

CDx4AC273、CDx4ACT273 オクタル D タイプ フリップフロップ、リセット付き

1 特長

- バッファ付き入力
- 伝搬遅延時間 (標準値)
 - $V_{CC} = 5V$, $T_A = 25^\circ C$, $C_L = 50pF$ で 6.5ns
- SCR ラッチアップ耐性の高い CMOS プロセスと回路設計
- 消費電力を大幅に低減した、バイポーラ FAST™/AS/S の速度
- 伝搬遅延時間の平衡化
- AC タイプは 1.5V~5.5V で動作し、バランスのとれたノイズ耐性を電源の 30% で実現
- $\pm 24mA$ 出力駆動電流
 - 15 個の FAST™ IC にファンアウト
 - 50Ω 伝送ラインを駆動

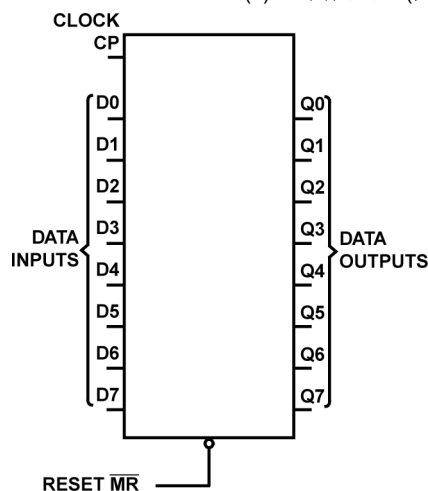
2 概要

'AC273 および 'ACT273 デバイスは、アドバンスト CMOS ロジック技術を使用したリセット付きオクタル D タイプ フリップフロップです。D 入力の情報は、クロックパルスの正方向エッジで Q 出力に転送されます。8 つのフリップフロップはすべて、共通クロック (CP) と共通リセット ($\overline{MR}$) で制御されます。リセットは、クロックとは独立した低電圧レベルで行われます。

製品情報

部品番号	パッケージ (1)	パッケージ サイズ (2)	本体サイズ (3)
CD74AC273/ CD74ACT273	DW (SOIC, 20)	12.8 mm × 10.3 mm	12.8 mm × 7.5 mm
	DB (SSOP, 20)	7.2 mm × 7.8 mm	7.2 mm × 5.3 mm
	N (PDIP, 20)	24.33 mm × 9.4 mm	24.33 mm × 6.35 mm
	PW (TSSOP, 20)	5.00 mm × 6.4 mm	5.00 mm × 4.4 mm

- (1) 詳細については、[セクション 10](#) を参照してください。
- (2) パッケージ サイズ (長さ×幅) は公称値であり、該当する場合はピンも含まれます。
- (3) 本体サイズ (長さ×幅) は公称値であり、ピンは含まれません。



機能ブロック図



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3 Pin Configuration and Functions

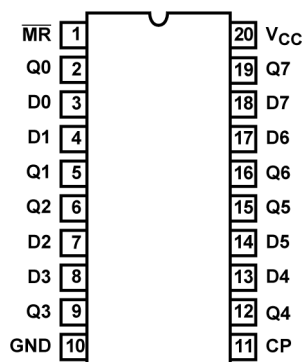


图 3-1. CD54AC273, CD54ACT273 (CDIP) CD74AC273, CD74ACT273 (PDIP, SOIC) Top View

Pin Functions

PIN		I/O ⁽¹⁾	DESCRIPTION
NO.	NAME		
!MR	1	I	Master reset, active low
Q0	2	O	Output Q0
D0	3	I	Input D0
D1	4	I	Input D1
Q1	5	O	Output Q1
Q2	6	O	Output Q2
D2	7	I	Input D2
D3	8	I	Input D3
Q3	9	O	Output Q3
GND	10	-	Ground
CP	11	I	Clock, rising edge triggered
Q4	12	O	Output Q4
D4	13	I	Input D4
D5	14	I	Input D5
Q5	15	O	Output Q5
Q6	16	O	Output Q6
D6	17	I	Input D6
D7	18	I	Input D7
Q7	19	O	Output Q7
V _{CC}	20	-	Supply

(1) I = input, O = output, I/O = input or output, G = ground, P = power.

