SNx4AHCT573 Octal Transparent D-Type Latches With 3-State Outputs

1 Features

- Inputs are TTL-voltage compatible
- Latch-up performance exceeds 250mA per JESD 17
- On products compliant to MIL-PRF-38535, all parameters are tested unless otherwise noted. On all other products, production processing does not necessarily include testing of all parameters.

2 Applications

- Servers
- PCs and notebooks
- Network switches
- Wearable health and fitness devices
- Telecom infrastructures
- Electronic points-of-sale

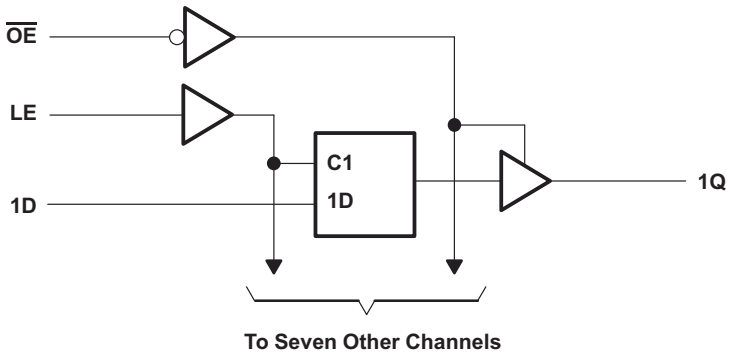
3 Description

The SNx4AHCT573 devices are octal transparent D-type latches. When the latch-enable (LE) input is high, the Q outputs follow the data (D) inputs. When LE is low, the Q outputs are latched at the logic levels of the D inputs.

Device Information

PART NUMBER	RATING(1)	PACKAGE(1)
SN74AHCT573	Catalog	DB (SSOP, 20)
		DGV (TVSOP, 20)
		DW (SOIC, 20)
		N (PDIP, 20)
		PW (TSSOP, 20)
SN54AHCT573	Military	J (CDIP, 20)
		W (CFP, 20)

(1) For more information, see Section 11.



Simplified Schematic

An IMPORTANT NOTICE at the end of this data sheet addresses availability, warranty, changes, use in safety-critical applications, intellectual property matters and other important disclaimers. PRODUCTION DATA.

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4 Pin Configuration and Functions

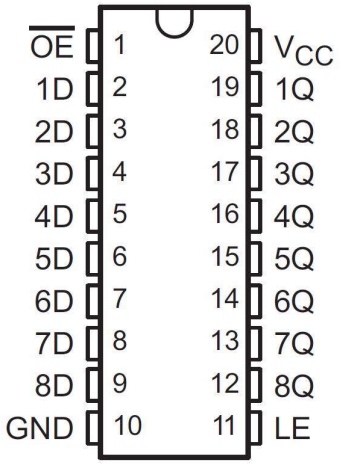


Figure 4-1. SN54AHCT573 J or W Package SN74AHCT573 DB, DGV, DW, N, NS, or PW Package (Top View)

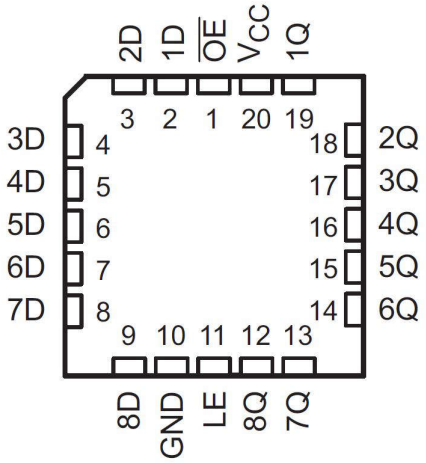


Figure 4-2. SN54AHCT573 FK Package (Top View)

Table 4-1. Pin Functions

PIN		TYPE[1]	DESCRIPTION
NO.	NAME		
1	$\overline{OE}$	I	Output Enable
2	1D	I	1D Input
3	2D	I	2D Input
4	3D	I	3D Input
5	4D	I	4D Input
6	5D	I	5D Input
7	6D	I	6D Input
8	7D	I	7D Input
9	8D	I	8D Input
10	GND	—	Ground
11	LE	I	Latch Enable
12	8Q	O	8Q Output
13	7Q	O	7Q Output
14	6Q	O	6Q Output
15	5Q	O	5Q Output
16	4Q	O	4Q Output
17	3Q	O	3Q Output
18	2Q	O	2Q Output
19	1Q	O	1Q Output
20	V_{CC}	—	Power Pin

(1) I = input, O = output

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5 Specifications

5.1 Absolute Maximum Ratings

over operating free-air temperature range (unless otherwise noted)(1)

			MIN	MAX	UNIT
V_{CC}	Supply voltage range		–0.5	7	V
V_I	Input voltage range(2)		–0.5	7	V
V_O	Output voltage range(2)		–0.5	V_{CC} + 0.5	V
I_{IK}	Input clamp current	V_I < 0		–20	mA
I_{OK}	Output clamp current	V_O < 0 or V_O > V_{CC}		±20	mA
I_O	Continuous output current	V_O = 0 to V_{CC}		±25	mA
	Continuous current through V_{CC} or GND			±75	mA
T_J	Junction temperature			150	°C
T_{stg}	Storage temperature		-65	150	°C

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

5.2 ESD Ratings

			MIN	MAX	UNIT
$V_{(ESD)}$	Electrostatic discharge	Human body model (HBM), per ANSI/ESDA/JEDEC JS-001(1)		±2000	V
		Charged-device model (CDM), per ANSI/ESDA/JEDEC JS-002(2)		±1000	

(1) JEDEC document JEP155 states that 500-V HBM allows safe manufacturing with a standard ESD control process.
(2) JEDEC document JEP157 states that 250-V CDM allows safe manufacturing with a standard ESD control process.

5.3 Recommended Operating Conditions

over operating free-air temperature range (unless otherwise noted)(1)

		SN54AHCT573		SN74AHCT573		UNIT
		MIN	MAX	MIN	MAX	
V_{CC}	Supply voltage	4.5	5.5	4.5	5.5	V
V_{IH}	High-level input voltage	2		2		V
V_{IL}	Low-level input voltage		0.8		0.8	V
V_I	Input voltage	0	5.5	0	5.5	V
V_O	Output voltage	0	V_{CC}	0	V_{CC}	V
I_{OH}	High-level output current		–8		–8	mA
I_{OL}	Low-level output current		8		8	mA
$\Delta t/\Delta v$	Input transition rise or fall rate		20		20	ns/V
T_A	Operating free-air temperature	–55	125	–40	125	°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* (SCBA004).

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5.4 Thermal Information

THERMAL METRIC[1]		SN74AHCT573						UNIT
		DW	DB	DGV	N	NS	PW	
		20 PINS						
$R_{\theta JA}$	Junction-to-ambient thermal resistance	79.4	97.9	117.2	53.3	79.2	116.8	°C/W
$R_{\theta JC(top)}$	Junction-to-case (top) thermal resistance	45.7	59.6	32.7	40.0	45.7	58.5	
$R_{\theta JB}$	Junction-to-board thermal resistance	46.9	53.1	58.7	34.2	46.8	78.7	
ψ_{JT}	Junction-to-top characterization parameter	18.7	21.3	1.15	26.4	19.3	12.6	
ψ_{JB}	Junction-to-board characterization parameter	46.5	52.7	58.0	34.1	46.4	77.9	
$R_{\theta JC(bot)}$	Junction-to-case (bottom) thermal resistance	N/A	N/A	N/A	N/A	N/A	N/A	

(1) For more information about traditional and new thermal metrics, see the *IC Package Thermal Metrics* application report (SPRA953).

5.5 Electrical Characteristics

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

PARAMETER	TEST CONDITIONS	V_{CC}	T_A = 25°C			–55°C to 125°C SN54AHCT573		–40°C to 85°C SN74AHCT573		–40°C to 125°C SN74AHCT573		UNIT
			MIN	TYP	MAX	MIN	MAX	MIN	MAX	MIN	MAX	
V_{OH}	I_{OH} = −50 µA	4.5V	4.4	4.5		4.4		4.4		4.4		V
	I_{OH} = −8mA		3.94			3.8		3.8		3.8		
V_{OL}	I_{OL} = 50 µA	4.5V			0.1		0.1		0.1		0.1	V
	I_{OL} = 8mA				0.36		0.44		0.44		0.44	
I_I	V_I = 5.5V or GND	0V to 5.5V			±0.1		±1[1]		±1		±2	µA
I_{OZ}	$V_O = V_{CC}$ or GND	5.5V			±0.25		±2.5		±2.5		±2.5	µA
I_{CC}	$V_I = V_{CC}$ or GND, I_O = 0	5.5V			4		40		40		40	µA
ΔI_{CC} [2]	One input at 3.4V, Other inputs at V_{CC} or GND	5.5V			1.35		1.5		1.5		1.5	mA
C_i	$V_I = V_{CC}$ or GND	5V		2.5	10				10		10	pF
C_o	$V_O = V_{CC}$ or GND	5V		3								pF

(1) On products compliant to MIL-PRF-38535, this parameter is not production tested at V_{CC} = 0V.
(2) This is the increase in supply current for each input at one of the specified TTL voltage levels, rather than 0V or V_{CC}.

5.6 Timing Requirements

over recommended operating free-air temperature range, V_{CC} = 5V ± 0.5V (unless otherwise noted) (see Section 6)

PARAMETER		T_A = 25°C		–55°C to 125°C SN54AHCT573		–40°C to 85°C SN74AHCT573		–40°C to 125°C SN74AHCT573		UNIT
		MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	
t_w	Pulse duration, LE high	5		5		5		5		ns
t_{su}	Setup time, data before LE↓	3.5		3.5		3.5		3.5		ns
t_h	Hold time, data after LE↓	1.5		1.5		1.5		1.5		ns

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5.7 Switching Characteristics, SNx4AHCT573

over recommended operating free-air temperature range, V_{CC} = 5V ± 0.5V (unless otherwise noted) (see Section 6)

PARAMETER	FROM (INPUT)	TO (OUTPUT)	T_A = 25°C			T_A = –40°C to 85°C		T_A = –40°C to 125°C		UNIT
			MIN	TYP	MAX	MIN	MAX	MIN	MAX	
C_L = 15pF										
t_{pd}	D	Q		5.1	7	1	9	1	9.5	ns
t_{pd}	LE	Q		5.6	7.5	1	9	1	9.5	ns
t_{en}	$\overline{OE}$	Q		5.5	7.5	1	10	1	11	ns
t_{dis}	$\overline{OE}$	Q		5.5	8	1	11	1	12	ns
C_L = 50pF										
t_{pd}	D	Q		6.1	8	1	10	1	10.5	ns
t_{pd}	LE	Q		6.6	8.5	1	10	1	10.5	ns
t_{en}	$\overline{OE}$	Q		6.5	8.5	1	11	1	11.5	ns
t_{dis}	$\overline{OE}$	Q		6.7	9	1	12	1	12.5	ns
$t_{sk(o)}$					1.5		1.5			ns

(1) On products compliant to MIL-PRF-38535, this parameter is not production tested.
(2) On products compliant to MIL-PRF-38535, this parameter does not apply.

5.8 Switching Characteristics, SN54AHCT573

over recommended operating free-air temperature range, V_{CC} = 5V ± 0.5V (unless otherwise noted) (see Section 6)

PARAMETER	FROM (INPUT)	TO (OUTPUT)	T_A = 25°C			T_A = –55°C to 125°C		UNIT
			MIN	TYP	MAX	MIN	MAX	
C_L = 15pF								
t_{pd}	D	Q		5.1[1]	7[1]	1[1]	9[1]	ns
t_{pd}	LE	Q		5.6[1]	7.5[1]	1[1]	9[1]	ns
t_{en}	$\overline{OE}$	Q		5.5[1]	7.5[1]	1[1]	9[1]	ns
t_{dis}	$\overline{OE}$	Q		5.5[1]	8[1]	1[1]	11[1]	ns
C_L = 50pF								
t_{pd}	D	Q		6.1	8	1	10	ns
t_{pd}	LE	Q		6.6	8.5	1	10	ns
t_{en}	$\overline{OE}$	Q		6.5	8.5	1	11	ns
t_{dis}	$\overline{OE}$	Q		6.7	9	1	12	ns
$t_{sk(o)}$					1.5[2]			ns

5.9 Operating Characteristics

V_{CC} = 5V, T_A = 25°C

PARAMETER		TEST CONDITIONS		TYP	UNIT
C_{pd}	Power dissipation capacitance	No load,	f = 1MHz	16	pF

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5.10 Typical Characteristics

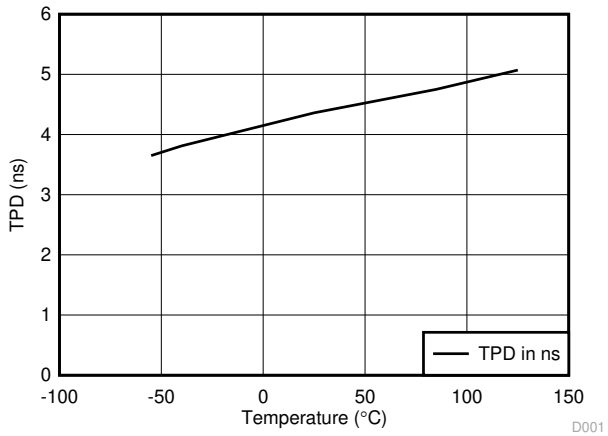


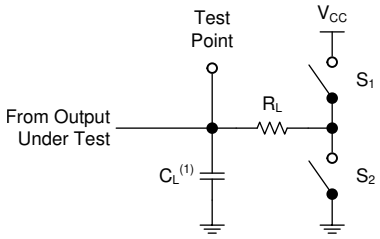
Figure 5-1. TPD vs Temperature at 5V

6 Parameter Measurement Information

Phase relationships between waveforms were chosen arbitrarily. All input pulses are supplied by generators having the following characteristics: PRR ≤ 1MHz, Z_O = 50Ω, R_L = 1kΩ, t_t < 3ns, V_t = 1.5V.

