

## SN74AC573 Octal D-type Transparent Latches with 3-State Outputs

### 1 Features

- Operation of 2 V to 6 V  $V_{CC}$
- Inputs accept voltages to 6 V
- Maximum  $t_{pd}$  of 9 ns at 5 V
- 3-State outputs drive bus lines directly

### 2 Applications

- Buffer registers
- Bidirectional bus drivers
- Working registers

### 3 Description

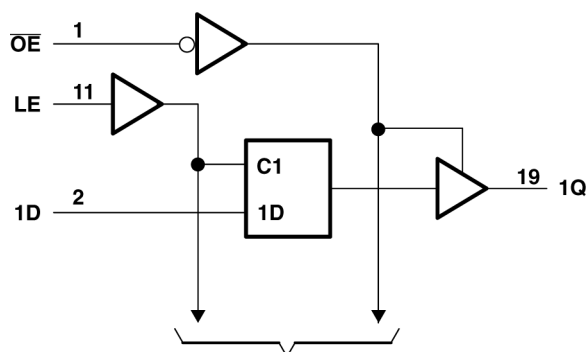
These 8-bit latches feature 3-state outputs designed specifically for driving highly capacitive or relatively low-impedance loads. The devices are particularly suitable for implementing buffer registers, I/O ports, bidirectional bus drivers, and working registers.

#### Package Information

| PART NUMBER | PACKAGE <sup>(1)</sup> | PACKAGE SIZE <sup>(2)</sup> |
|-------------|------------------------|-----------------------------|
| SN74AC573   | RKS (VQFN, 20)         | 4.5 mm × 2.5 mm             |
|             | DB (SSOP, 20)          | 7.2 mm × 7.8 mm             |
|             | DGV (TVSOP, 20)        | 5 mm × 6.4 mm               |
|             | DW (SOIC, 20)          | 12.8 mm × 10.3 mm           |
|             | NS (SOP, 20)           | 12.6 mm × 7.8 mm            |
|             | N (PDIP, 20)           | 24.33 mm × 9.4 mm           |
|             | PW (TSSOP, 20)         | 6.5 mm × 6.4 mm             |

(1) For more information, see [Section 10](#).

(2) The package size (length × width) is a nominal value and includes pins, where applicable.



To Seven Other Channels

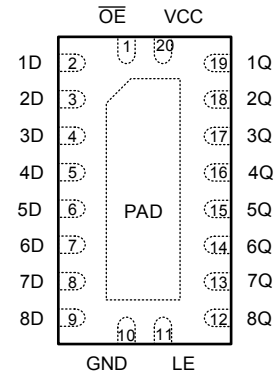
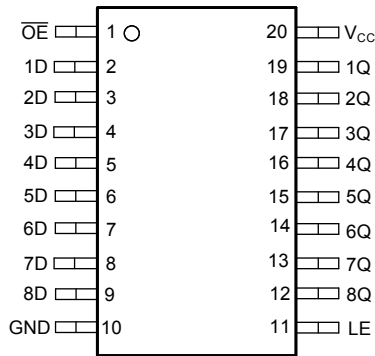
Logic Diagram (Positive Logic)



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## 4 Pin Configuration and Functions



**Figure 4-1. DB, DGV, DW, NS, N, or PW Packages, 20-Pin SSOP, TVSOP, SOIC, SOP, PDIP, or TSSOP (Top View)**

**Figure 4-2. RKS Package, 20-Pin VQFN (Top View)**

**Table 4-1. Pin Functions**

| PIN                        |     | TYPE <sup>(1)</sup> | DESCRIPTION   |
|----------------------------|-----|---------------------|---|
| NAME                       | NO. |                     |   |
| OE                         | 1   | I                   | Output enable   |
| 1D                         | 2   | I                   | 1D input  |
| 2D                         | 3   | I                   | 2D input  |
| 3D                         | 4   | I                   | 3D input  |
| 4D                         | 5   | I                   | 4D input  |
| 5D                         | 6   | I                   | 5D input  |
| 6D                         | 7   | I                   | 6D input  |
| 7D                         | 8   | I                   | 7D input  |
| 8D                         | 9   | I                   | 8D input  |
| GND                        | 10  | —                   | Ground  |
| LE                         | 11  | I                   | Latch enable input  |
| 8Q                         | 12  | O                   | 8Q output   |
| 7Q                         | 13  | O                   | 7Q output   |
| 6Q                         | 14  | O                   | 6Q output   |
| 5Q                         | 15  | O                   | 5Q output   |
| 4Q                         | 16  | O                   | 4Q output   |
| 3Q                         | 17  | O                   | 3Q output   |
| 2Q                         | 18  | O                   | 2Q output   |
| 1Q                         | 19  | O                   | 1Q output   |
| V <sub>CC</sub>            | 20  | —                   | Power pin   |
| Thermal Pad <sup>(2)</sup> |     | —                   | The thermal pad can be connect to GND or left floating. Do not connect to any other signal or supply. |

(1) I = Input, O = Output, I/O = Input or Output, G = Ground, P = Power.

(2) For RKS package only.

## 5 Specifications

### 5.1 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                         | $(V_I < 0 \text{ or } V_I > V_{CC})$ |                | ±20 mA  |
| $I_{OK}$           | Output clamp current                        | $(V_O < 0 \text{ or } V_O > V_{CC})$ |                | ±20 mA  |
| $I_O$              | Continuous output current                   | $(V_O = 0 \text{ to } V_{CC})$       |                | ±50 mA  |
|                    | Continuous current through, $V_{CC}$ or GND |                                      |                | ±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.

