

## SNx4AC10 三路 3 输入正与非门

### 1 特性

- 2V 至 6V  $V_{CC}$  运行
- 输入电压高达 6V
- $t_{pd}$  最大值为 6.5ns (5V 时)

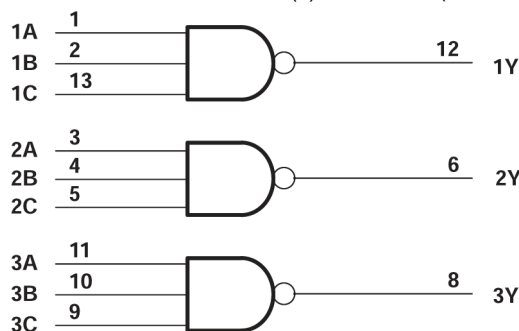
### 2 说明

'AC10 器件包含三个独立 3 输入与非门。此系列器件以正逻辑执行布尔函数  $Y = A \cdot B \cdot C$  或  $Y = \overline{A} + \overline{B} + \overline{C}$ 。

#### 器件信息

| 器件型号     | 封装 <sup>(1)</sup> | 封装尺寸 <sup>(2)</sup> | 本体尺寸 <sup>(3)</sup> |
|----------|-------------------|---------------------|---------------------|
| SNx4AC10 | DB ( SSOP , 14 )  | 6.2mm x 7.8mm       | 6.2mm x 5.3mm       |
|          | 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     |
|          | NS ( SO , 14 )    | 10.2mm x 7.8mm      | 10.3mm x 5.3mm      |
|          | PW ( TSSOP , 14 ) | 5mm x 6.4mm         | 5mm x 4.4mm         |

- (1) 如需了解更多信息, 请参阅[机械、封装和可订购信息](#)。  
 (2) 封装尺寸 (长 × 宽) 为标称值, 并包括引脚 (如适用)。  
 (3) 本体尺寸 (长 × 宽) 为标称值, 不包括引脚。



逻辑图, 每个逻辑门 (正逻辑)



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## 3 Pin Configuration and Functions

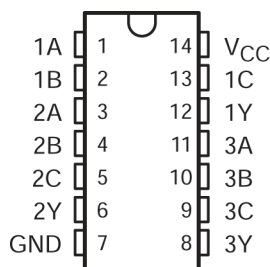


图 3-1. SN54AC10 J or W Package; SN74AC10 D, DB, N, NS, or PW Package (Top View)

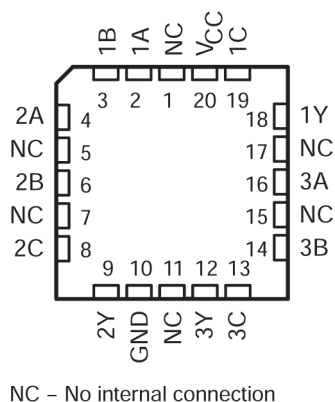


图 3-2. SN54AC10 FK Package (Top View)

表 3-1. Pin Functions

| PIN             |     | I/O    | DESCRIPTION         |
|-----------------|-----|--------|---------------------|
| NAME            | NO. |        |                     |
| 1A              | 1   | Input  | Channel 1, Input A  |
| 1B              | 2   | Input  | Channel 1, Input B  |
| 2A              | 3   | Input  | Channel 2, Input A  |
| 2B              | 4   | Input  | Channel 2, Input B  |
| 2C              | 5   | Input  | Channel 2, Input C  |
| 2Y              | 6   | Output | Channel 2, Output Y |
| GND             | 7   | —      | Ground              |
| 3Y              | 8   | Output | Channel 3, Output Y |
| 3C              | 9   | Input  | Channel 3, Input A  |
| 3B              | 10  | Input  | Channel 3, Input B  |
| 3A              | 11  | Input  | Channel 3, Input C  |
| 1Y              | 12  | Output | Channel 1, Output Y |
| 1C              | 13  | Input  | Channel 1, Input C  |
| 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         |
|----------------------|--------------------------------------------|--------------------------------------|----------------|--------------|
| $V_{CC}$             | Supply voltage range                       | - 0.5                                | 7              | V            |
| $V_I$ <sup>(2)</sup> | Input voltage range                        | - 0.5                                | $V_{CC} + 0.5$ | V            |
| $V_O$ <sup>(2)</sup> | Output voltage range                       | - 0.5                                | $V_{CC} + 0.5$ | V            |
| $I_{IK}$             | Input clamp current                        | $(V_I < 0 \text{ or } V_I > V_{CC})$ |                | $\pm 20$ mA  |
| $I_{OK}$             | Output clamp current                       | $(V_O < 0 \text{ or } V_O > V_{CC})$ |                | $\pm 20$ mA  |
| $I_O$                | Continuous output current                  | $(V_O = 0 \text{ or } V_{CC})$       |                | $\pm 50$ mA  |
|                      | Continuous current through $V_{CC}$ or GND |                                      |                | $\pm 200$ mA |
| $T_{stg}$            | 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 input and output voltage ratings may be exceeded if the input and output current ratings are observed.

### 4.2 Recommended Operating Conditions

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

|                 |                                    |                         | SN54AC10 |                 | SN74AC10 |                 | UNIT |
|-----------------|------------------------------------|-------------------------|----------|-----------------|----------|-----------------|------|
|                 |                                    |                         | MIN      | MAX             | MIN      | MAX             |      |
| V <sub>CC</sub> | Supply voltage                     |                         | 2        | 6               | 2        | 6               | V    |
| V <sub>IH</sub> | High-level input voltage           | V <sub>CC</sub> = 3 V   | 2.1      |                 | 2.1      |                 | V    |
|                 |                                    | V <sub>CC</sub> = 4.5 V | 1.15     |                 | 1.15     |                 |      |
|                 |                                    | V <sub>CC</sub> = 5.5 V | 1.85     |                 | 1.85     |                 |      |
| V <sub>IL</sub> | Low-level input voltage            | V <sub>CC</sub> = 3 V   |          | 0.9             |          | 0.9             | V    |
|                 |                                    | V <sub>CC</sub> = 4.5 V |          | 1.35            |          | 1.35            |      |
|                 |                                    | V <sub>CC</sub> = 5.5 V |          | 1.65            |          | 1.65            |      |
| V <sub>I</sub>  | Input voltage                      |                         | 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> | V    |
| I <sub>OH</sub> | High-level output current          | V <sub>CC</sub> = 3 V   |          | − 12            |          | − 12            | mA   |
|                 |                                    | V <sub>CC</sub> = 4.5 V |          | − 24            |          | − 24            |      |
|                 |                                    | V <sub>CC</sub> = 5.5 V |          | − 24            |          | − 24            |      |
| I <sub>OL</sub> | Low-level output current           | V <sub>CC</sub> = 3 V   |          | 12              |          | 12              | mA   |
|                 |                                    | V <sub>CC</sub> = 4.5 V |          | 24              |          | 24              |      |
|                 |                                    | V <sub>CC</sub> = 5.5 V |          | 24              |          | 24              |      |
| Δ t/ Δ v        | Input transition rise or fall rate |                         |          | 8               |          | 8               | ns/V |
| T <sub>A</sub>  | Operating free-air temperature     |                         | − 55     | 125             | − 40     | 85              | °C   |

(1) All unused inputs of the device must be held at  $V_{CC}$  or GND to ensure proper device operation. Refer to the TI application report, *Implications of Slow or Floating CMOS Inputs*, literature number SCBA004.

### 4.3 Thermal Information

| THERMAL METRIC <sup>(1)</sup> |                                        | SNx4AC10 |          |           |          |            | UNIT |
|-------------------------------|----------------------------------------|----------|----------|-----------|----------|------------|------|
|                               |                                        | N (PDIP) | D (SOIC) | DB (SSOP) | NS (SOP) | PW (TSSOP) |      |
|                               |                                        | 14 PINS  | 14 PINS  | 14 PINS   | 14 PINS  | 14 PINS    |      |
| $R_{\theta JA}$               | Junction-to-ambient thermal resistance | 80       | 119.9    | 96        | 76       | 145.7      | °C/W |

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

### 4.4 Electrical Characteristics

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

| PARAMETER | TEST CONDITIONS                  | $V_{CC}$ | $T_A = 25^\circ\text{C}$ |       |           | SN54AC10 |         | SN74AC10 |         | UNIT          |
|-----------|----------------------------------|----------|--------------------------|-------|-----------|----------|---------|----------|---------|---------------|
|           |                                  |          | MIN                      | TYP   | MAX       | MIN      | MAX     | MIN      | MAX     |               |
| $V_{OH}$  | $I_{OH} = -50\ \mu\text{A}$      | 3 V      | 2.9                      | 2.99  |           | 2.9      |         | 2.9      |         | V             |
|           |                                  | 4.5 V    | 4.4                      | 4.99  |           | 4.4      |         | 4.4      |         |               |
|           |                                  | 5.5 V    | 5.4                      | 5.49  |           | 5.4      |         | 5.4      |         |               |
|           | $I_{OH} = -12\ \text{mA}$        | 3 V      | 2.56                     |       |           | 2.4      |         | 2.46     |         |               |
|           |                                  | 4.5 V    | 3.86                     |       |           | 3.7      |         | 3.76     |         |               |
|           | $I_{OH} = -24\ \text{mA}$        | 5.5 V    | 4.86                     |       |           | 4.7      |         | 4.76     |         |               |
|           |                                  | 5.5 V    |                          |       |           | 3.85     |         |          |         |               |
| $V_{OL}$  | $I_{OL} = 50\ \mu\text{A}$       | 3 V      |                          | 0.002 | 0.1       |          | 0.1     |          | 0.1     | V             |
|           |                                  | 4.5 V    |                          | 0.001 | 0.1       |          | 0.1     |          | 0.1     |               |
|           |                                  | 5.5 V    |                          | 0.001 | 0.1       |          | 0.1     |          | 0.1     |               |
|           | $I_{OL} = 12\ \text{mA}$         | 3 V      |                          |       | 0.36      |          | 0.5     |          | 0.44    |               |
|           |                                  | 4.5 V    |                          |       | 0.36      |          | 0.5     |          | 0.44    |               |
|           | $I_{OL} = 24\ \text{mA}$         | 5.5 V    |                          |       | 0.36      |          | 0.5     |          | 0.44    |               |
|           |                                  | 5.5 V    |                          |       |           | 1.65     |         |          | 1.65    |               |
| $I_I$     | $V_I = V_{CC}$ or GND            | 5.5 V    |                          |       | $\pm 0.1$ |          | $\pm 1$ |          | $\pm 1$ | $\mu\text{A}$ |
| $I_{CC}$  | $V_I = V_{CC}$ or GND, $I_O = 0$ | 5.5 V    |                          |       | 2         |          | 80      |          | 20      | $\mu\text{A}$ |
| $C_i$     | $V_I = V_{CC}$ or GND            | 5 V      |                          | 2.6   |           |          |         |          |         | pF            |

(1) Not more than one output should be tested at a time, and the duration of the test should not exceed 10 ms.

