### SN54ACT573, SN74ACT573 OCTAL D-TYPE TRANSPARENT LATCHES WITH 3-STATE OUTPUTS

SN54ACT573 . . . J OR W PACKAGE SN74ACT573 . . . DB, DW, N, NS, OR PW PACKAGE

SCAS538D - OCTOBER 1995 - REVISED OCTOBER 2002

- 4.5-V to 5.5-V V<sub>CC</sub> Operation
- Inputs Accept Voltages to 5.5 V
- Max t<sub>pd</sub> of 9.5 ns at 5 V
- Inputs Are TTL-Voltage Compatible

#### description/ordering information

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.

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.

	(то	P VI	EW)	
OE [	1		20	V <sub>CC</sub>
1D [	2		19	1Q
2D [	3		18	2Q
3D [	4		17	3Q
4D [	5		16	4Q
5D [	6		15	5Q
6D [	7		14	6Q
7D ]	8		13	7Q
8D [	9		12	] 8Q
GND [	10		11	] LE

SN54ACT573 . . . FK PACKAGE (TOP VIEW)

		2D	đ	Ю	V <sub>CC</sub>	ð		
	$\label{eq:lag}$							
3D		3 4	2	1	20	19	18	2Q 3Q 4Q 5Q 6Q
4D	D.	5				1	17 🛛	3Q
3D 4D 5D 6D 7D	þ þ	6				1	16[	4Q
6D	þ	7				1	15 🛛	5Q
7D		8				1	14 🛛	6Q
		9	10	11	12	13		
		80	GND	Ш	8Q	۸ Q		•

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.

To ensure the high-impedance state during power up or power down,  $\overline{OE}$  should be tied to V<sub>CC</sub> through a pullup resistor; the minimum value of the resistor is determined by the current-sinking capability of the driver.

T <sub>A</sub>	PACKAGI	<u>e</u> t	ORDERABLE PART NUMBER	TOP-SIDE MARKING
	PDIP – N	Tube	SN74ACT573N	SN74ACT573N
		Tube	SN74ACT573DW	AOT570
–40°C to 85°C	SOIC – DW	Tape and reel	SN74ACT573DWR	ACT573
	SOP – NS	Tape and reel	SN74ACT573NSR	ACT573
	SSOP – DB	Tape and reel	SN74ACT573DBR	AD573
	TSSOP – PW	Tape and reel	SN74ACT573PWR	AD573
	CDIP – J	Tube	SNJ54ACT573J	SNJ54ACT573J
–55°C to 125°C	CFP – W	Tube	SNJ54ACT573W	SNJ54ACT573W
	LCCC – FK	Tube	SNJ54ACT573FK	SNJ54ACT573FK

#### **ORDERING INFORMATION**

<sup>†</sup> Package drawings, standard packing quantities, thermal data, symbolization, and PCB design guidelines are available at www.ti.com/sc/package.



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PRODUCTION DATA information is current as of publication date. Products conform to specifications per the terms of Texas Instruments standard warranty. Production processing does not necessarily include testing of all parameters.



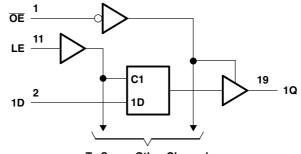
 $Copyright @ 2002, \ Texas \ Instruments \ Incorporated \\ On products \ compliant to \ MIL-PRF-3853, all parameters are tested \\ unless \ otherwise \ noted. \ On \ all \ other \ products, \ production \\ processing \ does \ not \ necessarily \ include \ testing \ of \ all \ parameters. \$ 

### SN54ACT573, SN74ACT573 OCTAL D-TYPE TRANSPARENT LATCHES WITH 3-STATE OUTPUTS

SCAS538D - OCTOBER 1995 - REVISED OCTOBER 2002

	FUNCTI (eac	ON TAE h latch)										
INPUTS OUTPUT												
ŌE	LE	D	Q									
L	Н	Н	Н									
L	н	L	L									
L	L	Х	Q <sub>0</sub>									
Н	Х	Х	Z									

