

## 8-INPUT POSITIVE-NAND GATES

Check for Samples: [SN54ALS30A](#), [SN54AS30](#), [SN74ALS30A](#), [SN74AS30](#)

### FEATURES

- 8-Input Positive-NAND Gates
- Available in J, DW, N, and FK Packages

### DESCRIPTION

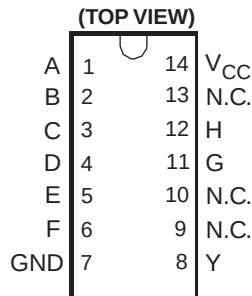
These devices contain an 8-input positive-NAND gate and perform the following Boolean functions in positive logic:

$$Y = \overline{A \cdot B \cdot C \cdot D \cdot E \cdot F \cdot G \cdot H}$$

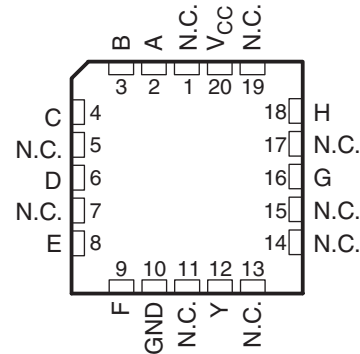
or

$$Y = \overline{A} + \overline{B} + \overline{C} + \overline{D} + \overline{E} + \overline{F} + \overline{G} + \overline{H}$$

SN54ALS30A, SN54AS30 . . . J PACKAGE  
SN74ALS30A, SN74AS30 . . . DW OR N PACKAGE  
SN74AS30 . . . DB PACKAGE



SN54ALS30A, SN54AS30 . . . FK PACKAGE  
(TOP VIEW)



N.C. – No internal connection

### ORDERING INFORMATION

| T <sub>A</sub> | PACKAGE <sup>(1)</sup> (2) |               | ORDERABLE PART NUMBER | TOP-SIDE MARKING |
|----------------|----------------------------|---------------|-----------------------|------------------|
| 0°C to 70°C    | PDIP – N                   | Tube          | SN74ALS30AN           | SN74ALS30AN      |
|                |                            |               | SN74AS30N             | SN74AS30N        |
|                | SOIC – D                   | Tube          | SN74AS30AD            | ALS30A           |
|                |                            | Tape and reel | SN74ALS30ADR          |                  |
|                |                            | Tube          | SN74AS30D             | AS30             |
|                |                            | Tape and reel | SN74AS30DR            |                  |
| –55°C to 125°C | SSOP – DB                  | Tape and reel | SN74AS30DBR           | AS30             |
|                | CDIP – J                   | Tube          | SNJ54ALS30AJ          | SNJ54ALS30AJ     |
|                |                            |               | SNJ54AS30J            | SNJ54AS30J       |
|                | LCCC –FK                   | Tube          | SNJ54ALS30AFK         | SNJ54ALS30AFK    |
|                |                            |               | SNJ54AS30FK           | SNJ54AS30FK      |

(1) Package drawings, thermal data, and symbolization are available at [www.ti.com/packaging](http://www.ti.com/packaging).

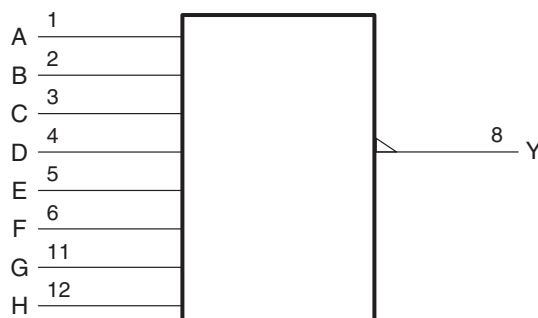
(2) For the most current package and ordering information, see the Package Option Addendum at the end of this document, or see the TI website at [www.ti.com](http://www.ti.com).



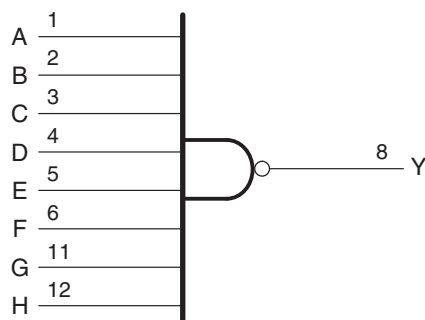
Please be aware that an important notice concerning availability, standard warranty, and use in critical applications of Texas Instruments semiconductor products and disclaimers thereto appears at the end of this data sheet.

**Table 1. FUNCTION TABLE**

| INPUTS<br>A–H        | OUTPUT<br>Y |
|----------------------|-------------|
| All inputs H         | L           |
| One or more inputs L | H           |

**LOGIC SYMBOL**

- A. This symbol is in accordance with ANSI/IEEE Std 91-1984 and IEC Publication 617-12.  
Pin number shown are for the D, DB, J, and N packages.

**LOGIC DIAGRAM (POSITIVE LOGIC)**

Pin number shown are for the D, DB, J, and N packages.

**ABSOLUTE MAXIMUM RATINGS<sup>(1)</sup>**

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

|               |                                          | MIN        | MAX | UNIT |
|---------------|------------------------------------------|------------|-----|------|
| $V_{CC}$      | Supply voltage range                     | –0.5       | 7   | V    |
| $V_I$         | Input voltage range                      | –0.5       | 7   | V    |
| $\theta_{JA}$ | Package thermal impedance <sup>(2)</sup> | D package  |     | 86   |
|               |                                          | DB package |     | 96   |
|               |                                          | N package  |     | 80   |
| $T_{stg}$     | Storage temperature range                | –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 package thermal impedance is calculated in accordance with JESD 51-7.

## RECOMMENDED OPERATING CONDITIONS

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

|          |                                | MIN                  | NOM | MAX                | UNIT |
|----------|--------------------------------|----------------------|-----|--------------------|------|
| $V_{CC}$ | Supply voltage                 | 4.5                  | 5   | 5.5                | V    |
| $V_{IH}$ | High-level input voltage       | 2                    |     |                    | V    |
| $V_{IL}$ | Low-level input voltage        |                      |     | 0.8 <sup>(1)</sup> | V    |
|          |                                |                      |     | 0.7 <sup>(2)</sup> |      |
| $I_{OH}$ | High-level output current      | 'ALS30A              |     | –0.4               | mA   |
|          |                                | 'AS30                |     | –2                 |      |
| $I_{OL}$ | Low-level output current       | SN54ALS30A           |     | 4                  | mA   |
|          |                                | SN74ALS30A           |     | 8                  |      |
|          |                                | 'AS30                |     | 20                 |      |
| $T_A$    | Operating free-air temperature | SN54ALS30A, SN54AS30 |     | –55                | °C   |
|          |                                | SN74ALS30A, SN74AS30 |     | 0                  |      |

- (1) Applies to the 'AS30 and SN74ALS30A across the full operating temperature range, and SN54ALS30A over the temperature range of –55°C to 7°C.
- (2) Applies to the SN54ALS30A over the temperature range of 70°C to 125°C.

## ELECTRICAL CHARACTERISTICS

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

| PARAMETER   | TEST CONDITIONS                            |                           | MIN              | TYP <sup>(1)</sup> | MAX  | UNIT |
|-------------|--------------------------------------------|---------------------------|------------------|--------------------|------|------|
| $V_{IK}$    | $V_{CC} = 4.5\text{ V}$ ,                  | $I_I = -18\text{ mA}$     | 'ALS30A<br>'AS30 |                    | –1.5 | V    |
| $V_{OH}$    | $V_{CC} = 4.5\text{ V to } 5.5\text{ V}$ , | $I_{OH} = -0.4\text{ mA}$ | 'ALS30A          | $V_{CC} - 2$       |      | V    |
|             |                                            | $I_{OH} = -2\text{ mA}$   | 'AS30            | $V_{CC} - 2$       |      |      |
| $V_{OL}$    | $V_{CC} = 4.5\text{ V}$                    | $I_{OL} = 4\text{ mA}$    | 'ALS30A          | 0.25               | 0.4  | V    |
|             |                                            | $I_{OL} = 8\text{ mA}$    | SN74ALS30A       | 0.35               | 0.5  |      |
|             |                                            | $I_{OL} = 20\text{ mA}$   | 'AS30            | 0.35               | 0.5  |      |
| $I_I$       | $V_{CC} = 5.5\text{ V}$ ,                  | $V_I = 7\text{ V}$        |                  |                    | 0.1  | mA   |
| $I_{IH}$    | $V_{CC} = 5.5\text{ V}$ ,                  | $V_I = 2.7\text{ V}$      |                  |                    | 20   | μA   |
| $I_{IL}$    | $V_{CC} = 5.5\text{ V}$ ,                  | $V_I = 0.4\text{ V}$      | 'ALS30A          |                    | –0.1 | mA   |
|             |                                            |                           | 'AS30            |                    | –0.5 |      |
| $I_O^{(2)}$ | $V_{CC} = 5.5\text{ V}$ ,                  | $V_O = 2.25\text{ V}$     | SN54ALS30A       | –20                | –112 | mA   |
|             |                                            |                           | SN74ALS30A       | –30                | –112 |      |
|             |                                            |                           | 'AS30            | –30                | –112 |      |
| $I_{CCH}$   | $V_{CC} = 5.5\text{ V}$ ,                  | $V_I = 0\text{ V}$        | 'ALS30A          | 0.22               | 0.36 | mA   |
|             |                                            |                           | 'AS30            | 0.9                | 1.5  |      |
| $I_{CCL}$   | $V_{CC} = 5.5\text{ V}$ ,                  | $V_I = 4.5\text{ V}$      | 'ALS30A          | 0.54               | 0.9  | mA   |
|             |                                            |                           | 'AS30            | 3                  | 4.9  |      |

- (1) All typical values are at  $V_{CC} = 5\text{ V}$ ,  $T_A = 25^\circ\text{C}$ .
- (2) The output conditions have been chosen to produce a current that closely approximates one half of the true short-circuit output current,  $I_{OS}$ .

