

# SN54AHCT573, SN74AHCT573 OCTAL TRANSPARENT D-TYPE LATCHES WITH 3-STATE OUTPUTS

SCLS243N – OCTOBER 1995 – REVISED JULY 2003

- Inputs Are TTL-Voltage Compatible
- Latch-Up Performance Exceeds 250 mA Per JESD 17
- ESD Protection Exceeds JESD 22
  - 2000-V Human-Body Model (A114-A)
  - 200-V Machine Model (A115-A)
  - 1000-V Charged-Device Model (C101)

## description/ordering information

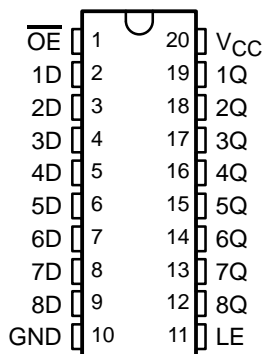
The 'AHCT573 devices are octal transparent D-type latches. When the latch-enable (LE) input is high, the Q outputs follow the data (D) inputs. When LE is low, the Q outputs are latched at the logic levels of the D inputs.

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 pullup components.

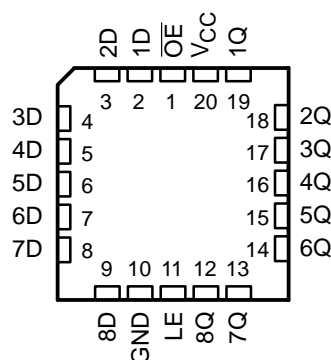
To ensure the high-impedance state during power up or power down,  $\overline{OE}$  should be tied to  $V_{CC}$  through a pullup resistor; the minimum value of the resistor is determined by the current-sinking capability of the driver.

$\overline{OE}$  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.

SN54AHCT573 . . . J OR W PACKAGE  
SN74AHCT573 . . . DB, DGV, DW, N, NS, OR PW PACKAGE  
(TOP VIEW)



SN54AHCT573 . . . FK PACKAGE  
(TOP VIEW)



## ORDERING INFORMATION

$T_A$	PACKAGE†		ORDERABLE PART NUMBER	TOP-SIDE MARKING
–40°C to 85°C	PDIP – N	Tube	SN74AHCT573N	SN74AHCT573N
	SOIC – DW	Tube	SN74AHCT573DW	AHCT573
		Tape and reel	SN74AHCT573DWR	
	SOP – NS	Tape and reel	SN74AHCT573NSR	AHCT573
	SSOP – DB	Tape and reel	SN74AHCT573DBR	HB573
	TSSOP – PW	Tube	SN74AHCT573PW	HB573
		Tape and reel	SN74AHCT573PWR	
–55°C to 125°C	TVSOP – DGV	Tape and reel	SN74AHCT573DGVR	HB573
	CDIP – J	Tube	SNJ54AHCT573J	SNJ54AHCT573J
	CFP – W	Tube	SNJ54AHCT573W	SNJ54AHCT573W
	LCCC – FK	Tube	SNJ54AHCT573FK	SNJ54AHCT573FK

† Package drawings, standard packing quantities, thermal data, symbolization, and PCB design guidelines are available at [www.ti.com/sc/package](http://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.

**TEXAS  
INSTRUMENTS**

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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.

# SN54AHCT573, SN74AHCT573

## OCTAL TRANSPARENT D-TYPE LATCHES

## WITH 3-STATE OUTPUTS

## FUNCTION TABLE

INPUTS			OUTPUT Q
OE	LE	D	
L	H	H	H
L	H	L	L
L	L	X	$Q_0$
H	X	X	Z

Logic diagram of a 16-channel multiplexer. The inputs are OE (1), LE (11), and 1D (2). OE is inverted and then ANDed with LE. The output of this AND gate is connected to the clock input of a multiplexer block labeled 'C1 1D'. The output of the multiplexer is connected to an output line labeled '19 1Q'. A bracket below the output line indicates it is connected to seven other channels.