### 5.2 Recommended Operating Conditions

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

|                     |                                    | MIN                      | MAX      | UNIT |
|---------------------|------------------------------------|--------------------------|----------|------|
| $V_{CC}$            | Supply voltage                     | 2                        | 6        | V    |
| $V_{IH}$            | High-level input voltage           | $V_{CC} = 3 \text{ V}$   | 2.1      | V    |
|                     |                                    | $V_{CC} = 4.5 \text{ V}$ | 3.15     |      |
|                     |                                    | $V_{CC} = 5.5 \text{ V}$ | 3.85     |      |
| $V_{IL}$            | Low-level input voltage            | $V_{CC} = 3 \text{ V}$   | 0.9      | V    |
|                     |                                    | $V_{CC} = 4.5 \text{ V}$ | 1.35     |      |
|                     |                                    | $V_{CC} = 5.5 \text{ V}$ | 1.65     |      |
| $V_I$               | Input voltage                      | 0                        | $V_{CC}$ | V    |
| $V_O$               | Output voltage                     | 0                        | $V_{CC}$ | V    |
| $I_{OH}$            | High-level output current          | $V_{CC} = 3 \text{ V}$   | -12      | mA   |
|                     |                                    | $V_{CC} = 4.5 \text{ V}$ | -24      |      |
|                     |                                    | $V_{CC} = 5.5 \text{ V}$ | -24      |      |
| $I_{OL}$            | Low-level output current           | $V_{CC} = 3 \text{ V}$   | 12       | mA   |
|                     |                                    | $V_{CC} = 4.5 \text{ V}$ | 24       |      |
|                     |                                    | $V_{CC} = 5.5 \text{ V}$ | 24       |      |
| $\Delta t/\Delta v$ | Input transition rise or fall rate |                          | 8        | ns/V |
| $T_A$               | Operating free-air temperature     | -40                      | 85       | °C   |

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

### 5.3 Thermal Information

| THERMAL METRIC  | SN74AC573 |           |          |         |            |            | UNIT |
|---|-----------|-----------|----------|---------|------------|------------|------|
|   | DW (SOIC) | DB (SSOP) | N (PDIP) | NS (SO) | PW (TSSOP) | RKS (VQFN) |      |
|   | 20 PINS   | 20 PINS   | 20 PINS  | 20 PINS | 20 PINS    | 20 PINS    |      |
| $R_{\theta JA}$ Junction-to-ambient thermal resistance <sup>(1)</sup> | 58        | 70        | 69       | 60      | 83         | 68         | °C/W |

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

### 5.4 Electrical Characteristics

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

| PARAMETER                       | TEST CONDITIONS                  | $V_{CC}$ | $T_A = 25^\circ\text{C}$ |     |      | SN74AC573  |           | UNIT          |
|---------------------------------|----------------------------------|----------|--------------------------|-----|------|------------|-----------|---------------|
|                                 |                                  |          | MIN                      | TYP | MAX  | MIN        | MAX       |               |
| $V_{OH}$                        | $I_{OH} = -50 \mu\text{A}$       | 3 V      | 2.9                      |     |      | 2.9        |           | V             |
|                                 |                                  | 4.5 V    | 4.4                      |     |      | 4.4        |           |               |
|                                 |                                  | 5.5 V    | 5.4                      |     |      | 5.4        |           |               |
|                                 | $I_{OH} = -12 \text{ mA}$        | 3 V      | 2.58                     |     |      | 2.48       |           |               |
|                                 |                                  | 4.5 V    | 3.94                     |     |      | 3.8        |           |               |
|                                 |                                  | 5.5 V    | 4.94                     |     |      | 4.8        |           |               |
| $I_{OH} = -75 \text{ mA}^{(1)}$ | 5.5 V                            |          |                          |     | 3.85 |            |           |               |
| $V_{OL}$                        | $I_{OL} = 50 \mu\text{A}$        | 3 V      |                          |     |      | 0.1        |           | V             |
|                                 |                                  | 4.5 V    |                          |     |      | 0.1        |           |               |
|                                 |                                  | 5.5 V    |                          |     |      | 0.1        |           |               |
|                                 | $I_{OL} = 12 \text{ mA}$         | 3 V      |                          |     |      | 0.36       |           |               |
|                                 |                                  | 4.5 V    |                          |     |      | 0.36       |           |               |
|                                 |                                  | 5.5 V    |                          |     |      | 0.36       |           |               |
| $I_{OL} = 75 \text{ mA}$        | 5.5 V                            |          |                          |     | 1.65 |            |           |               |
| $I_I$                           | $V_I = V_{CC}$ or GND            | 5.5 V    |                          |     |      | $\pm 0.1$  | $\pm 1$   | $\mu\text{A}$ |
| $I_{OZ}$                        | $V_O = V_{CC}$ or GND            | 5.5 V    |                          |     |      | $\pm 0.25$ | $\pm 2.5$ | $\mu\text{A}$ |
| $I_{CC}$                        | $V_I = V_{CC}$ or GND, $I_O = 0$ | 5.5 V    |                          |     |      | 4          | 40        | $\mu\text{A}$ |
| $C_i$                           | $V_I = V_{CC}$ or GND            | 5 V      |                          |     |      | 5          |           | pF            |

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

### 5.5 Timing Requirements, $V_{CC} = 3.3 \text{ V} \pm 0.3 \text{ V}$

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](#))

|          |   | $T_A = 25^\circ\text{C}$ |     | SN74AC573 |     | UNIT |
|----------|---|--------------------------|-----|-----------|-----|------|
|          |   | MIN                      | MAX | MIN       | MAX |      |
| $t_w$    | Pulse duration, LE high                 | 6                        |     | 7         |     | ns   |
| $t_{su}$ | Setup time, data before LE $\downarrow$ | 3.5                      |     | 4         |     | ns   |
| $t_h$    | Hold time, data after LE $\downarrow$   | 2                        |     | 2         |     | ns   |

**SN74AC573**

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**5.6 Timing Requirements,  $V_{CC} = 5 V \pm 0.5 V$** 

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

|          |   | $T_A = 25^\circ\text{C}$ |     | SN74AC573 |     | UNIT |
|----------|---|--------------------------|-----|-----------|-----|------|
|          |   | MIN                      | MAX | MIN       | MAX |      |
| $t_w$    | Pulse duration, LE high                 | 4                        |     | 5         |     | ns   |
| $t_{su}$ | Setup time, data before LE $\downarrow$ | 3                        |     | 3.5       |     | ns   |
| $t_h$    | Hold time, data after LE $\downarrow$   | 2                        |     | 2         |     | ns   |