## SWITCHING CHARACTERISTICS

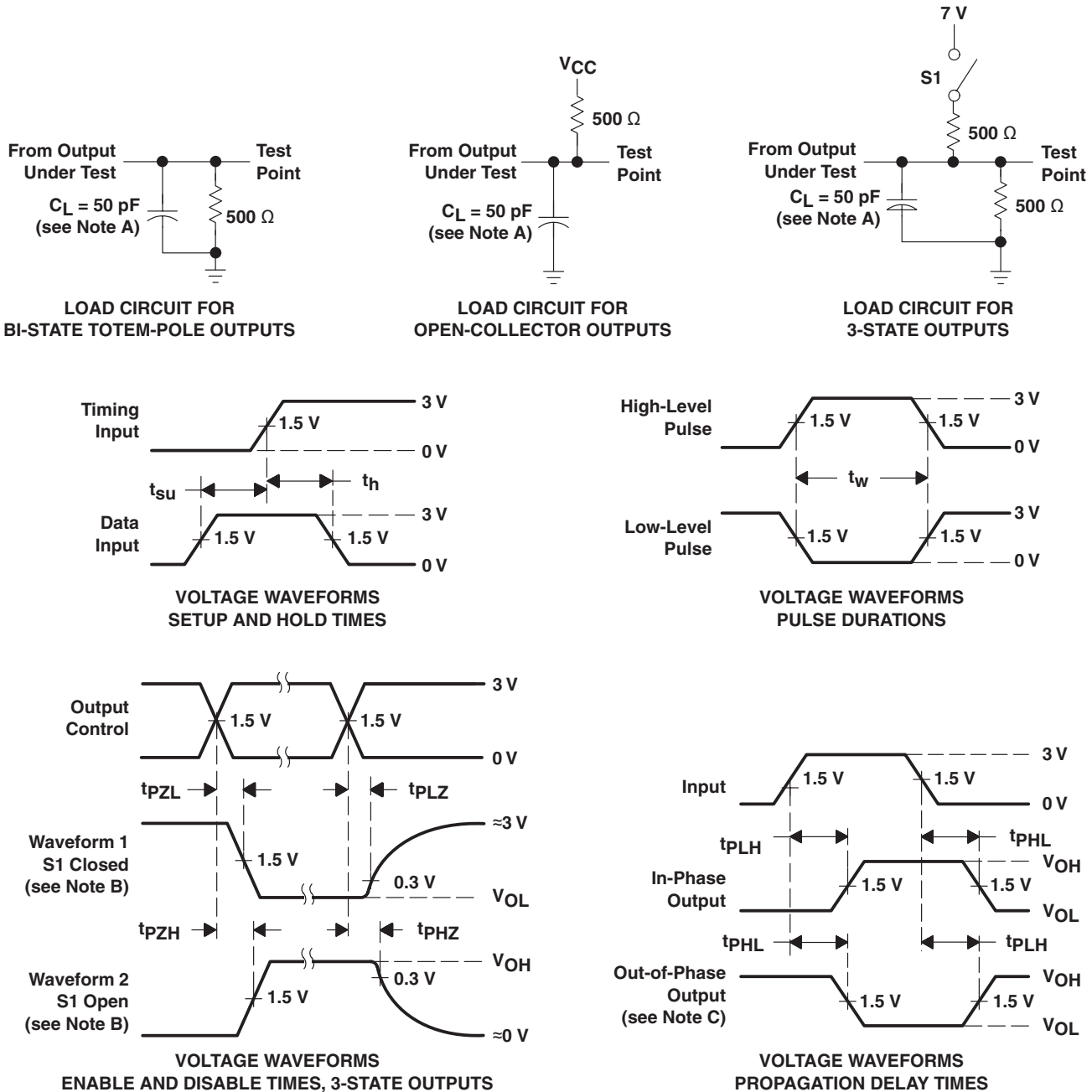
over recommended operating conditions (unless otherwise noted (see [Figure 1](#))

| PARAMETER | FROM<br>(INPUT)              | TO<br>(OUTPUT) |            | MIN | MAX | UNIT |
|-----------|------------------------------|----------------|------------|-----|-----|------|
| $t_{PLH}$ | A, B, C, D, E, F, G, or<br>H | Y              | SN54ALS30A | 3   | 15  | ns   |
|           |                              |                | SN74ALS30A | 3   | 10  |      |
|           |                              |                | SN54AS30   | 1   | 5.5 |      |
|           |                              |                | SN74AS30   | 1   | 5   |      |

**SWITCHING CHARACTERISTICS (continued)**over recommended operating conditions (unless otherwise noted (see [Figure 1](#))

| PARAMETER | FROM<br>(INPUT)              | TO<br>(OUTPUT) |            | MIN | MAX | UNIT |
|-----------|------------------------------|----------------|------------|-----|-----|------|
| $t_{PHL}$ | A, B, C, D, E, F, G, or<br>H | Y              | SN54ALS30A | 3   | 15  | ns   |
|           |                              |                | SN74ALS30A | 3   | 12  |      |
|           |                              |                | SN54AS30   | 1   | 5   |      |
|           |                              |                | SN74AS30   | 1   | 4.5 |      |

## PARAMETER MEASUREMENT INFORMATION



- $C_L$  includes probe and jig 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.
- When measuring propagation delay items of 3-state outputs, switch S1 is open.
- All input pulses have the following characteristics:  $PRR \leq 1$  MHz,  $t_r = t_f = 2$  ns, duty cycle = 50%.
- The outputs are measured one at a time with one transition per measurement.

**Figure 1. Load Circuits and Voltage Waveforms**

**REVISION HISTORY**

| <b>Changes from Original (April 2009) to Revision E</b> | <b>Page</b>       |
|---------------------------------------------------------|-------------------|
| • Updated ORDERING INFORMATION table. ....              | <a href="#">1</a> |