For clock inputs, f_{max} is measured when the input duty cycle is 50%.

The outputs are measured one at a time with one input transition per measurement.



(1) C_L includes probe and test-fixture capacitance.

Figure 6-1. Load Circuit for 3-State Outputs

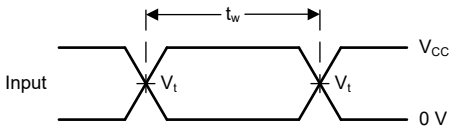


Figure 6-2. Voltage Waveforms, Pulse Duration

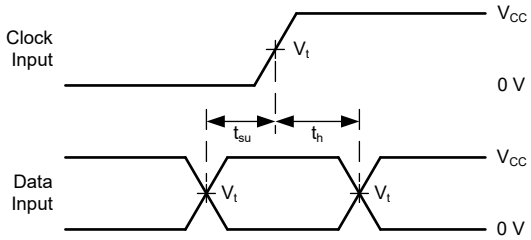
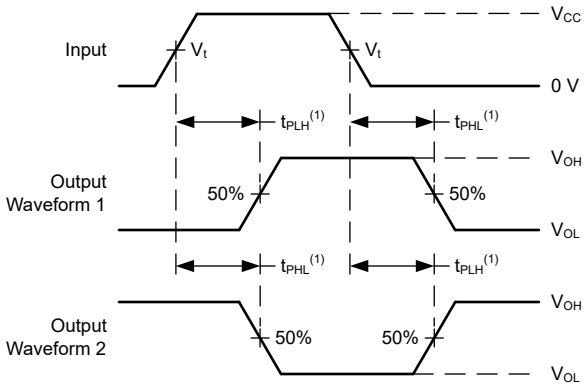
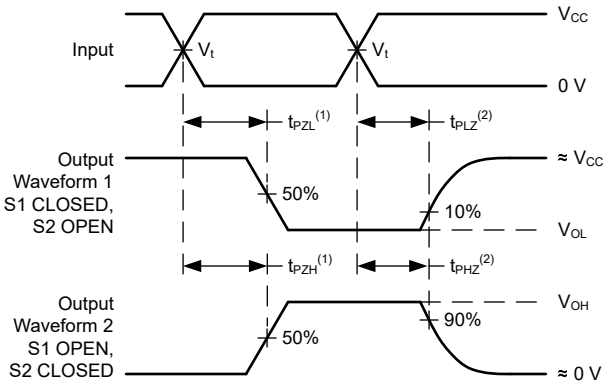


Figure 6-3. Voltage Waveforms, Setup and Hold Times



(1) The greater between t_{PLH} and t_{PHL} is the same as t_{pd}.

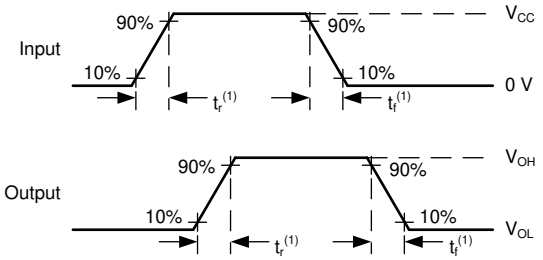
Figure 6-4. Voltage Waveforms, Propagation Delays



(1) t_{PLZ} and t_{PHZ} are the same as t_{dis}.

(2) t_{PZL} and t_{PZH} are the same as t_{en}.

Figure 6-5. Voltage Waveforms, Propagation Delays for 3-State Outputs



(1) The greater between t_r and t_f is the same as t_t.

Figure 6-6. Voltage Waveforms, Input and Output Transition Times

7 Detailed Description

7.1 Overview

The SNx4AHCT573 devices are octal transparent D-type latches. When the latch-enable (LE) input is high, the Q outputs follow the data (D) inputs. When LE is low, the Q outputs are latched at the logic levels of the D inputs.

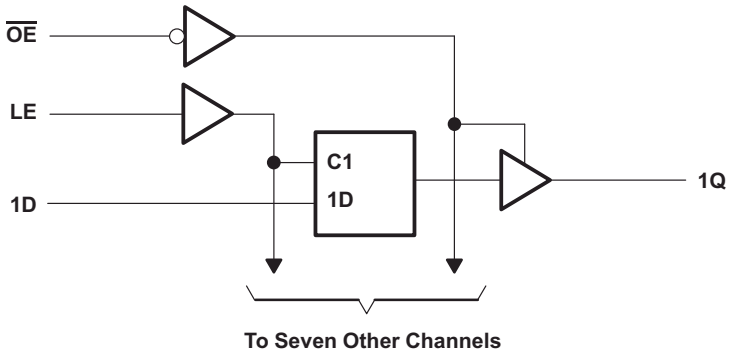
A buffered output-enable ($\overline{OE}$) input can be used to place the eight outputs in either a normal logic state (high or low) or the high-impedance state. In the high-impedance state, the outputs neither load nor drive the bus lines significantly. The high-impedance state and increased drive provide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

To put the device in the high-impedance state during power up or power down, tie $\overline{OE}$ to V_{CC} through a pull-up resistor; the current-sinking capability of the driver determines the minimum value of the resistor.

$\overline{OE}$ 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.

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7.2 Functional Block Diagram



7.3 Feature Description

- TTL inputs
  - Lowered switching threshold allows up translation 3.3V to 5V
- Slow edges reduce output ringing

7.4 Device Functional Modes

Table 7-1. Function Table (Each Latch)

INPUTS			OUTPUT Q
$\overline{OE}$	LE	D	
L	H	H	H
L	H	L	L
L	L	X	Q_0
H	X	X	Z

8 Application and Implementation

Note

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

8.1 Application Information

The SN74AHCT573 is a low-drive CMOS device that can be used for a multitude of bus interface type applications where output ringing is a concern. The low drive and slow edge rates will minimize overshoot and undershoot on the outputs. The input switching levels have been lowered to accommodate TTL inputs of 0.8V V_{IL} and 2V V_{IH}. This feature makes the device an excellent choice for translating up from 3.3V to 5V. Figure 8-2 shows this type of translation.

8.2 Typical Application

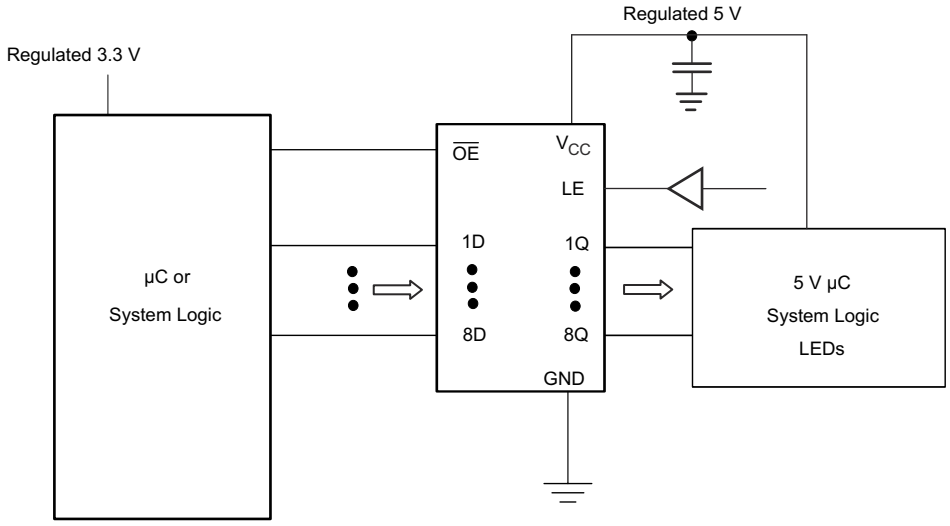


Figure 8-1. Typical Application Schematic

8.2.1 Design Requirements

This device uses CMOS technology and has balanced output drive. Take care to avoid bus contention because it can drive currents that would exceed maximum limits. The high drive will also create fast edges into light loads; therefore, routing and load conditions should be considered to prevent ringing.

8.2.2 Detailed Design Procedure

1. Recommended input conditions:
   - Rise time and fall time specs: See (Δt/ΔV) in the *Recommended Operating Conditions* table.
   - Specified High and low levels: See (V_{IH} and V_{IL}) in the *Recommended Operating Conditions* table.
   - Inputs are overvoltage tolerant allowing them to go as high as 5.5V at any valid V_{CC}.
2. Recommend output conditions
   - Load currents should not exceed 25mA per output and 75mA total for the part.
   - Outputs should not be pulled above V_{CC}.

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8.2.3 Application Curves

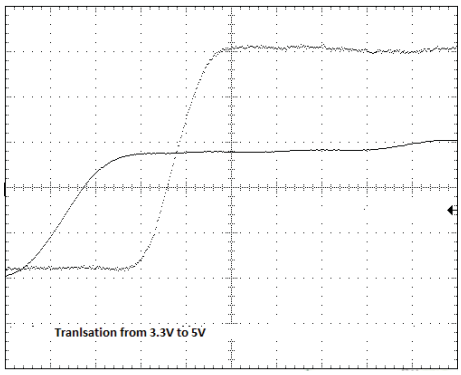


Figure 8-2. Up Translation

8.3 Power Supply Recommendations

The power supply can be any voltage between the MIN and MAX supply voltage rating located in the *Recommended Operating Conditions* table.

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

8.4 Layout

8.4.1 Layout Guidelines

When using multiple bit logic devices inputs should never float.

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 or only 3 of the 4 buffer gates are used). Such input pins should not be left unconnected because the undefined voltages at the outside connections result in undefined operational states. Figure 8-3 specifies the rules that must be observed under all circumstances.

All unused inputs of digital logic devices must be connected to a high or low bias to prevent them from floating. The logic level that should be applied to any particular unused input depends on the function of the device. Generally they will be tied to GND or V_{CC}; whichever makes more sense or is more convenient. It is generally acceptable to float outputs unless the part is a transceiver. If the transceiver has an output enable pin, then it will disable the outputs section of the part when asserted. This will not disable the input section of the IOs so they cannot float when disabled.

8.4.2 Layout Example

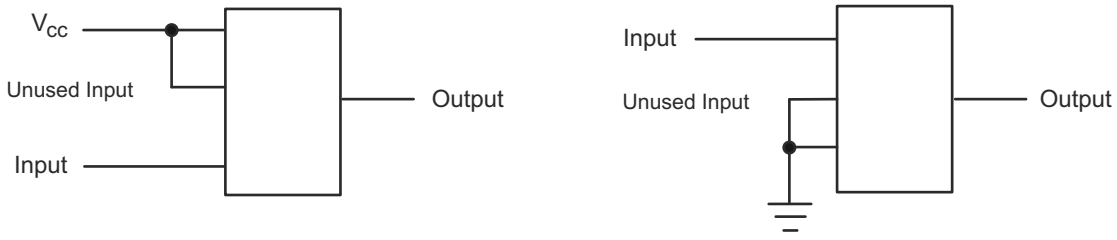


Figure 8-3. Layout Diagram

9 Device and Documentation Support

9.1 Receiving Notification of Documentation Updates

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

9.2 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.

9.3 Trademarks

TI E2E™ is a trademark of Texas Instruments.
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9.4 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.

9.5 Glossary

TI Glossary	This glossary lists and explains terms, acronyms, and definitions.

10 Revision History

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

Changes from Revision P (April 2024) to Revision Q (July 2024)	Page
• Updated thermal values for PW package from RθJA = 103.3 to 116.8, RθJC(top) = 37.8 to 58.5, RθJB = 54.3 to 78.7, ΨJT = 2.9 to 12.6, ΨJB = 53.8 to 77.9, RθJC(bot) = N/A, all values in °C/W	5

Changes from Revision O (July 2014) to Revision P (April 2024)	Page
• Moved storage temperature from *Handling Ratings* table to *Absolute Maximum Ratings* table	4
• Changed Handling Ratings table to ESD Ratings table	4
• Added temperature range column labels in Electrical Characteristics table	5
• Added temperature range column labels in Timing Requirements table	5
• Changed t_{PLH} and t_{PHL} to be t_{pd}, t_{PZH} and t_{PZL} to be t_{en}, and t_{PLZ} and t_{PHZ} to be t_{dis}	6
• Changed *Switching Characteristics* table to be two tables separating military and catalog device characteristics	6
• Changed parameter measurement information section images and tables to improve clarity and update formatting	7

11 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.