#### logic diagram (positive logic)



To Seven Other Channels

#### absolute maximum ratings over operating free-air temperature range (unless otherwise noted)<sup>†</sup>

Supply voltage range, V <sub>CC</sub>		
Input voltage range, V <sub>I</sub> (see Note 1)		
Output voltage range, V <sub>O</sub> (see Note 1)		. –0.5 V to V <sub>CC</sub> + 0.5 V
Input clamp current, $I_{IK}$ (V <sub>I</sub> < 0 or V <sub>I</sub> > V <sub>CC</sub> )		±20 mA
Output clamp current, I <sub>OK</sub> (V <sub>O</sub> < 0 or V <sub>O</sub> > V <sub>CC</sub> )		±20 mA
Continuous output current, $I_O (V_O = 0 \text{ to } V_{CC})$		±50 mA
Continuous current through, V <sub>CC</sub> or GND		±200 mA
Package thermal impedance, $\theta_{JA}$ (see Note 2):	DB package	
	DW package	58°C/W
	N package	69°C/W
	NS package	60°C/W
	PW package	83°C/W
Storage temperature range, T <sub>stg</sub>		–65°C to 150°C

<sup>†</sup> 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.

NOTES: 1. The input and output voltage ratings may be exceeded if the input and output current ratings are observed.

2. The package thermal impedance is calculated in accordance with JESD 51-7.



# SN54ACT573, SN74ACT573 OCTAL D-TYPE TRANSPARENT LATCHES WITH 3-STATE OUTPUTS SCAS538D – OCTOBER 1995 – REVISED OCTOBER 2002

#### recommended operating conditions (see Note 3)

		SN54A	CT573	SN74A	CT573	
		MIN	MAX	MIN	MAX	UNIT
V <sub>CC</sub>	Supply voltage	4.5	5.5	4.5	5.5	V
V <sub>IH</sub>	High-level input voltage	2		2		V
V <sub>IL</sub>	Low-level input voltage		0.8		0.8	V
VI	Input voltage	0	$V_{CC}$	0	$V_{CC}$	V
Vo	Output voltage	0	V <sub>CC</sub>	0	$V_{CC}$	V
I <sub>OH</sub>	High-level output current		-24		-24	mA
I <sub>OL</sub>	Low-level output current		24		24	mA
$\Delta t / \Delta v$	Input transition rise or fall rate		8		8	ns/V
T <sub>A</sub>	Operating free-air temperature	-55	125	-40	85	°C

NOTE 3: All unused inputs of the device must be held at V<sub>CC</sub> or GND to ensure proper device operation. Refer to the TI application report Implications of Slow or Floating CMOS Inputs, literature number SCBA004.

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

			T	<sub>A</sub> = 25°C		SN54A	CT573	SN74A	CT573		
PARAMETER	TEST CONDITIONS	v <sub>cc</sub>	MIN	TYP	MAX	MIN	MAX	MIN	MAX	UNIT	
		4.5 V	4.4	4.49		4.4		4.4			
	I <sub>OH</sub> = -50 μA	5.5 V	5.4	5.49		5.4		5.4			
		4.5 V	3.86			3.7		3.76			
V <sub>OH</sub>	I <sub>OH</sub> = – 24 mA	5.5 V	4.86			4.7		4.76		V	
	I <sub>OH</sub> = -50 mA <sup>†</sup>	5.5 V				3.85					
	I <sub>OH</sub> = -75 mA <sup>†</sup>	5.5 V						3.85			
		4.5 V			0.1		0.1		0.1		
	I <sub>OL</sub> = 50 μA	5.5 V			0.1		0.1		0.1		
		4.5 V			0.36		0.44		0.44		
V <sub>OL</sub>	$I_{OL} = 24 \text{ mA}$	5.5 V			0.36		0.44		0.44	V	
	$I_{OL} = 50 \text{ mA}^{\dagger}$	5.5 V					1.65				
	I <sub>OL</sub> = 75 mA <sup>†</sup>	5.5 V							1.65		
I <sub>OZ</sub>	$V_{O} = V_{CC}$ or GND	5.5 V			±0.25		±5		±2.5	μA	
I <sub>I</sub>	$V_I = V_{CC}$ or GND	5.5 V			±0.1		±1		±1	μA	
I <sub>CC</sub>	$V_{I} = V_{CC} \text{ or GND}, \qquad I_{O} = 0$	5.5 V			4		80		40	μA	
$\Delta I_{CC}^{\ddagger}$	One input at 3.4 V, Other inputs at GND or $V_{CC}$	5.5 V		0.6			1.5		1.5	mA	
Ci	V <sub>I</sub> = V <sub>CC</sub> or GND	5 V		5						pF	