4 Specifications

4.1 Absolute Maximum Ratings

			MIN	MAX	UNIT
V_{CC}	DC Supply Voltage		-0.5	6	V
I_{IK}	DC Input Diode Current	$V_I < -0.5V$ or $V_I > V_{CC} + 0.5V$		± 20	mA
I_{OK}	DC Output Diode Current	$V_O < -0.5V$ or $V_O > V_{CC} + 0.5V$		± 50	mA
I_O	DC Output Source or Sink Current per Output Pin	$V_O > -0.5V$ or $V_O < V_{CC} + 0.5V$		± 50	mA
	DC V_{CC} or Ground Current, I_{CC} or I_{GND} ⁽¹⁾			± 100	mA
T_{stg}	Storage temperature		-65	150	°C

(1) For up to 4 outputs per device, add ± 25 mA for each additional output.

Stresses above those listed in “Absolute Maximum Ratings” may cause permanent damage to the device. This is a stress only rating and operation of the device at these or any other conditions above those indicated in the operational sections of this specification is not implied.

4.2 ESD Ratings

			VALUE	UNIT
$V_{(ESD)}$	Electrostatic discharge	Human-body model (HBM), per ANSI/ESDA/ JEDEC JS-001 ⁽¹⁾	± 2000	V

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

4.3 Recommended Operating Conditions

			MIN	MAX	UNIT
T_A	Temperature Range		-55	125	°C
V_{CC} ⁽¹⁾	Supply Voltage Range				
	AC Types		1.5	5.5	V
	ACT Types		4.5	5.5	V
V_I, V_O	DC Input or Output Voltage		0	V_{CC}	V
dt/dv	Input Rise and Fall Slew Rate				
	AC Types	1.5V to 3V		50	ns (Max)
	AC Types	3.6V to 5.5V		20	ns (Max)
	ACT Types	4.5V to 5.5V		10	ns (Max)

(1) Unless otherwise specified, all voltages are referenced to ground.

4.4 Thermal Information

THERMAL METRIC ⁽¹⁾		CDx4AC273, CDx4ACT273			UNIT
		N (PDIP)	DW (SOIC)	PW (TSSOP)	
		20 PINS	20 PINS	20 PINS	
θ_{JA}	Thermal Resistance	69	101.2	126.2	°C/W

(1) The package thermal impedance is calculated in accordance with JESD 51.

4.5 Electrical Characteristics

PARAMETER		TEST CONDITIONS		V _{CC} (V)	25°C		-40°C TO 85 °C		-55°C TO 125°C		UNITS
		V _I (V)	I _O (mA)		MIN	MAX	MIN	MAX	MIN	MAX	
AC TYPES											
V _{IH}	High Level Input Voltage	-	-	1.5	1.2	-	1.2	-	1.2	-	V
				3	2.1	-	2.1	-	2.1	-	V
				5.5	3.85	-	3.85	-	3.85	-	V
V _{IL}	Low Level Input Voltage	-	-	1.5	-	0.3	-	0.3	-	0.3	V
				3	-	0.9	-	0.9	-	0.9	V
				5.5	-	1.65	-	1.65	-	1.65	V
V _{OH}	High Level Output Voltage	V _{IH} or V _{IL}	-0.05	1.5	1.4	-	1.4	-	1.4	-	V
			-0.05	3	2.9	-	2.9	-	2.9	-	V
			-0.05	4.5	4.4	-	4.4	-	4.4	-	V
			-4	3	2.58	-	2.48	-	2.4	-	V
			-24	4.5	3.94	-	3.8	-	3.7	-	V
			-75 ^{(1) (2)}	5.5	-	-	3.85	-	-	-	V
			-50 ^{(1) (2)}	5.5	-	-	-	-	3.85	-	V
V _{OL}	Low Level Output Voltage	V _{IH} or V _{IL}	0.05	1.5	-	0.1	-	0.1	-	0.1	V
			0.05	3	-	0.1	-	0.1	-	0.1	V
			0.05	4.5	-	0.1	-	0.1	-	0.1	V
			12	3	-	0.36	-	0.44	-	0.5	V
			24	4.5	-	0.36	-	0.44	-	0.5	V
			75 ^{(1) (2)}	5.5	-	-	-	1.65	-	-	V
			50 ^{(1) (2)}	5.5	-	-	-	-	-	1.65	V
I _I	Input Leakage Current	V _{CC} or GND	-	5.5	-	±0.1	-	±1	-	±1	μA
I _{CC}	Quiescent Supply Current MSI	V _{CC} or GND	0	5.5	-	8	-	80	-	160	μA
ACT TYPES											
V _{IH}	High Level Input Voltage	-	-	4.5 to 5.5	2	-	2	-	2	-	V
V _{IL}	Low Level Input Voltage	-	-	4.5 to 5.5	-	0.8	-	0.8	-	0.8	V
V _{OH}	High Level Output Voltage	V _{IH} or V _{IL}	-0.05	4.5	4.4	-	4.4	-	4.4	-	V
			-24	4.5	3.94	-	3.8	-	3.7	-	V
			-75 ^{(1) (2)}	5.5	-	-	3.85	-	-	-	V
			-50 ^{(1) (2)}	5.5	-	-	-	-	3.85	-	V
V _{OL}	Low Level Output Voltage	V _{IH} or V _{IL}	0.05	4.5	-	0.1	-	0.1	-	0.1	V
			24	4.5	-	0.36	-	0.44	-	0.5	V
			75 ^{(1) (2)}	5.5	-	-	-	1.65	-	-	V
			50 ^{(1) (2)}	5.5	-	-	-	-	-	1.65	V
I _I	Input Leakage Current	V _{CC} or GND	-	5.5	-	±0.1	-	±1	-	±1	μA
I _{CC}	Quiescent Supply Current MSI	V _{CC} or GND	0	5.5	-	8	-	80	-	160	μA

