         | NIPDAU                               | Level-1-260C-UNLIM                | -55 to 125   | ACT14M              |
| CD74ACT14M96G4               | Active        | Production           | SOIC (D)   14  | 2500   LARGE T&R      | Yes         | NIPDAU                               | Level-1-260C-UNLIM                | -55 to 125   | ACT14M              |
| CD74ACT14M96G4.A             | Active        | Production           | SOIC (D)   14  | 2500   LARGE T&R      | Yes         | NIPDAU                               | Level-1-260C-UNLIM                | -55 to 125   | ACT14M              |

<sup>(1)</sup> **Status:** For more details on status, see our [product life cycle](#).

<sup>(2)</sup> **Material type:** When designated, preproduction parts are prototypes/experimental devices, and are not yet approved or released for full production. Testing and final process, including without limitation quality assurance, reliability performance testing, and/or process qualification, may not yet be complete, and this item is subject to further changes or possible discontinuation. If available for ordering, purchases will be subject to an additional waiver at checkout, and are intended for early internal evaluation purposes only. These items are sold without warranties of any kind.

<sup>(3)</sup> **RoHS values:** Yes, No, RoHS Exempt. See the [TI RoHS Statement](#) for additional information and value definition.

<sup>(4)</sup> **Lead finish/Ball material:** Parts may have multiple material finish options. Finish options are separated by a vertical ruled line. Lead finish/Ball material values may wrap to two lines if the finish value exceeds the maximum column width.

<sup>(5)</sup> **MSL rating/Peak reflow:** The moisture sensitivity level ratings and peak solder (reflow) temperatures. In the event that a part has multiple moisture sensitivity ratings, only the lowest level per JEDEC standards is shown. Refer to the shipping label for the actual reflow temperature that will be used to mount the part to the printed circuit board.

<sup>(6)</sup> **Part marking:** There may be an additional marking, which relates to the logo, the lot trace code information, or the environmental category of the part.

Multiple part markings will be inside parentheses. Only one part marking contained in parentheses and separated by a "-" will appear on a part. If a line is indented then it is a continuation of the previous line and the two combined represent the entire part marking for that device.

**Important Information and Disclaimer:** The information provided on this page represents TI's knowledge and belief as of the date that it is provided. TI bases its knowledge and belief on information provided by third parties, and makes no representation or warranty as to the accuracy of such information. Efforts are underway to better integrate information from third parties. TI has taken and continues to take reasonable steps to provide representative and accurate information but may not have conducted destructive testing or chemical analysis on incoming materials and chemicals. TI and TI suppliers consider certain information to be proprietary, and thus CAS numbers and other limited information may not be available for release.

In no event shall TI's liability arising out of such information exceed the total purchase price of the TI part(s) at issue in this document sold by TI to Customer on an annual basis.



## TAPE AND REEL INFORMATION



\*All dimensions are nominal

| Device         | Package Type | Package Drawing | Pins | SPQ  | Reel Diameter (mm) | Reel Width W1 (mm) | A0 (mm) | B0 (mm) | K0 (mm) | P1 (mm) | W (mm) | Pin1 Quadrant |
|----------------|--------------|-----------------|------|------|--------------------|--------------------|---------|---------|---------|---------|--------|---------------|
| CD74ACT14M96   | SOIC         | D               | 14   | 2500 | 330.0              | 16.4               | 6.5     | 9.0     | 2.1     | 8.0     | 16.0   | Q1            |
| CD74ACT14M96   | SOIC         | D               | 14   | 2500 | 330.0              | 12.4               | 3.75    | 3.75    | 1.15    | 8.0     | 12.0   | Q1            |
| CD74ACT14M96G4 | SOIC         | D               | 14   | 2500 | 330.0              | 12.4               | 3.75    | 3.75    | 1.15    | 8.0     | 12.0   | Q1            |

