	CD54HC573	3, CD74HC573
OCTAL TRANSP	ARENT D-T	PE LATCHES
	WITH 3-ST	ATE OUTPUTS

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 2-V to 6-V V_{CC} Operation Wide Operating Temperature Range of -55°C to 125°C 	CD54HC573 F PACKAGE CD74HC573 E OR M PACKAGE (TOP VIEW)					
 3-State Outputs Directly Drive Bus Lines 		1 U 20] v _{cc}			
 Balanced Propagation Delays and 	1D 🛛	-	[] 1Q			
Transition Times	2D 🛛		[] 2Q			
 Bus Driver Outputs Drive Up To 15 LS-TTL 	3D [E			
Loads	4D [
 Significant Power Reduction Compared to 	5D [[] 5Q			
•	6D []		[] 6Q			
LS-TTL Logic ICs	7D 🛛	8 13] 7Q			
deservición (enderin en information	8D [9 12] 8Q			
description/ordering information	GND [10 11	j le			

The 'HC573 devices are octal transparent D-type latches designed for 2-V to 6-V V_{CC} operation.

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.

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_{CC} through a pullup resistor; the minimum value of the resistor is determined by the current-sinking capability of the driver.

TA	PACKAGE [†]		ORDERABLE PART NUMBER	TOP-SIDE MARKING
	PDIP – E	Tube	CD74HC573E	CD74HC573E
–55°C to 125°C	SOIC – M	Tube	CD74HC573M	HC573M
-55 C 10 125 C	30IC - M	Tape and reel	CD74HC573M96	
	CDIP – F	Tube	CD54HC573F3A	CD54HC573F3A

ORDERING INFORMATION

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



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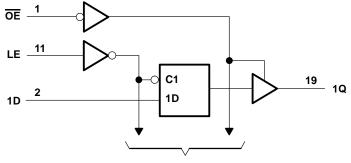


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FUNCTION TABLE (each latch)									
	INPUTS OUTPUT								
ŌĒ	LE	Q							
L	Н	Н	Н						
L	н	L	L						
L	L	Х	Q ₀ Z						
Н	Х	Х	Z						

logic diagram (positive logic)



To Seven Other Channels

absolute maximum ratings over operating free-air temperature range (unless otherwise noted)[†]

Supply voltage range, V _{CC}	–0.5 V to 7 V
Input clamp current, I_{IK} ($V_I < 0$ or $V_I > V_{CC}$) (see Note 1)	
Output clamp current, I_{OK} (V _O < 0 or V _O > V _{CC}) (see Note 1)	
Continuous output drain current per output, $I_O (V_O = 0 \text{ to } V_{CC})$	±35 mA
Continuous output source or sink current per output, $I_O (V_O = 0 \text{ to } V_{CC})$	±25 mA
Continuous current through V _{CC} or GND	±50 mA
Package thermal impedance, θ_{JA} (see Note 2): E package	69°C/W
M package	58°C/W
Storage temperature range, T _{stg}	–65°C to 150°C

† 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.



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recommended operating conditions (see Note 3)

			T _A =	25°C	T _A = - TO 12		T _A = - TO 8		UNIT
			MIN	MAX	MIN	MAX	MIN	MAX	
VCC	Supply voltage		2	6	2	6	2	6	V
		$V_{CC} = 2 V$	1.5		1.5		1.5		
V_{IH}	High-level input voltage	$V_{CC} = 4.5 V$	3.15		3.15		3.15		V
		$V_{CC} = 6 V$	4.2		4.2		4.2		
		V _{CC} = 2 V		0.5		0.5		0.5	
VIL	Low-level input voltage	V _{CC} = 4.5 V		1.35		1.35		1.35	V
		Λ CC = 6 Λ		1.8		1.8		1.8	
VI	Input voltage		0	VCC	0	VCC	0	VCC	V
VO	Output voltage		0	VCC	0	VCC	0	VCC	V
		V _{CC} = 2 V		1000		1000		1000	
tt	Input transition (rise and fall) time	V _{CC} = 4.5 V		500		500		500	ns
		V _{CC} = 6 V		400		400		400	