<sup>†</sup> Not more than one output should be tested at a time, and the duration of the test should not exceed 2 ms.

<sup>‡</sup> This is the increase in supply current for each input that is at one of the specified TTL voltage levels, rather than 0 V or V<sub>CC</sub>.

#### timing requirements over recommended operating free-air temperature range, V<sub>CC</sub> = 5 V $\pm$ 0.5 V (unless otherwise noted) (see Figure 1)

		T <sub>A</sub> = 2	25°C	SN54A	CT573	SN74A	CT573	
		MIN	MAX	MIN	MAX	MIN	MAX	UNIT
tw	Pulse duration, LE high	3.5		5		4		ns
t <sub>su</sub>	Setup time, data before LE $\downarrow$	3		4.5		3.5		ns
t <sub>h</sub>	Hold time, data after LE $\downarrow$	0		1		0		ns

# SN54ACT573, SN74ACT573 **OCTAL D-TYPE TRANSPARENT LATCHES** WITH 3-STATE OUTPUTS SCAS538D - OCTOBER 1995 - REVISED OCTOBER 2002

# switching characteristics over recommended operating free-air temperature range, $V_{CC}$ = 5 V $\pm$ 0.5 V (unless otherwise noted) (see Figure 1)

DADAMETED	FROM	то	T <sub>A</sub> = 25°C			SN54ACT573		SN74ACT573		
PARAMETER	(INPUT)	(OUTPUT)	MIN	TYP	MAX	MIN	MAX	MIN	MAX	UNIT
t <sub>PLH</sub>	D	0	2.5	6	10.5	1.5	13.5	2	12	
t <sub>PHL</sub>	U	Q	2.5	6	10.5	1.5	13.5	2	12	ns
t <sub>PLH</sub>		0	3	6	10.5	1.5	13	2.5	12	ns
t <sub>PHL</sub>	LE	Q	2.5	5.5	9.5	1.5	12	2	10.5	
t <sub>PZH</sub>	05	0	2	5.5	10	1.5	11.5	1.5	11	
t <sub>PZL</sub>	OE	Q	1.5	5.5	9.5	1.5	11	1.5	10.5	ns
t <sub>PHZ</sub>	OE	Q	2.5	6.5	11	1.5	13.5	1.5	12.5	-
t <sub>PLZ</sub>		Q	1.5	5	8.5	1.5	10.5	1	9.5	ns

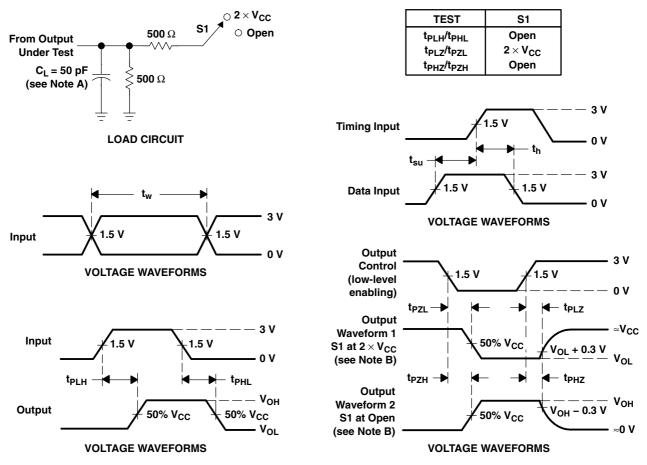
### operating characteristics, V\_{CC} = 5 V, T<sub>A</sub> = 25°C