**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="#">5962-86837012A</a>   | Active        | Production           | LCCC (FK)   20 | 55   TUBE             | No          | SNPB                                 | N/A for Pkg Type                  | -55 to 125   | 5962-<br>86837012A<br>SNJ54ALS<br>30AFK |
| <a href="#">5962-8683701DA</a>   | Active        | Production           | CFP (W)   14   | 25   TUBE             | No          | SNPB                                 | N/A for Pkg Type                  | -55 to 125   | 5962-8683701DA<br>SNJ54ALS30AW          |
| <a href="#">5962-9755801QCA</a>  | Active        | Production           | CDIP (J)   14  | 25   TUBE             | No          | SNPB                                 | N/A for Pkg Type                  | -55 to 125   | 5962-9755801QC<br>A<br>SNJ54AS30J       |
| <a href="#">JM38510/37004B2A</a> | Active        | Production           | LCCC (FK)   20 | 55   TUBE             | No          | SNPB                                 | N/A for Pkg Type                  | -55 to 125   | JM38510/<br>37004B2A                    |
| JM38510/37004B2A.A               | Active        | Production           | LCCC (FK)   20 | 55   TUBE             | No          | SNPB                                 | N/A for Pkg Type                  | -55 to 125   | JM38510/<br>37004B2A                    |
| <a href="#">JM38510/37004BCA</a> | Active        | Production           | CDIP (J)   14  | 25   TUBE             | No          | SNPB                                 | N/A for Pkg Type                  | -55 to 125   | JM38510/<br>37004BCA                    |
| JM38510/37004BCA.A               | Active        | Production           | CDIP (J)   14  | 25   TUBE             | No          | SNPB                                 | N/A for Pkg Type                  | -55 to 125   | JM38510/<br>37004BCA                    |
| <a href="#">M38510/37004B2A</a>  | Active        | Production           | LCCC (FK)   20 | 55   TUBE             | No          | SNPB                                 | N/A for Pkg Type                  | -55 to 125   | JM38510/<br>37004B2A                    |
| <a href="#">M38510/37004BCA</a>  | Active        | Production           | CDIP (J)   14  | 25   TUBE             | No          | SNPB                                 | N/A for Pkg Type                  | -55 to 125   | JM38510/<br>37004BCA                    |
| <a href="#">SN54ALS30AJ</a>      | Active        | Production           | CDIP (J)   14  | 25   TUBE             | No          | SNPB                                 | N/A for Pkg Type                  | -55 to 125   | SN54ALS30AJ                             |
| SN54ALS30AJ.A                    | Active        | Production           | CDIP (J)   14  | 25   TUBE             | No          | SNPB                                 | N/A for Pkg Type                  | -55 to 125   | SN54ALS30AJ                             |
| <a href="#">SN74ALS30AD</a>      | Obsolete      | Production           | SOIC (D)   14  | -                     | -           | Call TI                              | Call TI                           | 0 to 70      | ALS30A                                  |
| <a href="#">SN74ALS30ADB</a>     | Active        | Production           | SSOP (DB)   14 | 80   TUBE             | Yes         | NIPDAU                               | Level-1-260C-UNLIM                | 0 to 70      | G30A                                    |
| SN74ALS30ADB.A                   | Active        | Production           | SSOP (DB)   14 | 80   TUBE             | Yes         | NIPDAU                               | Level-1-260C-UNLIM                | 0 to 70      | G30A                                    |
| SN74ALS30ADBE4                   | Active        | Production           | SSOP (DB)   14 | 80   TUBE             | Yes         | NIPDAU                               | Level-1-260C-UNLIM                | 0 to 70      | G30A                                    |
| <a href="#">SN74ALS30ADR</a>     | Active        | Production           | SOIC (D)   14  | 2500   LARGE T&R      | Yes         | NIPDAU                               | Level-1-260C-UNLIM                | 0 to 70      | ALS30A                                  |
| SN74ALS30ADR.A                   | Active        | Production           | SOIC (D)   14  | 2500   LARGE T&R      | Yes         | NIPDAU                               | Level-1-260C-UNLIM                | 0 to 70      | ALS30A                                  |
| <a href="#">SN74ALS30AN</a>      | Active        | Production           | PDIP (N)   14  | 25   TUBE             | Yes         | NIPDAU                               | N/A for Pkg Type                  | 0 to 70      | SN74ALS30AN                             |
| SN74ALS30AN.A                    | Active        | Production           | PDIP (N)   14  | 25   TUBE             | Yes         | NIPDAU                               | N/A for Pkg Type                  | 0 to 70      | SN74ALS30AN                             |
| <a href="#">SN74AS30DR</a>       | Active        | Production           | SOIC (D)   14  | 2500   LARGE T&R      | Yes         | NIPDAU                               | Level-1-260C-UNLIM                | 0 to 70      | AS30                                    |

| 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)                     |
|-------------------------------|---------------|----------------------|----------------|-----------------------|-------------|--------------------------------------|-----------------------------------|--------------|-----------------------------------------|
| SN74AS30DR.A                  | Active        | Production           | SOIC (D)   14  | 2500   LARGE T&R      | Yes         | NIPDAU                               | Level-1-260C-UNLIM                | 0 to 70      | AS30                                    |
| <a href="#">SN74AS30N</a>     | Active        | Production           | PDIP (N)   14  | 25   TUBE             | Yes         | NIPDAU                               | N/A for Pkg Type                  | 0 to 70      | SN74AS30N                               |
| SN74AS30N.A                   | Active        | Production           | PDIP (N)   14  | 25   TUBE             | Yes         | NIPDAU                               | N/A for Pkg Type                  | 0 to 70      | SN74AS30N                               |
| <a href="#">SNJ54ALS30AFK</a> | Active        | Production           | LCCC (FK)   20 | 55   TUBE             | No          | SNPB                                 | N/A for Pkg Type                  | -55 to 125   | 5962-<br>86837012A<br>SNJ54ALS<br>30AFK |
| SNJ54ALS30AFK.A               | Active        | Production           | LCCC (FK)   20 | 55   TUBE             | No          | SNPB                                 | N/A for Pkg Type                  | -55 to 125   | 5962-<br>86837012A<br>SNJ54ALS<br>30AFK |
| <a href="#">SNJ54ALS30AJ</a>  | Active        | Production           | CDIP (J)   14  | 25   TUBE             | No          | SNPB                                 | N/A for Pkg Type                  | -55 to 125   | SNJ54ALS30AJ                            |
| SNJ54ALS30AJ.A                | Active        | Production           | CDIP (J)   14  | 25   TUBE             | No          | SNPB                                 | N/A for Pkg Type                  | -55 to 125   | SNJ54ALS30AJ                            |
| <a href="#">SNJ54ALS30AW</a>  | Active        | Production           | CFP (W)   14   | 25   TUBE             | No          | SNPB                                 | N/A for Pkg Type                  | -55 to 125   | 5962-8683701DA<br>SNJ54ALS30AW          |
| SNJ54ALS30AW.A                | Active        | Production           | CFP (W)   14   | 25   TUBE             | No          | SNPB                                 | N/A for Pkg Type                  | -55 to 125   | 5962-8683701DA<br>SNJ54ALS30AW          |
| <a href="#">SNJ54AS30J</a>    | Active        | Production           | CDIP (J)   14  | 25   TUBE             | No          | SNPB                                 | N/A for Pkg Type                  | -55 to 125   | 5962-9755801QC<br>A<br>SNJ54AS30J       |
| SNJ54AS30J.A                  | Active        | Production           | CDIP (J)   14  | 25   TUBE             | No          | SNPB                                 | N/A for Pkg Type                  | -55 to 125   | 5962-9755801QC<br>A<br>SNJ54AS30J       |

<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.

**OTHER QUALIFIED VERSIONS OF SN54ALS30A, SN54AS30, SN74ALS30A, SN74AS30 :**

- Catalog : [SN74ALS30A](#), [SN74AS30](#)
- Military : [SN54ALS30A](#), [SN54AS30](#)

NOTE: Qualified Version Definitions:

- Catalog - TI's standard catalog product
- Military - QML certified for Military and Defense Applications