Supply voltage range, $V_{CC}$	.....	-0.5 V to 7 V
Input voltage range, $V_I$ (see Note 1)	.....	-0.5 V to 7 V
Output voltage range, $V_O$ (see Note 1)	.....	-0.5 V to $V_{CC} + 0.5$ V
Input clamp current, $I_{IK}$ ( $V_I < 0$ )	.....	-20 mA
Output clamp current, $I_{OK}$ ( $V_O < 0$ or $V_O > V_{CC}$ )	.....	$\pm 20$ mA
Continuous output current, $I_O$ ( $V_O = 0$ to $V_{CC}$ )	.....	$\pm 25$ mA
Continuous current through $V_{CC}$ or GND	.....	$\pm 75$ mA
Package thermal impedance, $\theta_{JA}$ (see Note 2):		
DB package	.....	70°C/W
DGV package	.....	92°C/W
DW package	.....	58°C/W
N package	.....	69°C/W
NS package	.....	60°C/W
PW package	.....	83°C/W

† Stresses beyond those listed under “absolute maximum ratings” may cause permanent damage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated under “recommended operating conditions” is not implied. Exposure to absolute-maximum-rated conditions for extended periods may affect device reliability.

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

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## recommended operating conditions (see Note 3)

		SN54AHCT573		SN74AHCT573		UNIT
		MIN	MAX	MIN	MAX	
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
V <sub>I</sub>	Input voltage	0	5.5	0	5.5	V
V <sub>O</sub>	Output voltage	0	V <sub>CC</sub>	0	V <sub>CC</sub>	V
I <sub>OH</sub>	High-level output current		–8		–8	mA
I <sub>OL</sub>	Low-level output current		8		8	mA
Δt/Δv	Input transition rise or fall rate		20		20	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)

PARAMETER	TEST CONDITIONS	V <sub>CC</sub>	T <sub>A</sub> = 25°C			SN54AHCT573		SN74AHCT573		UNIT
			MIN	TYP	MAX	MIN	MAX	MIN	MAX	
V <sub>OH</sub>	I <sub>OH</sub> = –50 μA	4.5 V	4.4	4.5		4.4		4.4		V
	I <sub>OH</sub> = –8 mA		3.94			3.8		3.8		
V <sub>OL</sub>	I <sub>OL</sub> = 50 μA	4.5 V			0.1	0.1		0.1		V
	I <sub>OL</sub> = 8 mA				0.36	0.44		0.44		
I <sub>I</sub>	V <sub>I</sub> = 5.5 V or GND	0 V to 5.5 V			±0.1	±1*		±1		μA
I <sub>OZ</sub>	V <sub>O</sub> = V <sub>CC</sub> or GND	5.5 V			±0.25	±2.5		±2.5		μA
I <sub>CC</sub>	V <sub>I</sub> = 5.5 V or GND, I <sub>O</sub> = 0	5.5 V			4	40		40		μA
ΔI <sub>CC</sub> †	One input at 3.4 V, Other inputs at V <sub>CC</sub> or GND	5.5 V			1.35	1.5		1.5		mA
C <sub>i</sub>	V <sub>I</sub> = V <sub>CC</sub> or GND	5 V		2.5	10				10	pF
C <sub>O</sub>	V <sub>O</sub> = V <sub>CC</sub> or GND	5 V		3						pF

\* On products compliant to MIL-PRF-38535, this parameter is not production tested at V<sub>CC</sub> = 0 V.

† This is the increase in supply current for each input 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 ± 0.5 V (unless otherwise noted) (see Figure 1)

		T <sub>A</sub> = 25°C		SN54AHCT573		SN74AHCT573		UNIT
		MIN	MAX	MIN	MAX	MIN	MAX	
t <sub>w</sub>	Pulse duration, LE high	5		5		5		ns
t <sub>su</sub>	Setup time, data before LE↓	3.5		3.5		3.5		ns
t <sub>h</sub>	Hold time, data after LE↓	1.5		1.5		1.5		ns