### 4.5 Switching Characteristics, $V_{CC} = 3.3\ \text{V} \pm 0.3\ \text{V}$

over recommended operating free-air temperature range,  $V_{CC} = 3.3\ \text{V} \pm 0.3\ \text{V}$  (unless otherwise noted) (see [Load Circuit and Voltage Waveforms](#))

| PARAMETER | FROM (INPUT) | TO (OUTPUT) | $T_A = 25^\circ\text{C}$ |     |     | SN54AC10 |     | SN74AC10 |      | UNIT |
|-----------|--------------|-------------|--------------------------|-----|-----|----------|-----|----------|------|------|
|           |              |             | MIN                      | TYP | MAX | MIN      | MAX | MIN      | MAX  |      |
| $t_{PLH}$ | A, B, or C   | Y           | 1.5                      | 6   | 9.5 | 1        | 11  | 1        | 10.5 | ns   |
| $t_{PHL}$ |              |             | 1.5                      | 5.5 | 8.5 | 1        | 10  | 1        | 10   |      |

## 4.6 Switching Characteristics, $V_{CC} = 5\text{ V} \pm 0.5\text{ V}$

over recommended operating free-air temperature range,  $V_{CC} = 5\text{ V} \pm 0.5\text{ V}$  (unless otherwise noted) (see [Load Circuit and Voltage Waveforms](#))

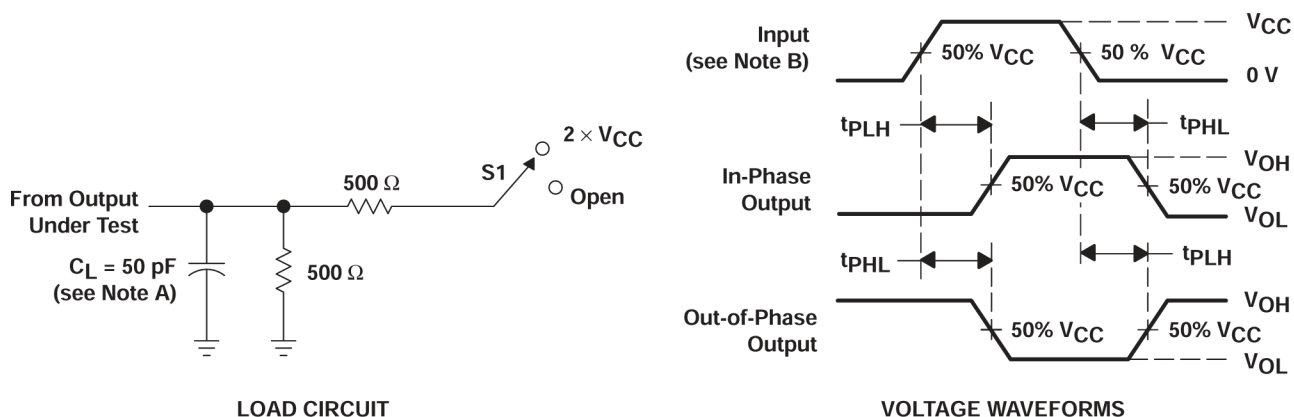
| PARAMETER | FROM (INPUT) | TO (OUTPUT) | $T_A = 25^\circ\text{C}$ |     |     | SN54AC10 |     | SN74AC10 |     | UNIT |
|-----------|--------------|-------------|--------------------------|-----|-----|----------|-----|----------|-----|------|
|           |              |             | MIN                      | TYP | MAX | MIN      | MAX | MIN      | MAX |      |
| $t_{PLH}$ | A, B, or C   | Y           | 1.5                      | 4.5 | 7   | 1        | 8.5 | 1        | 8   | ns   |
| $t_{PHL}$ |              |             | 1.5                      | 4   | 6   | 1        | 7   | 1        | 6.5 |      |

## 4.7 Operating Characteristics

$V_{CC} = 5\text{ V}$ ,  $T_A = 25^\circ\text{C}$

| PARAMETER |                               | TEST CONDITIONS                           | TYP | UNIT |
|-----------|-------------------------------|-------------------------------------------|-----|------|
| $C_{pd}$  | Power dissipation capacitance | $C_L = 50\text{ pF}$ , $f = 1\text{ MHz}$ | 25  | pF   |

## 5 Parameter Measurement Information



- A.  $C_L$  includes probe and jig capacitance.
- B. All input pulses are supplied by generators having the following characteristics:  $PRR \leq 1 \text{ MHz}$ ,  $Z_O = 50 \Omega$ ,  $t_r \leq 2.5 \text{ ns}$ ,  $t_f \leq 2.5 \text{ ns}$ .
- C. The outputs are measured one at a time with one input transition per measurement.

**图 5-1. Load Circuit and Voltage Waveforms**

| TEST              | S1   |
|-------------------|------|
| $t_{PLH}/t_{PHL}$ | Open |

6 Detailed Description

6.1 Functional Block Diagram

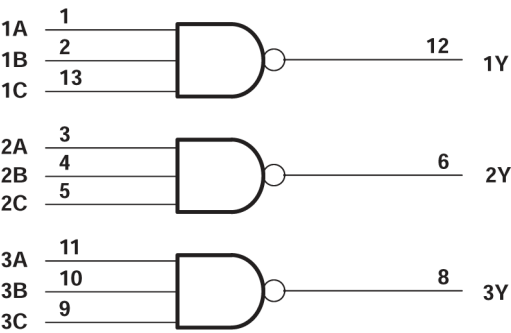


图 6-1. Logic Diagram, Each Gate (Positive Logic)

Pin numbers shown are for the D, DB, J, N, NS, PW, and W packages.

6.2 Device Functional Modes

表 6-1. Function Table (Each Gate)

| INPUTS |   |   | OUTPUT |
|--------|---|---|--------|
| A      | B | C | Y      |
| H      | H | H | L      |
| L      | X | X | H      |
| X      | L | X | H      |
| X      | X | L | H      |



## 7 Application and Implementation

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### 备注

以下应用部分中的信息不属于 TI 器件规格的范围，TI 不担保其准确性和完整性。TI 的客户应负责确定器件是否适用于其应用。客户应验证并测试其设计，以确保系统功能。

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### 7.1 Power Supply Recommendations

The power supply can be any voltage between the minimum and maximum supply voltage rating located in the [节 4.2](#). Each  $V_{CC}$  terminal should have a bypass capacitor to prevent power disturbance. A 0.1- $\mu$ F capacitor is recommended for this device. It is acceptable to parallel multiple bypass caps to reject different frequencies of noise. The 0.1- $\mu$ F and 1- $\mu$ F capacitors are commonly used in parallel. The bypass capacitor should be installed as close to the power terminal as possible for best results.

### 7.2 Layout

#### 7.2.1 Layout Guidelines

When using multiple-input and multiple-channel logic devices inputs must not ever be left floating. In many cases, functions or parts of functions of digital logic devices are unused; for example, when only two inputs of a triple-input AND gate are used. Such unused input pins must not be left unconnected because the undefined voltages at the outside connections result in undefined operational states. All unused inputs of digital logic devices must be connected to a logic high or logic low voltage, as defined by the input voltage specifications, to prevent them from floating. The logic level that must be applied to any particular unused input depends on the function of the device. Generally, the inputs are tied to GND or  $V_{CC}$ , whichever makes more sense for the logic function or is more convenient.

## 8 Device and Documentation Support

### 8.1 Documentation Support (Analog)

#### 8.1.1 Related Links

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.

| PARTS    | PRODUCT FOLDER             | SAMPLE & BUY               | TECHNICAL DOCUMENTS        | TOOLS & SOFTWARE           | SUPPORT & COMMUNITY        |
|----------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|
| SN54AC10 | <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> |
| SN74AC10 | <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 接收文档更新通知

要接收文档更新通知，请导航至 [ti.com](#) 上的器件产品文件夹。点击 [通知](#) 进行注册，即可每周接收产品信息更改摘要。有关更改的详细信息，请查看任何已修订文档中包含的修订历史记录。

### 8.3 支持资源

[TI E2E™ 中文支持论坛](#) 是工程师的重要参考资料，可直接从专家处获得快速、经过验证的解答和设计帮助。搜索现有解答或提出自己的问题，获得所需的快速设计帮助。

链接的内容由各个贡献者“按原样”提供。这些内容并不构成 TI 技术规范，并且不一定反映 TI 的观点；请参阅 TI 的 [使用条款](#)。

### 8.4 Trademarks

TI E2E™ is a trademark of Texas Instruments.