	PARAMETER	TEST CO	TYP	UNIT	
C <sub>pd</sub>	Power dissipation capacitance	C <sub>L</sub> = 50 pF,	f = 1 MHz	25	pF



### SN54ACT573, SN74ACT573 OCTAL D-TYPE TRANSPARENT LATCHES WITH 3-STATE OUTPUTS

SCAS538D - OCTOBER 1995 - REVISED OCTOBER 2002



#### PARAMETER MEASUREMENT INFORMATION

- NOTES: 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  $\leq$  1 MHz, Z<sub>0</sub> = 50  $\Omega$ , t<sub>r</sub>  $\leq$  2.5 ns, t<sub>f</sub>  $\leq$  2.5 ns.
  - D. The outputs are measured one at a time with one input transition per measurement.

#### Figure 1. Load Circuit and Voltage Waveforms





6-Feb-2020

### PACKAGING INFORMATION

Orderable Device	Status	Package Type	•	Pins	0	Eco Plan	Lead/Ball Finish	MSL Peak Temp	Op Temp (°C)	Device Marking	Samples
	(1)		Drawing		Qty	(2)	(6)	(3)		(4/5)	
5962-87664012A	ACTIVE	LCCC	FK	20	1	TBD	POST-PLATE	N / A for Pkg Type	-55 to 125	5962- 87664012A SNJ54ACT 573FK	Samples
5962-8766401RA	ACTIVE	CDIP	J	20	1	TBD	Call TI	N / A for Pkg Type	-55 to 125	5962-8766401RA SNJ54ACT573J	Samples
5962-8766401SA	ACTIVE	CFP	W	20	1	TBD	Call TI	N / A for Pkg Type	-55 to 125	5962-8766401SA SNJ54ACT573W	Samples
SN74ACT573DBR	ACTIVE	SSOP	DB	20	2000	Green (RoHS & no Sb/Br)	NIPDAU	Level-1-260C-UNLIM	-40 to 85	AD573	Samples
SN74ACT573DW	ACTIVE	SOIC	DW	20	25	Green (RoHS & no Sb/Br)	NIPDAU	Level-1-260C-UNLIM	-40 to 85	ACT573	Samples
SN74ACT573DWR	ACTIVE	SOIC	DW	20	2000	Green (RoHS & no Sb/Br)	NIPDAU	Level-1-260C-UNLIM	-40 to 85	ACT573	Samples
SN74ACT573DWRG4	ACTIVE	SOIC	DW	20	2000	Green (RoHS & no Sb/Br)	NIPDAU	Level-1-260C-UNLIM	-40 to 85	ACT573	Samples
SN74ACT573N	ACTIVE	PDIP	Ν	20	20	Pb-Free (RoHS)	NIPDAU	N / A for Pkg Type	-40 to 85	SN74ACT573N	Samples
SN74ACT573NE4	ACTIVE	PDIP	Ν	20	20	Pb-Free (RoHS)	NIPDAU	N / A for Pkg Type	-40 to 85	SN74ACT573N	Samples
SN74ACT573NSR	ACTIVE	SO	NS	20	2000	Green (RoHS & no Sb/Br)	NIPDAU	Level-1-260C-UNLIM	-40 to 85	ACT573	Samples
SN74ACT573NSRE4	ACTIVE	SO	NS	20	2000	Green (RoHS & no Sb/Br)	NIPDAU	Level-1-260C-UNLIM	-40 to 85	ACT573	Samples
SN74ACT573PW	ACTIVE	TSSOP	PW	20	70	Green (RoHS & no Sb/Br)	NIPDAU	Level-1-260C-UNLIM	-40 to 85	AD573	Samples
SN74ACT573PWR	ACTIVE	TSSOP	PW	20	2000	Green (RoHS & no Sb/Br)	NIPDAU	Level-1-260C-UNLIM	-40 to 85	AD573	Samples
SN74ACT573PWRE4	ACTIVE	TSSOP	PW	20	2000	Green (RoHS & no Sb/Br)	NIPDAU	Level-1-260C-UNLIM	-40 to 85	AD573	Samples
SNJ54ACT573FK	ACTIVE	LCCC	FK	20	1	TBD	POST-PLATE	N / A for Pkg Type	-55 to 125	5962- 87664012A SNJ54ACT 573FK	Samples