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PACKAGING INFORMATION

Orderable part number	Status (1)	Material type (2)	Package | Pins	Package qty | Carrier	RoHS (3)	Lead finish/ Ball material (4)	MSL rating/ Peak reflow (5)	Op temp (°C)	Part marking (6)
5962-9685501QRA	Active	Production	CDIP (J) | 20	20 | TUBE	No	SNPB	N/A for Pkg Type	-55 to 125	5962-9685501QRA SNJ54AHCT573J
5962-9685501QSA	Active	Production	CFP (W) | 20	25 | TUBE	No	SNPB	N/A for Pkg Type	-55 to 125	5962-9685501QSA SNJ54AHCT573W
SN74AHCT573DBR	Active	Production	SSOP (DB) | 20	2000 | LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	-40 to 125	HB573
SN74AHCT573DBR.A	Active	Production	SSOP (DB) | 20	2000 | LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	-40 to 125	HB573
SN74AHCT573DGSR	Active	Production	VSSOP (DGS) | 20	5000 | LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	-40 to 125	HB573
SN74AHCT573DGVR	Active	Production	TVSOP (DGV) | 20	2000 | LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	-40 to 125	HB573
SN74AHCT573DGVR.A	Active	Production	TVSOP (DGV) | 20	2000 | LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	-40 to 125	HB573
SN74AHCT573DW	Obsolete	Production	SOIC (DW) | 20	-	-	Call TI	Call TI	-40 to 125	AHCT573
SN74AHCT573DWR	Active	Production	SOIC (DW) | 20	2000 | LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	-40 to 125	AHCT573
SN74AHCT573DWR.A	Active	Production	SOIC (DW) | 20	2000 | LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	-40 to 125	AHCT573
SN74AHCT573N	Active	Production	PDIP (N) | 20	20 | TUBE	Yes	NIPDAU	N/A for Pkg Type	-40 to 125	SN74AHCT573N
SN74AHCT573N.A	Active	Production	PDIP (N) | 20	20 | TUBE	Yes	NIPDAU	N/A for Pkg Type	-40 to 125	SN74AHCT573N
SN74AHCT573PW	Obsolete	Production	TSSOP (PW) | 20	-	-	Call TI	Call TI	-40 to 125	HB573
SN74AHCT573PWR	Active	Production	TSSOP (PW) | 20	2000 | LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	-40 to 125	(AHCT573, HB573)
SN74AHCT573PWR.A	Active	Production	TSSOP (PW) | 20	2000 | LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	-40 to 125	(AHCT573, HB573)
SN74AHCT573PWRE4	Active	Production	TSSOP (PW) | 20	2000 | LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	-40 to 125	HB573
SN74AHCT573PWRG4	Active	Production	TSSOP (PW) | 20	2000 | LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	-40 to 125	HB573
SN74AHCT573PWRG4.A	Active	Production	TSSOP (PW) | 20	2000 | LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	-40 to 125	HB573
SN74AHCT573RKSR	Active	Production	VQFN (RKS) | 20	3000 | LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	-40 to 125	AHCT573
SNJ54AHCT573J	Active	Production	CDIP (J) | 20	20 | TUBE	No	SNPB	N/A for Pkg Type	-55 to 125	5962-9685501QRA SNJ54AHCT573J
SNJ54AHCT573J.A	Active	Production	CDIP (J) | 20	20 | TUBE	No	SNPB	N/A for Pkg Type	-55 to 125	5962-9685501QRA SNJ54AHCT573J
SNJ54AHCT573W	Active	Production	CFP (W) | 20	25 | TUBE	No	SNPB	N/A for Pkg Type	-55 to 125	5962-9685501QSA SNJ54AHCT573W

Orderable part number	Status (1)	Material type (2)	Package | Pins	Package qty | Carrier	RoHS (3)	Lead finish/ Ball material (4)	MSL rating/ Peak reflow (5)	Op temp (°C)	Part marking (6)
SNJ54AHCT573W.A	Active	Production	CFP (W) | 20	25 | TUBE	No	SNPB	N/A for Pkg Type	-55 to 125	5962-9685501QSA SNJ54AHCT573W

(1) **Status:** For more details on status, see our product life cycle.

(2) **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.

(3) **RoHS values:** Yes, No, RoHS Exempt. See the TI RoHS Statement for additional information and value definition.

(4) **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.

(5) **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.

(6) **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 SN54AHCT573, SN74AHCT573 :

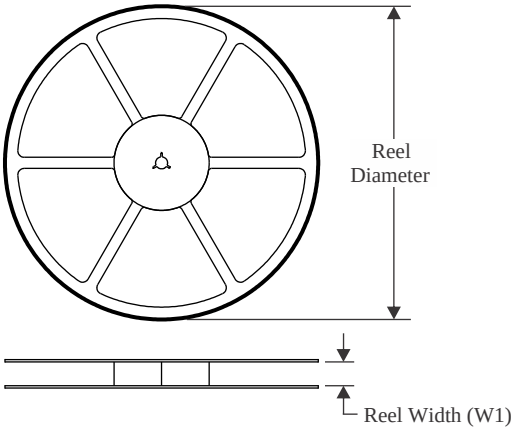
- Catalog : SN74AHCT573
- Military : SN54AHCT573

NOTE: Qualified Version Definitions:

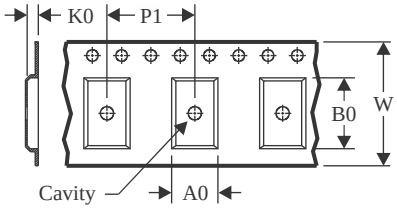
- Catalog - TI's standard catalog product
- Military - QML certified for Military and Defense Applications

TAPE AND REEL INFORMATION

REEL DIMENSIONS

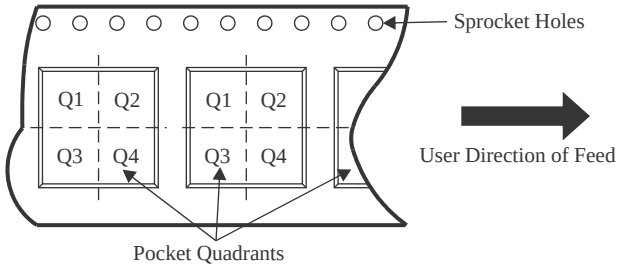


TAPE DIMENSIONS



A0	Dimension designed to accommodate the component width
B0	Dimension designed to accommodate the component length
K0	Dimension designed to accommodate the component thickness
W	Overall width of the carrier tape
P1	Pitch between successive cavity centers

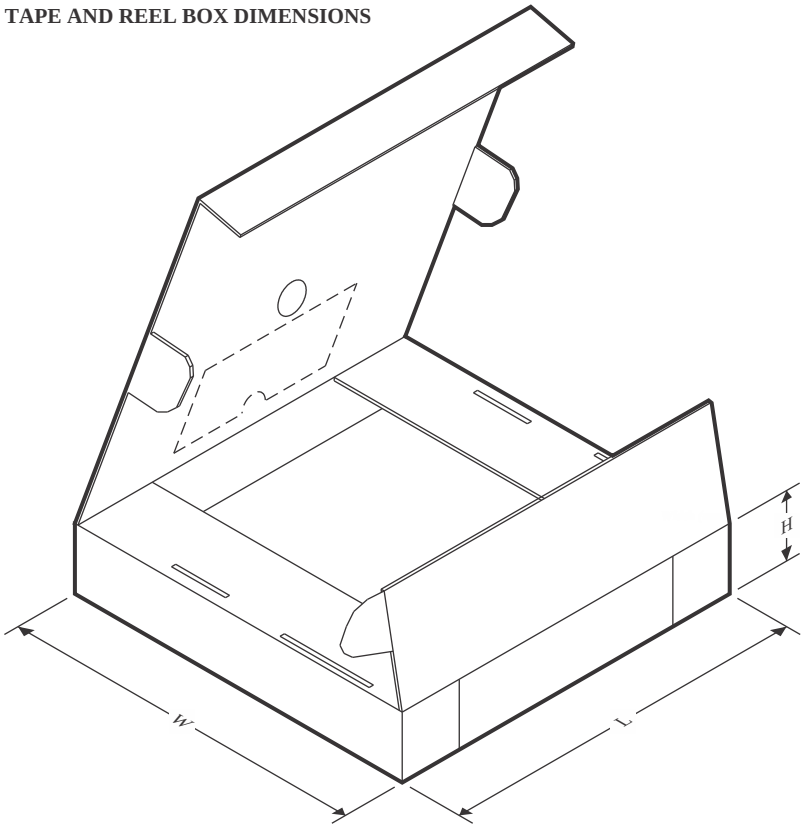
QUADRANT ASSIGNMENTS FOR PIN 1 ORIENTATION IN TAPE



*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
SN74AHCT573DBR	SSOP	DB	20	2000	330.0	16.4	8.2	7.5	2.5	12.0	16.0	Q1
SN74AHCT573DGSR	VSSOP	DGS	20	5000	330.0	16.4	5.4	5.4	1.45	8.0	16.0	Q1
SN74AHCT573DGVR	TVSOP	DGV	20	2000	330.0	12.4	6.9	5.6	1.6	8.0	12.0	Q1
SN74AHCT573DWR	SOIC	DW	20	2000	330.0	24.4	10.8	13.3	2.7	12.0	24.0	Q1
SN74AHCT573PWR	TSSOP	PW	20	2000	330.0	16.4	6.95	7.0	1.4	8.0	16.0	Q1
SN74AHCT573PWRG4	TSSOP	PW	20	2000	330.0	16.4	6.95	7.0	1.4	8.0	16.0	Q1
SN74AHCT573PWRG4	TSSOP	PW	20	2000	330.0	16.4	6.95	7.0	1.4	8.0	16.0	Q1
SN74AHCT573RKSR	VQFN	RKS	20	3000	180.0	12.4	2.8	4.8	1.2	4.0	12.0	Q1

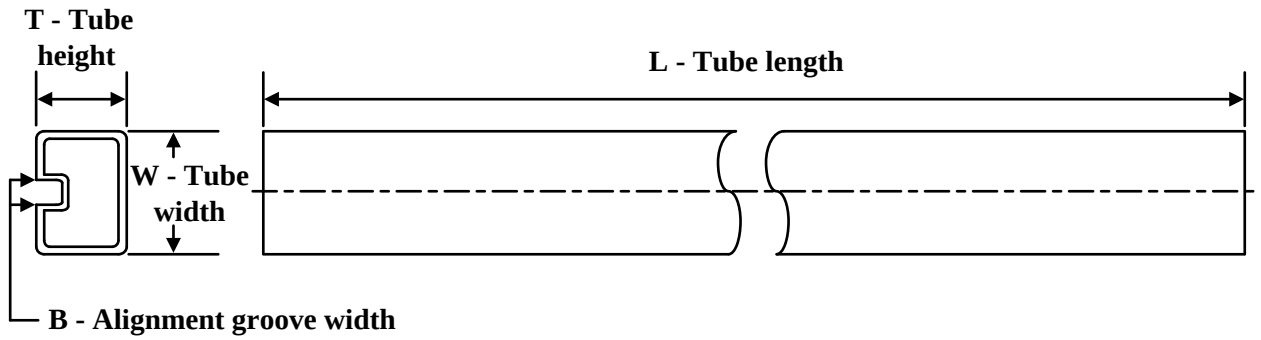
TAPE AND REEL BOX DIMENSIONS



*All dimensions are nominal

Device	Package Type	Package Drawing	Pins	SPQ	Length (mm)	Width (mm)	Height (mm)
SN74AHCT573DBR	SSOP	DB	20	2000	353.0	353.0	32.0
SN74AHCT573DGSR	VSSOP	DGS	20	5000	353.0	353.0	32.0
SN74AHCT573DGVR	TVSOP	DGV	20	2000	353.0	353.0	32.0
SN74AHCT573DWR	SOIC	DW	20	2000	356.0	356.0	45.0
SN74AHCT573PWR	TSSOP	PW	20	2000	353.0	353.0	32.0
SN74AHCT573PWRG4	TSSOP	PW	20	2000	353.0	353.0	32.0
SN74AHCT573PWRG4	TSSOP	PW	20	2000	353.0	353.0	32.0
SN74AHCT573RKSR	VQFN	RKS	20	3000	210.0	185.0	35.0