## TAPE AND REEL BOX DIMENSIONS



\*All dimensions are nominal

| Device         | Package Type | Package Drawing | Pins | SPQ  | Length (mm) | Width (mm) | Height (mm) |
|----------------|--------------|-----------------|------|------|-------------|------------|-------------|
| CD74ACT14M96   | SOIC         | D               | 14   | 2500 | 353.0       | 353.0      | 32.0        |
| CD74ACT14M96   | SOIC         | D               | 14   | 2500 | 340.5       | 336.1      | 32.0        |
| CD74ACT14M96G4 | SOIC         | D               | 14   | 2500 | 340.5       | 336.1      | 32.0        |

## TUBE



\*All dimensions are nominal

| Device       | Package Name | Package Type | Pins | SPQ | L (mm) | W (mm) | T (μm) | B (mm) |
|--------------|--------------|--------------|------|-----|--------|--------|--------|--------|
| CD74ACT14E   | N            | PDIP         | 14   | 25  | 506    | 13.97  | 11230  | 4.32   |
| CD74ACT14E   | N            | PDIP         | 14   | 25  | 506    | 13.97  | 11230  | 4.32   |
| CD74ACT14E.A | N            | PDIP         | 14   | 25  | 506    | 13.97  | 11230  | 4.32   |
| CD74ACT14E.A | N            | PDIP         | 14   | 25  | 506    | 13.97  | 11230  | 4.32   |

**D0014A****PACKAGE OUTLINE****SOIC - 1.75 mm max height**

SMALL OUTLINE INTEGRATED CIRCUIT



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**NOTES:**

1. All linear dimensions are in millimeters. Dimensions in parenthesis are for reference only. Dimensioning and tolerancing per ASME Y14.5M.
2. This drawing is subject to change without notice.
3. This dimension does not include mold flash, protrusions, or gate burrs. Mold flash, protrusions, or gate burrs shall not exceed 0.15 mm, per side.
4. This dimension does not include interlead flash. Interlead flash shall not exceed 0.43 mm, per side.
5. Reference JEDEC registration MS-012, variation AB.

# EXAMPLE BOARD LAYOUT

D0014A

SOIC - 1.75 mm max height

SMALL OUTLINE INTEGRATED CIRCUIT



LAND PATTERN EXAMPLE  
SCALE:8X



SOLDER MASK DETAILS

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NOTES: (continued)

6. Publication IPC-7351 may have alternate designs.

7. Solder mask tolerances between and around signal pads can vary based on board fabrication site.

## EXAMPLE STENCIL DESIGN

D0014A

SOIC - 1.75 mm max height

SMALL OUTLINE INTEGRATED CIRCUIT



SOLDER PASTE EXAMPLE  
BASED ON 0.125 mm THICK STENCIL  
SCALE:8X

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NOTES: (continued)

8. Laser cutting apertures with trapezoidal walls and rounded corners may offer better paste release. IPC-7525 may have alternate design recommendations.
9. Board assembly site may have different recommendations for stencil design.

## N (R-PDIP-T\*\*)

16 PINS SHOWN

## PLASTIC DUAL-IN-LINE PACKAGE



| PINS **             | 14               | 16               | 18               | 20               |
|---------------------|------------------|------------------|------------------|------------------|
| DIM                 |                  |                  |                  |                  |
| A MAX               | 0.775<br>(19,69) | 0.775<br>(19,69) | 0.920<br>(23,37) | 1.060<br>(26,92) |
| A MIN               | 0.745<br>(18,92) | 0.745<br>(18,92) | 0.850<br>(21,59) | 0.940<br>(23,88) |
| MS-001<br>VARIATION | AA               | BB               | AC               | AD               |



14/18 Pin Only  
20 Pin vendor option

4040049/E 12/2002

- NOTES:
- A. All linear dimensions are in inches (millimeters).
  - B. This drawing is subject to change without notice.
  - Falls within JEDEC MS-001, except 18 and 20 pin minimum body length (Dim A).
  - The 20 pin end lead shoulder width is a vendor option, either half or full width.

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