**5.7 Switching Characteristics,  $V_{CC} = 3 V \pm 0.3 V$** 

 over recommended operating free-air temperature range,  $V_{CC} = 3 V \pm 0.3 V$  (unless otherwise noted) (see [Load Circuit and Voltage Waveforms](#))

| PARAMETER | FROM (INPUT)    | TO (OUTPUT) | $T_A = 25^\circ\text{C}$ |      | SN74AC573 |      | UNIT |
|-----------|-----------------|-------------|--------------------------|------|-----------|------|------|
|           |                 |             | MIN                      | MAX  | MIN       | MAX  |      |
| $t_{PLH}$ | D               | Q           | 2.5                      | 13   | 2         | 15   | ns   |
| $t_{PHL}$ |                 |             | 2.5                      | 12   | 2         | 14   |      |
| $t_{PLH}$ | LE              | Q           | 2.5                      | 13   | 2         | 15   | ns   |
| $t_{PHL}$ |                 |             | 2.5                      | 12   | 2         | 14   |      |
| $t_{PZH}$ | $\overline{OE}$ | Q           | 2.5                      | 11   | 2         | 12   | ns   |
| $t_{PZL}$ |                 |             | 2.5                      | 11   | 2         | 12.5 |      |
| $t_{PHZ}$ | $\overline{OE}$ | Q           | 2.5                      | 12.5 | 2         | 13.5 | ns   |
| $t_{PLZ}$ |                 |             | 2.5                      | 9.5  | 2         | 10.5 |      |

**5.8 Switching Characteristics,  $V_{CC} = 5 V \pm 0.5 V$** 

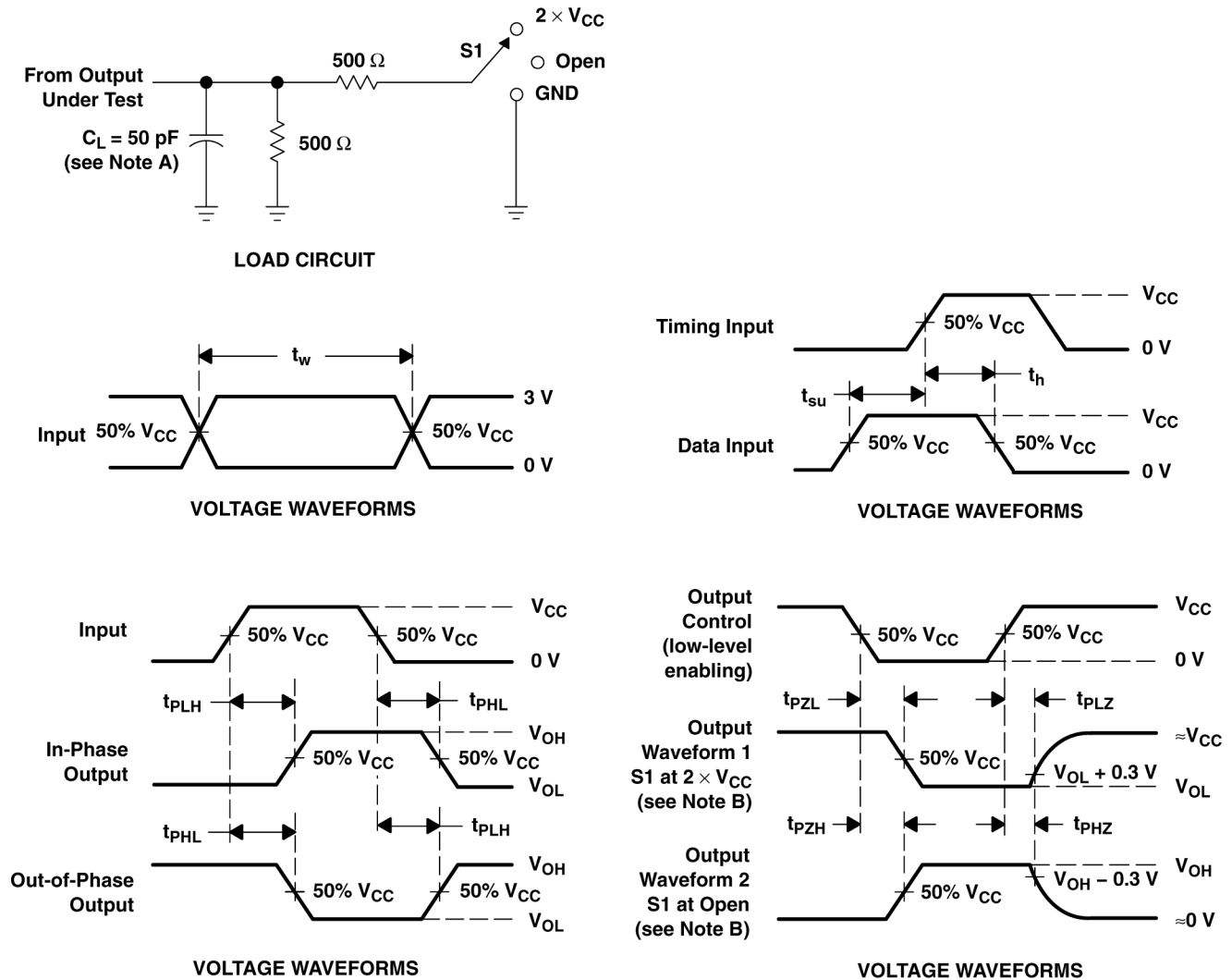
 over recommended operating free-air temperature range,  $V_{CC} = 5 V \pm 0.5 V$  (unless otherwise noted) (see [Load Circuit and Voltage Waveforms](#))

| PARAMETER | FROM (INPUT)    | TO (OUTPUT) | $T_A = 25^\circ\text{C}$ |     | SN74AC573 |      | UNIT |
|-----------|-----------------|-------------|--------------------------|-----|-----------|------|------|
|           |                 |             | MIN                      | MAX | MIN       | MAX  |      |
| $t_{PLH}$ | D               | Q           | 2.5                      | 10  | 2         | 11.5 | ns   |
| $t_{PHL}$ |                 |             | 2.5                      | 9.5 | 2         | 11   |      |
| $t_{PLH}$ | LE              | Q           | 2.5                      | 9.5 | 2         | 11   | ns   |
| $t_{PHL}$ |                 |             | 2.5                      | 8.5 | 2         | 10   |      |
| $t_{PZH}$ | $\overline{OE}$ | Q           | 2.5                      | 9   | 2         | 10   | ns   |
| $t_{PZL}$ |                 |             | 2.5                      | 8.5 | 2         | 9.5  |      |
| $t_{PHZ}$ | $\overline{OE}$ | Q           | 2.5                      | 11  | 2         | 12   | ns   |
| $t_{PLZ}$ |                 |             | 2.5                      | 8   | 2         | 9    |      |

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

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

## 6 Parameter Measurement Information



- A. C<sub>L</sub> includes probe and jig capacitance.
- B. 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.
- C. All input pulses are supplied by generators having the following characteristics: PRR ≤ 1 MHz, Z<sub>O</sub> = 50 Ω, t<sub>r</sub> ≤ 2.5 ns, t<sub>f</sub> ≤ 2.5 ns.
- D. The outputs are measured one at a time with one input transition per measurement.