TUBE



*All dimensions are nominal

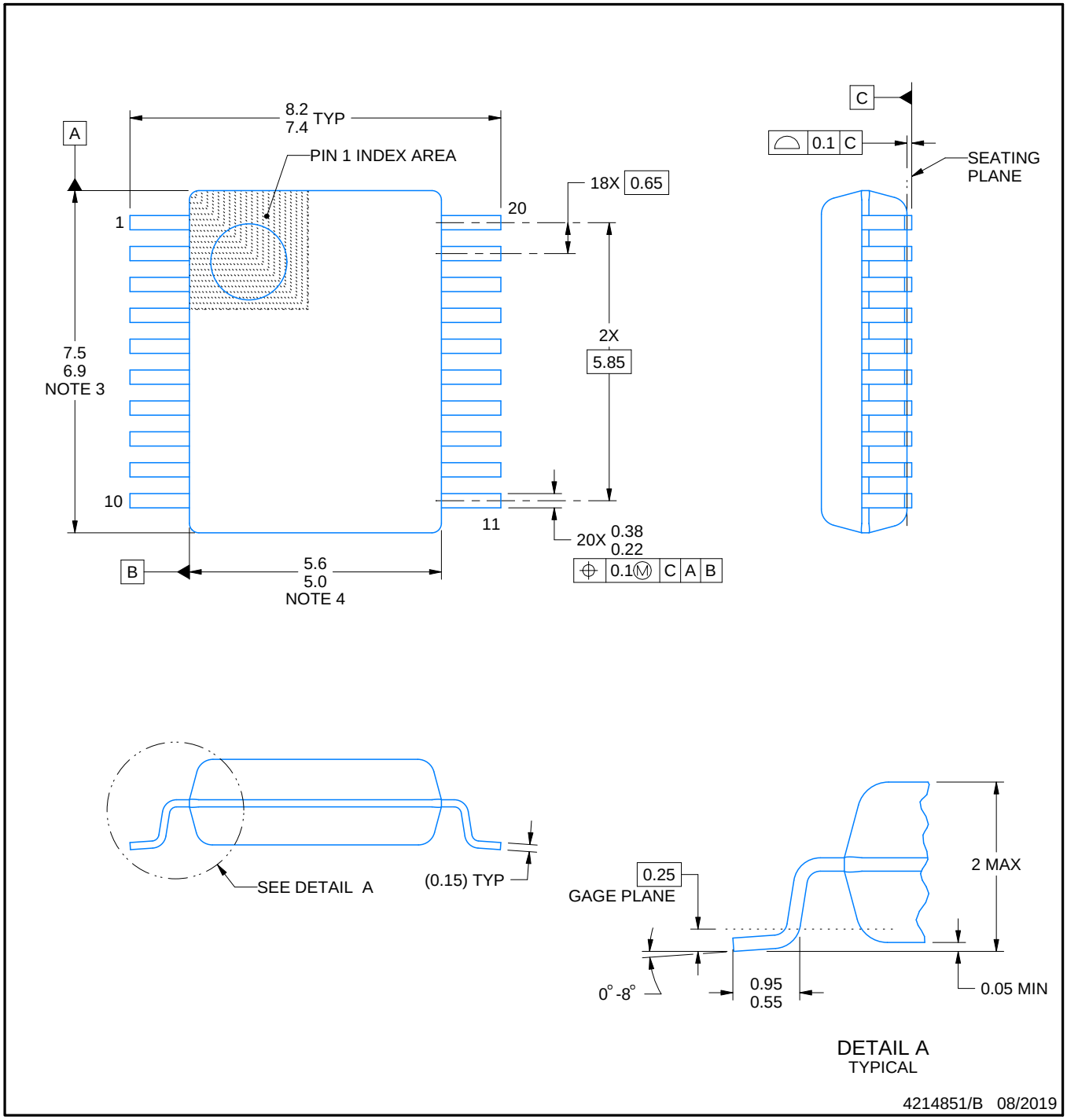
Device	Package Name	Package Type	Pins	SPQ	L (mm)	W (mm)	T (µm)	B (mm)
5962-9685501QSA	W	CFP	20	25	506.98	26.16	6220	NA
SN74AHCT573N	N	PDIP	20	20	506	13.97	11230	4.32
SN74AHCT573N.A	N	PDIP	20	20	506	13.97	11230	4.32
SNJ54AHCT573W	W	CFP	20	25	506.98	26.16	6220	NA
SNJ54AHCT573W.A	W	CFP	20	25	506.98	26.16	6220	NA

PACKAGE OUTLINE

DB0020A

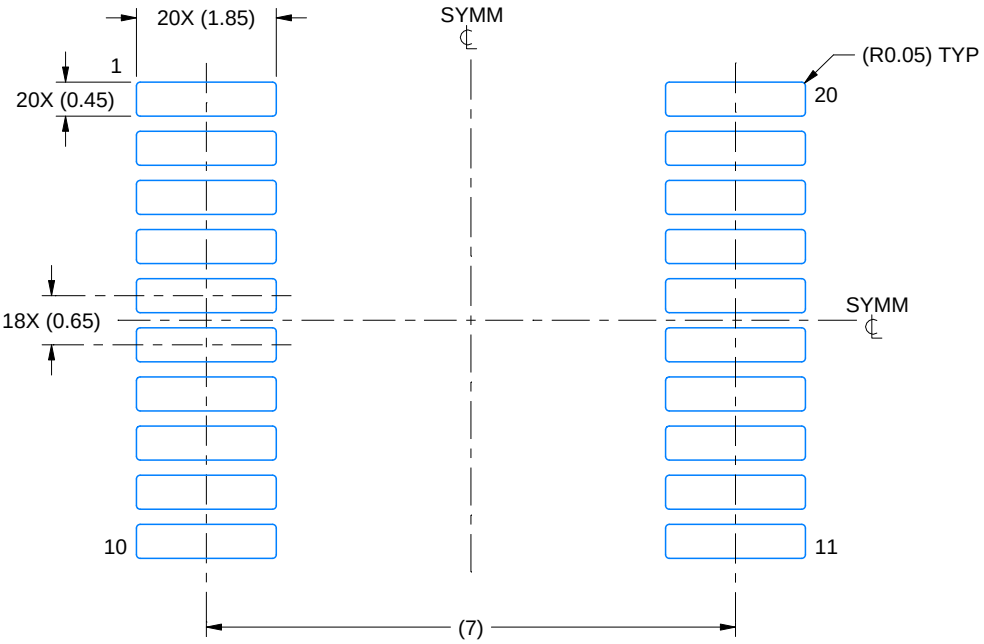
SSOP - 2 mm max height

SMALL OUTLINE PACKAGE

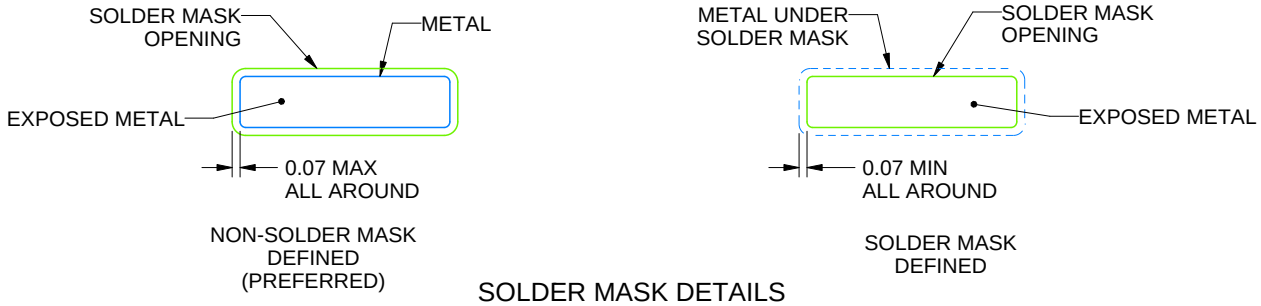


NOTES:

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.



LAND PATTERN EXAMPLE
EXPOSED METAL SHOWN
SCALE: 10X



SOLDER MASK DETAILS

4214851/B 08/2019

NOTES: (continued)

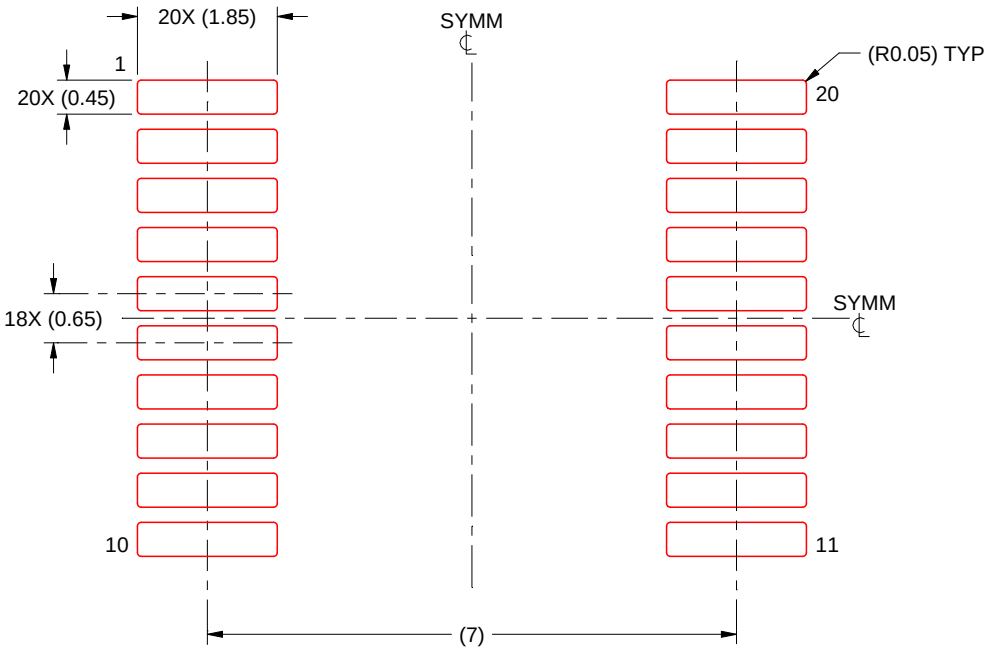
6. Publication IPC-7351 may have alternate designs.
7. Solder mask tolerances between and around signal pads can vary based on board fabrication site.

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

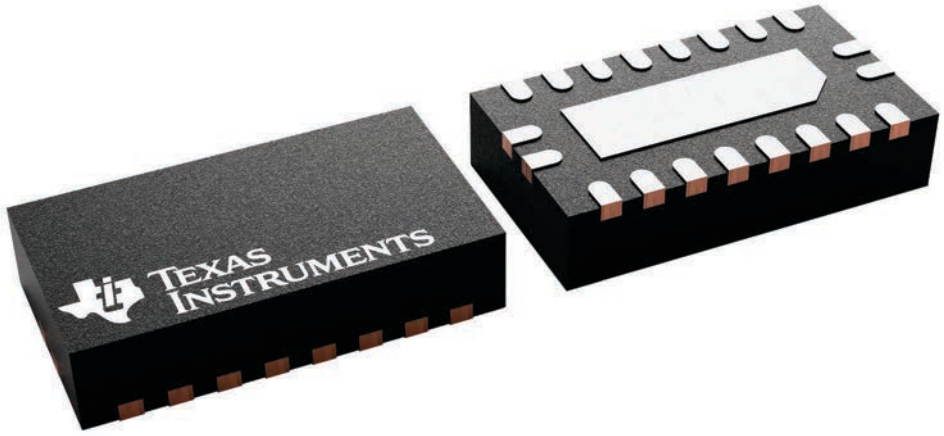
RKS 20

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.