6-Feb-2020

Orderable Device	Status	Package Type	e Package Drawing	Pins	Package Qty	Eco Plan	Lead/Ball Finish	MSL Peak Temp	Op Temp (°C)	Device Marking (4/5)	Samples
SNJ54ACT573J	ACTIVE	CDIP	J	20	1	TBD	Call TI	N / A for Pkg Type	-55 to 125	5962-8766401RA SNJ54ACT573J	Samples
SNJ54ACT573W	ACTIVE	CFP	W	20	1	TBD	Call TI	N / A for Pkg Type	-55 to 125	5962-8766401SA SNJ54ACT573W	Samples

<sup>(1)</sup> 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.

<sup>(2)</sup> 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 (CI) 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.

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

<sup>(4)</sup> There may be additional marking, which relates to the logo, the lot trace code information, or the environmental category on the device.

(<sup>5)</sup> 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.

<sup>(6)</sup> Lead/Ball Finish - Orderable Devices may have multiple material finish options. Finish options are separated by a vertical ruled line. Lead/Ball Finish values may wrap to two lines if the finish value exceeds the maximum column width.

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#### OTHER QUALIFIED VERSIONS OF SN54ACT573, SN74ACT573 :



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### PACKAGE OPTION ADDENDUM

6-Feb-2020

#### Catalog: SN74ACT573

• Military: SN54ACT573

NOTE: Qualified Version Definitions:

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

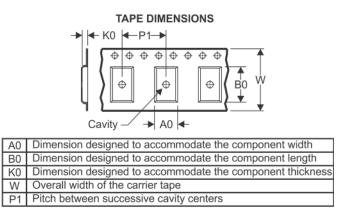
### PACKAGE MATERIALS INFORMATION

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#### TAPE AND REEL INFORMATION





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



Device	Package Type	Package Drawing		SPQ	Reel Diameter (mm)	Reel Width W1 (mm)	A0 (mm)	B0 (mm)	K0 (mm)	P1 (mm)	W (mm)	Pin1 Quadrant
SN74ACT573DBR	SSOP	DB	20	2000	330.0	16.4	8.2	7.5	2.5	12.0	16.0	Q1
SN74ACT573DWR	SOIC	DW	20	2000	330.0	24.4	10.8	13.3	2.7	12.0	24.0	Q1
SN74ACT573NSR	SO	NS	20	2000	330.0	24.4	8.4	13.0	2.5	12.0	24.0	Q1
SN74ACT573PWR	TSSOP	PW	20	2000	330.0	16.4	6.95	7.1	1.6	8.0	16.0	Q1

TEXAS INSTRUMENTS

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### PACKAGE MATERIALS INFORMATION