Figure 6-1. Load Circuit and Voltage Waveforms

Table 6-1.

| TEST                               | S1                  |
|------------------------------------|---------------------|
| t <sub>PLH</sub> /t <sub>PHL</sub> | Open                |
| t <sub>PZL</sub> /t <sub>PZL</sub> | 2 × V <sub>CC</sub> |
| t <sub>PHZ</sub> /t <sub>PZH</sub> | Open                |

## 7 Detailed Description

### 7.1 Overview

The eight latches are D-type transparent latches. When the latch-enable (LE) input is high, the Q outputs follow the data (D) inputs. When LE is taken low, the Q outputs are latched at the logic levels set up at the D Inputs.

A buffered output-enable ( $\overline{OE}$ ) input can be used to place the eight outputs in either a normal logic state (high or low logic levels) or the high-impedance state. In the high-impedance state, the outputs neither load nor drive the bus lines significantly. The high-impedance state and increased drive provide the capability to drive bus lines in a bus-organized system without need for interface or pullup components.

$\overline{OE}$  does not affect the internal operations of the latches. Old data can be retained or new data can be entered while the outputs are in the high-impedance state.

### 7.2 Functional Block Diagram

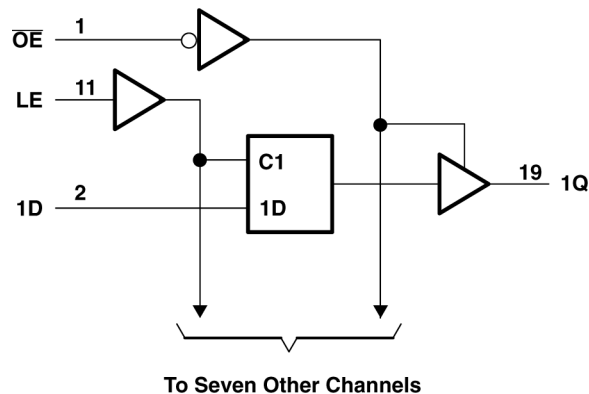


Figure 7-1. Logic Diagram (Positive Logic)

### 7.3 Device Functional Modes

Table 7-1. Function Table (Each Latch)

| INPUTS <sup>(1)</sup> |    |   | OUTPUT <sup>(2)</sup> Q |
|-----------------------|----|---|-------------------------|
| OE                    | LE | D |                         |
| L                     | H  | H | H                       |
| L                     | H  | L | L                       |
| L                     | L  | X | Q <sub>0</sub>          |
| H                     | X  | X | Z                       |

- (1) H = High voltage level, L = Low voltage level, X = High or low voltage level  
 (2) H = Driving high, L = Driving low, Q<sub>0</sub> = Driving previous high or low state, Z = High impedance



## 8 Device and Documentation Support

TI offers an extensive line of development tools. Tools and software to evaluate the performance of the device, generate code, and develop solutions are listed below.

### 8.1 Receiving Notification of Documentation Updates

To receive notification of documentation updates, navigate to the device product folder on [ti.com](http://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.

### 8.2 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.

Linked content is provided "AS IS" by the respective contributors. They do not constitute TI specifications and do not necessarily reflect TI's views; see TI's [Terms of Use](#).

### 8.3 Trademarks

TI E2E™ is a trademark of Texas Instruments.  
All trademarks are the property of their respective owners.

### 8.4 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.

### 8.5 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.

| <b>Changes from Revision F (June 2023) to Revision G (November 2023)</b>  | <b>Page</b> |
|---|-------------|
| • Updated the <i>Package Information</i> table to include package lead size.....                                | 1           |
| • Added the <i>RKS</i> package information.....   | 1           |
| <b>Changes from Revision E (May 2023) to Revision F (June 2023)</b>   | <b>Page</b> |
| • Updated high-level input voltage values in <i>Recommended Operating Conditions</i> table.....                 | 4           |
| <b>Changes from Revision D (October 2003) to Revision E (May 2023)</b>  | <b>Page</b> |
| • Added <i>Package Information</i> table, <i>Pin Functions</i> table, and <i>Thermal Information</i> table..... | 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 Device | Status<br>(1) | Package Type | Package Drawing | Pins | Package Qty | Eco Plan<br>(2) | Lead finish/<br>Ball material<br>(6) | MSL Peak Temp<br>(3) | Op Temp (°C) | Device Marking<br>(4/5) | Samples                 |
|------------------|---------------|--------------|-----------------|------|-------------|-----------------|--------------------------------------|----------------------|--------------|-------------------------|-------------------------|
| SN74AC573DBR     | ACTIVE        | SSOP         | DB              | 20   | 2000        | RoHS & Green    | NIPDAU                               | Level-1-260C-UNLIM   | -40 to 85    | AC573                   | <a href="#">Samples</a> |
| SN74AC573DBRG4   | ACTIVE        | SSOP         | DB              | 20   | 2000        | RoHS & Green    | NIPDAU                               | Level-1-260C-UNLIM   | -40 to 85    | AC573                   | <a href="#">Samples</a> |
| SN74AC573DW      | OBSOLETE      | SOIC         | DW              | 20   |             | TBD             | Call TI                              | Call TI              | -40 to 85    | AC573                   |                         |
| SN74AC573DWR     | ACTIVE        | SOIC         | DW              | 20   | 2000        | RoHS & Green    | NIPDAU                               | Level-1-260C-UNLIM   | -40 to 125   | AC573                   | <a href="#">Samples</a> |
| SN74AC573DWRG4   | ACTIVE        | SOIC         | DW              | 20   | 2000        | RoHS & Green    | NIPDAU                               | Level-1-260C-UNLIM   | -40 to 85    | AC573                   | <a href="#">Samples</a> |
| SN74AC573N       | ACTIVE        | PDIP         | N               | 20   | 20          | RoHS & Green    | NIPDAU                               | N / A for Pkg Type   | -40 to 85    | SN74AC573N              | <a href="#">Samples</a> |
| SN74AC573NS      | LIFEBUY       | SO           | NS              | 20   | 40          | RoHS & Green    | NIPDAU                               | Level-1-260C-UNLIM   | -40 to 85    | AC573                   |                         |
| SN74AC573NSR     | ACTIVE        | SO           | NS              | 20   | 2000        | RoHS & Green    | NIPDAU                               | Level-1-260C-UNLIM   | -40 to 85    | AC573                   | <a href="#">Samples</a> |
| SN74AC573PW      | OBSOLETE      | TSSOP        | PW              | 20   |             | TBD             | Call TI                              | Call TI              | -40 to 85    | AC573                   |                         |
| SN74AC573PWR     | ACTIVE        | TSSOP        | PW              | 20   | 2000        | RoHS & Green    | NIPDAU                               | Level-1-260C-UNLIM   | -40 to 125   | AC573                   | <a href="#">Samples</a> |
| SN74AC573PWRE4   | ACTIVE        | TSSOP        | PW              | 20   | 2000        | RoHS & Green    | NIPDAU                               | Level-1-260C-UNLIM   | -40 to 85    | AC573                   | <a href="#">Samples</a> |
| SN74AC573RKSR    | ACTIVE        | VQFN         | RKS             | 20   | 3000        | RoHS & Green    | NIPDAU                               | Level-1-260C-UNLIM   | -40 to 125   | AC573                   | <a href="#">Samples</a> |