# SN54AHCT573, SN74AHCT573

## OCTAL TRANSPARENT D-TYPE LATCHES

### WITH 3-STATE OUTPUTS

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

PARAMETER	FROM (INPUT)	TO (OUTPUT)	LOAD CAPACITANCE	T <sub>A</sub> = 25°C			SN54AHCT573		SN74AHCT573		UNIT
				MIN	TYP	MAX	MIN	MAX	MIN	MAX	
t <sub>PLH</sub>	D	Q	C <sub>L</sub> = 15 pF	4.2*	6*	1*	6.5*	1	6.5	ns	
t <sub>PHL</sub>				5.1*	7*	1*	9*	1	9		
t <sub>PLH</sub>	LE	Q	C <sub>L</sub> = 15 pF	4.7*	6.5*	1*	7.5*	1	7.5	ns	
t <sub>PHL</sub>				5.6*	7.5*	1*	9*	1	9		
t <sub>PZH</sub>	$\overline{OE}$	Q	C <sub>L</sub> = 15 pF	4.1*	6.5*	1*	7*	1	7	ns	
t <sub>PZL</sub>				5.5*	7.5*	1*	10*	1	10		
t <sub>PHZ</sub>	$\overline{OE}$	Q	C <sub>L</sub> = 15 pF	5.5*	8*	1*	11*	1	11	ns	
t <sub>PLZ</sub>				5.4*	8*	1*	9.5*	1	9.5		
t <sub>PLH</sub>	D	Q	C <sub>L</sub> = 50 pF	5.2	7	1	7.5	1	7.5	ns	
t <sub>PHL</sub>				6.1	8	1	10	1	10		
t <sub>PLH</sub>	LE	Q	C <sub>L</sub> = 50 pF	5.7	7.5	1	8.5	1	8.5	ns	
t <sub>PHL</sub>				6.6	8.5	1	10	1	10		
t <sub>PZH</sub>	$\overline{OE}$	Q	C <sub>L</sub> = 50 pF	5.1	7.5	1	8	1	8	ns	
t <sub>PZL</sub>				6.5	8.5	1	11	1	11		
t <sub>PHZ</sub>	$\overline{OE}$	Q	C <sub>L</sub> = 50 pF	6.7	9	1	12	1	12	ns	
t <sub>PLZ</sub>				6.4	9	1	10.5	1	10.5		
t <sub>sk(o)</sub>			C <sub>L</sub> = 50 pF	1.5**					1.5	ns	

\* On products compliant to MIL-PRF-38535, this parameter is not production tested.

\*\* On products compliant to MIL-PRF-38535, this parameter does not apply.