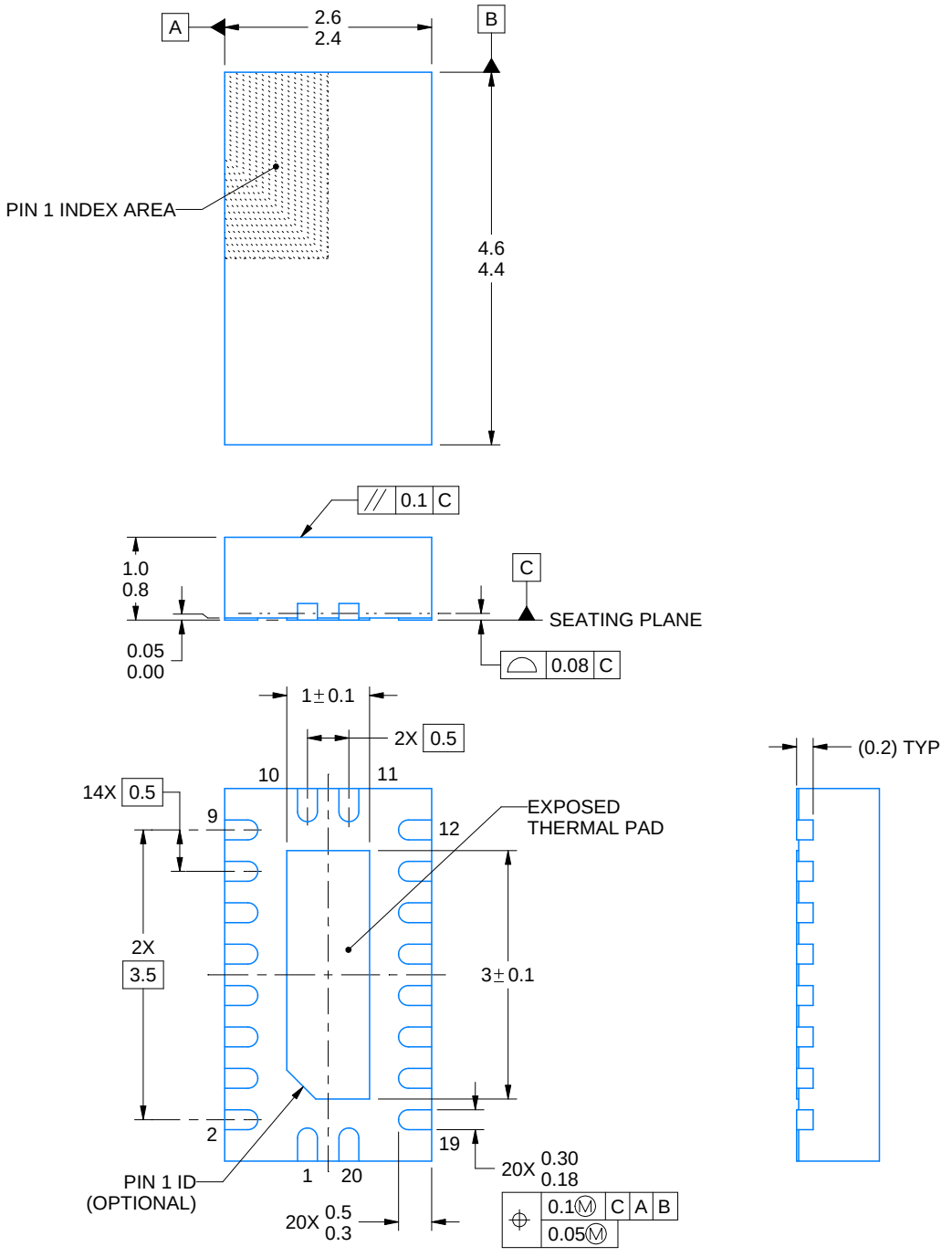


PACKAGE OUTLINE

RKS0020A

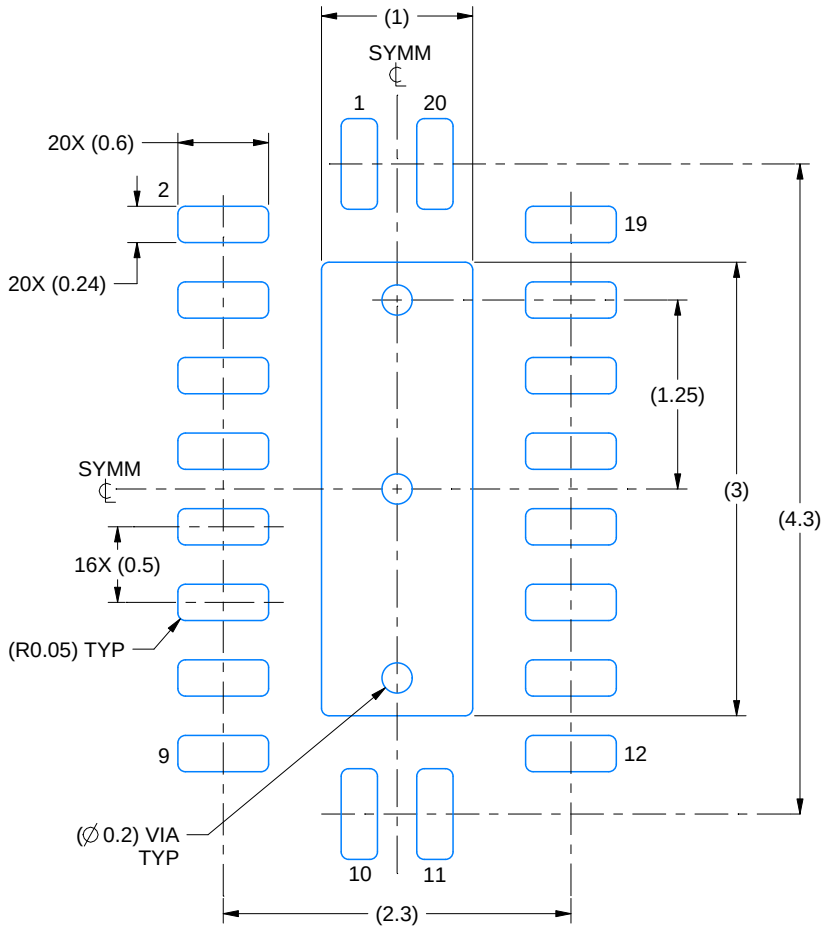
VQFN - 1 mm max height

PLASTIC QUAD FLATPACK - NO LEAD

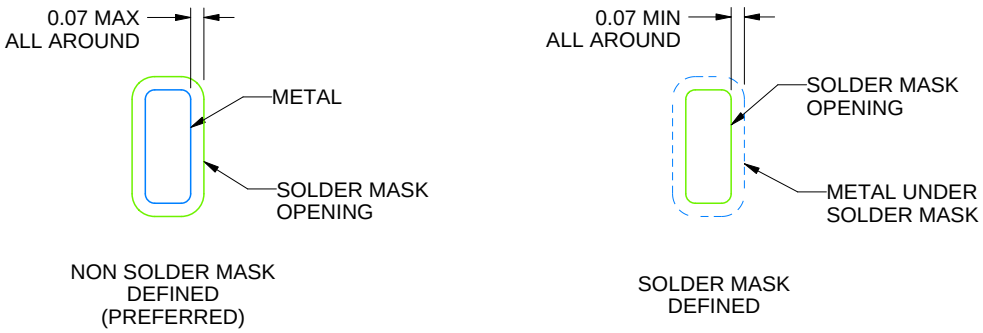


NOTES:

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.



LAND PATTERN EXAMPLE
SCALE:20X

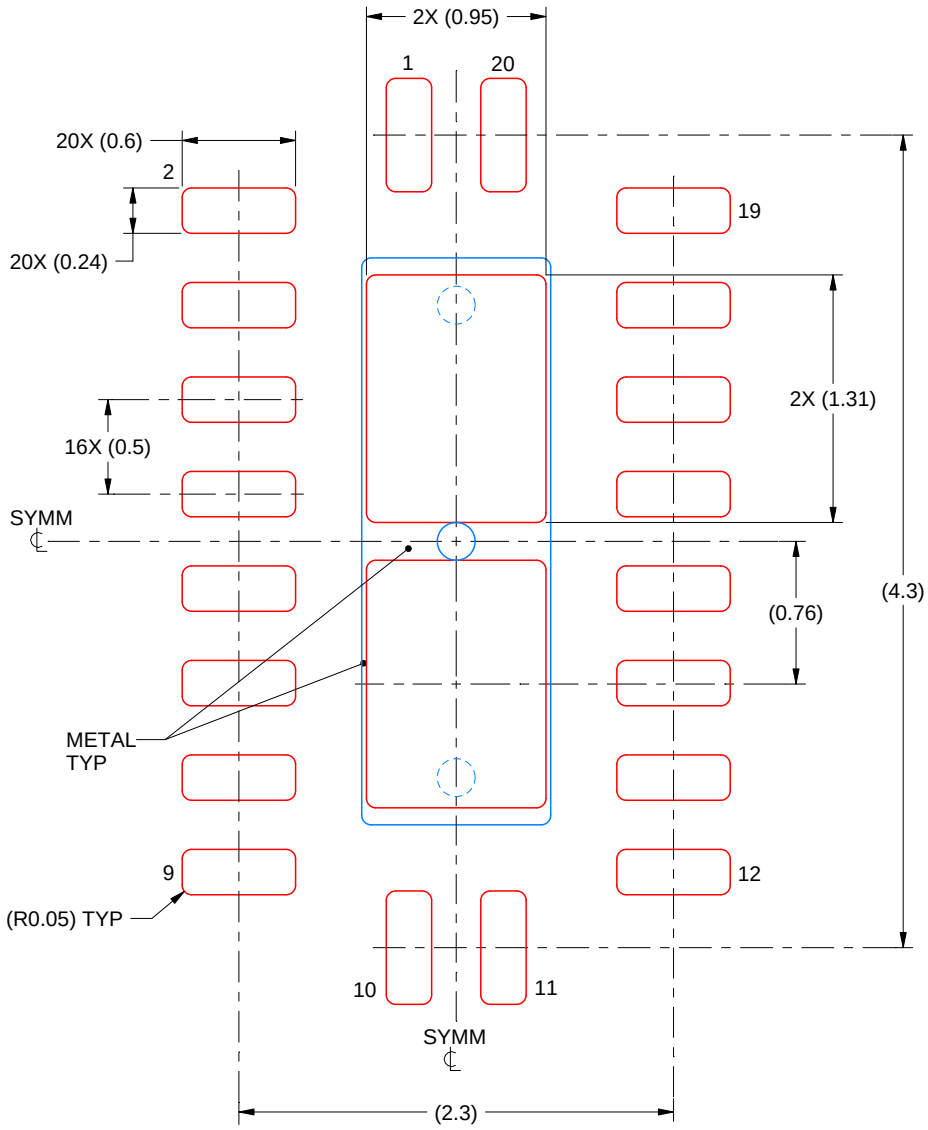


SOLDER MASK DETAILS

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).
5. Vias are optional depending on application, refer to device data sheet. If some or all are implemented, recommended via locations are shown.



SOLDER PASTE EXAMPLE
BASED ON 0.125 mm THICK STENCIL

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

4222490/B 02/2021

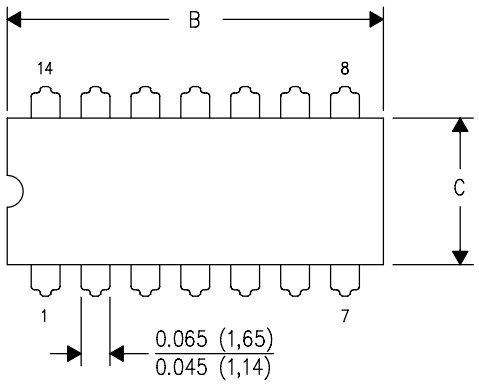
NOTES: (continued)

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

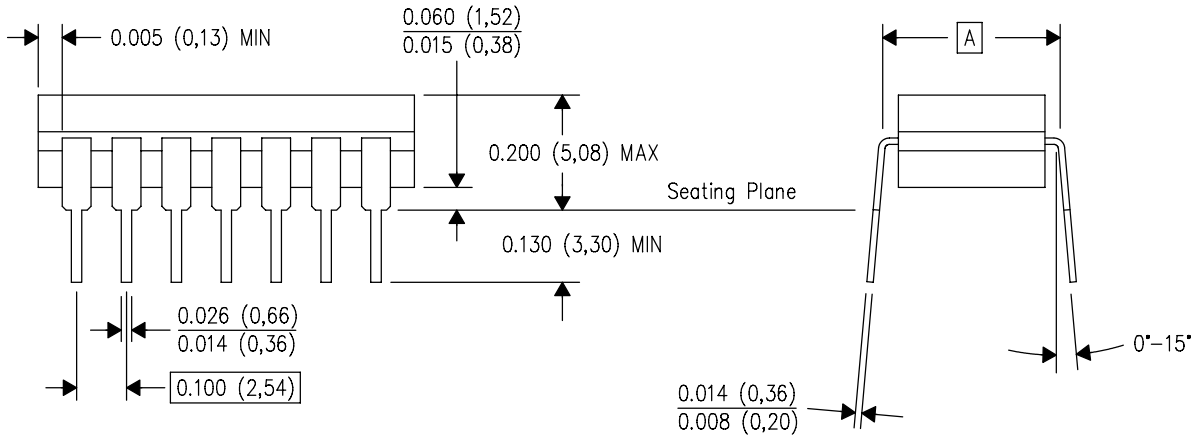
J (R–GDIP–T**)

14 LEADS SHOWN

CERAMIC DUAL IN–LINE PACKAGE



DIM \ PINS **	14	16	18	20
A	0.300 (7,62) BSC	0.300 (7,62) BSC	0.300 (7,62) BSC	0.300 (7,62) BSC
B MAX	0.785 (19,94)	.840 (21,34)	0.960 (24,38)	1.060 (26,92)
B MIN	—	—	—	—
C MAX	0.300 (7,62)	0.300 (7,62)	0.310 (7,87)	0.300 (7,62)
C MIN	0.245 (6,22)	0.245 (6,22)	0.220 (5,59)	0.245 (6,22)