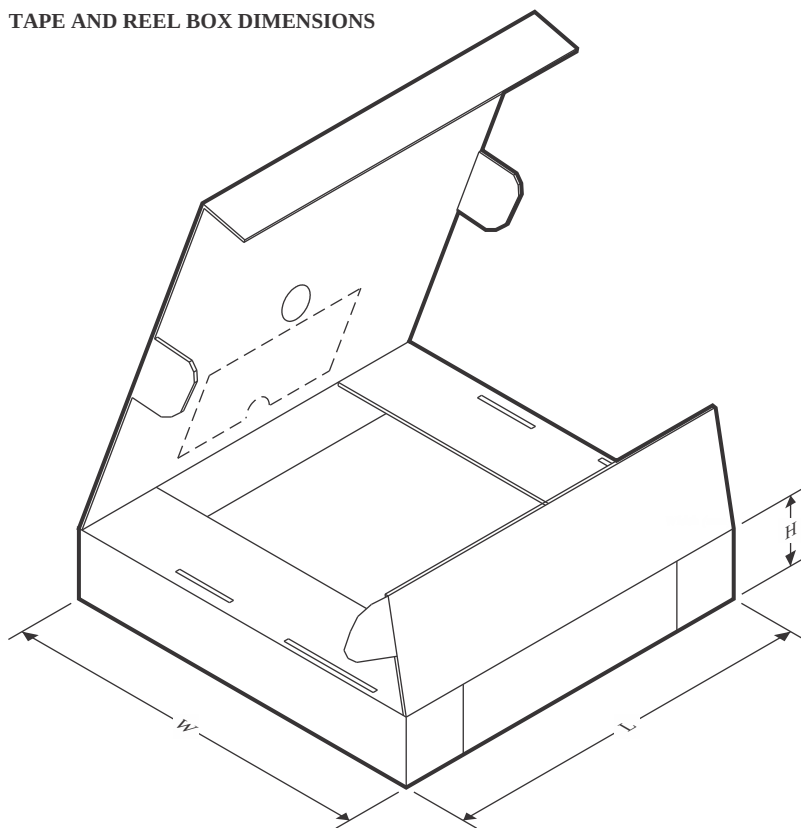
## TAPE AND REEL INFORMATION



\*All dimensions are nominal

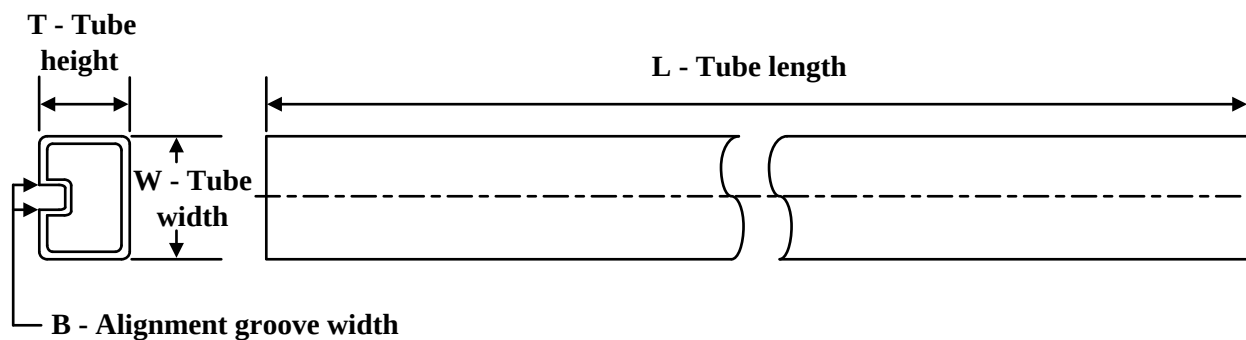
| Device       | Package Type | Package Drawing | Pins | SPQ  | Reel Diameter (mm) | Reel Width W1 (mm) | A0 (mm) | B0 (mm) | K0 (mm) | P1 (mm) | W (mm) | Pin1 Quadrant |
|--------------|--------------|-----------------|------|------|--------------------|--------------------|---------|---------|---------|---------|--------|---------------|
| SN74ALS30ADR | SOIC         | D               | 14   | 2500 | 330.0              | 16.4               | 6.5     | 9.0     | 2.1     | 8.0     | 16.0   | Q1            |
| SN74AS30DR   | SOIC         | D               | 14   | 2500 | 330.0              | 16.4               | 6.5     | 9.0     | 2.1     | 8.0     | 16.0   | Q1            |

## TAPE AND REEL BOX DIMENSIONS



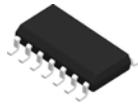
\*All dimensions are nominal

| Device       | Package Type | Package Drawing | Pins | SPQ  | Length (mm) | Width (mm) | Height (mm) |
|--------------|--------------|-----------------|------|------|-------------|------------|-------------|
| SN74ALS30ADR | SOIC         | D               | 14   | 2500 | 353.0       | 353.0      | 32.0        |
| SN74AS30DR   | SOIC         | D               | 14   | 2500 | 353.0       | 353.0      | 32.0        |

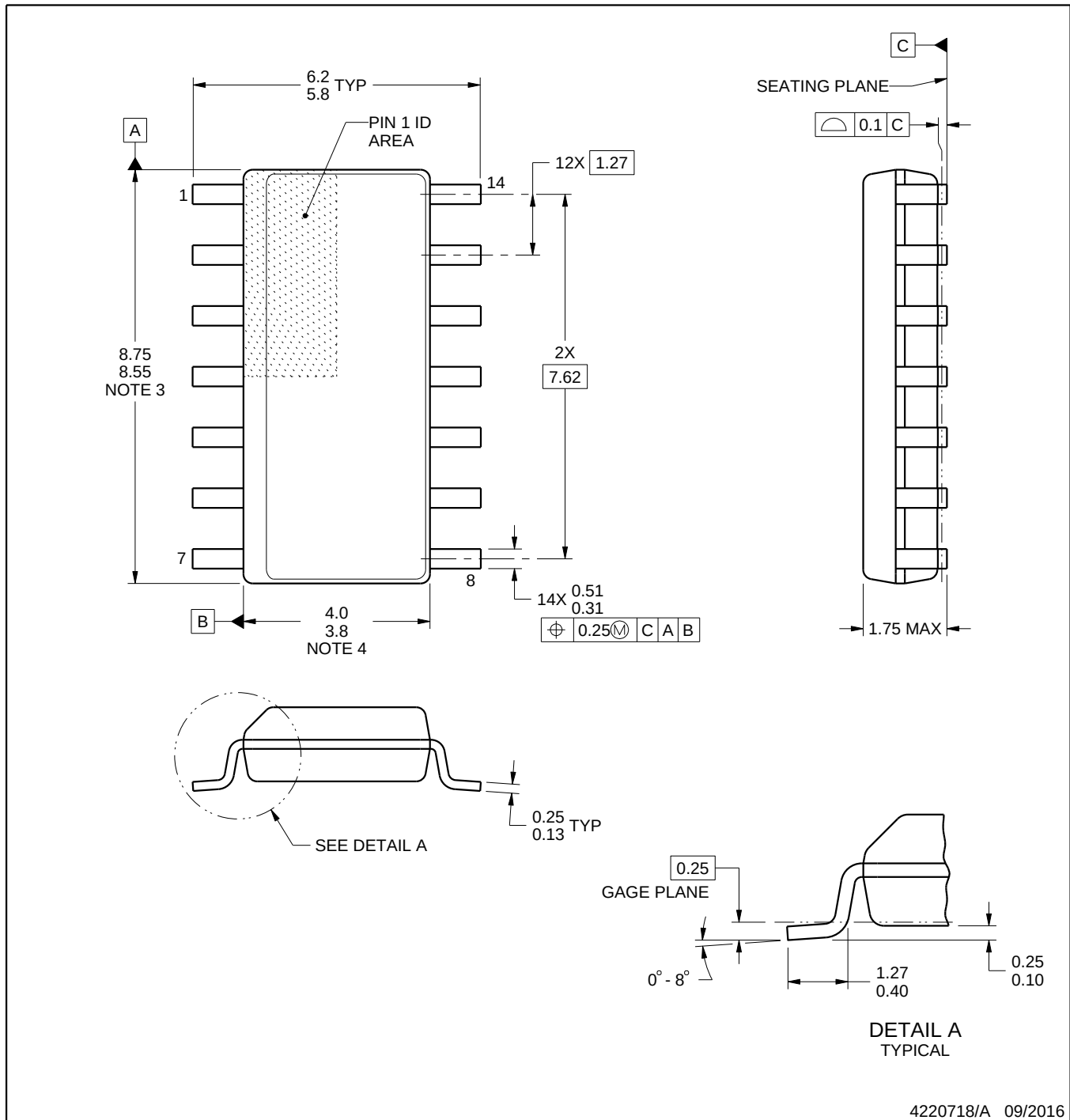
**TUBE**


\*All dimensions are nominal

| Device             | Package Name | Package Type | Pins | SPQ | L (mm) | W (mm) | T (μm) | B (mm) |
|--------------------|--------------|--------------|------|-----|--------|--------|--------|--------|
| 5962-86837012A     | FK           | LCCC         | 20   | 55  | 506.98 | 12.06  | 2030   | NA     |
| 5962-8683701DA     | W            | CFP          | 14   | 25  | 506.98 | 26.16  | 6220   | NA     |
| JM38510/37004B2A   | FK           | LCCC         | 20   | 55  | 506.98 | 12.06  | 2030   | NA     |
| JM38510/37004B2A.A | FK           | LCCC         | 20   | 55  | 506.98 | 12.06  | 2030   | NA     |
| M38510/37004B2A    | FK           | LCCC         | 20   | 55  | 506.98 | 12.06  | 2030   | NA     |
| SN74ALS30ADB       | DB           | SSOP         | 14   | 80  | 530    | 10.5   | 4000   | 4.1    |
| SN74ALS30ADB.A     | DB           | SSOP         | 14   | 80  | 530    | 10.5   | 4000   | 4.1    |
| SN74ALS30ADBE4     | DB           | SSOP         | 14   | 80  | 530    | 10.5   | 4000   | 4.1    |
| SN74ALS30AN        | N            | PDIP         | 14   | 25  | 506    | 13.97  | 11230  | 4.32   |
| SN74ALS30AN        | N            | PDIP         | 14   | 25  | 506    | 13.97  | 11230  | 4.32   |
| SN74ALS30AN.A      | N            | PDIP         | 14   | 25  | 506    | 13.97  | 11230  | 4.32   |
| SN74ALS30AN.A      | N            | PDIP         | 14   | 25  | 506    | 13.97  | 11230  | 4.32   |
| SN74AS30N          | N            | PDIP         | 14   | 25  | 506    | 13.97  | 11230  | 4.32   |
| SN74AS30N          | N            | PDIP         | 14   | 25  | 506    | 13.97  | 11230  | 4.32   |
| SN74AS30N.A        | N            | PDIP         | 14   | 25  | 506    | 13.97  | 11230  | 4.32   |
| SN74AS30N.A        | N            | PDIP         | 14   | 25  | 506    | 13.97  | 11230  | 4.32   |
| SNJ54ALS30AFK      | FK           | LCCC         | 20   | 55  | 506.98 | 12.06  | 2030   | NA     |
| SNJ54ALS30AFK.A    | FK           | LCCC         | 20   | 55  | 506.98 | 12.06  | 2030   | NA     |
| SNJ54ALS30AW       | W            | CFP          | 14   | 25  | 506.98 | 26.16  | 6220   | NA     |
| SNJ54ALS30AW.A     | W            | CFP          | 14   | 25  | 506.98 | 26.16  | 6220   | NA     |