PARAMETER	TEST CONDITIONS		V_{CC} (V)	25°C		-40°C TO 85 °C		-55°C TO 125°C		UNITS
	V_I (V)	I_O (mA)		MIN	MAX	MIN	MAX	MIN	MAX	
ΔI_{CC} Additional Supply Current per Input Pin TTL Inputs High 1 Unit Load	$V_{CC} - 2.1$	-	4.5 to 5.5	-	2.4	-	2.8	-	3	mA

- (1) Test one output at a time for a 1-second maximum duration. Measurement is made by forcing current and measuring voltage to minimize power dissipation.
- (2) Test verifies a minimum 50Ω transmission-line-drive capability at 85°C, 75Ω at 125°C.

表 4-1. ACT Input Load Table

INPUT	UNIT LOAD
Dn	0.5
MR	0.57
CP	1

4.6 Prerequisite for Switching Function

PARAMETER	SYMBOL	V _{CC} (V)	-40°C TO 85°C		-55°C TO 125°C		UNITS
			MIN	MAX	MIN	MAX	
AC TYPES							
Data to CP Set-Up Time	t _{SU}	1.5	2	-	2	-	ns
		3.3 ⁽¹⁾	2	-	2	-	ns
		5 ⁽²⁾	2	-	2	-	ns
Hold Time	t _H	1.5	2	-	2	-	ns
		3.3	2	-	2	-	ns
		5	2	-	2	-	ns
Removal Time, $\overline{MR}$ to CP	t _{REM}	1.5	2	-	2	-	ns
		3.3	2	-	2	-	ns
		5	2	-	2	-	ns
$\overline{MR}$ Pulse Width	t _W	1.5	55	-	63	-	ns
		3.3	6.1	-	7	-	ns
		5	4.4	-	5	-	ns
CP Pulse Width	t _W	1.5	55	-	63	-	ns
		3.3	6.1	-	7	-	ns
		5	4.4	-	5	-	ns
CP Frequency	f _{MAX}	1.5	9	-	8	-	MHz
		3.3	81	-	71	-	MHz
		5	114	-	100	-	MHz
ACT TYPES							
Data to CP Set-Up Time	t _{SU}	5 ⁽²⁾	2	-	2	-	ns
Hold Time	t _H	5	2	-	2	-	ns
Removal Time $\overline{MR}$ to CP	t _{REM}	5	2	-	2	-	ns
MR Pulse Width	t _W	5	4.4	-	5	-	ns
CP Pulse Width	t _W	5	5.3	-	6	-	ns
CP Frequency	f _{MAX}	5	97	-	85	-	MHz

(1) 3.3V Min is at 3.6V, Max is at 3V.