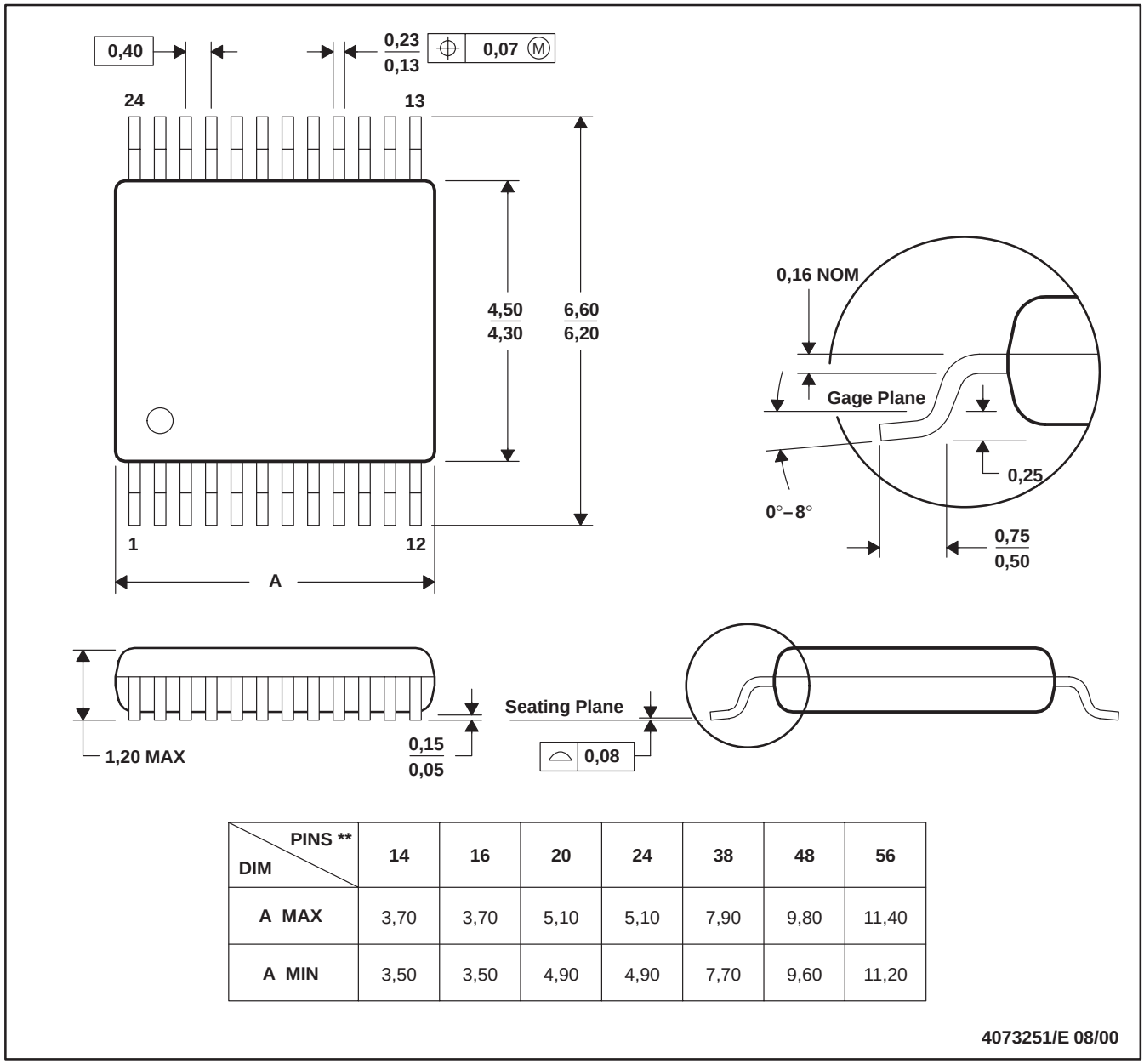


4040083/F 03/03

NOTES:
A. All linear dimensions are in inches (millimeters).
B. This drawing is subject to change without notice.
C. This package is hermetically sealed with a ceramic lid using glass frit.
D. Index point is provided on cap for terminal identification only on press ceramic glass frit seal only.
E. Falls within MIL STD 1835 GDIP1–T14, GDIP1–T16, GDIP1–T18 and GDIP1–T20.

DGV (R-PDSO-G)** **PLASTIC SMALL-OUTLINE**

24 PINS SHOWN



DIM \ PINS **	14	16	20	24	38	48	56
A MAX	3,70	3,70	5,10	5,10	7,90	9,80	11,40
A MIN	3,50	3,50	4,90	4,90	7,70	9,60	11,20

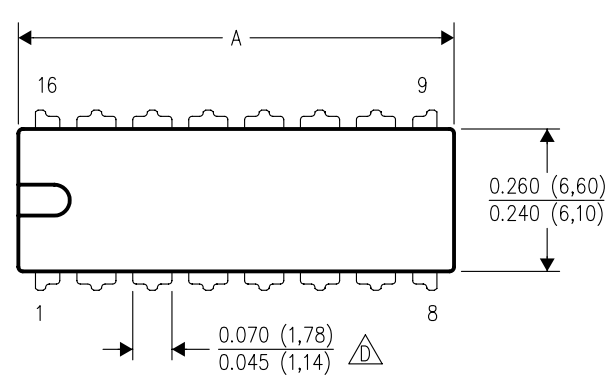
4073251/E 08/00

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 per side.
D. Falls within JEDEC: 24/48 Pins – MO-153
14/16/20/56 Pins – MO-194

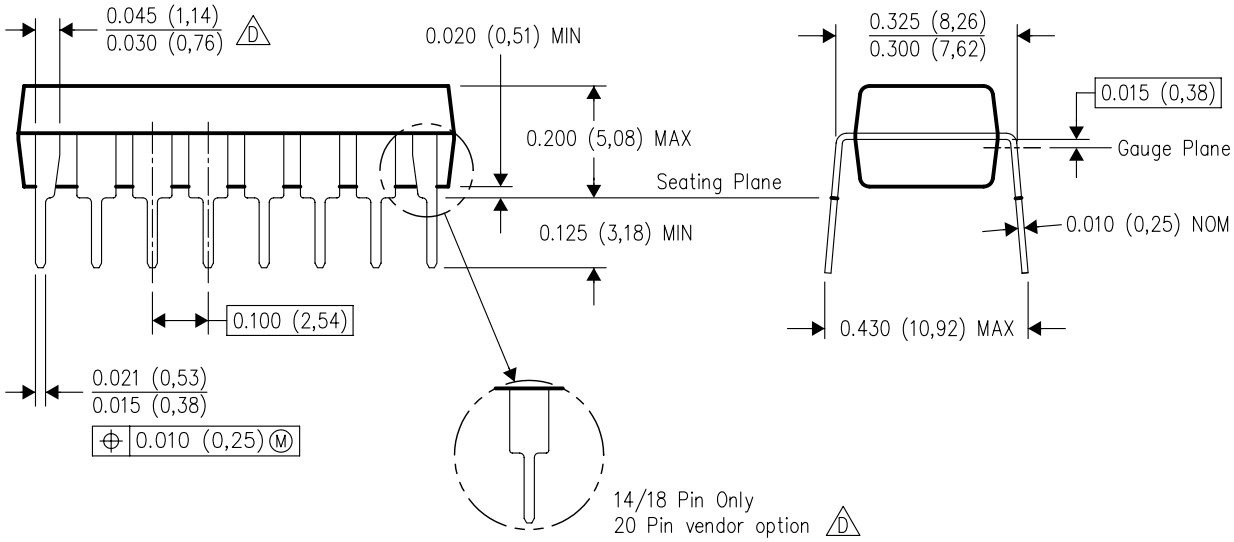
N (R–PDIP–T**)

PLASTIC DUAL–IN–LINE PACKAGE

16 PINS SHOWN

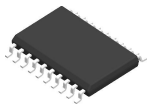


DIM \ PINS **	14	16	18	20
A MAX	0.775 (19,69)	0.775 (19,69)	0.920 (23,37)	1.060 (26,92)
A MIN	0.745 (18,92)	0.745 (18,92)	0.850 (21,59)	0.940 (23,88)
MS–001 VARIATION (C)	AA	BB	AC	AD



4040049/E 12/2002

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

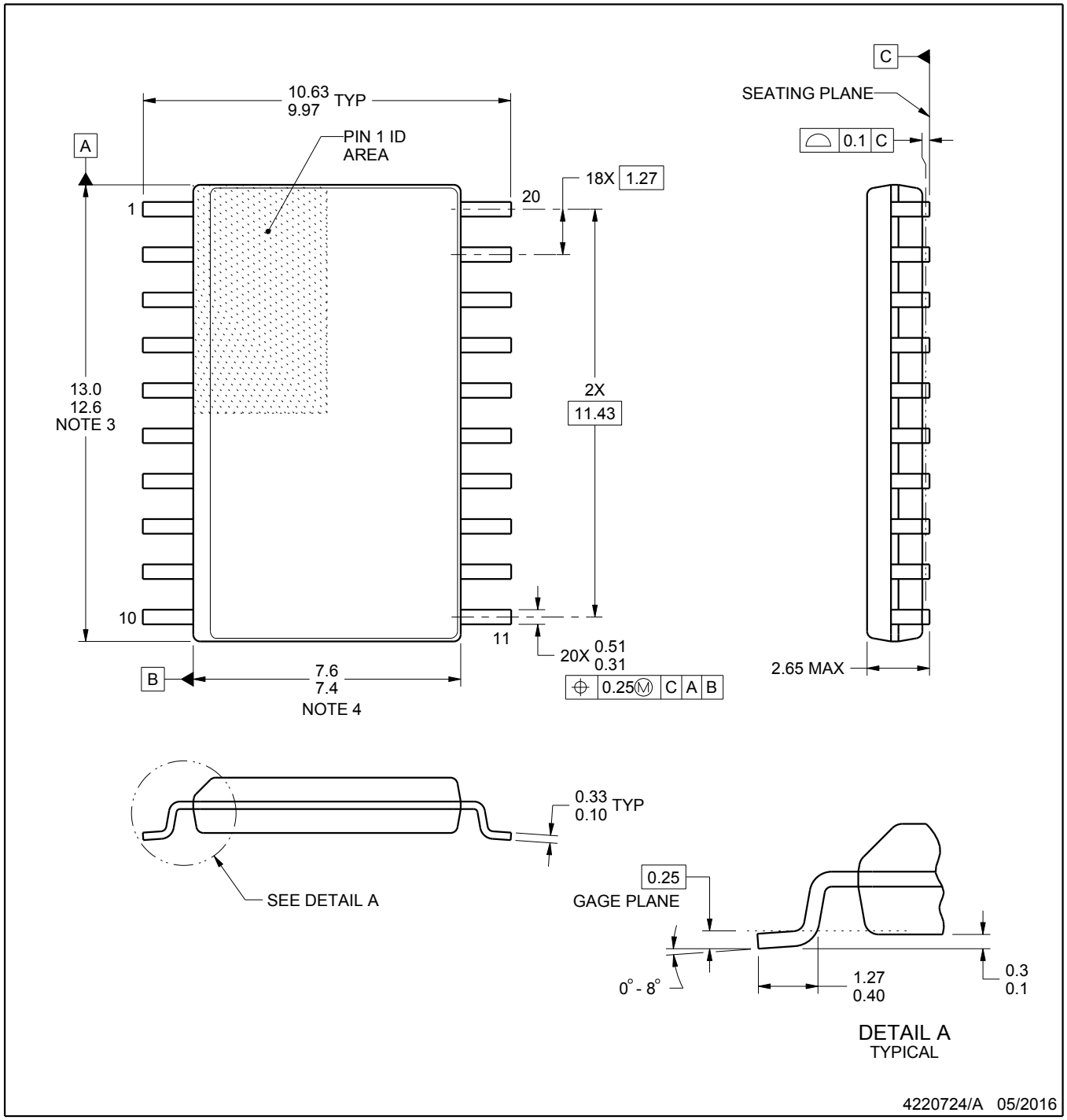


PACKAGE OUTLINE

DW0020A

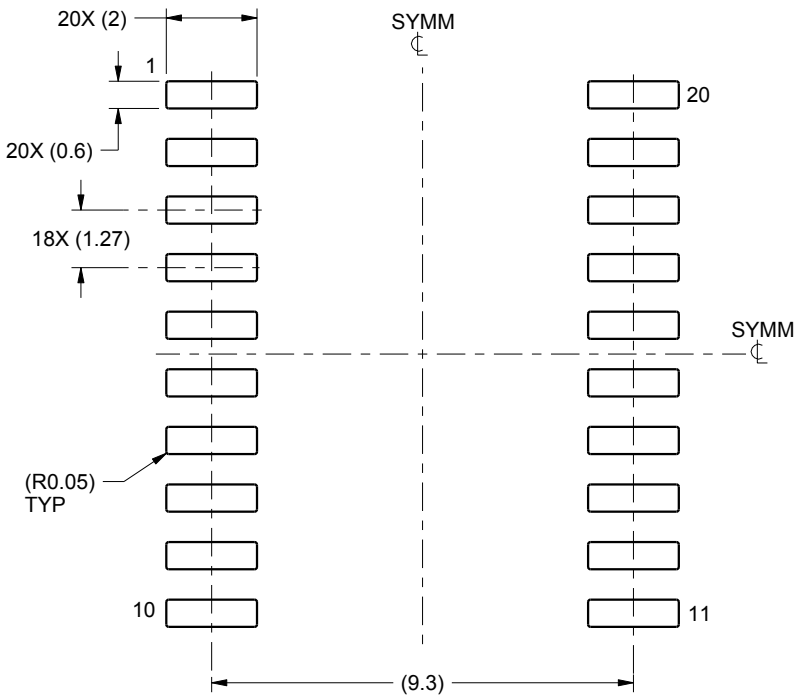
SOIC - 2.65 mm max height

SOIC

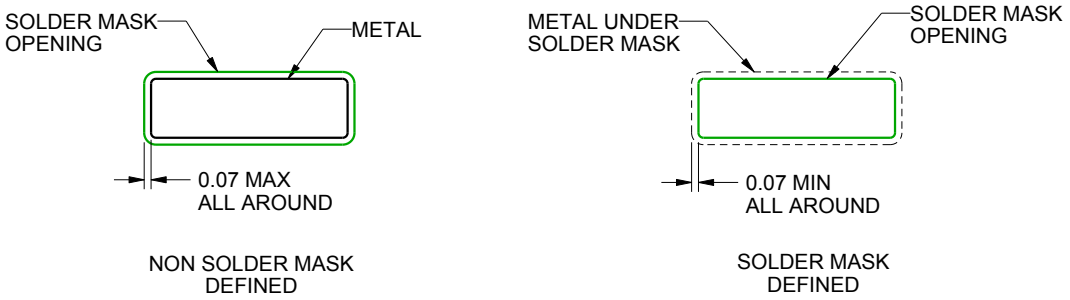


NOTES:

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-013.