6-May-2017

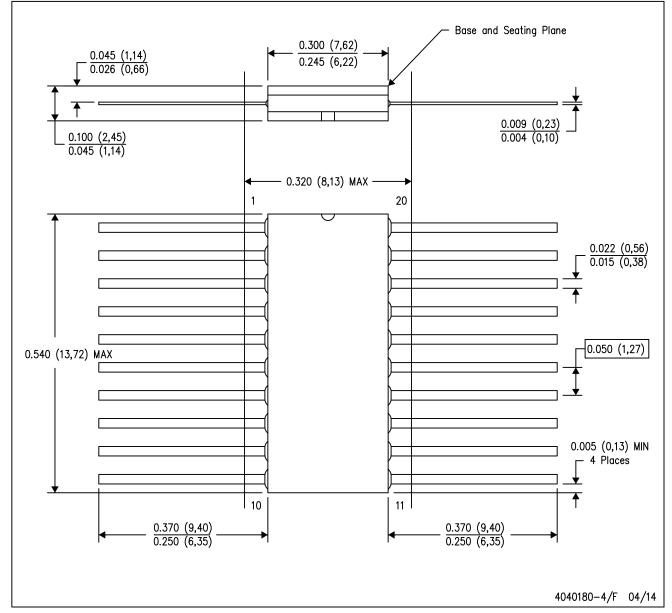


\*All dimensions are nominal

Device	Package Type	Package Drawing	Pins	SPQ	Length (mm)	Width (mm)	Height (mm)
SN74ACT573DBR	SSOP	DB	20	2000	367.0	367.0	38.0
SN74ACT573DWR	SOIC	DW	20	2000	367.0	367.0	45.0
SN74ACT573NSR	SO	NS	20	2000	367.0	367.0	45.0
SN74ACT573PWR	TSSOP	PW	20	2000	367.0	367.0	38.0

W (R-GDFP-F20)

CERAMIC DUAL FLATPACK



- NOTES: A. All linear dimensions are in inches (millimeters).
  - This drawing is subject to change without notice. В.
  - 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



LEADLESS CERAMIC CHIP CARRIER

FK (S-CQCC-N\*\*) 28 TERMINAL SHOWN



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 metal lid.
- D. Falls within JEDEC MS-004



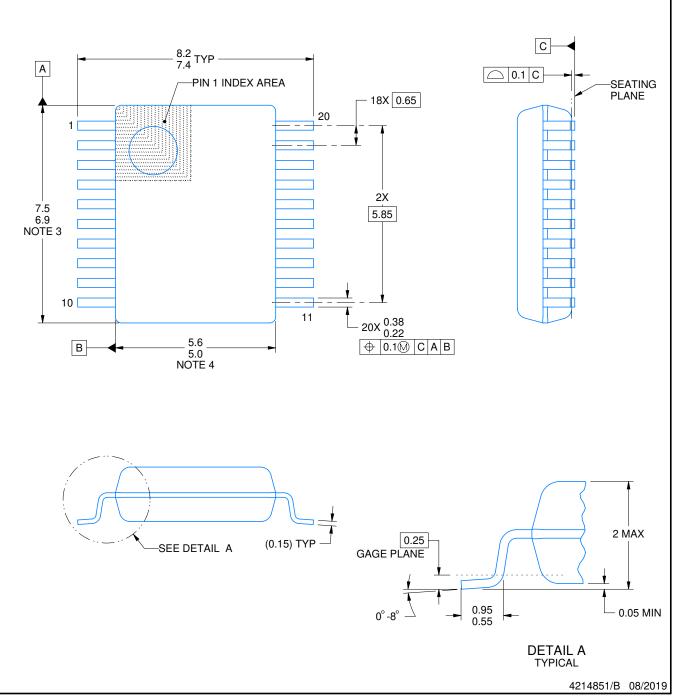
# **DB0020A**



# **PACKAGE OUTLINE**

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.