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

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

PARAMETER	TEST C	ONDITIONS	Vcc	T _A = 2	25°C	T _A = - TO 12		T _A = - TO 8		UNIT
					MAX	MIN	MAX	MIN	MAX	
			2 V	1.9		1.9		1.9		
		I _{OH} = -20 μA	4.5 V	4.4		4.4		4.4		
V _{OH}	$V_I = V_{IH} \text{ or } V_{IL}$		6 V	5.9		5.9		5.9		V
		I _{OH} = -6 mA	4.5 V	3.98		3.7		3.84		
		I _{OH} = -7.8 mA	6 V	5.48		5.2		5.34		
	VI = VIH or VIL	I _{OL} = 20 μA	2 V		0.1		0.1		0.1	
			4.5 V		0.1		0.1		0.1	
VOL			6 V		0.1		0.1		0.1	V
		I _{OL} = 6 mA	4.5 V		0.26		0.4		0.33	
		I _{OL} = 7.8 mA	6 V		0.26		0.4		0.33	
lj	$V_I = V_{CC} \text{ or } 0$		6 V		±0.1		±1		±1	μA
loz	AO = ACC or 0		6 V		±0.5		±10		±5	μA
ICC	$V_I = V_{CC} \text{ or } 0,$	IO = 0	6 V		8		160		80	μΑ
Ci					10		10		10	pF
Co					20		20		20	pF



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timing requirements over recommended operating free-air temperature range (unless otherwise noted) (see Figure 1)

		Vcc	T _A = 2	25°C	T _A = - TO 12		T _A = TO 8		UNIT
			MIN	MAX	MIN	MAX	MIN	MAX	
		2 V	80		120		100		
t _w Pulse	Pulse duration, LE high	4.5 V	16		24		20		ns
		6 V	14		20		17		
		2 V	50		75		65		
t _{su}	Setup time, data before LE \downarrow	4.5 V	10		15		13		ns
		6 V	9		13		11		
		2 V	40		60		50		
t _h	Hold time, data after LE \downarrow	4.5 V	8		12		10		ns
		6 V	7		10		9		

switching characteristics over recommended operating free-air temperature range (unless otherwise noted) (see Figure 1)

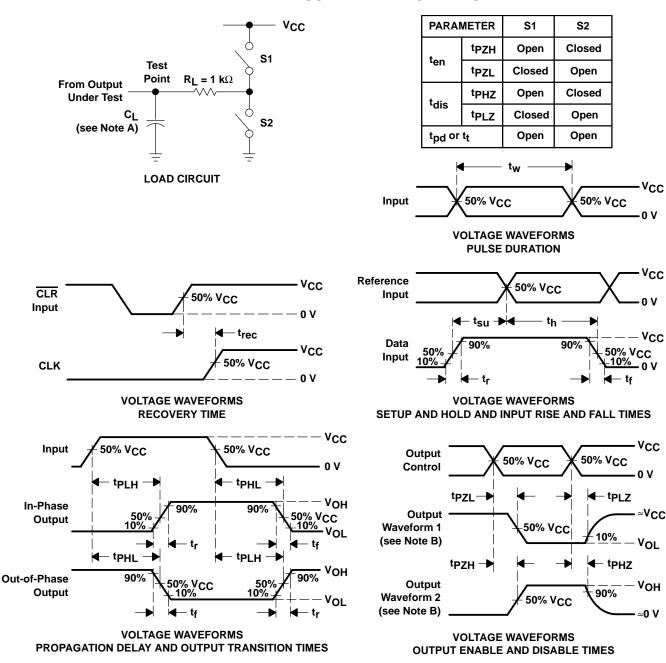
PARAMETER	FROM (INPUT)	TO (OUTPUT)	LOAD CAPACITANCE	v _{cc}	T _A = 25°C	T _A = −55°C TO 125°C	T _A = −40°C TO 85°C	UNIT		
		(001101)	CALACITANCE		MIN MAX	MIN MAX	MIN MAX			
				2 V	175	265	220			
	D	Q	C _L = 50 pF	4.5 V	35	53	44			
• .				6 V	30	45	37	ns		
^t pd				2 V	175	265	220	115		
	LE	LE	Q	C _L = 50 pF	C _L = 50 pF	4.5 V	35	53	44	
								6 V	6 V	30
				2 V	150	225	190			
t _{en}	OE	OE	Q	C _L = 50 pF	4.5 V	30	45	38	ns	
				6 V	26	38	33			
					2 V	150	225	190		
^t dis	OE	Q	C _L = 50 pF	4.5 V	30	45	38	ns		
					26	38	33			
				2 V	60	90	75			
tt		Q	C _L = 50 pF	4.5 V	12	18	15	ns		
				6 V	10	15	13			

operating characteristics, V_{CC} = 5 V, T_A = 25° C

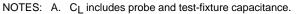
	PARAMETER	TYP	UNIT
Cpd	Power dissipation capacitance	51	pF



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PARAMETER MEASUREMENT INFORMATION



- 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. Phase relationships between waveforms were chosen arbitrarily. All input pulses are supplied by generators having the following characteristics: PRR \leq 1 MHz, Z_O = 50 Ω , t_r = 6 ns.
- D. For clock inputs, fmax is measured with the input duty cycle at 50%.
- E. The outputs are measured one at a time with one input transition per measurement.
- F. tpLZ and tpHZ are the same as tdis.
- G. tpzL and tpzH are the same as ten.
- H. tpLH and tpHL are the same as tpd.