(2) 5V Min is at 5.5V, Max is at 4.5V.

4.7 Switching Characteristics

Input t_r , t_f = 3ns, C_L = 50pF (Worst Case)

PARAMETER		V _{CC} (V)	-40°C TO 85°C			-55°C TO 125°C			UNITS
			MIN	TYP	MAX	MIN	TYP	MAX	
AC TYPES									
t _{PLH} , t _{PHL}	Propagation Delay, CP to Qn	1.5	-	-	154	-	-	169	ns
		3.3 ⁽¹⁾	4.9	-	17.2	4.7	-	18.9	ns
		5 ⁽²⁾	3.5	-	12.3	3.4	-	13.5	ns
t _{PLH} , t _{PHL}	Propagation Delay, $\overline{MR}$ to Qn	1.5	-	-	154	-	-	169	ns
		3.3	4.9	-	17.2	4.7	-	18.9	ns
		5	3.5	-	12.3	3.4	-	13.5	ns
C _I	Input Capacitance	-	-	-	10	-	-	10	pF
C _{PD} ⁽³⁾	Power Dissipation Capacitance	-	-	45	-	-	45	-	pF
ACT TYPES									
t _{PLH} , t _{PHL}	Propagation Delay, CP to Qn	5 ⁽²⁾	3.5	-	12.3	3.4	-	13.5	ns
t _{PLH} , t _{PHL}	Propagation Delay, $\overline{MR}$ to Qn	5	3.5	-	12.3	3.4	-	13.5	ns
C _I	Input Capacitance	-	-	-	10	-	-	10	pF
C _{PD} q ⁽³⁾	Power Dissipation Capacitance	-	-	45	-	-	45	-	pF

- (1) 3.3V Min is at 3.6V, Max is at 3V.
 (2) 5V Min is at 5.5V, Max is at 4.5V.
 (3) C_{PD} is used to determine the dynamic power consumption per flip-flop.

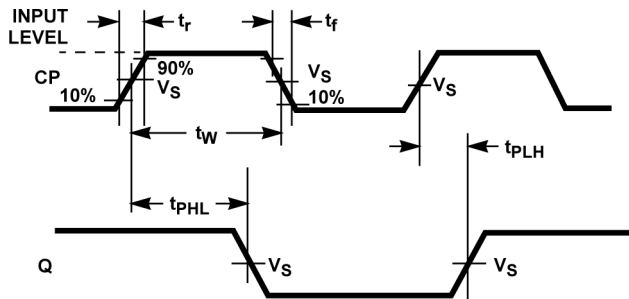
注

$$AC: P_D = C_{PD} V_{CC}^2 f_i = \sum (C_L V_{CC}^2 f_o)$$

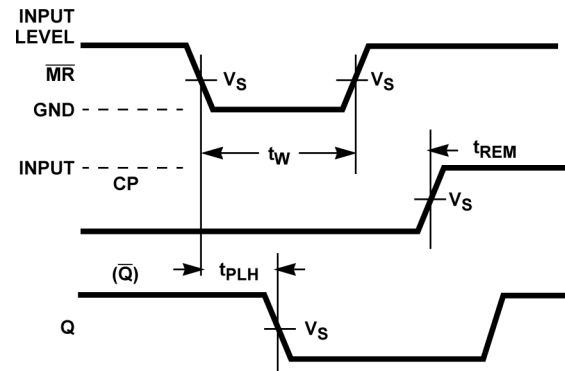
$$ACT: P_D = C_{PD} V_{CC}^2 f_i + \sum (C_L V_{CC}^2 f_o) + V_{CC} \Delta I_{CC} \text{ where } f_i = \text{input frequency, } f_o = \text{output frequency, } C_L = \text{output load capacitance, } V_{CC} = \text{supply voltage.}$$

5 Parameter Measurement Information

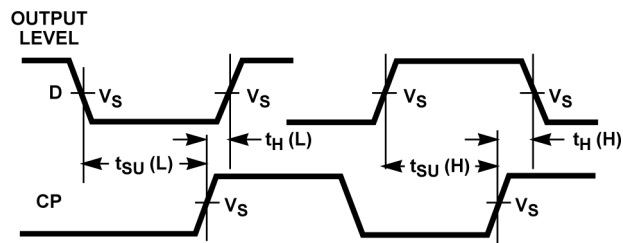
Load Circuit and Voltage Waveforms



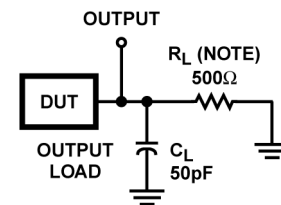
Propagation Delay Times and Clock Pulse Width