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

SMALL OUTLINE INTEGRATED CIRCUIT



4220718/A 09/2016

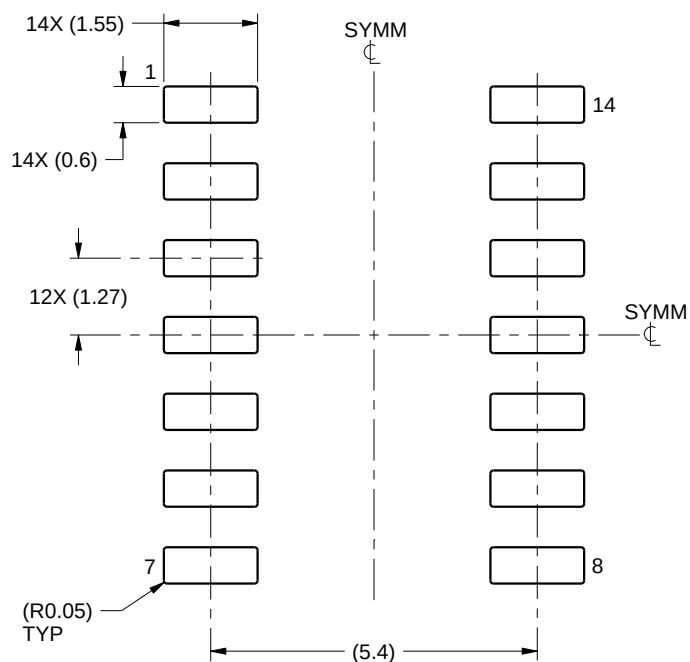
**NOTES:**

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.

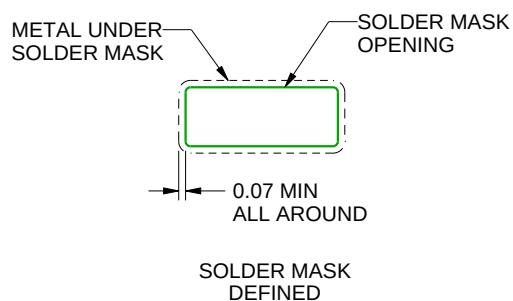
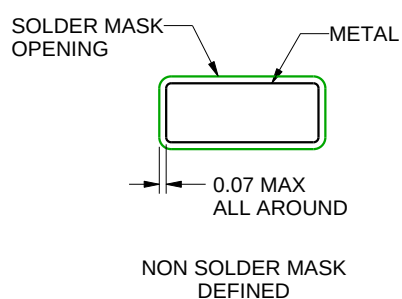
**D0014A**

**SOIC - 1.75 mm max height**

SMALL OUTLINE INTEGRATED CIRCUIT



LAND PATTERN EXAMPLE  
SCALE:8X



## SOLDER MASK DETAILS

4220718/A 09/2016

NOTES: (continued)

6. Publication IPC-7351 may have alternate designs.

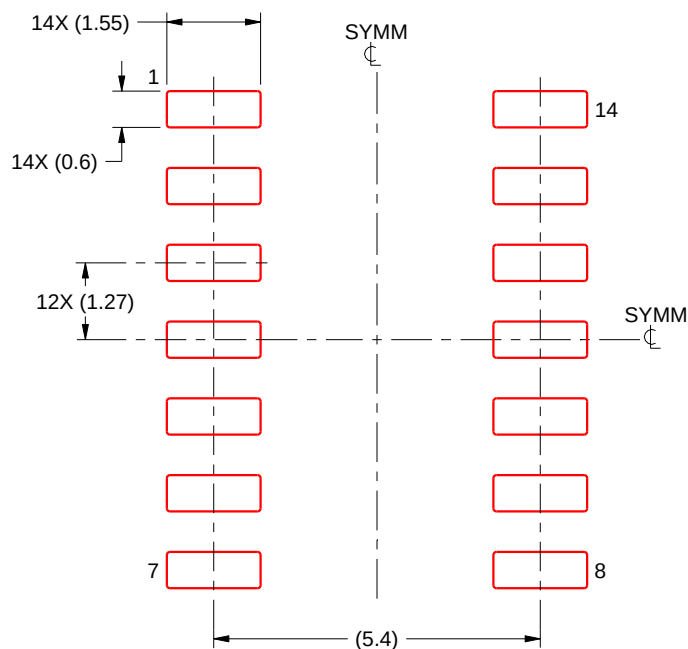
7. Solder mask tolerances between and around signal pads can vary based on board fabrication site.

## 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

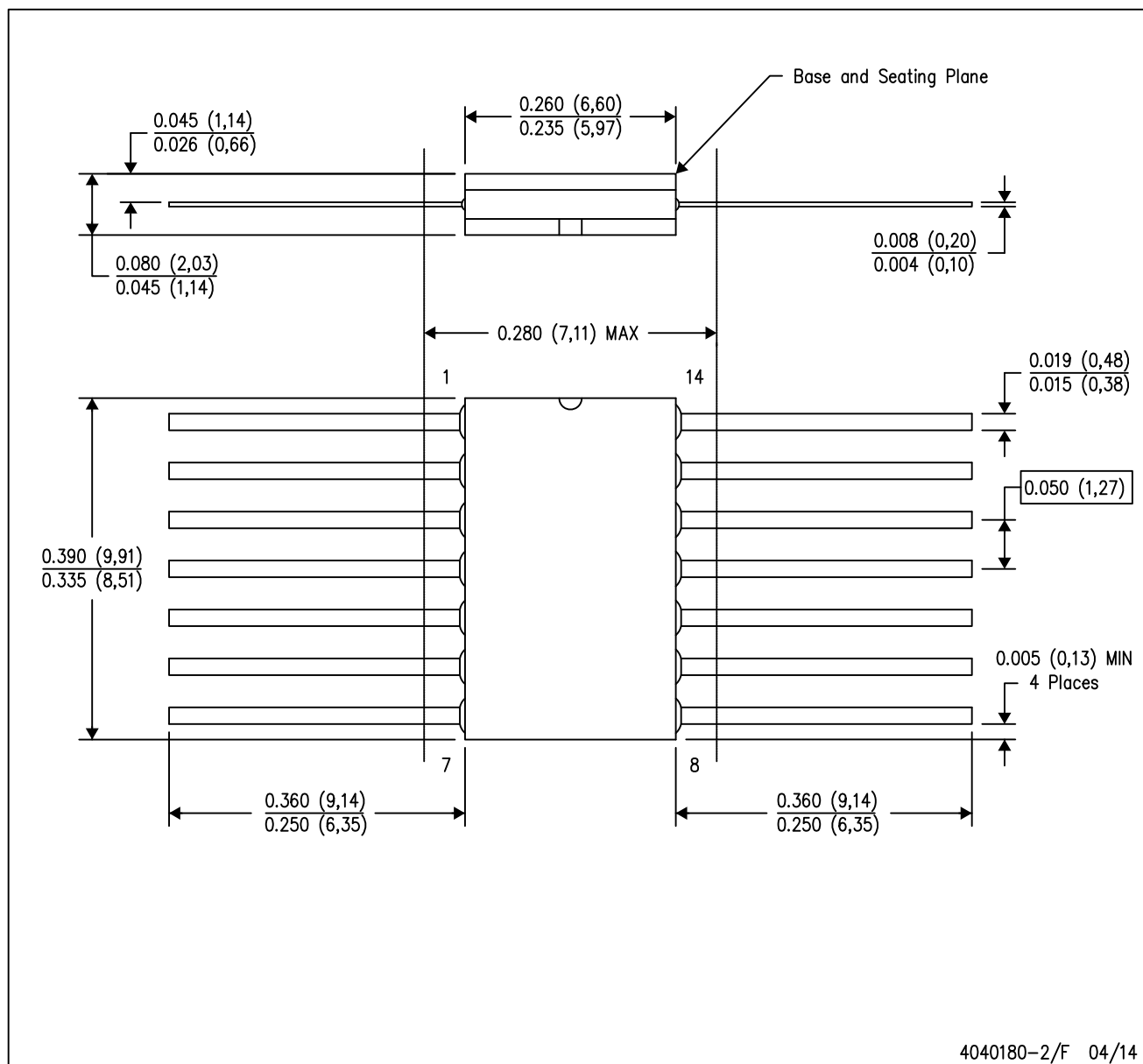
4220718/A 09/2016

NOTES: (continued)