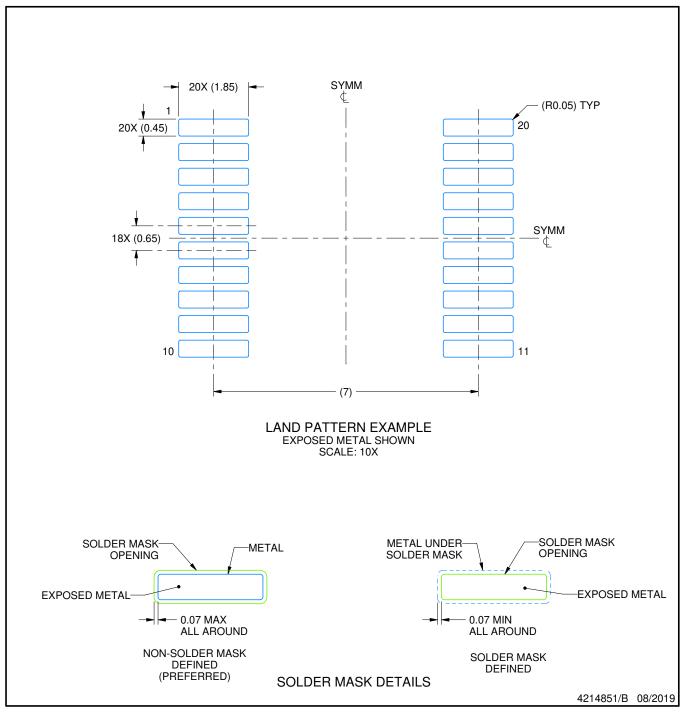


# DB0020A

# **EXAMPLE BOARD LAYOUT**

### SSOP - 2 mm max height

SMALL OUTLINE PACKAGE



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.

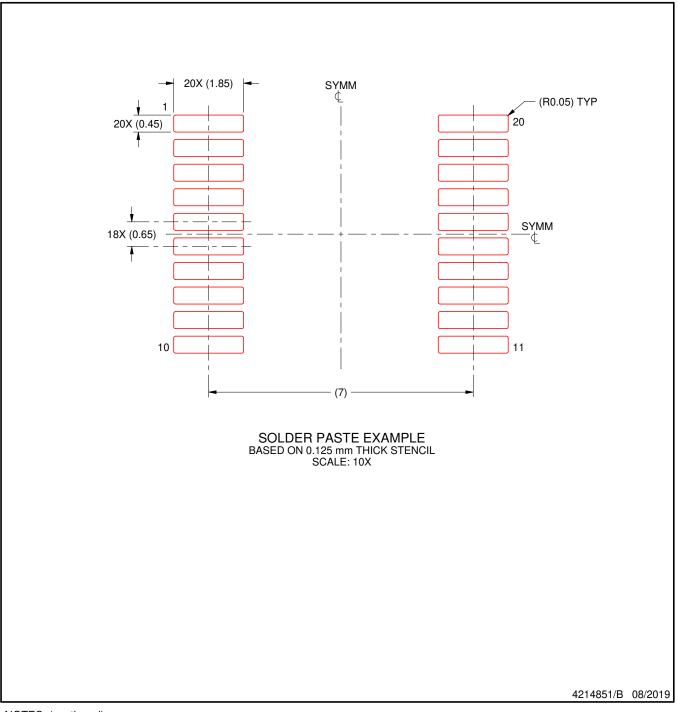


# DB0020A

# **EXAMPLE STENCIL DESIGN**

### SSOP - 2 mm max height

SMALL OUTLINE PACKAGE



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

#### PLASTIC SMALL-OUTLINE PACKAGE

#### 0,51 0,35 ⊕0,25⊛ 1,27 8 14 0,15 NOM 5,60 8,20 5,00 7,40 $\bigcirc$ Gage Plane ₽ 0,25 7 1 1,05 0,55 0°-10° Δ 0,15 0,05 Seating Plane — 2,00 MAX 0,10PINS \*\* 14 16 20 24 DIM 10,50 10,50 12,90 15,30 A MAX A MIN 9,90 9,90 12,30 14,70 4040062/C 03/03

NOTES: A. All linear dimensions are in millimeters.

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

**14-PINS SHOWN** 

- B. This drawing is subject to change without notice.
- C. Body dimensions do not include mold flash or protrusion, not to exceed 0,15.