所有商标均为其各自所有者的财产。

### 8.5 静电放电警告



静电放电 (ESD) 会损坏这个集成电路。德州仪器 (TI) 建议通过适当的预防措施处理所有集成电路。如果不遵守正确的处理和安装程序，可能会损坏集成电路。

ESD 的损坏小至导致微小的性能降级，大至整个器件故障。精密的集成电路可能更容易受到损坏，这是因为非常细微的参数更改都可能会导致器件与其发布的规格不相符。

### 8.6 术语表

[TI 术语表](#) 本术语表列出并解释了术语、首字母缩略词和定义。

## 9 Revision History

注：以前版本的页码可能与当前版本的页码不同

| Changes from Revision D (October 2003) to Revision E (July 2024)                                                                                                                  | Page |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|
| • 添加了 <a href="#">器件信息表</a> 、 <a href="#">引脚功能表</a> 、 <a href="#">热性能信息表</a> 、 <a href="#">器件功能模式</a> 、“应用和实施”部分、 <a href="#">器件和文档支持部分</a> 以及 <a href="#">机械、封装和订购信息</a> 部分..... | 1    |
| • Updated R <sub>θJA</sub> values: D = 86 to 119.9, PW = 113 to 145.7, all values in °C/W.....                                                                                    | 5    |

## 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="#">5962-87610012A</a> | Active        | Production           | LCCC (FK)   20  | 55   TUBE             | No          | SNPB                                 | N/A for Pkg Type                  | -55 to 125   | 5962-<br>87610012A<br>SNJ54AC<br>10FK |
| <a href="#">5962-8761001CA</a> | Active        | Production           | CDIP (J)   14   | 25   TUBE             | No          | SNPB                                 | N/A for Pkg Type                  | -55 to 125   | 5962-8761001CA<br>SNJ54AC10J          |
| <a href="#">5962-8761001DA</a> | Active        | Production           | CFP (W)   14    | 25   TUBE             | No          | SNPB                                 | N/A for Pkg Type                  | -55 to 125   | 5962-8761001DA<br>SNJ54AC10W          |
| <a href="#">SN74AC10D</a>      | Obsolete      | Production           | SOIC (D)   14   | -                     | -           | Call TI                              | Call TI                           | -40 to 85    | AC10                                  |
| <a href="#">SN74AC10DBR</a>    | Active        | Production           | SSOP (DB)   14  | 2000   LARGE T&R      | Yes         | NIPDAU                               | Level-1-260C-UNLIM                | -40 to 85    | AC10                                  |
| SN74AC10DBR.A                  | Active        | Production           | SSOP (DB)   14  | 2000   LARGE T&R      | Yes         | NIPDAU                               | Level-1-260C-UNLIM                | -40 to 85    | AC10                                  |
| <a href="#">SN74AC10DR</a>     | Active        | Production           | SOIC (D)   14   | 2500   LARGE T&R      | Yes         | NIPDAU   NIPDAU                      | Level-1-260C-UNLIM                | -40 to 85    | AC10                                  |
| SN74AC10DR.A                   | Active        | Production           | SOIC (D)   14   | 2500   LARGE T&R      | Yes         | NIPDAU                               | Level-1-260C-UNLIM                | -40 to 85    | AC10                                  |
| <a href="#">SN74AC10N</a>      | Active        | Production           | PDIP (N)   14   | 25   TUBE             | Yes         | NIPDAU                               | N/A for Pkg Type                  | -40 to 85    | SN74AC10N                             |
| SN74AC10N.A                    | Active        | Production           | PDIP (N)   14   | 25   TUBE             | Yes         | NIPDAU                               | N/A for Pkg Type                  | -40 to 85    | SN74AC10N                             |
| <a href="#">SN74AC10NSR</a>    | Active        | Production           | SOP (NS)   14   | 2000   LARGE T&R      | Yes         | NIPDAU                               | Level-1-260C-UNLIM                | -40 to 85    | AC10                                  |
| SN74AC10NSR.A                  | Active        | Production           | SOP (NS)   14   | 2000   LARGE T&R      | Yes         | NIPDAU                               | Level-1-260C-UNLIM                | -40 to 85    | AC10                                  |
| <a href="#">SN74AC10PW</a>     | Obsolete      | Production           | TSSOP (PW)   14 | -                     | -           | Call TI                              | Call TI                           | -40 to 85    | AC10                                  |
| <a href="#">SN74AC10PWR</a>    | Active        | Production           | TSSOP (PW)   14 | 2000   LARGE T&R      | Yes         | NIPDAU   SN                          | Level-1-260C-UNLIM                | -40 to 85    | AC10                                  |
| SN74AC10PWR.A                  | Active        | Production           | TSSOP (PW)   14 | 2000   LARGE T&R      | Yes         | NIPDAU                               | Level-1-260C-UNLIM                | -40 to 85    | AC10                                  |
| <a href="#">SNJ54AC10FK</a>    | Active        | Production           | LCCC (FK)   20  | 55   TUBE             | No          | SNPB                                 | N/A for Pkg Type                  | -55 to 125   | 5962-<br>87610012A<br>SNJ54AC<br>10FK |
| SNJ54AC10FK.A                  | Active        | Production           | LCCC (FK)   20  | 55   TUBE             | No          | SNPB                                 | N/A for Pkg Type                  | -55 to 125   | 5962-<br>87610012A<br>SNJ54AC<br>10FK |
| <a href="#">SNJ54AC10J</a>     | Active        | Production           | CDIP (J)   14   | 25   TUBE             | No          | SNPB                                 | N/A for Pkg Type                  | -55 to 125   | 5962-8761001CA<br>SNJ54AC10J          |
| SNJ54AC10J.A                   | Active        | Production           | CDIP (J)   14   | 25   TUBE             | No          | SNPB                                 | N/A for Pkg Type                  | -55 to 125   | 5962-8761001CA<br>SNJ54AC10J          |

| 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="#">SNJ54AC10W</a> | Active        | Production           | CFP (W)   14   | 25   TUBE             | No          | SNPB                                 | N/A for Pkg Type                  | -55 to 125   | 5962-8761001DA<br>SNJ54AC10W |
| SNJ54AC10W.A               | Active        | Production           | CFP (W)   14   | 25   TUBE             | No          | SNPB                                 | N/A for Pkg Type                  | -55 to 125   | 5962-8761001DA<br>SNJ54AC10W |

<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 SN54AC10, SN74AC10 :

- Catalog : [SN74AC10](#)

- Military : [SN54AC10](#)

NOTE: Qualified Version Definitions:

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

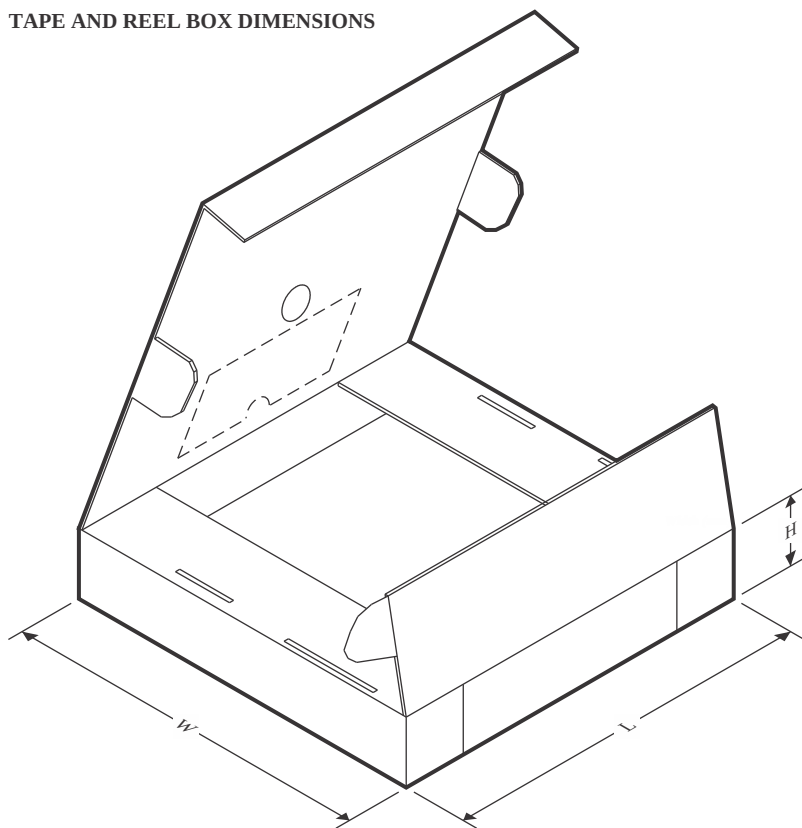
## TAPE AND REEL INFORMATION



\*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 |
|-------------|--------------|-----------------|------|------|--------------------|--------------------|---------|---------|---------|---------|--------|---------------|
| SN74AC10DBR | SSOP         | DB              | 14   | 2000 | 330.0              | 16.4               | 8.35    | 6.6     | 2.4     | 12.0    | 16.0   | Q1            |
| SN74AC10DR  | SOIC         | D               | 14   | 2500 | 330.0              | 16.4               | 6.5     | 9.0     | 2.1     | 8.0     | 16.0   | Q1            |
| SN74AC10DR  | SOIC         | D               | 14   | 2500 | 330.0              | 16.4               | 6.5     | 9.0     | 2.1     | 8.0     | 16.0   | Q1            |
| SN74AC10NSR | SOP          | NS              | 14   | 2000 | 330.0              | 16.4               | 8.2     | 10.5    | 2.5     | 12.0    | 16.0   | Q1            |
| SN74AC10PWR | TSSOP        | PW              | 14   | 2000 | 330.0              | 12.4               | 6.9     | 5.6     | 1.6     | 8.0     | 12.0   | Q1            |
| SN74AC10PWR | TSSOP        | PW              | 14   | 2000 | 330.0              | 12.4               | 6.9     | 5.6     | 1.6     | 8.0     | 12.0   | Q1            |