Prerequisite and Propagation Delay Times for Master Reset



Prerequisite for Clock



A. For AC Series Only: When $V_{CC} = 1.5V$, $R_L = 1k\Omega$.

Propagation Delay Times

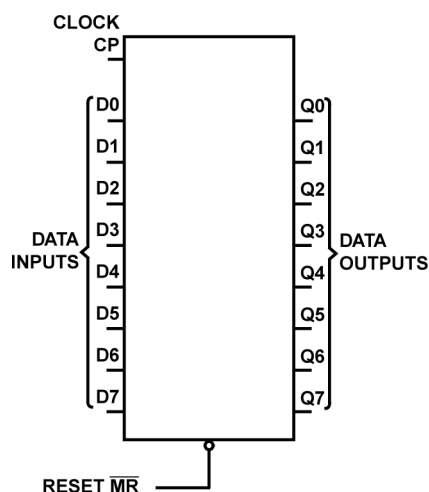
	AC	ACT
Input Level	V_{CC}	3V
Input Switching Voltage, V_S	$0.5 V_{CC}$	1.5V
Output Switching Voltage, V_S	$0.5 V_{CC}$	$0.5 V_{CC}$

6 Detailed Description

6.1 Overview

The 'AC273 and 'ACT273 devices are octal D-type flip-flops with reset that utilize advanced CMOS logic technology. Information at the D input is transferred to the Q output on the positive-going edge of the clock pulse. All eight flip-flops are controlled by a common clock (CP) and a common reset ($\overline{MR}$). Resetting is accomplished by a low voltage level independent of the clock.

6.2 Functional Block Diagram



6.3 Device Functional Modes

表 6-1. Truth Table

INPUTS			OUTPUTS
RESET ($\overline{MR}$)	CLOCK CP	DATA Dn	Qn
L	X	X	L
H	↑	H	H
H	↑	L	L
H	L	X	Q0

7 Application and Implementation

注

以下のアプリケーション情報は、TI の製品仕様に含まれるものではなく、TI ではその正確性または完全性を保証いたしません。個々の目的に対する製品の適合性については、お客様の責任で判断していただくことになります。お客様は自身の設計実装を検証しテストすることで、システムの機能を確認する必要があります。

7.1 Power Supply Recommendations

The power supply can be any voltage between the min and max supply voltage rating located in [セクション 4.3](#).

Each V_{CC} terminal should have a good bypass capacitor to prevent power disturbance. For devices with a single supply, TI recommends 0.1 μF and if there are multiple V_{CC} terminals, then TI recommends .01 μF or .022 μF for each power terminal. It is okay to parallel multiple bypass capacitors to reject different frequencies of noise. A 0.1 μF and 1 μF are commonly used in parallel. The bypass capacitor should be installed as close to the power terminal as possible for best results.

7.2 Layout

7.2.1 Layout Guidelines

When using multiple bit logic devices inputs should not ever 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 three of the four 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. Specified below are 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 make more sense or is more convenient. Floating outputs is generally acceptable, unless the part is a transceiver. If the transceiver has an output enable pin it will disable the outputs section of the part when asserted. This will not disable the input section of the I.O's so they also cannot float when disabled.

8 Device and Documentation Support

8.1 Documentation Support (Analog)

8.1.1 Related Documentation

The table below lists quick access links. Categories include technical documents, support and community resources, tools and software, and quick access to sample or buy.