J (R-GDIP-T\*\*) 14 LEADS SHOWN

CERAMIC DUAL IN-LINE PACKAGE

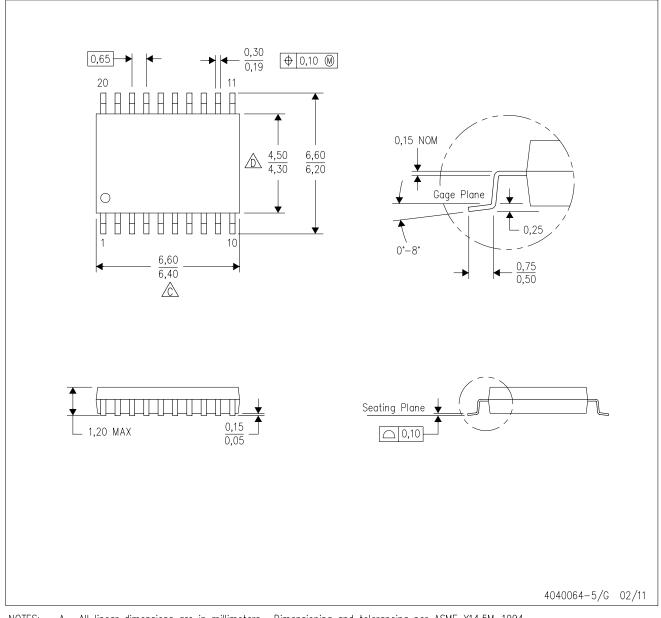


NOTES: A. All linear dimensions are in inches (millimeters).

- 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.

PW (R-PDSO-G20)

PLASTIC SMALL OUTLINE



NOTES:

A. All linear dimensions are in millimeters. Dimensioning and tolerancing per ASME Y14.5M-1994.  $\beta$ . This drawing is subject to change without notice.

Body length does not include mold flash, protrusions, or gate burrs. Mold flash, protrusions, or gate burrs shall not exceed 0,15 each side.

Body width does not include interlead flash. Interlead flash shall not exceed 0,25 each side.

E. Falls within JEDEC MO-153



### LAND PATTERN DATA



NOTES: Α. 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.



### 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).
- $\triangle$  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



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.



# DW0020A

# **EXAMPLE BOARD LAYOUT**

### SOIC - 2.65 mm max height

SOIC



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.

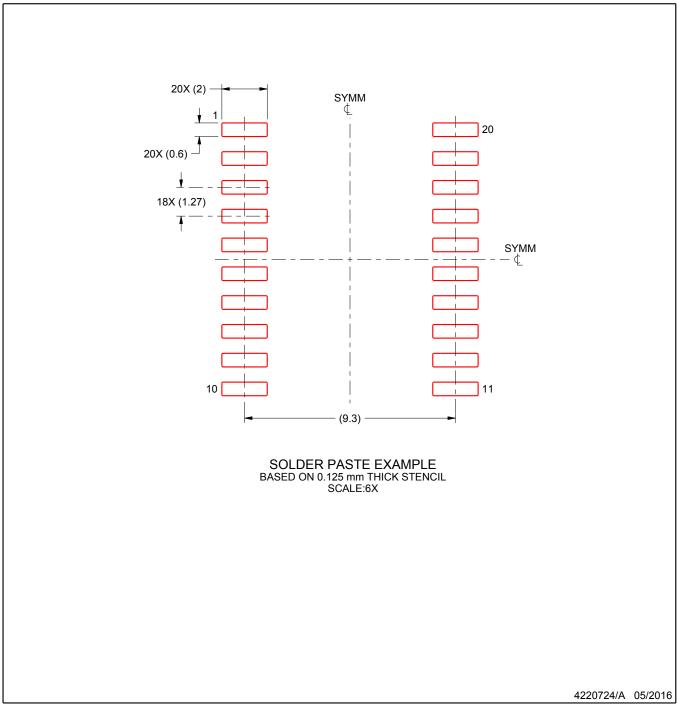


# DW0020A

# **EXAMPLE STENCIL DESIGN**

### SOIC - 2.65 mm max height

SOIC



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.



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