(1) The marketing status values are defined as follows:

**ACTIVE:** Product device recommended for new designs.

**LIFEBUY:** TI has announced that the device will be discontinued, and a lifetime-buy period is in effect.

**NRND:** Not recommended for new designs. Device is in production to support existing customers, but TI does not recommend using this part in a new design.

**PREVIEW:** Device has been announced but is not in production. Samples may or may not be available.

**OBSOLETE:** TI has discontinued the production of the device.

(2) **RoHS:** TI defines "RoHS" to mean semiconductor products that are compliant with the current EU RoHS requirements for all 10 RoHS substances, including the requirement that RoHS substance do not exceed 0.1% by weight in homogeneous materials. Where designed to be soldered at high temperatures, "RoHS" products are suitable for use in specified lead-free processes. TI may reference these types of products as "Pb-Free".

**RoHS Exempt:** TI defines "RoHS Exempt" to mean products that contain lead but are compliant with EU RoHS pursuant to a specific EU RoHS exemption.

**Green:** TI defines "Green" to mean the content of Chlorine (Cl) and Bromine (Br) based flame retardants meet JS709B low halogen requirements of <=1000ppm threshold. Antimony trioxide based flame retardants must also meet the <=1000ppm threshold requirement.

(3) MSL, Peak Temp. - The Moisture Sensitivity Level rating according to the JEDEC industry standard classifications, and peak solder temperature.

- (4) There may be additional marking, which relates to the logo, the lot trace code information, or the environmental category on the device.
- (5) Multiple Device Markings will be inside parentheses. Only one Device Marking contained in parentheses and separated by a "~" will appear on a device. If a line is indented then it is a continuation of the previous line and the two combined represent the entire Device Marking for that device.
- (6) Lead finish/Ball material - Orderable Devices 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.

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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 SN74AC573 :**

- Automotive : [SN74AC573-Q1](#)

NOTE: Qualified Version Definitions:

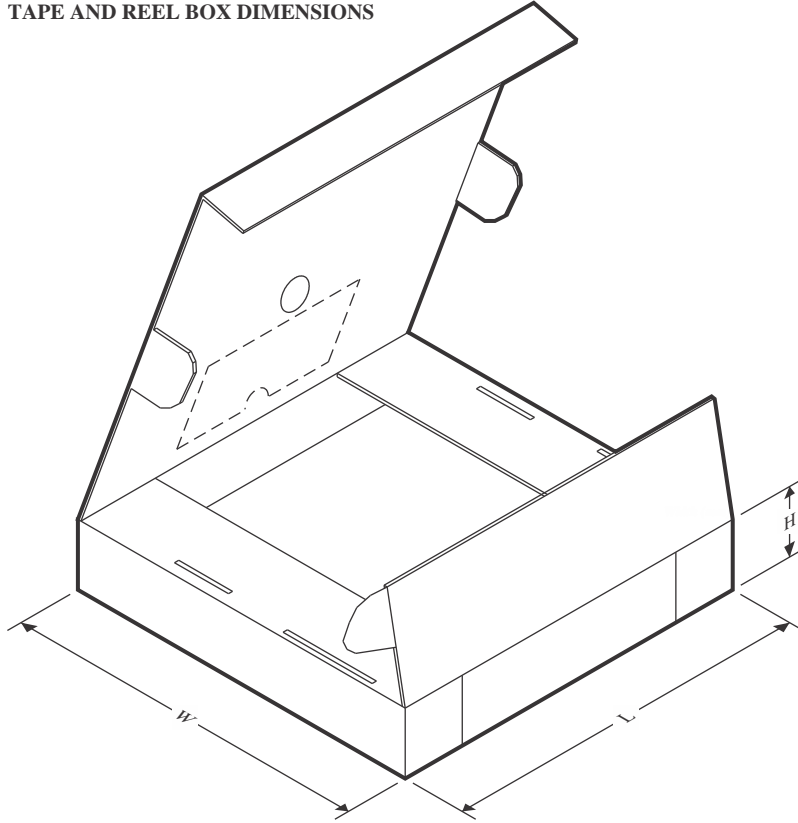
- Automotive - Q100 devices qualified for high-reliability automotive applications targeting zero defects