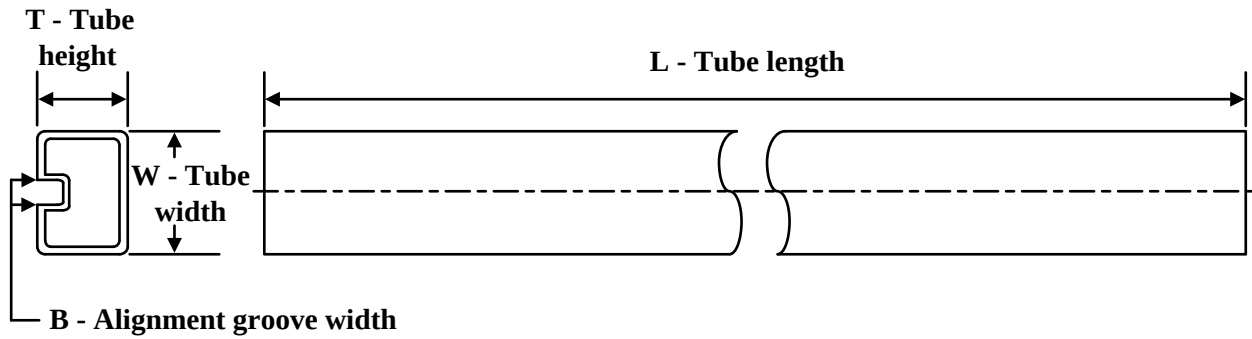
## TAPE AND REEL BOX DIMENSIONS



\*All dimensions are nominal

| Device      | Package Type | Package Drawing | Pins | SPQ  | Length (mm) | Width (mm) | Height (mm) |
|-------------|--------------|-----------------|------|------|-------------|------------|-------------|
| SN74AC10DBR | SSOP         | DB              | 14   | 2000 | 356.0       | 356.0      | 35.0        |
| SN74AC10DR  | SOIC         | D               | 14   | 2500 | 353.0       | 353.0      | 32.0        |
| SN74AC10DR  | SOIC         | D               | 14   | 2500 | 356.0       | 356.0      | 35.0        |
| SN74AC10NSR | SOP          | NS              | 14   | 2000 | 356.0       | 356.0      | 35.0        |
| SN74AC10PWR | TSSOP        | PW              | 14   | 2000 | 353.0       | 353.0      | 32.0        |
| SN74AC10PWR | TSSOP        | PW              | 14   | 2000 | 356.0       | 356.0      | 35.0        |

## TUBE



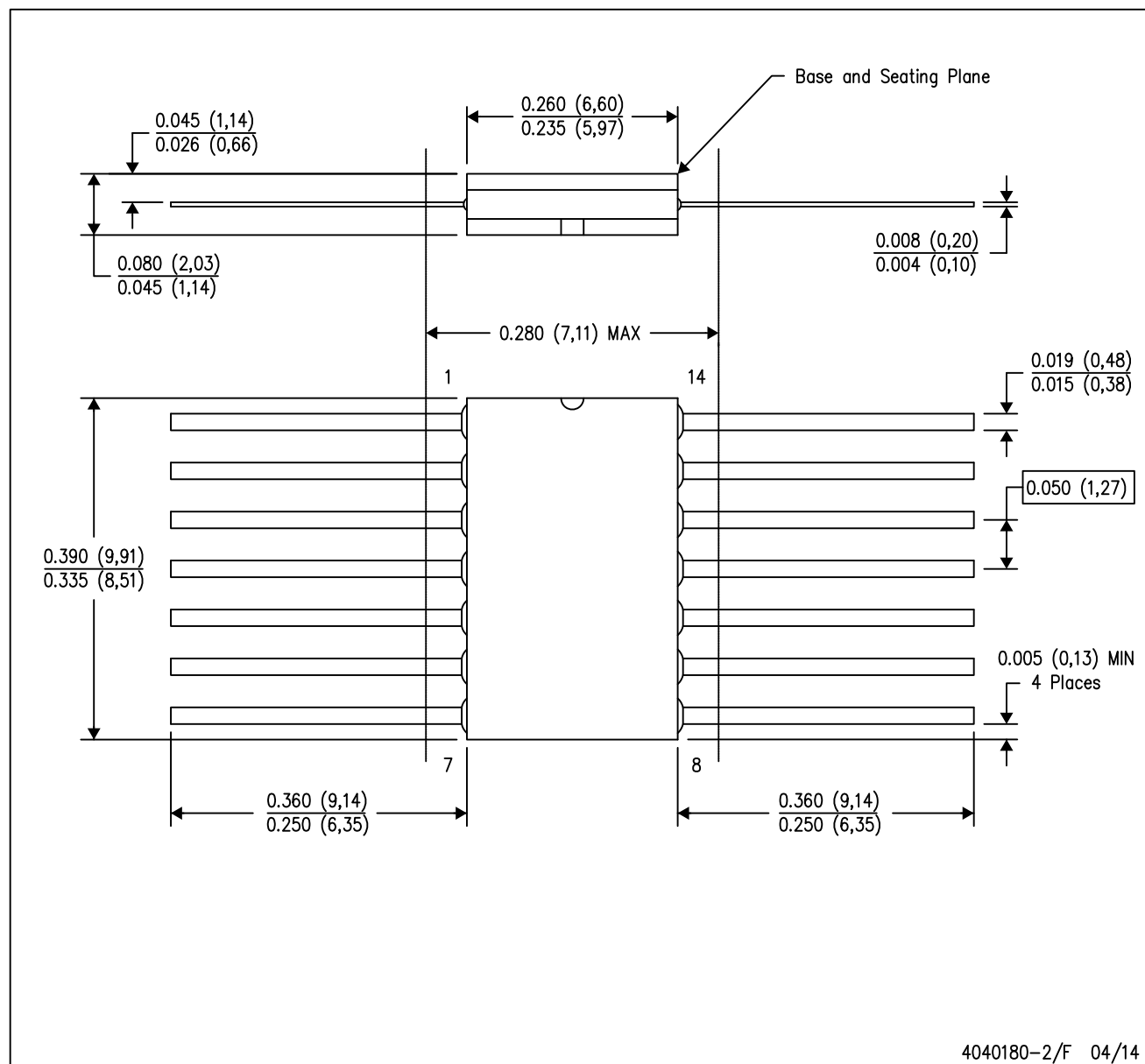
\*All dimensions are nominal

| Device         | Package Name | Package Type | Pins | SPQ | L (mm) | W (mm) | T (μm) | B (mm) |
|----------------|--------------|--------------|------|-----|--------|--------|--------|--------|
| 5962-87610012A | FK           | LCCC         | 20   | 55  | 506.98 | 12.06  | 2030   | NA     |
| 5962-8761001DA | W            | CFP          | 14   | 25  | 506.98 | 26.16  | 6220   | NA     |
| SN74AC10N      | N            | PDIP         | 14   | 25  | 506    | 13.97  | 11230  | 4.32   |
| SN74AC10N      | N            | PDIP         | 14   | 25  | 506    | 13.97  | 11230  | 4.32   |
| SN74AC10N.A    | N            | PDIP         | 14   | 25  | 506    | 13.97  | 11230  | 4.32   |
| SN74AC10N.A    | N            | PDIP         | 14   | 25  | 506    | 13.97  | 11230  | 4.32   |
| SNJ54AC10FK    | FK           | LCCC         | 20   | 55  | 506.98 | 12.06  | 2030   | NA     |
| SNJ54AC10FK.A  | FK           | LCCC         | 20   | 55  | 506.98 | 12.06  | 2030   | NA     |
| SNJ54AC10W     | W            | CFP          | 14   | 25  | 506.98 | 26.16  | 6220   | NA     |
| SNJ54AC10W.A   | W            | CFP          | 14   | 25  | 506.98 | 26.16  | 6220   | NA     |