表 8-1. Related Links

PARTS	PRODUCT FOLDER	SAMPLE & BUY	TECHNICAL DOCUMENTS	TOOLS & SOFTWARE	SUPPORT & COMMUNITY
CD54AC273	Click here	Click here	Click here	Click here	Click here
CD74AC273	Click here	Click here	Click here	Click here	Click here
CD54ACT273	Click here	Click here	Click here	Click here	Click here
CD74ACT273	Click here	Click here	Click here	Click here	Click here

8.2 ドキュメントの更新通知を受け取る方法

ドキュメントの更新についての通知を受け取るには、www.tij.co.jp のデバイス製品フォルダを開いてください。[通知] をクリックして登録すると、変更されたすべての製品情報に関するダイジェストを毎週受け取ることができます。変更の詳細については、改訂されたドキュメントに含まれている改訂履歴をご覧ください。

8.3 サポート・リソース

テキサス・インスツルメンツ E2E™ サポート・フォーラムは、エンジニアが検証済みの回答と設計に関するヒントをエキスパートから迅速かつ直接得ることができる場所です。既存の回答を検索したり、独自の質問をしたりすることで、設計に必要な支援を迅速に得ることができます。

リンクされているコンテンツは、各寄稿者により「現状のまま」提供されるものです。これらはテキサス・インスツルメンツの仕様を構成するものではなく、必ずしもテキサス・インスツルメンツの見解を反映したものではありません。テキサス・インスツルメンツの[使用条件](#)を参照してください。

8.4 Trademarks

テキサス・インスツルメンツ E2E™ is a trademark of Texas Instruments.
すべての商標は、それぞれの所有者に帰属します。

8.5 静電気放電に関する注意事項



この IC は、ESD によって破損する可能性があります。テキサス・インスツルメンツは、IC を取り扱う際には常に適切な注意を払うことを推奨します。正しい取り扱いおよび設置手順に従わない場合、デバイスを破損するおそれがあります。

ESD による破損は、わずかな性能低下からデバイスの完全な故障まで多岐にわたります。精密な IC の場合、パラメータがわずかに変化するだけで公表されている仕様から外れる可能性があるため、破損が発生しやすくなっています。

8.6 用語集

テキサス・インスツルメンツ用語集

この用語集には、用語や略語の一覧および定義が記載されています。

9 Revision History

資料番号末尾の英字は改訂を表しています。その改訂履歴は英語版に準じています。

Changes from Revision B (November 1998) to Revision C (May 2024)	Page
「製品情報」表、「ピンの機能」表、「ESD 定格」表、「熱に関する情報」表、「デバイスの機能モード」セクション、「デバイスおよびドキュメントのサポート」セクション、「メカニカル、パッケージ、および注文情報」セクションを追加 1 - Updated RθJA values: DW = 58 to 101.2; added PW = 126.2, all values in °C/W 4	

10 Mechanical, Packaging, and Orderable Information

The following pages include mechanical, packaging, and orderable information. This information is the most current data available for the designated devices. This data is subject to change without notice and revision of this document. For browser-based versions of this data sheet, refer to the left-hand navigation.