**TAPE AND REEL INFORMATION**

**QUADRANT ASSIGNMENTS FOR PIN 1 ORIENTATION IN TAPE**


\*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 |
|---------------|--------------|-----------------|------|------|--------------------|--------------------|---------|---------|---------|---------|--------|---------------|
| SN74AC573DBR  | SSOP         | DB              | 20   | 2000 | 330.0              | 16.4               | 8.2     | 7.5     | 2.5     | 12.0    | 16.0   | Q1            |
| SN74AC573DWR  | SOIC         | DW              | 20   | 2000 | 330.0              | 24.4               | 10.8    | 13.3    | 2.7     | 12.0    | 24.0   | Q1            |
| SN74AC573NSR  | SO           | NS              | 20   | 2000 | 330.0              | 24.4               | 8.4     | 13.0    | 2.5     | 12.0    | 24.0   | Q1            |
| SN74AC573PWR  | TSSOP        | PW              | 20   | 2000 | 330.0              | 16.4               | 6.95    | 7.1     | 1.6     | 8.0     | 16.0   | Q1            |
| SN74AC573RKSR | VQFN         | RKS             | 20   | 3000 | 180.0              | 12.4               | 2.8     | 4.8     | 1.2     | 4.0     | 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) |
|---------------|--------------|-----------------|------|------|-------------|------------|-------------|
| SN74AC573DBR  | SSOP         | DB              | 20   | 2000 | 356.0       | 356.0      | 35.0        |
| SN74AC573DWR  | SOIC         | DW              | 20   | 2000 | 367.0       | 367.0      | 45.0        |
| SN74AC573NSR  | SO           | NS              | 20   | 2000 | 367.0       | 367.0      | 45.0        |
| SN74AC573PWR  | TSSOP        | PW              | 20   | 2000 | 356.0       | 356.0      | 35.0        |
| SN74AC573RKSR | VQFN         | RKS             | 20   | 3000 | 210.0       | 185.0      | 35.0        |

**TUBE**


\*All dimensions are nominal

| Device      | Package Name | Package Type | Pins | SPQ | L (mm) | W (mm) | T (μm) | B (mm) |
|-------------|--------------|--------------|------|-----|--------|--------|--------|--------|
| SN74AC573N  | N            | PDIP         | 20   | 20  | 506    | 13.97  | 11230  | 4.32   |
| SN74AC573NS | NS           | SOP          | 20   | 40  | 530    | 10.5   | 4000   | 4.1    |

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

PLASTIC DUAL-IN-LINE PACKAGE

16 PINS SHOWN



- 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.

# DW0020A



# PACKAGE OUTLINE

## SOIC - 2.65 mm max height

SOIC



4220724/A 05/2016



# EXAMPLE BOARD LAYOUT

DW0020A

SOIC - 2.65 mm max height

SOIC



LAND PATTERN EXAMPLE  
SCALE:6X



SOLDER MASK DETAILS

4220724/A 05/2016

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

DW0020A

SOIC - 2.65 mm max height

SOIC



SOLDER PASTE EXAMPLE  
BASED ON 0.125 mm THICK STENCIL  
SCALE:6X

4220724/A 05/2016

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.

PW0020A



# PACKAGE OUTLINE

## TSSOP - 1.2 mm max height

SMALL OUTLINE PACKAGE



4220206/A 02/2017

### 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. This dimension does not include interlead flash. Interlead flash shall not exceed 0.25 mm per side.
5. Reference JEDEC registration MO-153.

# EXAMPLE BOARD LAYOUT

PW0020A

TSSOP - 1.2 mm max height

SMALL OUTLINE PACKAGE



LAND PATTERN EXAMPLE  
EXPOSED METAL SHOWN  
SCALE: 10X



SOLDER MASK DETAILS

4220206/A 02/2017

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

PW0020A

TSSOP - 1.2 mm max height

SMALL OUTLINE PACKAGE



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

4220206/A 02/2017

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.

PW (R-PDSO-G20)

PLASTIC SMALL OUTLINE



- NOTES:
- A. All linear dimensions are in millimeters.
  - B. This drawing is subject to change without notice.
  - C. Publication IPC-7351 is recommended for alternate design.
  - D. Laser cutting apertures with trapezoidal walls and also rounding corners will offer better paste release. Customers should contact their board assembly site for stencil design recommendations. Refer to IPC-7525 for other stencil recommendations.
  - E. Customers should contact their board fabrication site for solder mask tolerances between and around signal pads.

# DB0020A



# PACKAGE OUTLINE

## SSOP - 2 mm max height

SMALL OUTLINE PACKAGE



4214851/B 08/2019

### 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. This dimension does not include interlead flash. Interlead flash shall not exceed 0.25 mm per side.
5. Reference JEDEC registration MO-150.

# EXAMPLE BOARD LAYOUT

DB0020A

SSOP - 2 mm max height

SMALL OUTLINE PACKAGE



LAND PATTERN EXAMPLE  
EXPOSED METAL SHOWN  
SCALE: 10X



4214851/B 08/2019

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

DB0020A

SSOP - 2 mm max height

SMALL OUTLINE PACKAGE



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

4214851/B 08/2019

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.