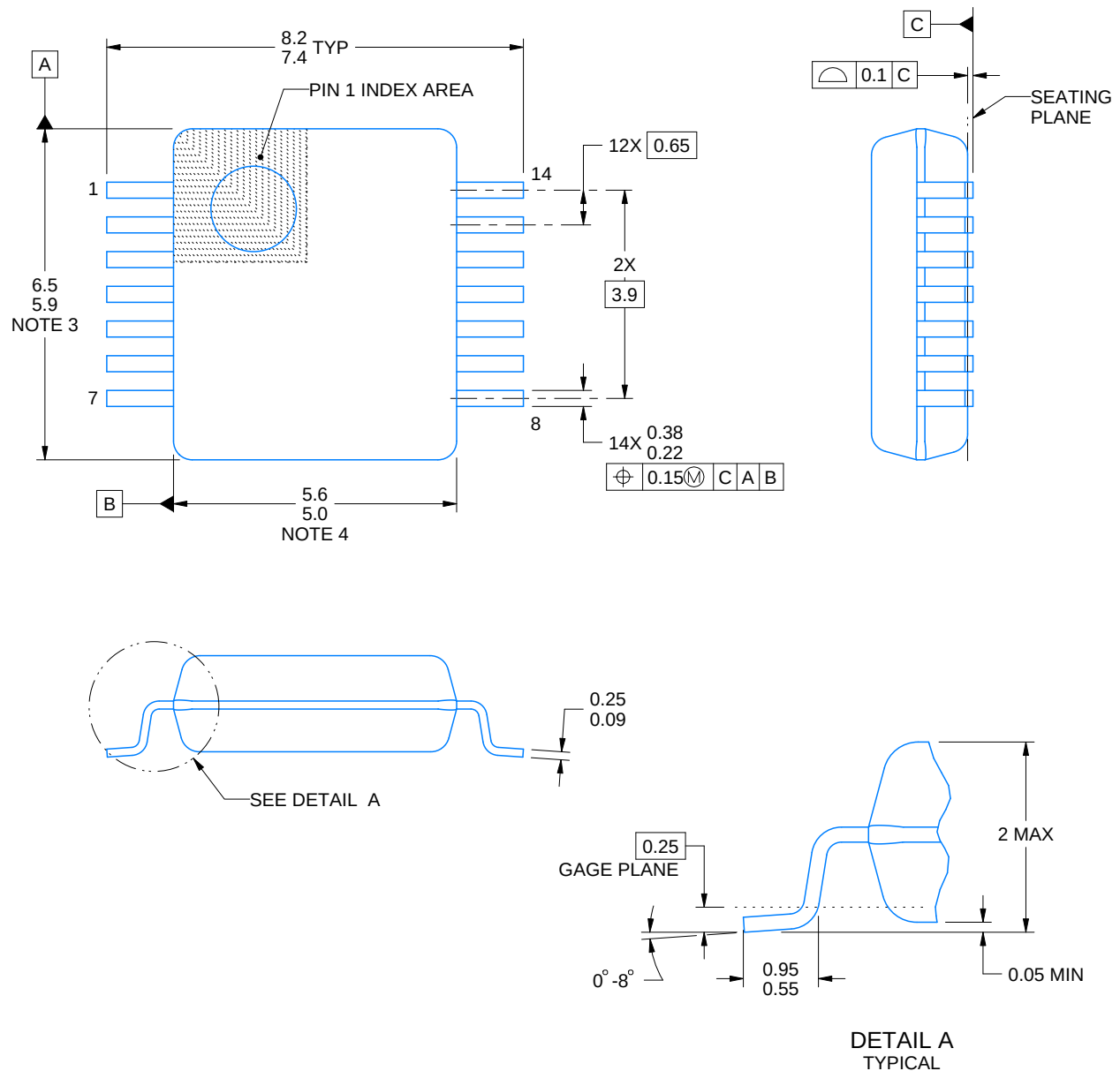
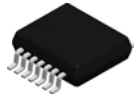
W (R-GDFP-F14)

CERAMIC DUAL FLATPACK



NOTES:

- A. All linear dimensions are in inches (millimeters).
- B. This drawing is subject to change without notice.
- C. This package can be hermetically sealed with a ceramic lid using glass frit.
- D. Index point is provided on cap for terminal identification only.
- E. Falls within MIL STD 1835 GDFP1-F14



4220762/A 05/2024

## NOTES:

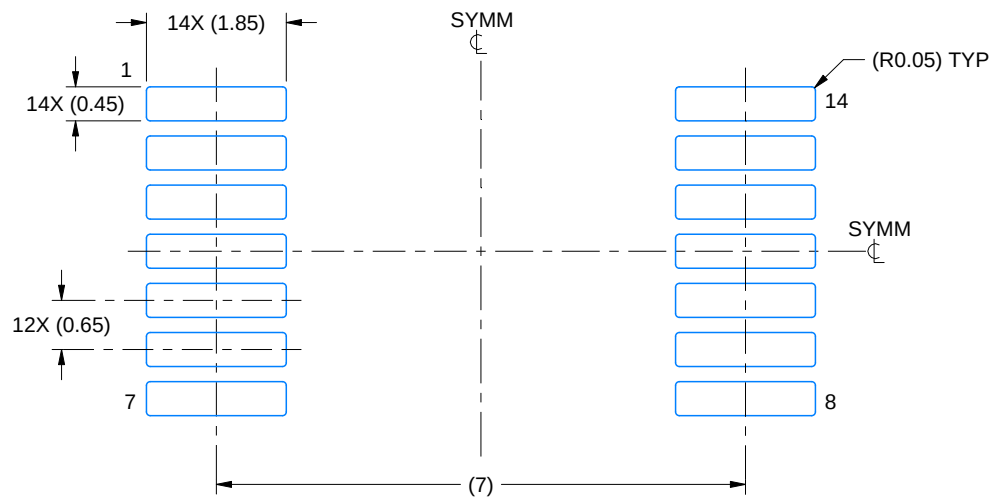
1. All linear dimensions are in millimeters. Any dimensions in parenthesis are for reference only. Dimensioning and tolerancing per ASME Y14.5M.
2. This drawing is subject to change without notice.
3. This dimension does not include mold flash, protrusions, or gate burrs. Mold flash, protrusions, or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

# EXAMPLE BOARD LAYOUT

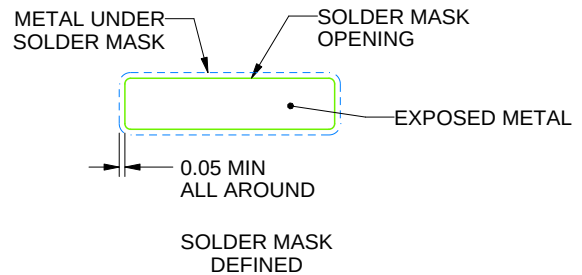
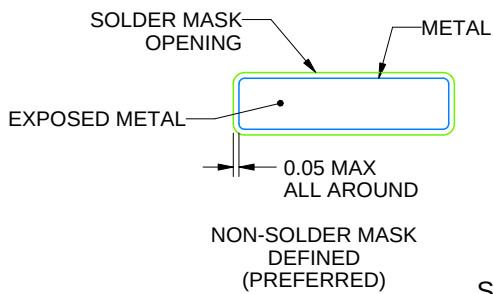
DB0014A

SSOP - 2 mm max height

SMALL OUTLINE PACKAGE



LAND PATTERN EXAMPLE  
EXPOSED METAL SHOWN  
SCALE: 10X



SOLDER MASK DETAILS

4220762/A 05/2024

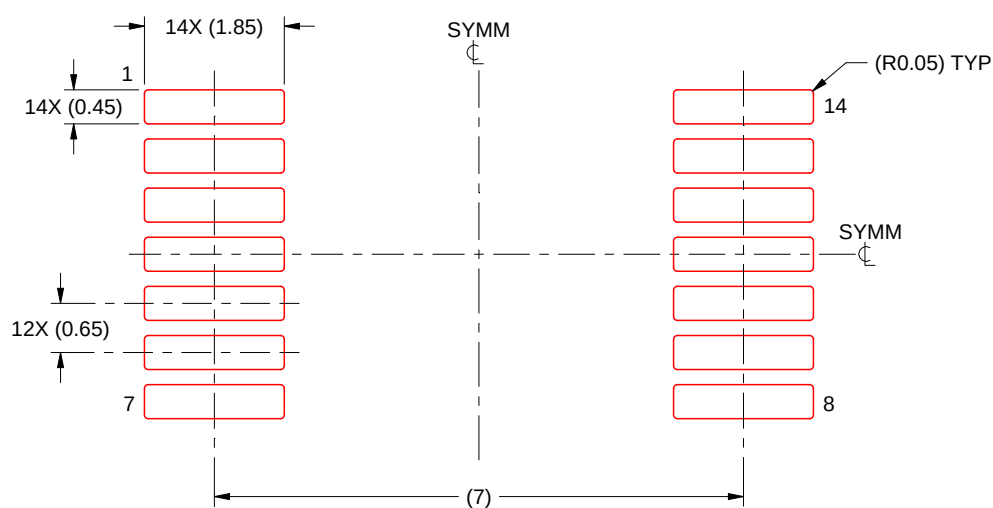
NOTES: (continued)