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

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

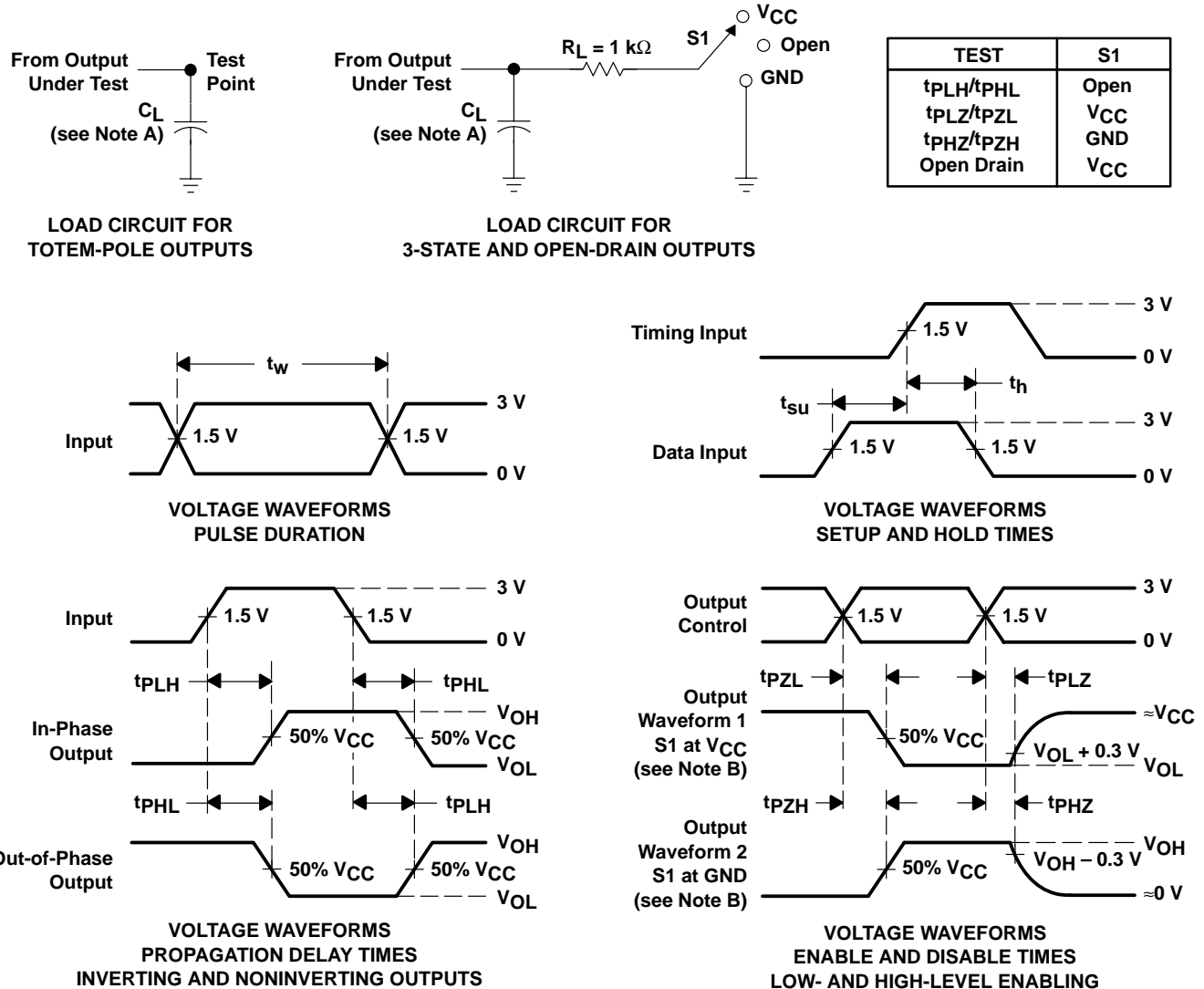


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## PARAMETER MEASUREMENT INFORMATION



- NOTES: A.  $C_L$  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:  $PRR \leq 1\text{ MHz}$ ,  $Z_O = 50\ \Omega$ ,  $t_r \leq 3\text{ ns}$ ,  $t_f \leq 3\text{ ns}$ .
- D. The outputs are measured one at a time with one input transition per measurement.
- E. All parameters and waveforms are not applicable to all devices.