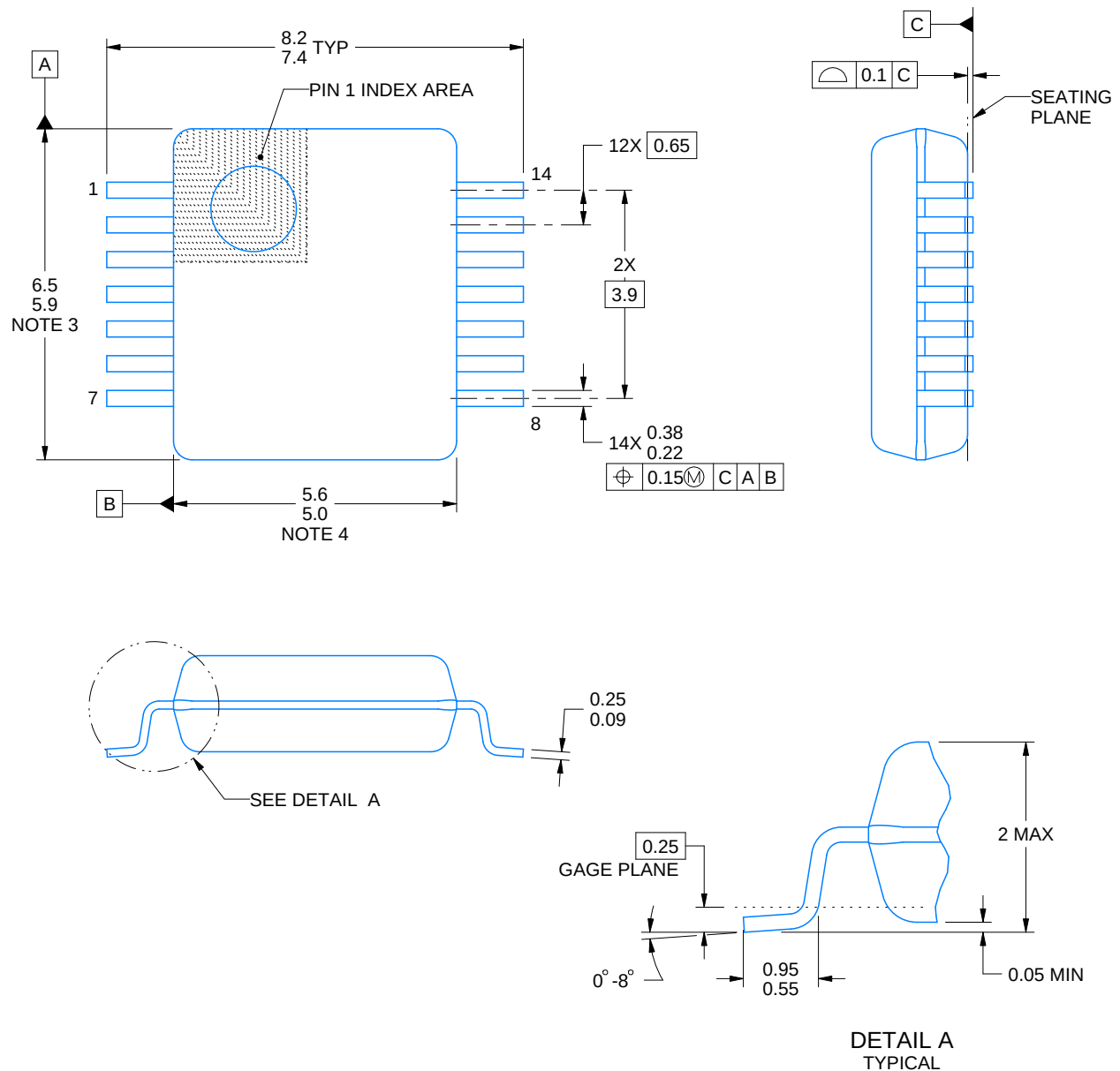
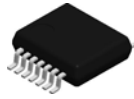
8. Laser cutting apertures with trapezoidal walls and rounded corners may offer better paste release. IPC-7525 may have alternate design recommendations.
9. Board assembly site may have different recommendations for stencil design.

W (R-GDFP-F14)

CERAMIC DUAL FLATPACK







4220762/A 05/2024

## NOTES:

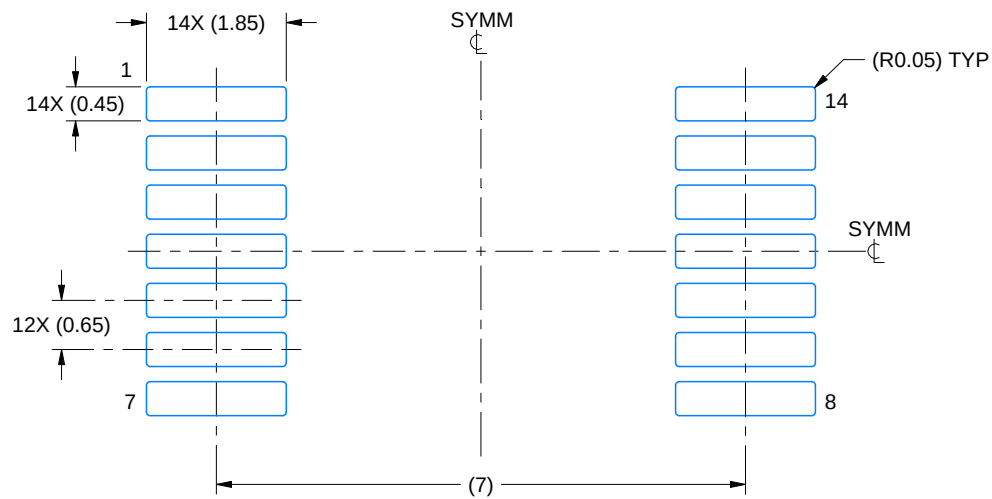
1. All linear dimensions are in millimeters. Any dimensions in parenthesis are for reference only. Dimensioning and tolerancing per ASME Y14.5M.
2. This drawing is subject to change without notice.
3. This dimension does not include mold flash, protrusions, or gate burrs. Mold flash, protrusions, or gate burrs shall not exceed 0.15 mm per side.
4. Reference JEDEC registration MO-150.

# EXAMPLE BOARD LAYOUT

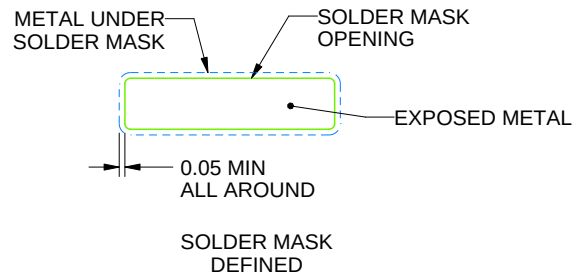
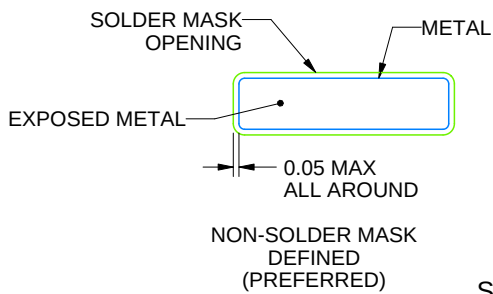
DB0014A

SSOP - 2 mm max height

SMALL OUTLINE PACKAGE



LAND PATTERN EXAMPLE  
EXPOSED METAL SHOWN  
SCALE: 10X



SOLDER MASK DETAILS

4220762/A 05/2024

NOTES: (continued)

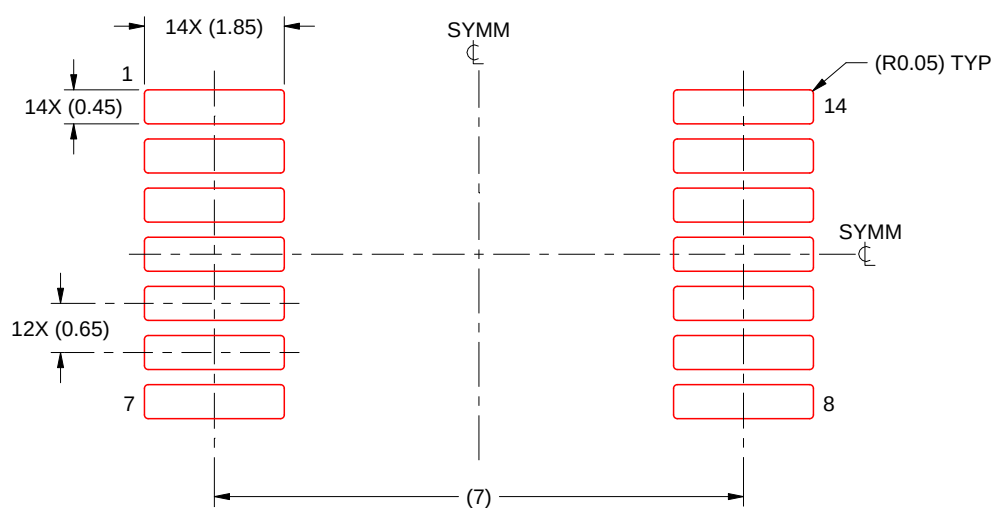
5. Publication IPC-7351 may have alternate designs.