LAND PATTERN EXAMPLE
SCALE:6X

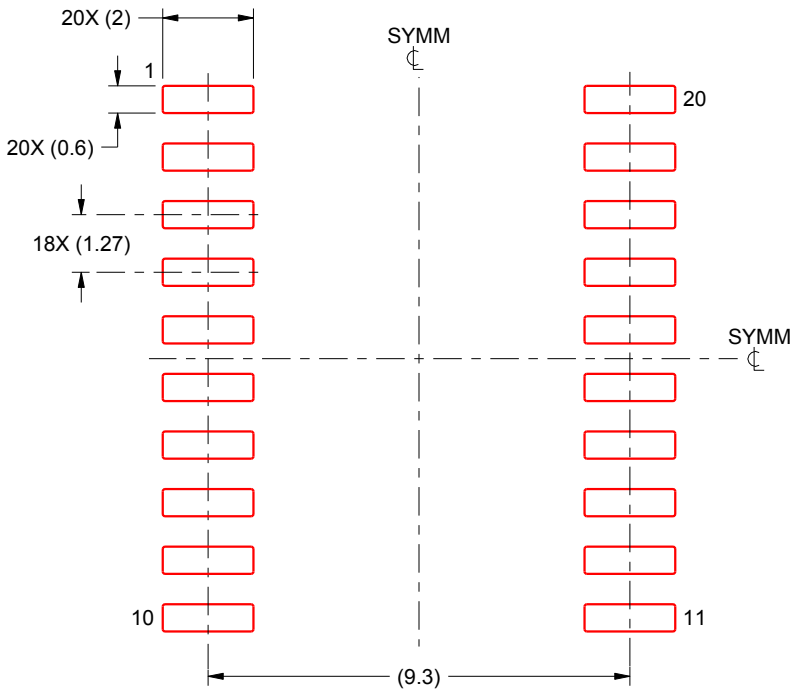


SOLDER MASK DETAILS

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.



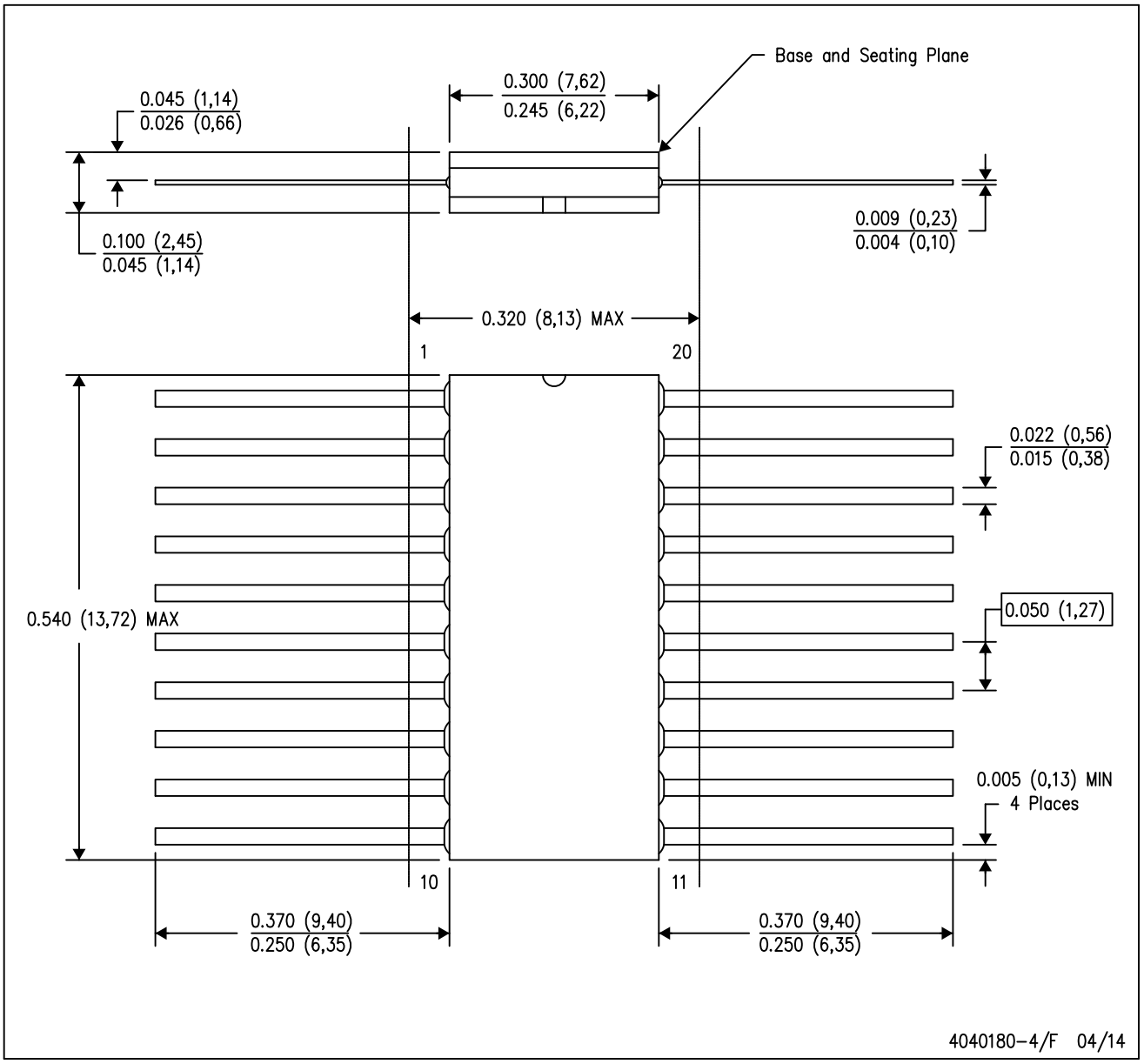
SOLDER PASTE EXAMPLE
BASED ON 0.125 mm THICK STENCIL
SCALE:6X

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.

W (R–GDFP–F20) CERAMIC DUAL FLATPACK



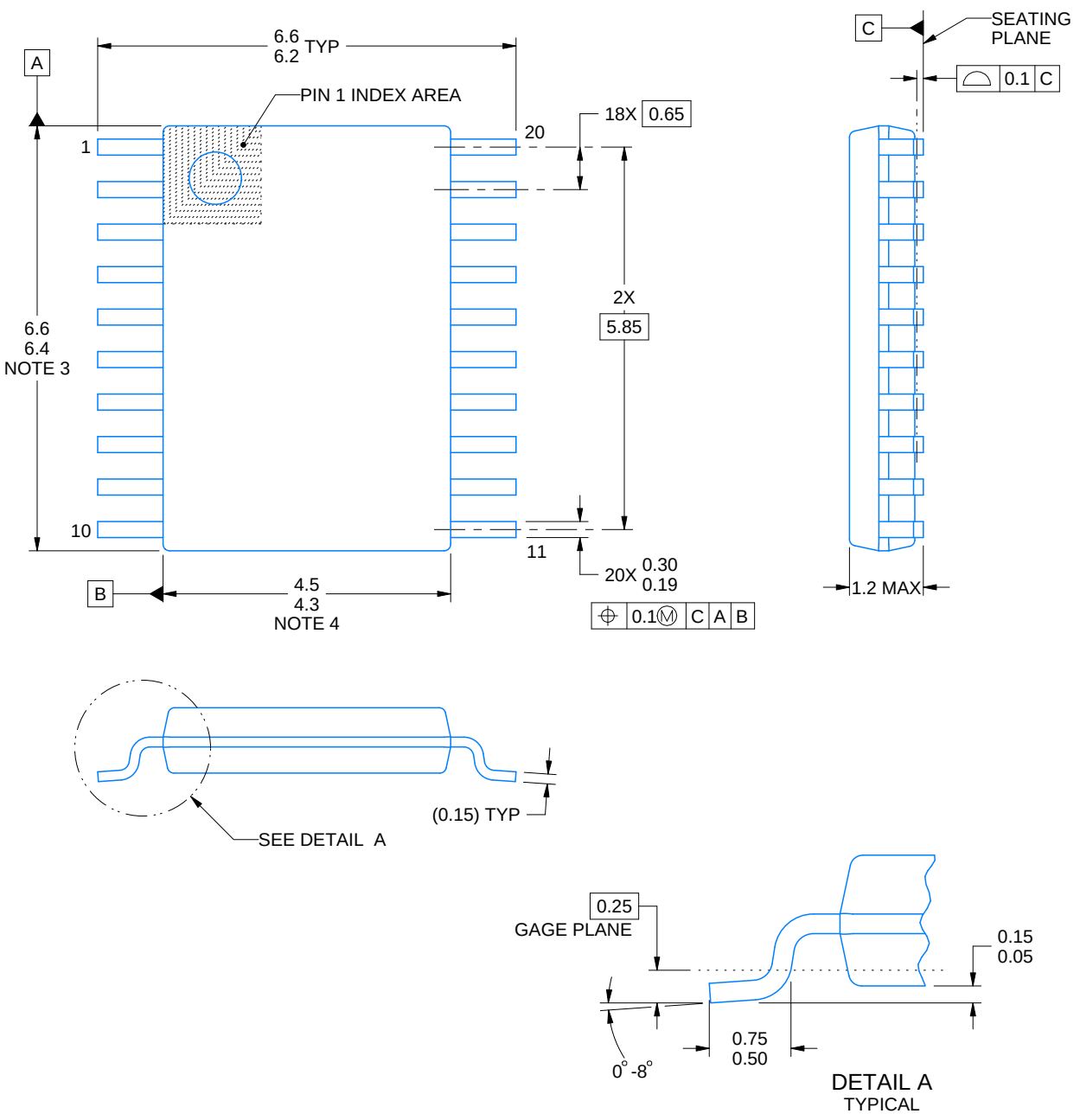
NOTES:
A. All linear dimensions are in inches (millimeters).
B. This drawing is subject to change without notice.
C. This package can be hermetically sealed with a ceramic lid using glass frit.
D. Index point is provided on cap for terminal identification only.
E. Falls within Mil–Std 1835 GDFP2–F20

PACKAGE OUTLINE

PW0020A

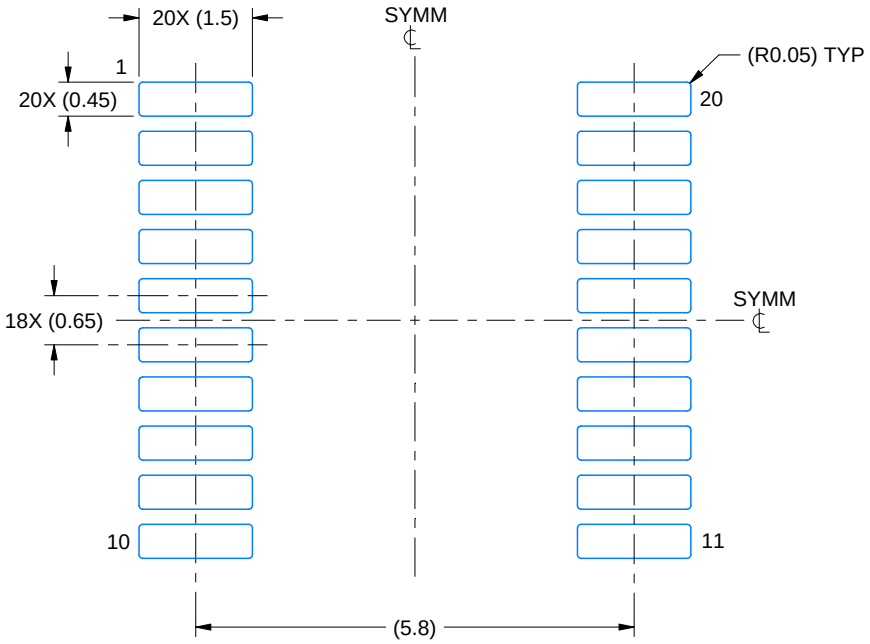
TSSOP - 1.2 mm max height

SMALL OUTLINE PACKAGE



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.