## GENERIC PACKAGE VIEW

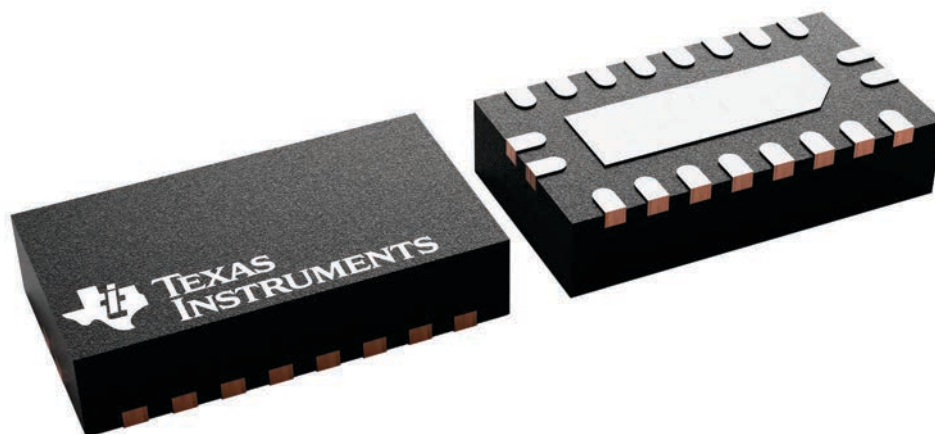
**RKS 20**

**VQFN - 1 mm max height**

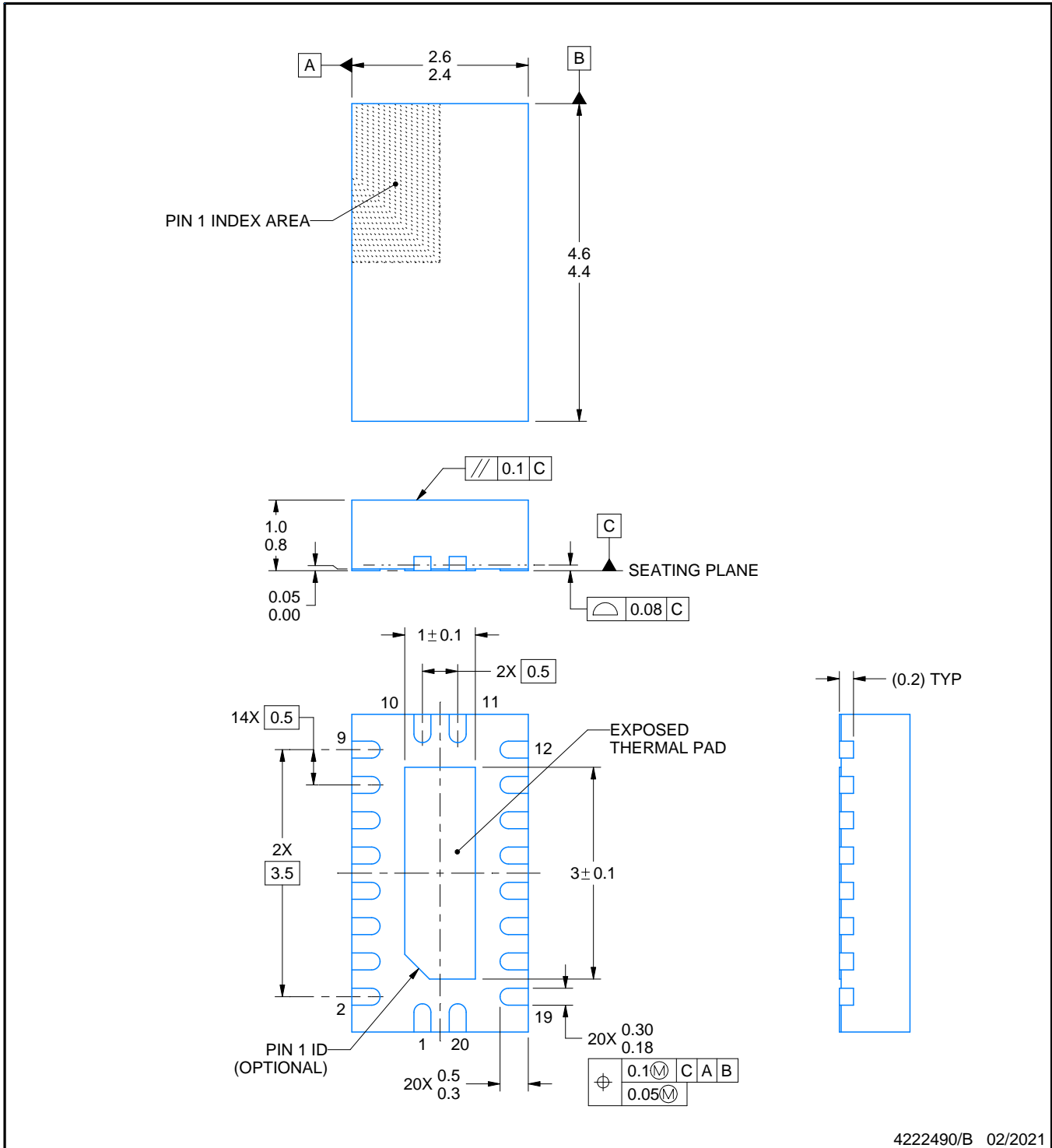
2.5 x 4.5, 0.5 mm pitch

PLASTIC QUAD FLATPACK - NO LEAD

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



4226872/A



NOTES:

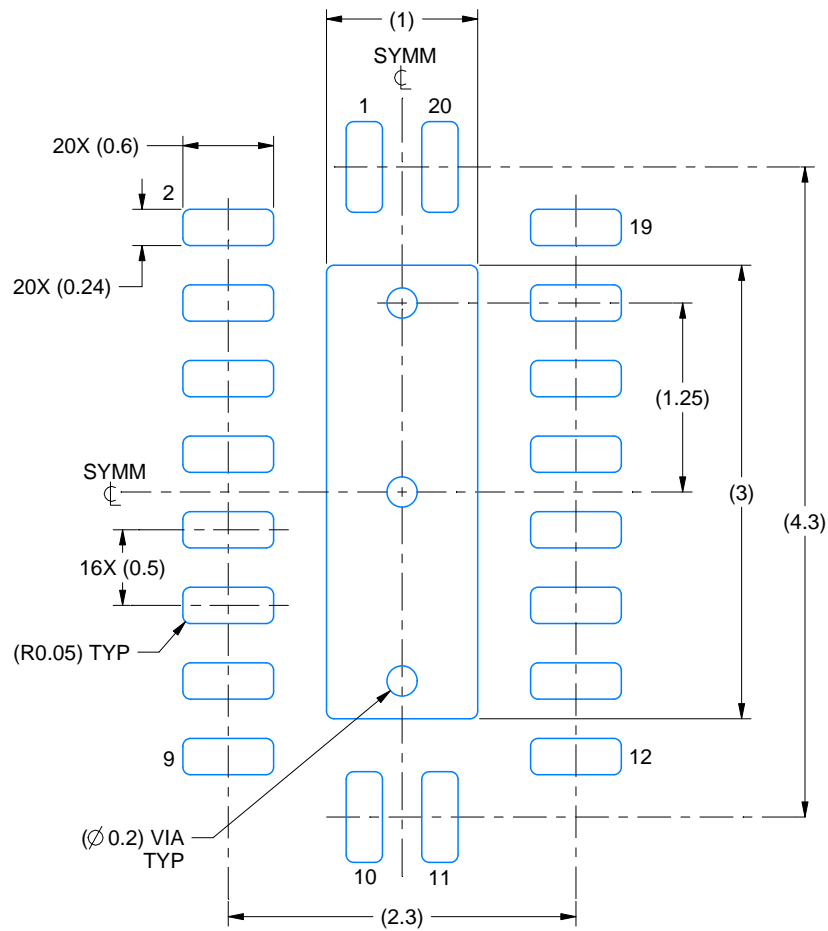
1. All linear dimensions are in millimeters. Any dimensions in parenthesis are for reference only. Dimensioning and tolerancing per ASME Y14.5M.
2. This drawing is subject to change without notice.
3. The package thermal pad must be soldered to the printed circuit board for thermal and mechanical performance.