Figure 1. Load Circuit and Voltage Waveforms



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PACKAGING INFORMATION

RUMENTS

Orderable Device	Status ⁽¹⁾	Package Type	Package Drawing	Pins	Package Qty	Eco Plan ⁽²⁾	Lead/Ball Finish	MSL Peak Temp ⁽³⁾
CD54HC573F	ACTIVE	CDIP	J	20	1	TBD	A42	N / A for Pkg Type
CD54HC573F3A	ACTIVE	CDIP	J	20	1	TBD	A42	N / A for Pkg Type
CD74HC573E	ACTIVE	PDIP	Ν	20	20	Pb-Free (RoHS)	CU NIPDAU	N / A for Pkg Type
CD74HC573EE4	ACTIVE	PDIP	Ν	20	20	Pb-Free (RoHS)	CU NIPDAU	N / A for Pkg Type
CD74HC573M	ACTIVE	SOIC	DW	20	25	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
CD74HC573M96	ACTIVE	SOIC	DW	20	2000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
CD74HC573M96G4	ACTIVE	SOIC	DW	20	2000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
CD74HC573MG4	ACTIVE	SOIC	DW	20	25	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM

⁽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)

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

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TAPE AND REEL INFORMATION





QUADRANT ASSIGNMENTS FOR PIN 1 ORIENTATION IN TAPE



*All dimensions are nomin	al
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Device		Package Drawing			Reel Diameter (mm)	Reel Width W1 (mm)	A0 (mm)	B0 (mm)	K0 (mm)	P1 (mm)	W (mm)	Pin1 Quadrant
CD74HC573M96	SOIC	DW	20	2000	330.0	24.4	10.8	13.0	2.7	12.0	24.0	Q1



PACKAGE MATERIALS INFORMATION

11-Mar-2008



*All dimensions are nominal

Device	Package Type	Package Drawing	Pins	SPQ	Length (mm)	Width (mm)	Height (mm)
CD74HC573M96	SOIC	DW	20	2000	346.0	346.0	41.0

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.

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.



DW (R-PDSO-G20)

PLASTIC SMALL OUTLINE



NOTES: A. All linear dimensions are in inches (millimeters). Dimensioning and tolerancing per ASME Y14.5M-1994.

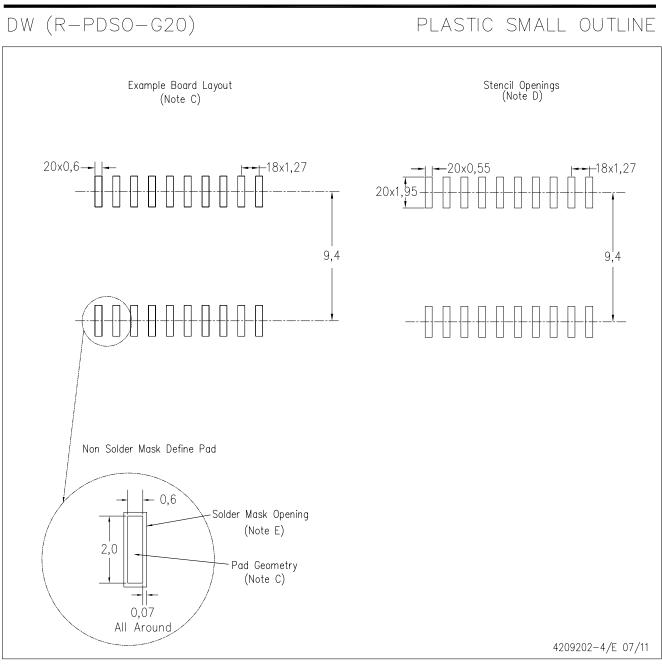
B. This drawing is subject to change without notice.

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.



LAND PATTERN DATA



NOTES:

A. All linear dimensions are in millimeters.

- B. This drawing is subject to change without notice.
- C. Refer to IPC7351 for alternate board 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
- E. Customers should contact their board fabrication site for solder mask tolerances between and around signal pads.



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