Figure 1. Load Circuit and Voltage Waveforms

**PACKAGING INFORMATION**

Orderable Device	Status (1)	Package Type	Package Drawing	Pins	Package Qty	Eco Plan (2)	Lead/Ball Finish	MSL Peak Temp (3)	Op Temp (°C)	Top-Side Markings (4)	Samples
5962-9685501Q2A	ACTIVE	LCCC	FK	20	1	TBD	Call TI	Call TI	-55 to 125	5962-9685501Q2A SNJ54AHCT 573FK	<a href="#">Samples</a>
5962-9685501QRA	ACTIVE	CDIP	J	20	1	TBD	Call TI	Call TI	-55 to 125	5962-9685501QR A SNJ54AHCT573J	<a href="#">Samples</a>
5962-9685501QSA	ACTIVE	CFP	W	20	1	TBD	Call TI	Call TI	-55 to 125	5962-9685501QS A SNJ54AHCT573W	<a href="#">Samples</a>
SN74AHCT573DBLE	OBSOLETE	SSOP	DB	20		TBD	Call TI	Call TI	-40 to 85		
SN74AHCT573DBR	ACTIVE	SSOP	DB	20	2000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	HB573	<a href="#">Samples</a>
SN74AHCT573DBRE4	ACTIVE	SSOP	DB	20	2000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	HB573	<a href="#">Samples</a>
SN74AHCT573DBRG4	ACTIVE	SSOP	DB	20	2000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	HB573	<a href="#">Samples</a>
SN74AHCT573DGVR	ACTIVE	TVSOP	DGV	20	2000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	HB573	<a href="#">Samples</a>
SN74AHCT573DGVRE4	ACTIVE	TVSOP	DGV	20	2000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	HB573	<a href="#">Samples</a>
SN74AHCT573DGVRG4	ACTIVE	TVSOP	DGV	20	2000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	HB573	<a href="#">Samples</a>
SN74AHCT573DW	ACTIVE	SOIC	DW	20	25	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	AHCT573	<a href="#">Samples</a>
SN74AHCT573DWE4	ACTIVE	SOIC	DW	20	25	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	AHCT573	<a href="#">Samples</a>
SN74AHCT573DWG4	ACTIVE	SOIC	DW	20	25	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	AHCT573	<a href="#">Samples</a>
SN74AHCT573DWR	ACTIVE	SOIC	DW	20	2000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	AHCT573	<a href="#">Samples</a>
SN74AHCT573DWRE4	ACTIVE	SOIC	DW	20	2000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	AHCT573	<a href="#">Samples</a>
SN74AHCT573DWRG4	ACTIVE	SOIC	DW	20	2000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	AHCT573	<a href="#">Samples</a>

Orderable Device	Status (1)	Package Type	Package Drawing	Pins	Package Qty	Eco Plan (2)	Lead/Ball Finish	MSL Peak Temp (3)	Op Temp (°C)	Top-Side Markings (4)	Samples
SN74AHCT573N	ACTIVE	PDIP	N	20	20	Pb-Free (RoHS)	CU NIPDAU	N / A for Pkg Type	-40 to 85	SN74AHCT573N	<a href="#">Samples</a>
SN74AHCT573NE4	ACTIVE	PDIP	N	20	20	Pb-Free (RoHS)	CU NIPDAU	N / A for Pkg Type	-40 to 85	SN74AHCT573N	<a href="#">Samples</a>
SN74AHCT573PW	ACTIVE	TSSOP	PW	20	70	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	HB573	<a href="#">Samples</a>
SN74AHCT573PWE4	ACTIVE	TSSOP	PW	20	70	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	HB573	<a href="#">Samples</a>
SN74AHCT573PWG4	ACTIVE	TSSOP	PW	20	70	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	HB573	<a href="#">Samples</a>
SN74AHCT573PWLE	OBSOLETE	TSSOP	PW	20		TBD	Call TI	Call TI	-40 to 85		
SN74AHCT573PWR	ACTIVE	TSSOP	PW	20	2000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	HB573	<a href="#">Samples</a>
SN74AHCT573PWRE4	ACTIVE	TSSOP	PW	20	2000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	HB573	<a href="#">Samples</a>
SN74AHCT573PWRG4	ACTIVE	TSSOP	PW	20	2000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	HB573	<a href="#">Samples</a>
SNJ54AHCT573FK	ACTIVE	LCCC	FK	20	1	TBD	POST-PLATE	N / A for Pkg Type	-55 to 125	5962- 9685501Q2A SNJ54AHCT 573FK	<a href="#">Samples</a>
SNJ54AHCT573J	ACTIVE	CDIP	J	20	1	TBD	A42	N / A for Pkg Type	-55 to 125	5962-9685501QR A SNJ54AHCT573J	<a href="#">Samples</a>
SNJ54AHCT573W	ACTIVE	CFP	W	20	1	TBD	Call TI	N / A for Pkg Type	-55 to 125	5962-9685501QS A SNJ54AHCT573W	<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) Eco Plan - The planned eco-friendly classification: Pb-Free (RoHS), Pb-Free (RoHS Exempt), or Green (RoHS & no Sb/Br) - please check <http://www.ti.com/productcontent> for the latest availability information and additional product content details.