# EXAMPLE BOARD LAYOUT

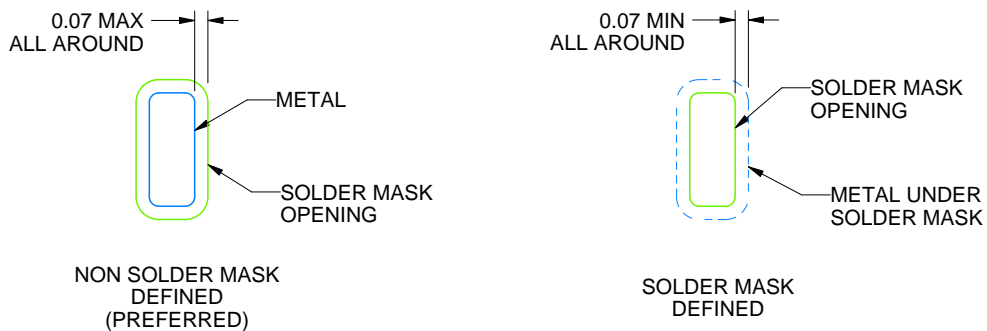
RKS0020A

VQFN - 1 mm max height

PLASTIC QUAD FLATPACK - NO LEAD



LAND PATTERN EXAMPLE  
SCALE:20X



SOLDER MASK DETAILS

4222490/B 02/2021

NOTES: (continued)

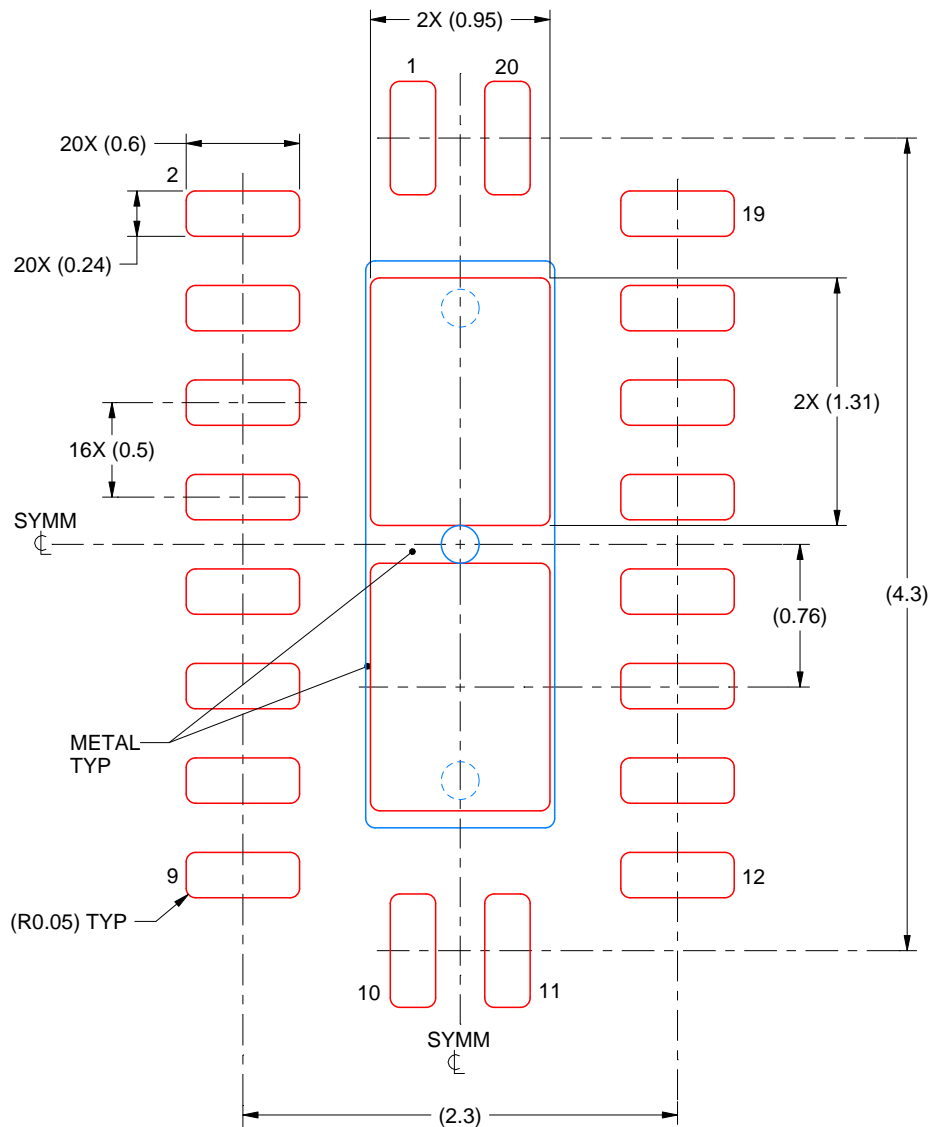
4. This package is designed to be soldered to a thermal pad on the board. For more information, see Texas Instruments literature number SLUA271 ([www.ti.com/lit/slua271](http://www.ti.com/lit/slua271)).
5. Vias are optional depending on application, refer to device data sheet. If some or all are implemented, recommended via locations are shown.

# EXAMPLE STENCIL DESIGN

RKS0020A

VQFN - 1 mm max height

PLASTIC QUAD FLATPACK - NO LEAD



SOLDER PASTE EXAMPLE  
BASED ON 0.125 mm THICK STENCIL

EXPOSED PAD  
83% PRINTED SOLDER COVERAGE BY AREA  
SCALE:25X

4222490/B 02/2021

NOTES: (continued)

6. Laser cutting apertures with trapezoidal walls and rounded corners may offer better paste release. IPC-7525 may have alternate design recommendations.

## MECHANICAL DATA

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

**PLASTIC SMALL-OUTLINE PACKAGE**

**14-PINS SHOWN**



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

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