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

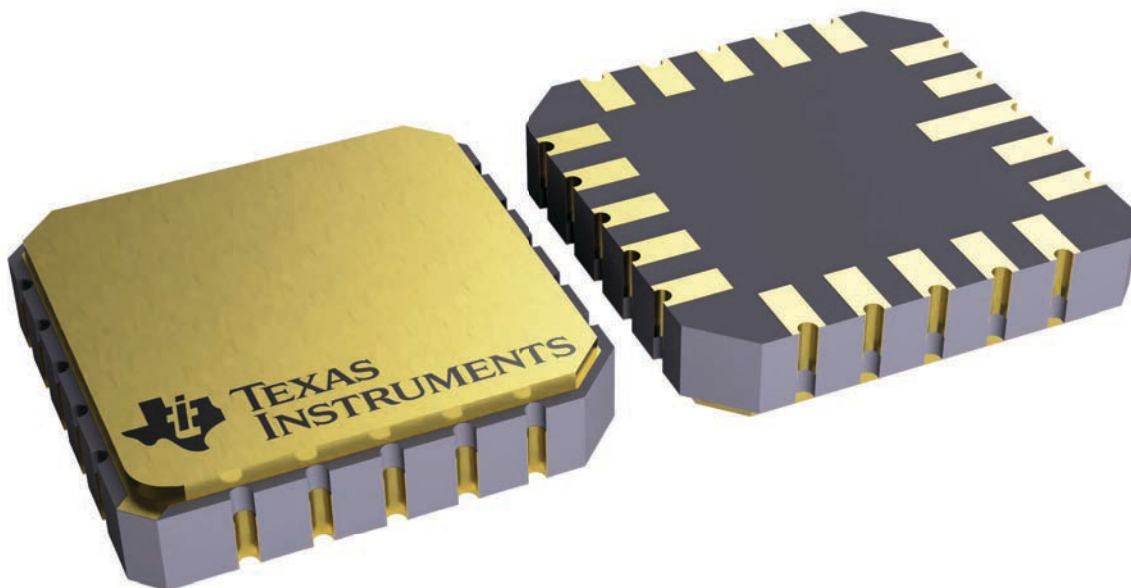
**FK 20**

**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.



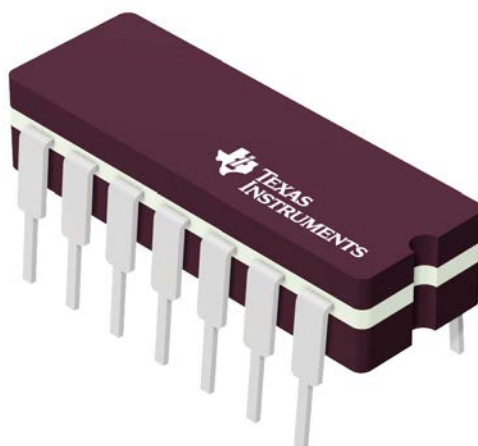
4229370VA\

**J 14**

## GENERIC PACKAGE VIEW

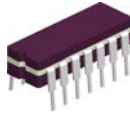
**CDIP - 5.08 mm max height**

CERAMIC DUAL IN LINE PACKAGE

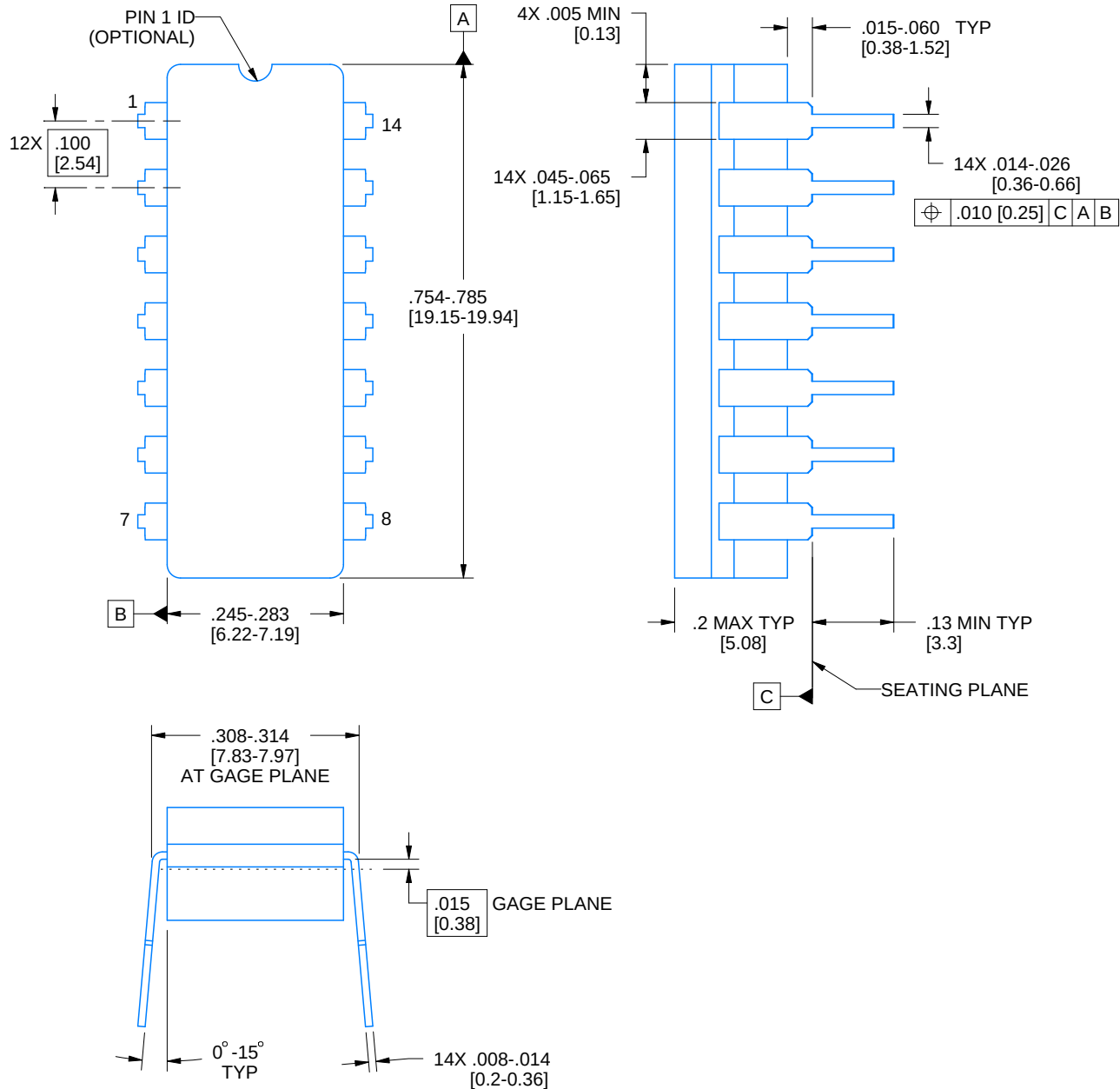


Images above are just a representation of the package family, actual package may vary.  
Refer to the product data sheet for package details.

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.



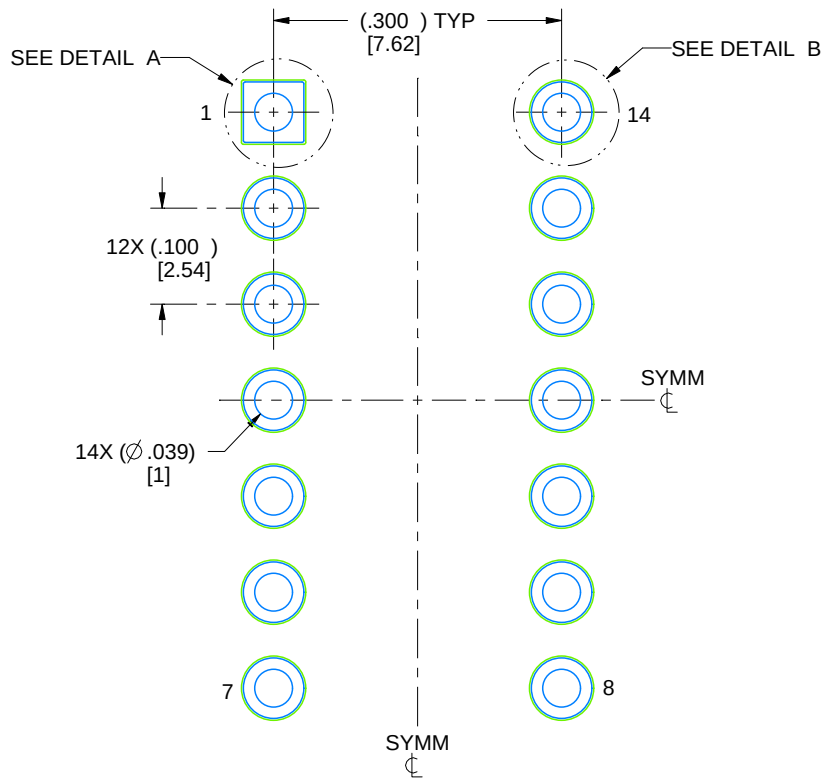
**TEXAS  
INSTRUMENTS**  
www.ti.com

# EXAMPLE BOARD LAYOUT

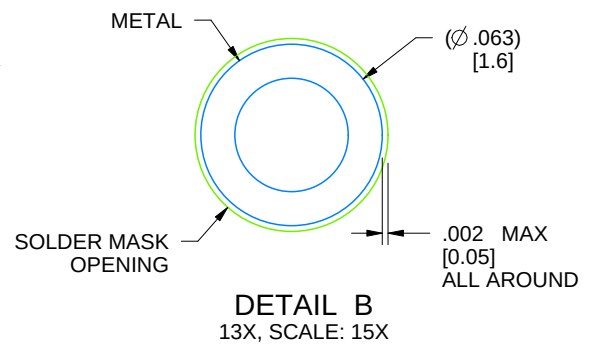
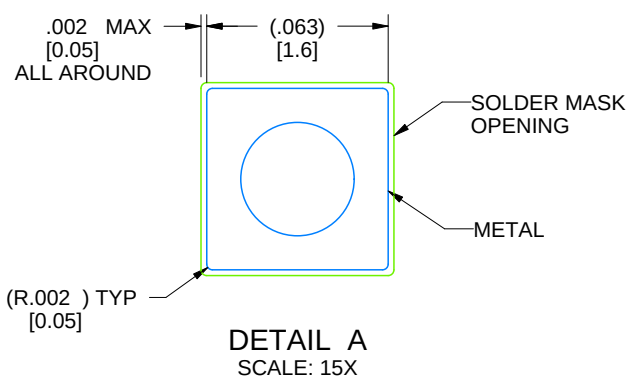
J0014A