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

**DB0014A**

## SSOP - 2 mm max height

### SMALL OUTLINE PACKAGE



SOLDER PASTE EXAMPLE  
BASED ON 0.125 mm THICK STENCIL  
SCALE: 10X

4220762/A 05/2024

NOTES: (continued)

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

## GENERIC PACKAGE VIEW

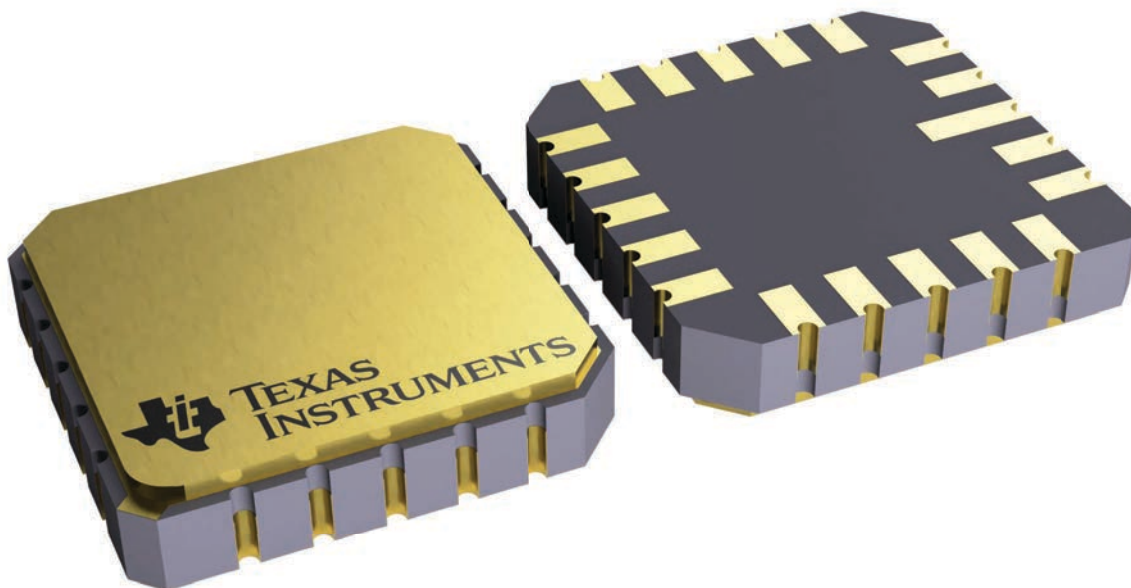
**FK 20**

**LCCC - 2.03 mm max height**

8.89 x 8.89, 1.27 mm pitch

LEADLESS CERAMIC CHIP CARRIER

This image is a representation of the package family, actual package may vary.  
Refer to the product data sheet for package details.



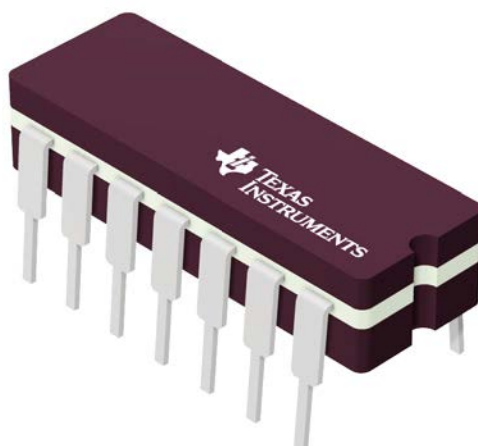
4229370VA\

**J 14**

## GENERIC PACKAGE VIEW

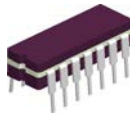
**CDIP - 5.08 mm max height**

CERAMIC DUAL IN LINE PACKAGE

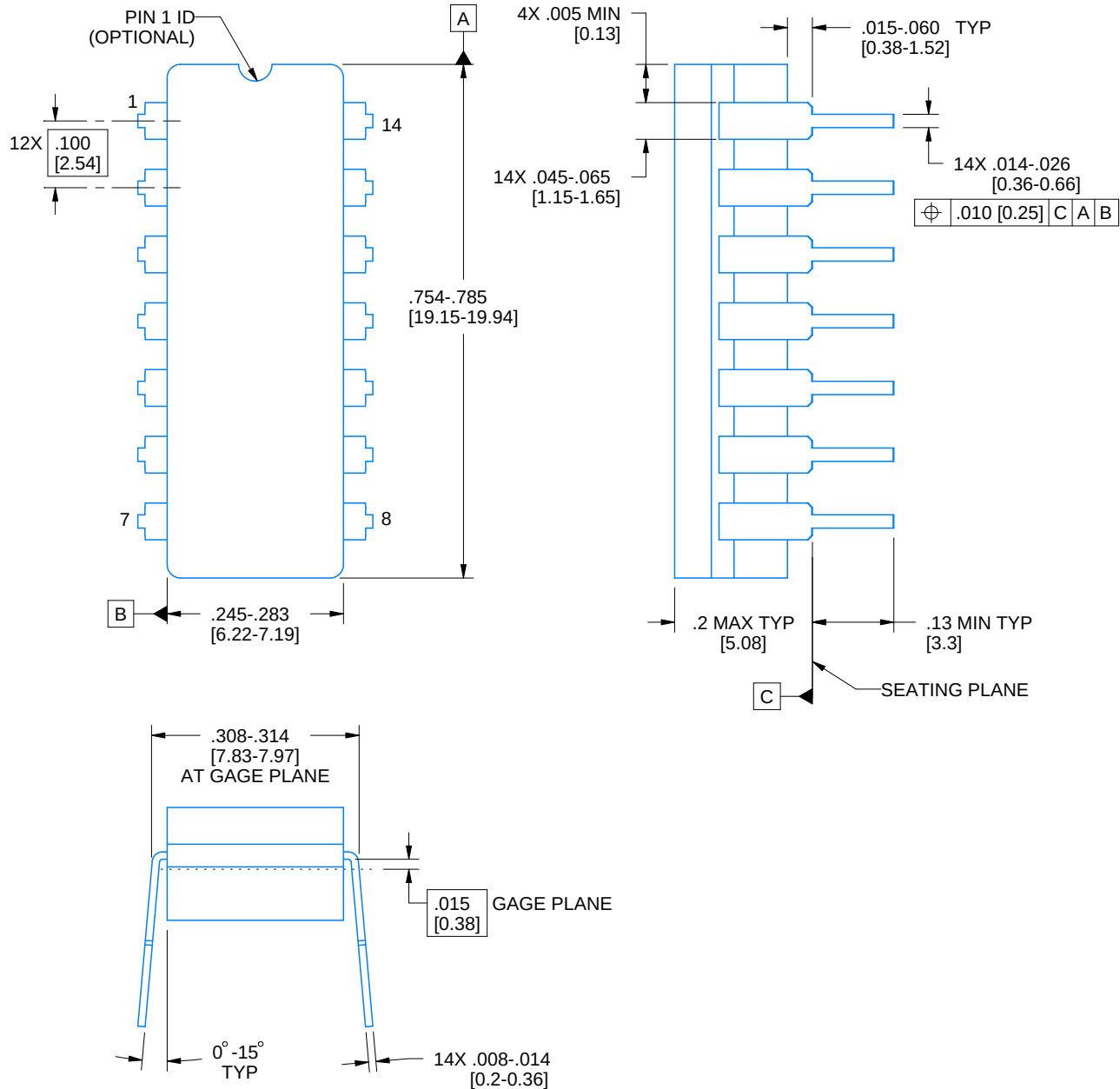


Images above are just a representation of the package family, actual package may vary.  
Refer to the product data sheet for package details.

4040083-5/G

**J0014A****PACKAGE OUTLINE****CDIP - 5.08 mm max height**

CERAMIC DUAL IN LINE PACKAGE



4214771/A 05/2017

**NOTES:**

1. All controlling linear dimensions are in inches. Dimensions in brackets are in millimeters. Any dimension in brackets or parenthesis are for reference only. Dimensioning and tolerancing per ASME Y14.5M.
2. This drawing is subject to change without notice.
3. This package is hermetically sealed with a ceramic lid using glass frit.
4. Index point is provided on cap for terminal identification only and on press ceramic glass frit seal only.
5. Falls within MIL-STD-1835 and GDIP1-T14.