**TBD:** The Pb-Free/Green conversion plan has not been defined.

**Pb-Free (RoHS):** TI's terms "Lead-Free" or "Pb-Free" mean semiconductor products that are compatible with the current RoHS requirements for all 6 substances, including the requirement that lead not exceed 0.1% by weight in homogeneous materials. Where designed to be soldered at high temperatures, TI Pb-Free products are suitable for use in specified lead-free processes.

**Pb-Free (RoHS Exempt):** This component has a RoHS exemption for either 1) lead-based flip-chip solder bumps used between the die and package, or 2) lead-based die adhesive used between the die and leadframe. The component is otherwise considered Pb-Free (RoHS compatible) as defined above.

**Green (RoHS & no Sb/Br):** TI defines "Green" to mean Pb-Free (RoHS compatible), and free of Bromine (Br) and Antimony (Sb) based flame retardants (Br or Sb do not exceed 0.1% by weight in homogeneous material)

<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> Only one of markings shown within the brackets will appear on the physical device.

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**OTHER QUALIFIED VERSIONS OF SN54AHCT573, SN74AHCT573 :**

- Catalog: [SN74AHCT573](#)
- Automotive: [SN74AHCT573-Q1](#), [SN74AHCT573-Q1](#)
- Military: [SN54AHCT573](#)

**NOTE: Qualified Version Definitions:**

- Catalog - TI's standard catalog product
- Automotive - Q100 devices qualified for high-reliability automotive applications targeting zero defects
- Military - QML certified for Military and Defense Applications



**TAPE AND REEL INFORMATION**


\*All dimensions are nominal

Device	Package Type	Package Drawing	Pins	SPQ	Reel Diameter (mm)	Reel Width W1 (mm)	A0 (mm)	B0 (mm)	K0 (mm)	P1 (mm)	W (mm)	Pin1 Quadrant
SN74AHCT573DBR	SSOP	DB	20	2000	330.0	16.4	8.2	7.5	2.5	12.0	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	13.0	2.7	12.0	24.0	Q1
SN74AHCT573PWR	TSSOP	PW	20	2000	330.0	16.4	6.95	7.1	1.6	8.0	16.0	Q1
SN74AHCT573PWR	TSSOP	PW	20	2000	330.0	16.4	6.95	7.1	1.6	8.0	16.0	Q1
SN74AHCT573PWGR4	TSSOP	PW	20	2000	330.0	16.4	6.95	7.1	1.6	8.0	16.0	Q1