CDIP - 5.08 mm max height

CERAMIC DUAL IN LINE PACKAGE



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



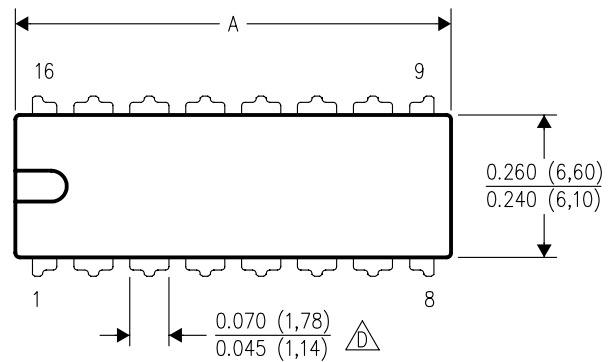
4214771/A 05/2017



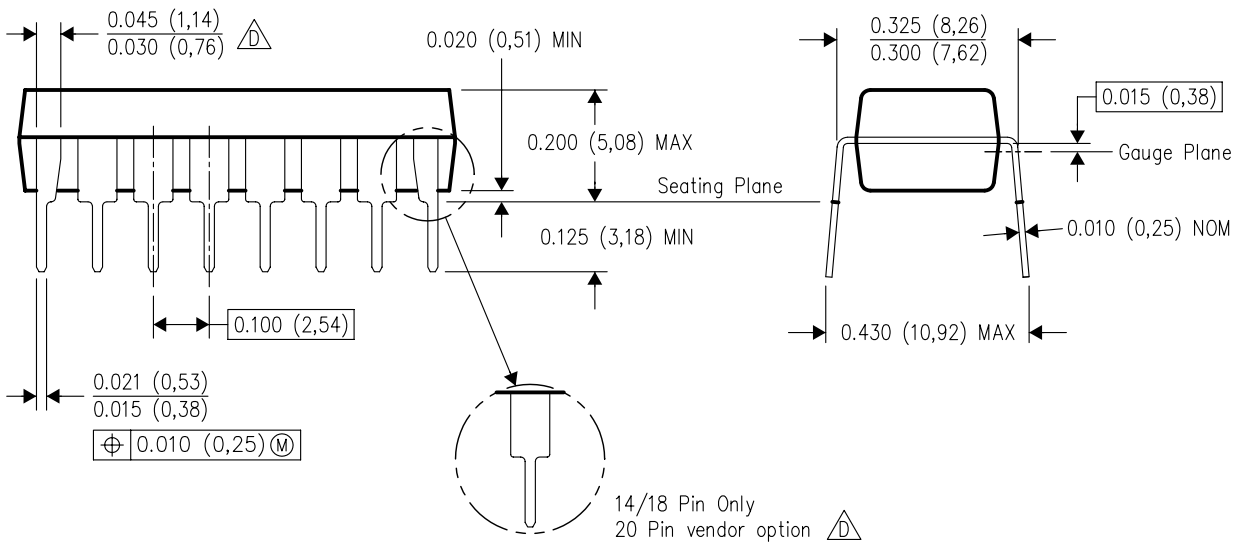
## N (R-PDIP-T\*\*)

16 PINS SHOWN

## PLASTIC DUAL-IN-LINE PACKAGE



| PINS **             | 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.

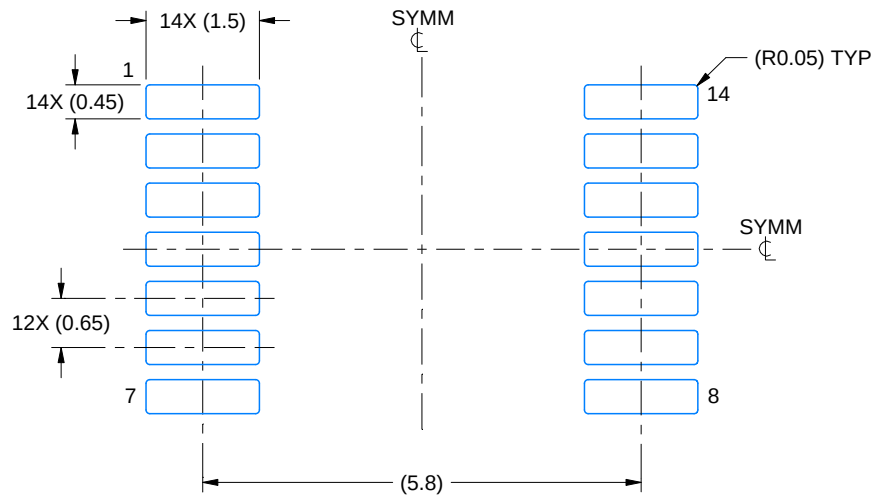


# EXAMPLE BOARD LAYOUT

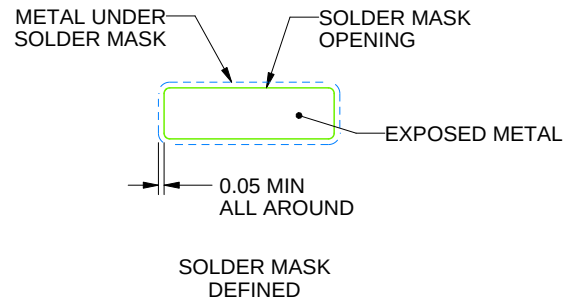
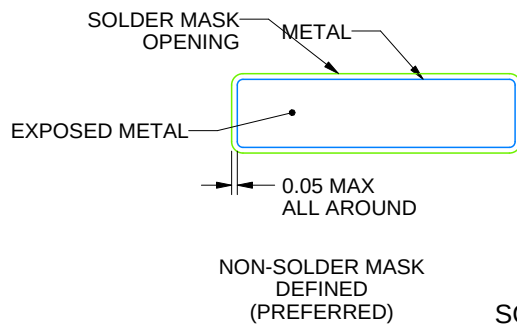
PW0014A

TSSOP - 1.2 mm max height

SMALL OUTLINE PACKAGE



LAND PATTERN EXAMPLE  
EXPOSED METAL SHOWN  
SCALE: 10X



SOLDER MASK DETAILS

4220202/B 12/2023

NOTES: (continued)

6. Publication IPC-7351 may have alternate designs.

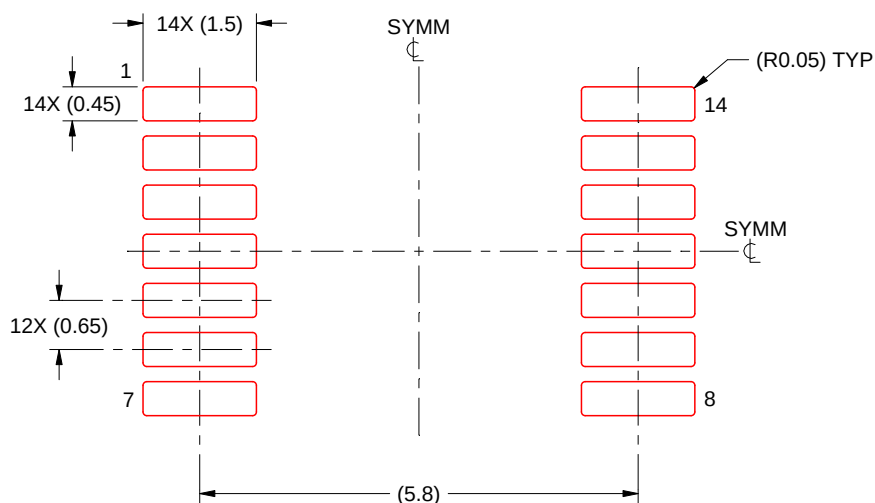
7. Solder mask tolerances between and around signal pads can vary based on board fabrication site.

# EXAMPLE STENCIL DESIGN

PW0014A

TSSOP - 1.2 mm max height

SMALL OUTLINE PACKAGE

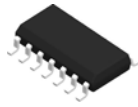


SOLDER PASTE EXAMPLE  
BASED ON 0.125 mm THICK STENCIL  
SCALE: 10X

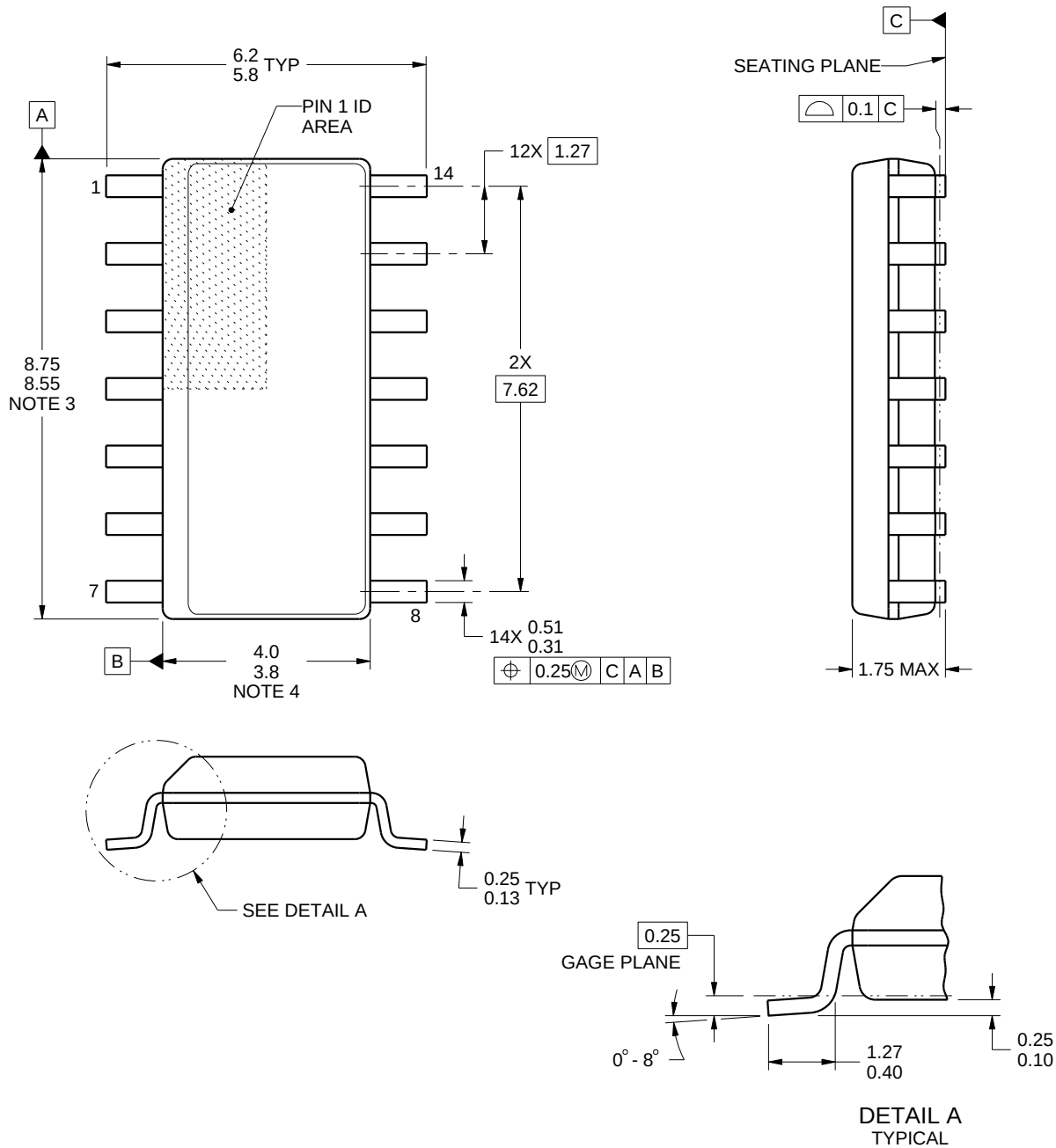
4220202/B 12/2023

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.