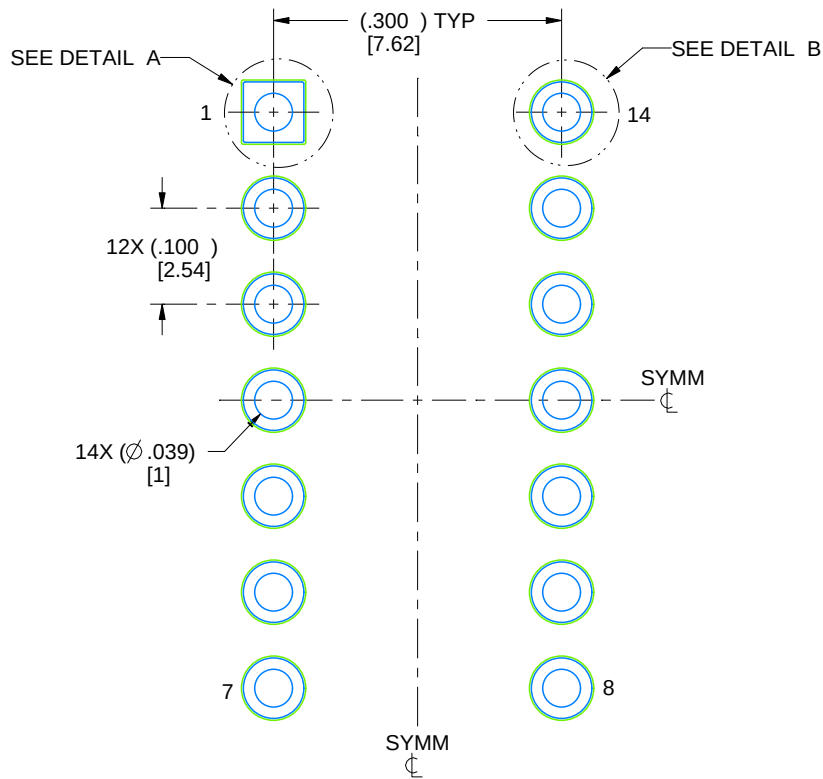
**TEXAS  
INSTRUMENTS**  
www.ti.com

# EXAMPLE BOARD LAYOUT

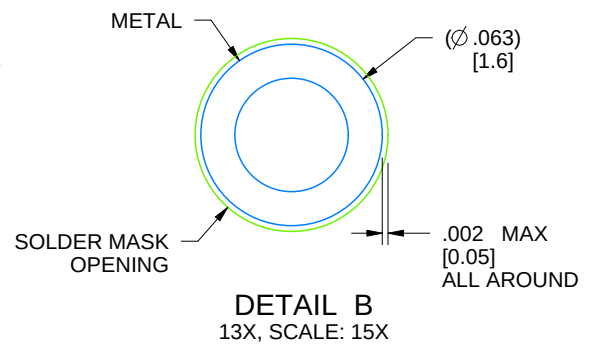
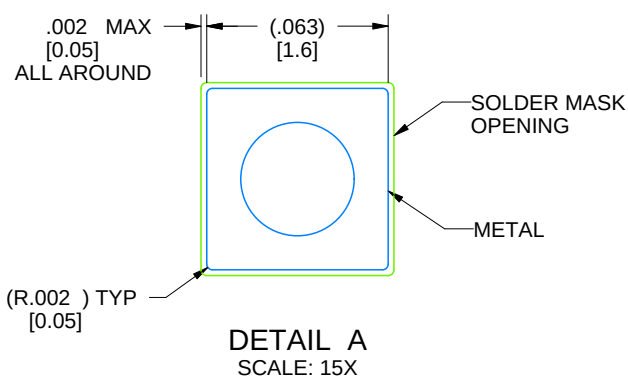
J0014A

CDIP - 5.08 mm max height

CERAMIC DUAL IN LINE PACKAGE



LAND PATTERN EXAMPLE  
NON-SOLDER MASK DEFINED  
SCALE: 5X

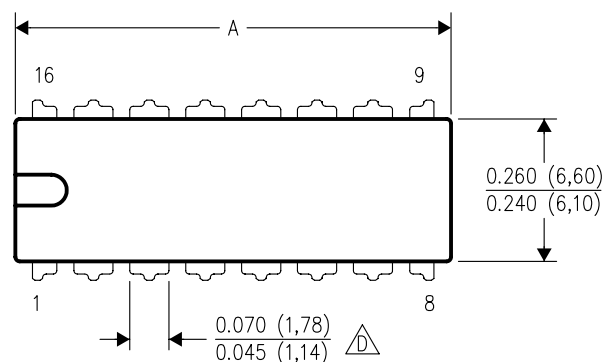


4214771/A 05/2017

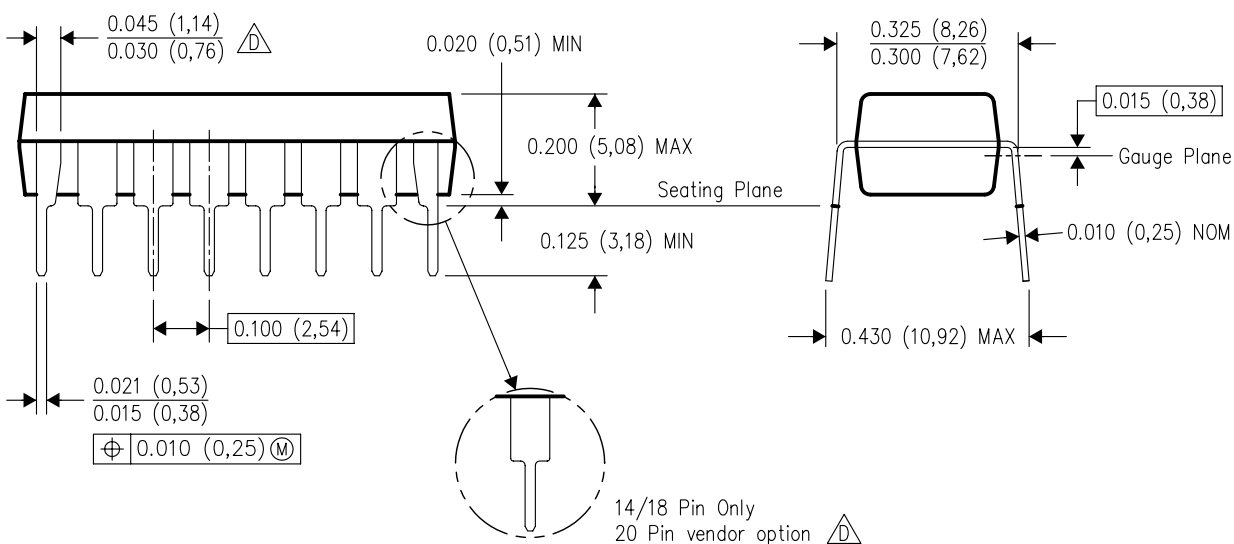
N (R-PDIP-T\*\*)

16 PINS SHOWN

## PLASTIC DUAL-IN-LINE PACKAGE



| PINS **<br>DIM      | 14               | 16               | 18               | 20               |
|---------------------|------------------|------------------|------------------|------------------|
| 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               |



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.



## IMPORTANT NOTICE AND DISCLAIMER

TI PROVIDES TECHNICAL AND RELIABILITY DATA (INCLUDING DATASHEETS), DESIGN RESOURCES (INCLUDING REFERENCE DESIGNS), APPLICATION OR OTHER DESIGN ADVICE, WEB TOOLS, SAFETY INFORMATION, AND OTHER RESOURCES "AS IS" AND WITH ALL FAULTS, AND DISCLAIMS ALL WARRANTIES, EXPRESS AND IMPLIED, INCLUDING WITHOUT LIMITATION ANY IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR NON-INFRINGEMENT OF THIRD PARTY INTELLECTUAL PROPERTY RIGHTS.

These resources are intended for skilled developers designing with TI products. You are solely responsible for (1) selecting the appropriate TI products for your application, (2) designing, validating and testing your application, and (3) ensuring your application meets applicable standards, and any other safety, security, regulatory or other requirements.

These resources are subject to change without notice. TI grants you permission to use these resources only for development of an application that uses the TI products described in the resource. Other reproduction and display of these resources is prohibited. No license is granted to any other TI intellectual property right or to any third party intellectual property right. TI disclaims responsibility for, and you fully indemnify TI and its representatives against any claims, damages, costs, losses, and liabilities arising out of your use of these resources.

TI's products are provided subject to [TI's Terms of Sale](#), [TI's General Quality Guidelines](#), or other applicable terms available either on [ti.com](http://ti.com) or provided in conjunction with such TI products. TI's provision of these resources does not expand or otherwise alter TI's applicable warranties or warranty disclaimers for TI products. Unless TI explicitly designates a product as custom or customer-specified, TI products are standard, catalog, general purpose devices.

TI objects to and rejects any additional or different terms you may propose.

Copyright © 2026, Texas Instruments Incorporated

Last updated 10/2025