## TAPE AND REEL BOX DIMENSIONS

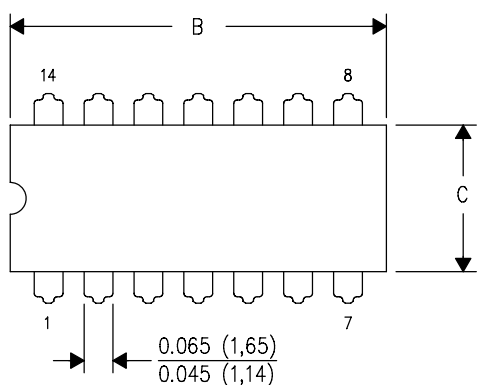


\*All dimensions are nominal

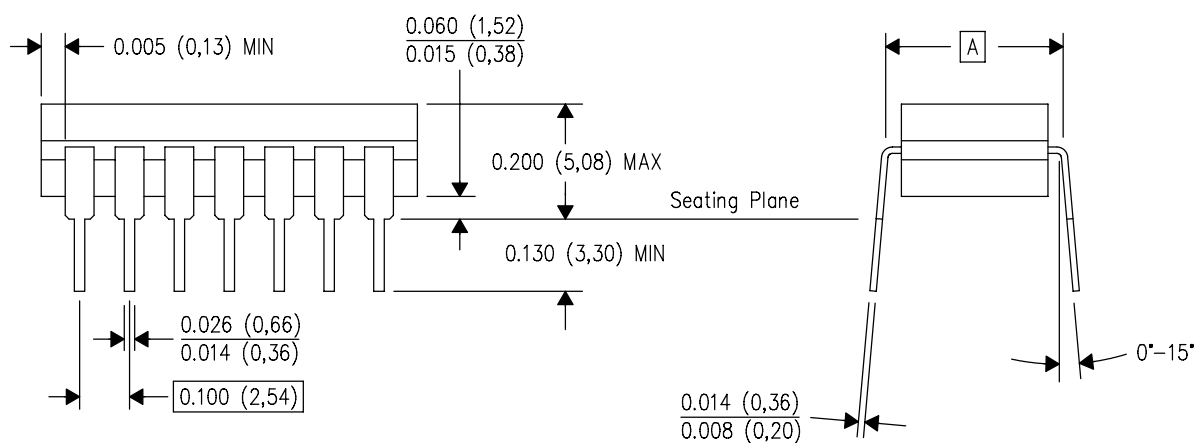
Device	Package Type	Package Drawing	Pins	SPQ	Length (mm)	Width (mm)	Height (mm)
SN74AHCT573DBR	SSOP	DB	20	2000	367.0	367.0	38.0
SN74AHCT573DGVR	TVSOP	DGV	20	2000	367.0	367.0	35.0
SN74AHCT573DWR	SOIC	DW	20	2000	367.0	367.0	45.0
SN74AHCT573PWR	TSSOP	PW	20	2000	367.0	367.0	38.0
SN74AHCT573PWR	TSSOP	PW	20	2000	364.0	364.0	27.0
SN74AHCT573PWG4	TSSOP	PW	20	2000	367.0	367.0	38.0

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.

W (R-GDFP-F20)

CERAMIC DUAL FLATPACK



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

FK (S-CQCC-N\*\*)

LEADLESS CERAMIC CHIP CARRIER

28 TERMINAL SHOWN



NO. OF TERMINALS **	A		B	
	MIN	MAX	MIN	MAX
20	0.342 (8,69)	0.358 (9,09)	0.307 (7,80)	0.358 (9,09)
28	0.442 (11,23)	0.458 (11,63)	0.406 (10,31)	0.458 (11,63)
44	0.640 (16,26)	0.660 (16,76)	0.495 (12,58)	0.560 (14,22)
52	0.740 (18,78)	0.761 (19,32)	0.495 (12,58)	0.560 (14,22)
68	0.938 (23,83)	0.962 (24,43)	0.850 (21,6)	0.858 (21,8)
84	1.141 (28,99)	1.165 (29,59)	1.047 (26,6)	1.063 (27,0)



4040140/D 01/11

- NOTES:
- All linear dimensions are in inches (millimeters).
  - This drawing is subject to change without notice.
  - This package can be hermetically sealed with a metal lid.
  - Falls within JEDEC MS-004

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

16 PINS SHOWN

## PLASTIC DUAL-IN-LINE PACKAGE



PINS ** DIM	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	AA	BB	AC	AD



4040049/E 12/2002

NOTES:

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

## DGV (R-PDSO-G\*\*)

## PLASTIC SMALL-OUTLINE

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

DW (R-PDSO-G20)

PLASTIC SMALL OUTLINE



- NOTES:
- A. All linear dimensions are in inches (millimeters). Dimensioning and tolerancing per ASME Y14.5M-1994.
  - B. This drawing is subject to change without notice.
  - C. Body dimensions do not include mold flash or protrusion not to exceed 0.006 (0,15).
  - D. Falls within JEDEC MS-013 variation AC.



PW (R-PDSO-G20)