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

SMALL OUTLINE INTEGRATED CIRCUIT



4220718/A 09/2016

**NOTES:**

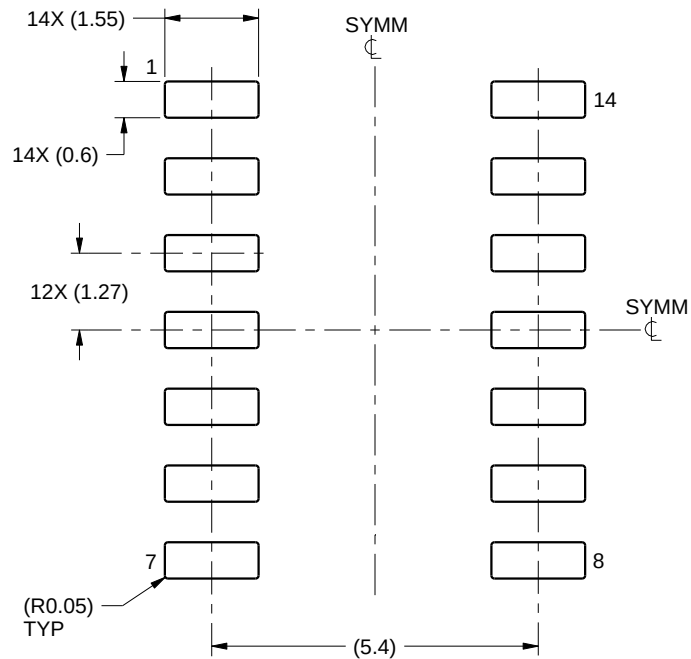
1. All linear dimensions are in millimeters. Dimensions in parenthesis are for reference only. Dimensioning and tolerancing per ASME Y14.5M.
2. This drawing is subject to change without notice.
3. This dimension does not include mold flash, protrusions, or gate burrs. Mold flash, protrusions, or gate 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.

# EXAMPLE BOARD LAYOUT

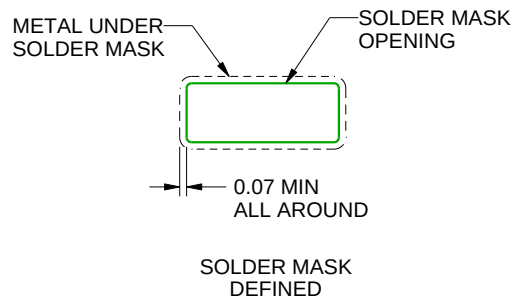
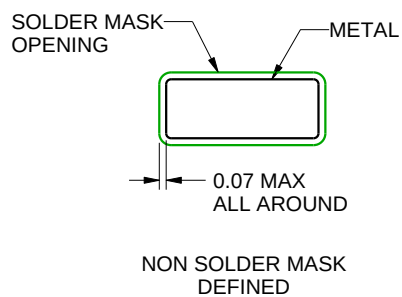
D0014A

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.

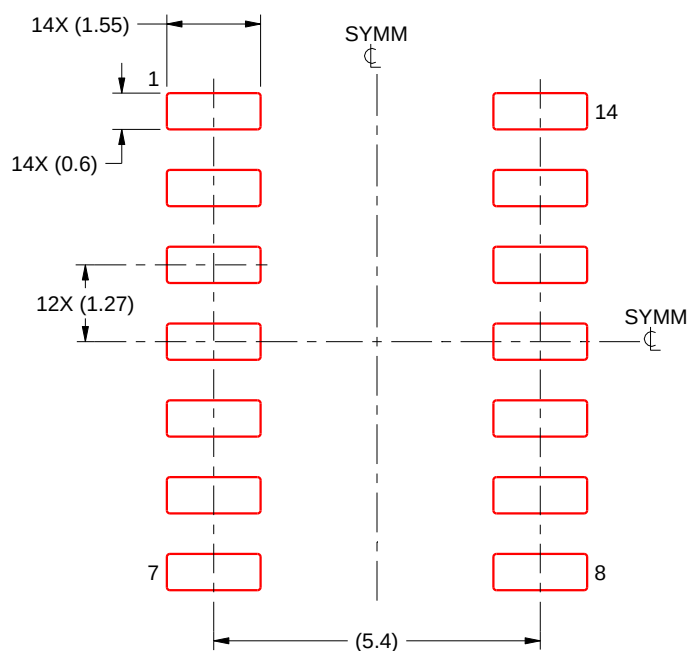
7. Solder mask tolerances between and around signal pads can vary based on board fabrication site.

## 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)

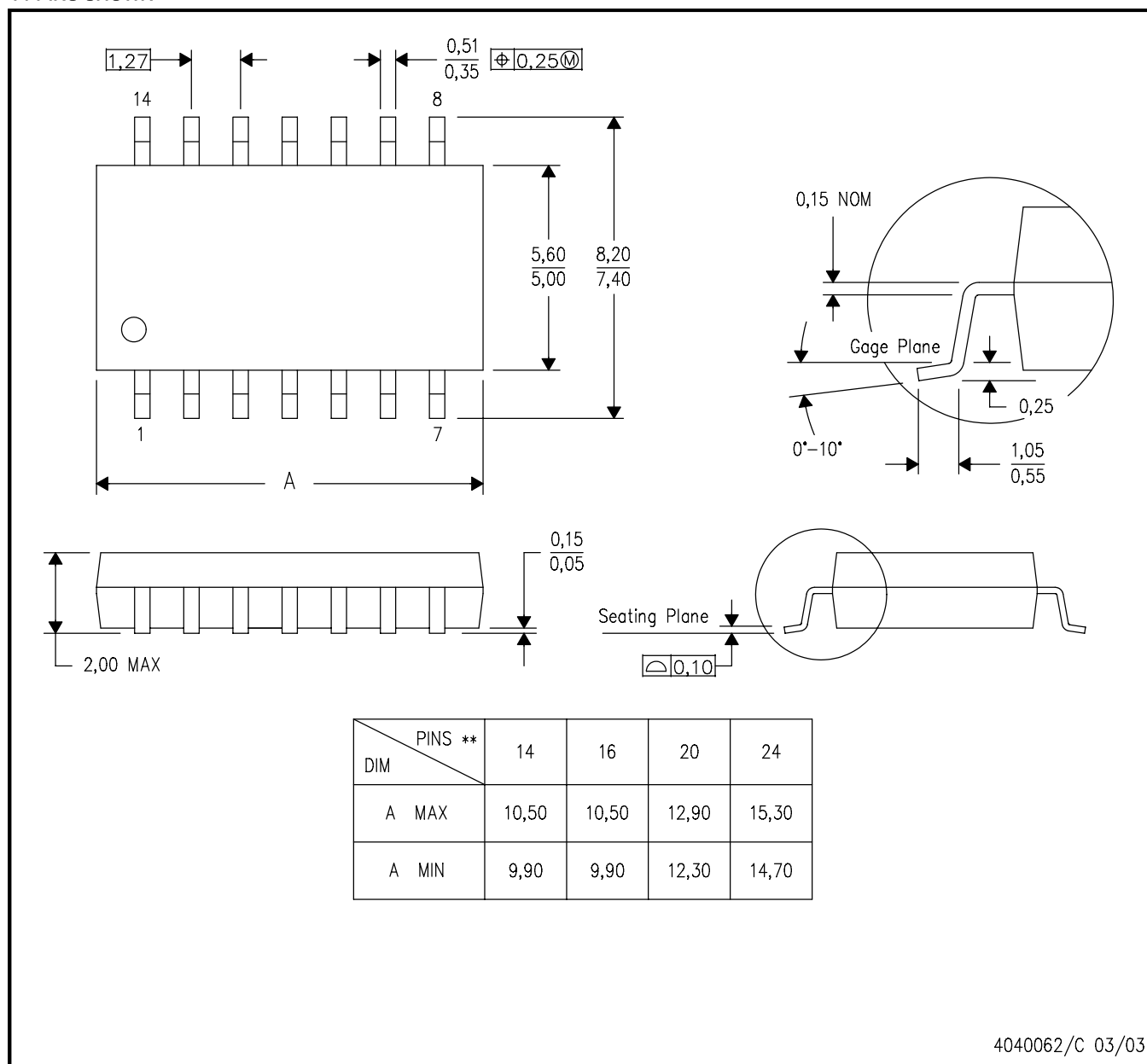
8. Laser cutting apertures with trapezoidal walls and rounded corners may offer better paste release. IPC-7525 may have alternate design recommendations.
9. Board assembly site may have different recommendations for stencil design.

# MECHANICAL DATA

NS (R-PDSO-G\*\*)

PLASTIC SMALL-OUTLINE PACKAGE

14-PINS SHOWN



- NOTES:
- All linear dimensions are in millimeters.
  - This drawing is subject to change without notice.
  - Body dimensions do not include mold flash or protrusion, not to exceed 0,15.



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