LAND PATTERN EXAMPLE
EXPOSED METAL SHOWN
SCALE: 10X

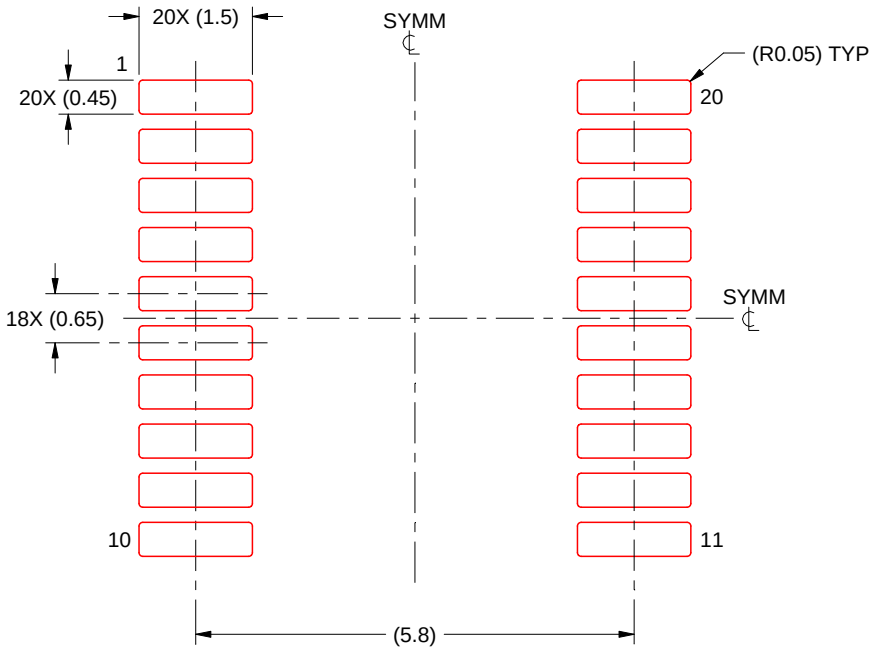


SOLDER MASK DETAILS

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.



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

4220206/A 02/2017

NOTES: (continued)

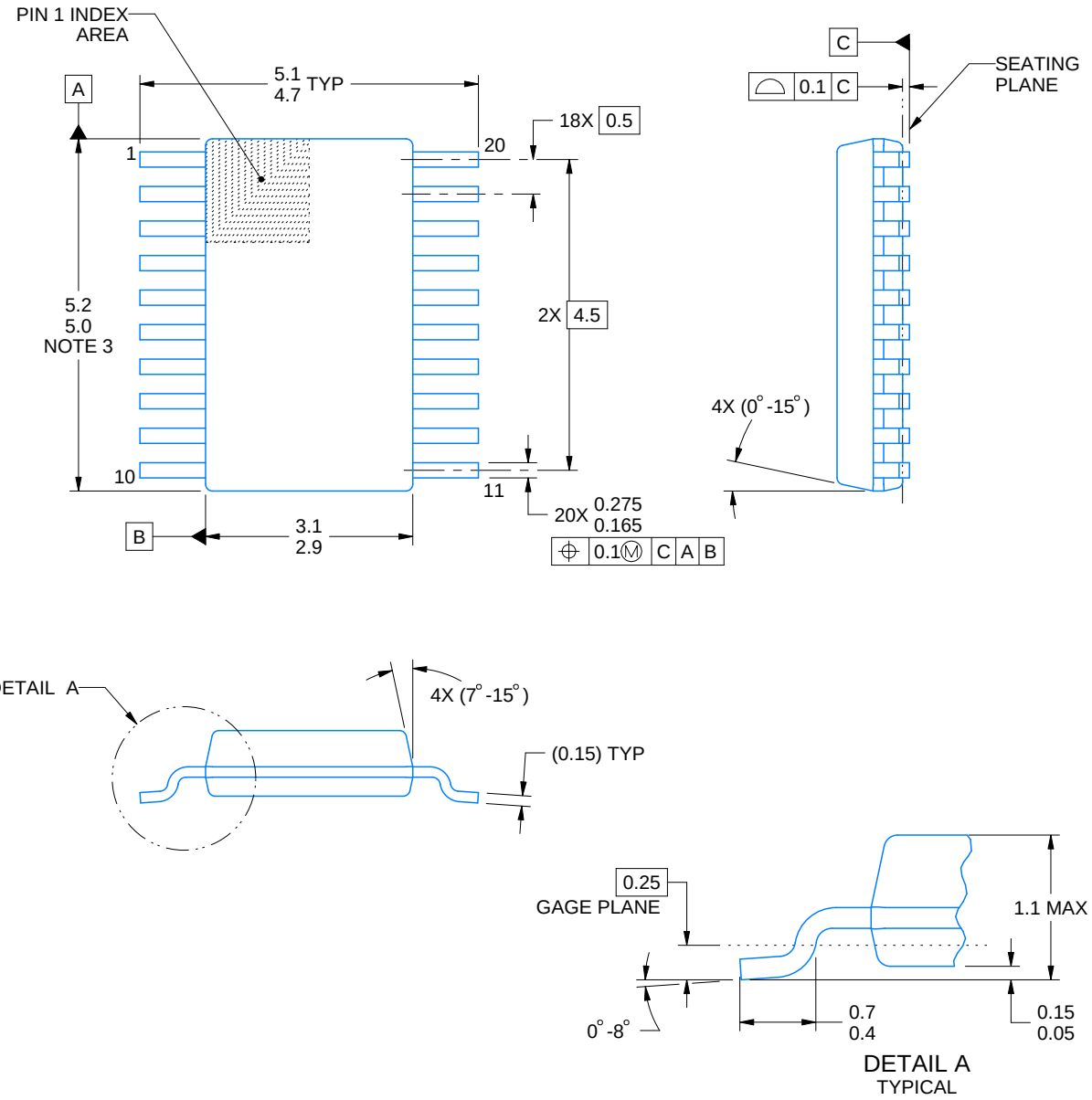
8. Laser cutting apertures with trapezoidal walls and rounded corners may offer better paste release. IPC-7525 may have alternate design recommendations.
9. Board assembly site may have different recommendations for stencil design.

PACKAGE OUTLINE

DGS0020A

VSSOP - 1.1 mm max height

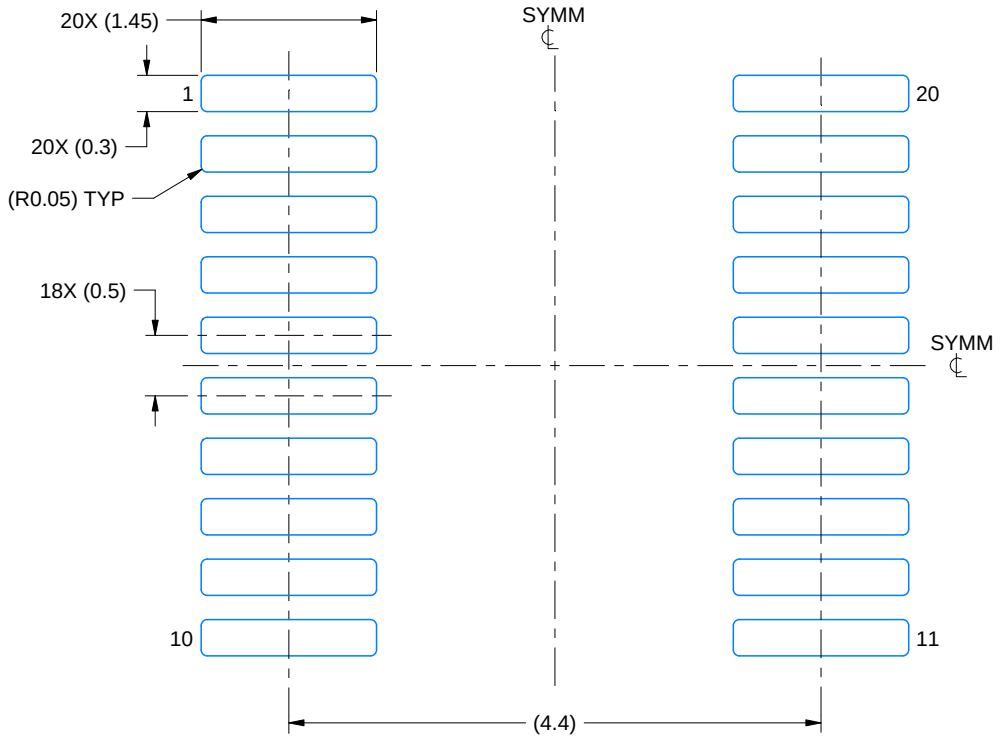
SMALL OUTLINE PACKAGE



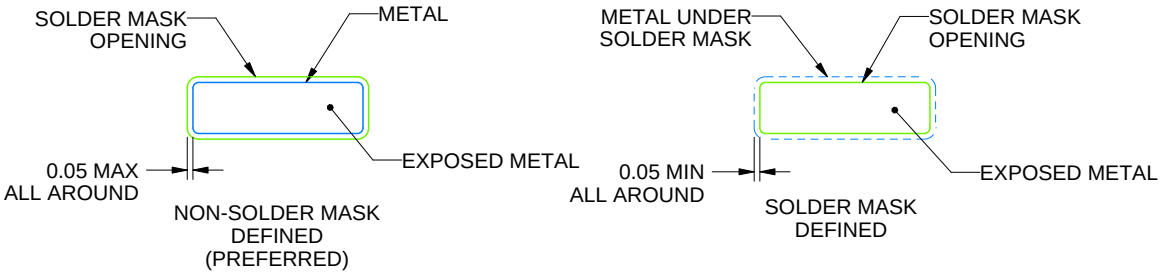
PowerPAD is a trademark of Texas Instruments.

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. No JEDEC registration as of September 2020.
5. Features may differ or may not be present.



LAND PATTERN EXAMPLE
SCALE: 16X

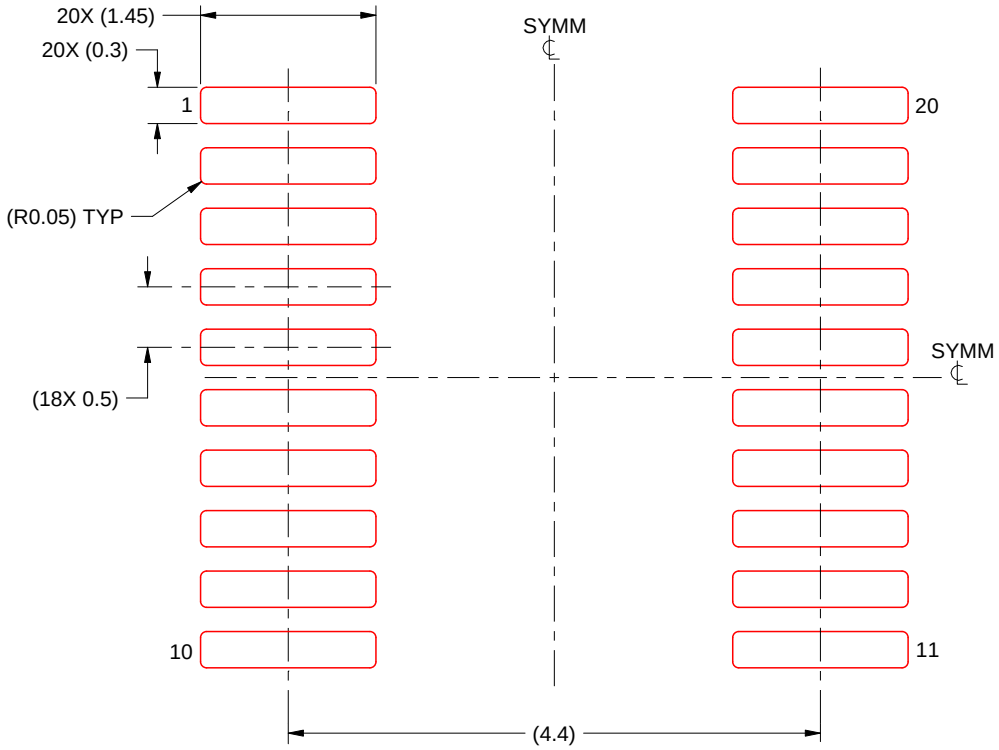


SOLDER MASK DETAILS

4226367/A 10/2020

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.
8. This package is designed to be soldered to a thermal pad on the board. For more information, see Texas Instruments literature numbers SLMA002 (www.ti.com/lit/slma002) and SLMA004 (www.ti.com/lit/slma004).
9. Size of metal pad may vary due to creepage requirement.
10. Vias are optional depending on application, refer to device data sheet. It is recommended that vias under paste be filled, plugged or tented.



SOLDER PASTE EXAMPLE
BASED ON 0.125 mm THICK STENCIL
SCALE: 16X

4226367/A 10/2020

NOTES: (continued)

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

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