PLASTIC SMALL OUTLINE



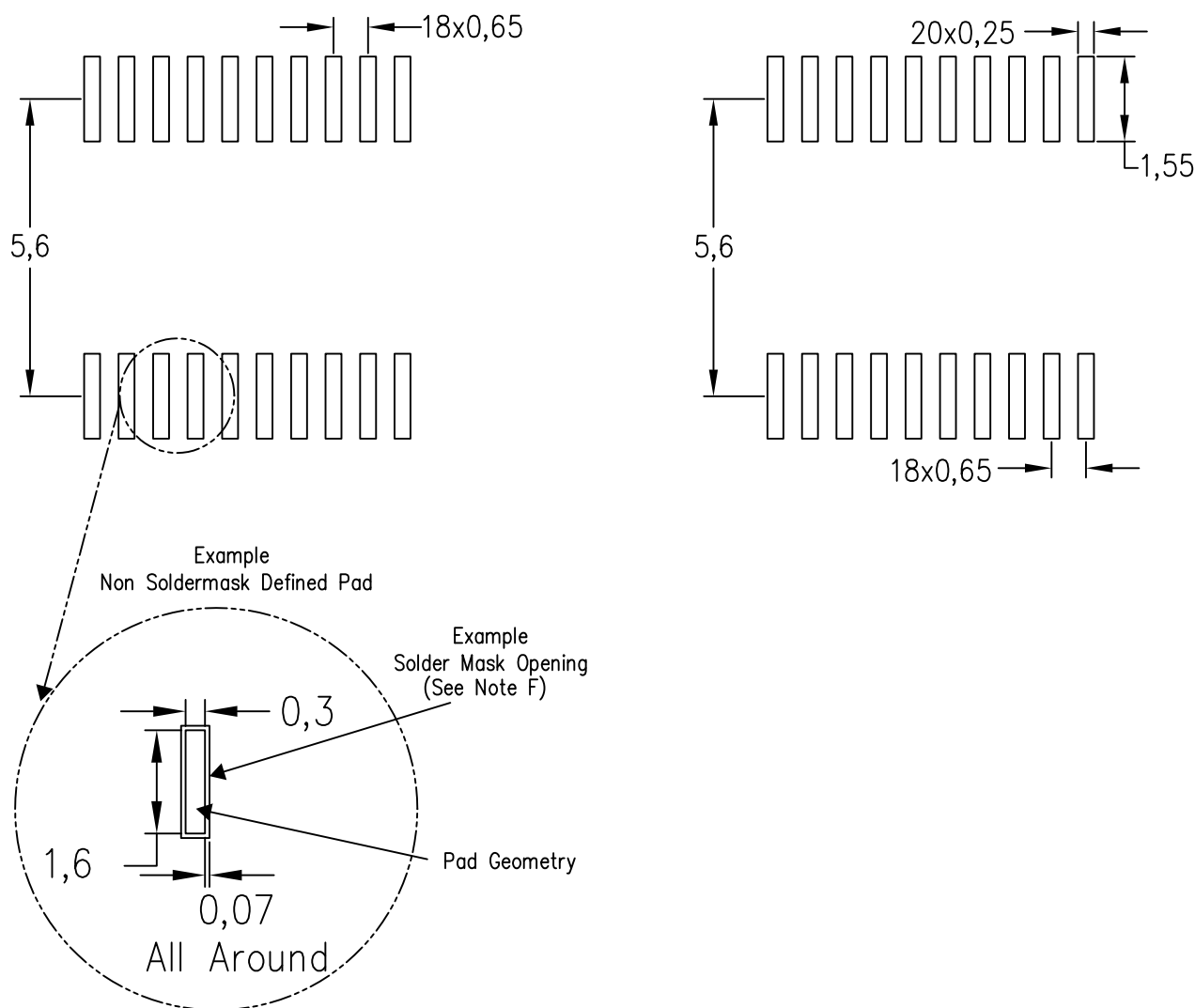
- NOTES:
- A. All linear dimensions are in millimeters. Dimensioning and tolerancing per ASME Y14.5M-1994.
  - B. This drawing is subject to change without notice.
  - C. Body length does not include mold flash, protrusions, or gate burrs. Mold flash, protrusions, or gate burrs shall not exceed 0,15 each side.
  - D. Body width does not include interlead flash. Interlead flash shall not exceed 0,25 each side.
  - E. Falls within JEDEC MO-153

PW (R-PDSO-G20)

PLASTIC SMALL OUTLINE

Example Board Layout

Based on a stencil thickness  
of .127mm (.005inch).



4211284-5/F 12/12

- 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.

## DB (R-PDSO-G\*\*)

## PLASTIC SMALL-OUTLINE

28 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.  
 D. Falls within JEDEC MO-150

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