PACKAGING INFORMATION

Orderable 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)
CD54AC273F3A	Active	Production	CDIP (J) 20	20 TUBE	No	SNPB	N/A for Pkg Type	-55 to 125	CD54AC273F3A
CD54AC273F3A.A	Active	Production	CDIP (J) 20	20 TUBE	No	SNPB	N/A for Pkg Type	-55 to 125	CD54AC273F3A
CD54ACT273F3A	Active	Production	CDIP (J) 20	20 TUBE	No	SNPB	N/A for Pkg Type	-55 to 125	CD54ACT273F3A
CD54ACT273F3A.A	Active	Production	CDIP (J) 20	20 TUBE	No	SNPB	N/A for Pkg Type	-55 to 125	CD54ACT273F3A
CD74AC273E	Active	Production	PDIP (N) 20	20 TUBE	Yes	NIPDAU	N/A for Pkg Type	-55 to 125	CD74AC273E
CD74AC273E.A	Active	Production	PDIP (N) 20	20 TUBE	Yes	NIPDAU	N/A for Pkg Type	-55 to 125	CD74AC273E
CD74AC273M96	Active	Production	SOIC (DW) 20	2000 LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	-55 to 125	AC273M
CD74AC273M96.A	Active	Production	SOIC (DW) 20	2000 LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	-55 to 125	AC273M
CD74ACT273E	Active	Production	PDIP (N) 20	20 TUBE	Yes	NIPDAU	N/A for Pkg Type	-55 to 125	CD74ACT273E
CD74ACT273E.A	Active	Production	PDIP (N) 20	20 TUBE	Yes	NIPDAU	N/A for Pkg Type	-55 to 125	CD74ACT273E
CD74ACT273EE4	Active	Production	PDIP (N) 20	20 TUBE	Yes	NIPDAU	N/A for Pkg Type	-55 to 125	CD74ACT273E
CD74ACT273M	Obsolete	Production	SOIC (DW) 20	-	-	Call TI	Call TI	-55 to 125	ACT273M
CD74ACT273M96	Active	Production	SOIC (DW) 20	2000 LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	-55 to 125	ACT273M
CD74ACT273M96.A	Active	Production	SOIC (DW) 20	2000 LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	-55 to 125	ACT273M
CD74ACT273M96.B	Active	Production	SOIC (DW) 20	2000 LARGE T&R	-	NIPDAU	Level-1-260C-UNLIM	-55 to 125	ACT273M
CD74ACT273M96E4	Active	Production	SOIC (DW) 20	2000 LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	-55 to 125	ACT273M
CD74ACT273PW	Obsolete	Production	TSSOP (PW) 20	-	-	Call TI	Call TI	-55 to 125	HM273
CD74ACT273PWR	Active	Production	TSSOP (PW) 20	2000 LARGE T&R	Yes	NIPDAU NIPDAU	Level-1-260C-UNLIM	-55 to 125	HM273
CD74ACT273PWR.A	Active	Production	TSSOP (PW) 20	2000 LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	-55 to 125	HM273
CD74ACT273SM96	Active	Production	SSOP (DB) 20	2000 LARGE T&R	Yes	NIPDAU NIPDAU	Level-1-260C-UNLIM	-55 to 125	ACT273SM
CD74ACT273SM96.A	Active	Production	SSOP (DB) 20	2000 LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	-55 to 125	ACT273SM

⁽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.

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OTHER QUALIFIED VERSIONS OF CD54AC273, CD54ACT273, CD74AC273, CD74ACT273 :

- Catalog : [CD74AC273](#), [CD74ACT273](#)
- Military : [CD54AC273](#), [CD54ACT273](#)

NOTE: Qualified Version Definitions:

- Catalog - TI's standard catalog product
- 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
CD74AC273M96	SOIC	DW	20	2000	330.0	24.4	10.9	13.3	2.7	12.0	24.0	Q1
CD74AC273M96	SOIC	DW	20	2000	330.0	24.4	10.8	13.3	2.7	12.0	24.0	Q1
CD74ACT273M96	SOIC	DW	20	2000	330.0	24.4	10.9	13.3	2.7	12.0	24.0	Q1
CD74ACT273M96	SOIC	DW	20	2000	330.0	24.4	10.8	13.3	2.7	12.0	24.0	Q1
CD74ACT273PWR	TSSOP	PW	20	2000	330.0	16.4	6.95	7.0	1.4	8.0	16.0	Q1
CD74ACT273SM96	SSOP	DB	20	2000	330.0	16.4	8.2	7.5	2.5	12.0	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)
CD74AC273M96	SOIC	DW	20	2000	356.0	356.0	45.0
CD74AC273M96	SOIC	DW	20	2000	356.0	356.0	45.0
CD74ACT273M96	SOIC	DW	20	2000	356.0	356.0	45.0
CD74ACT273M96	SOIC	DW	20	2000	356.0	356.0	45.0
CD74ACT273PWR	TSSOP	PW	20	2000	353.0	353.0	32.0
CD74ACT273SM96	SSOP	DB	20	2000	353.0	353.0	32.0

TUBE


*All dimensions are nominal

Device	Package Name	Package Type	Pins	SPQ	L (mm)	W (mm)	T (μm)	B (mm)
CD74AC273E	N	PDIP	20	20	506	13.97	11230	4.32
CD74AC273E.A	N	PDIP	20	20	506	13.97	11230	4.32
CD74ACT273E	N	PDIP	20	20	506	13.97	11230	4.32
CD74ACT273E.A	N	PDIP	20	20	506	13.97	11230	4.32
CD74ACT273EE4	N	PDIP	20	20	506	13.97	11230	4.32

J (R-GDIP-T**)

14 LEADS SHOWN

CERAMIC DUAL IN-LINE PACKAGE



PINS ** DIM	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.

N (R-PDIP-T**)

16 PINS SHOWN

PLASTIC DUAL-IN-LINE PACKAGE



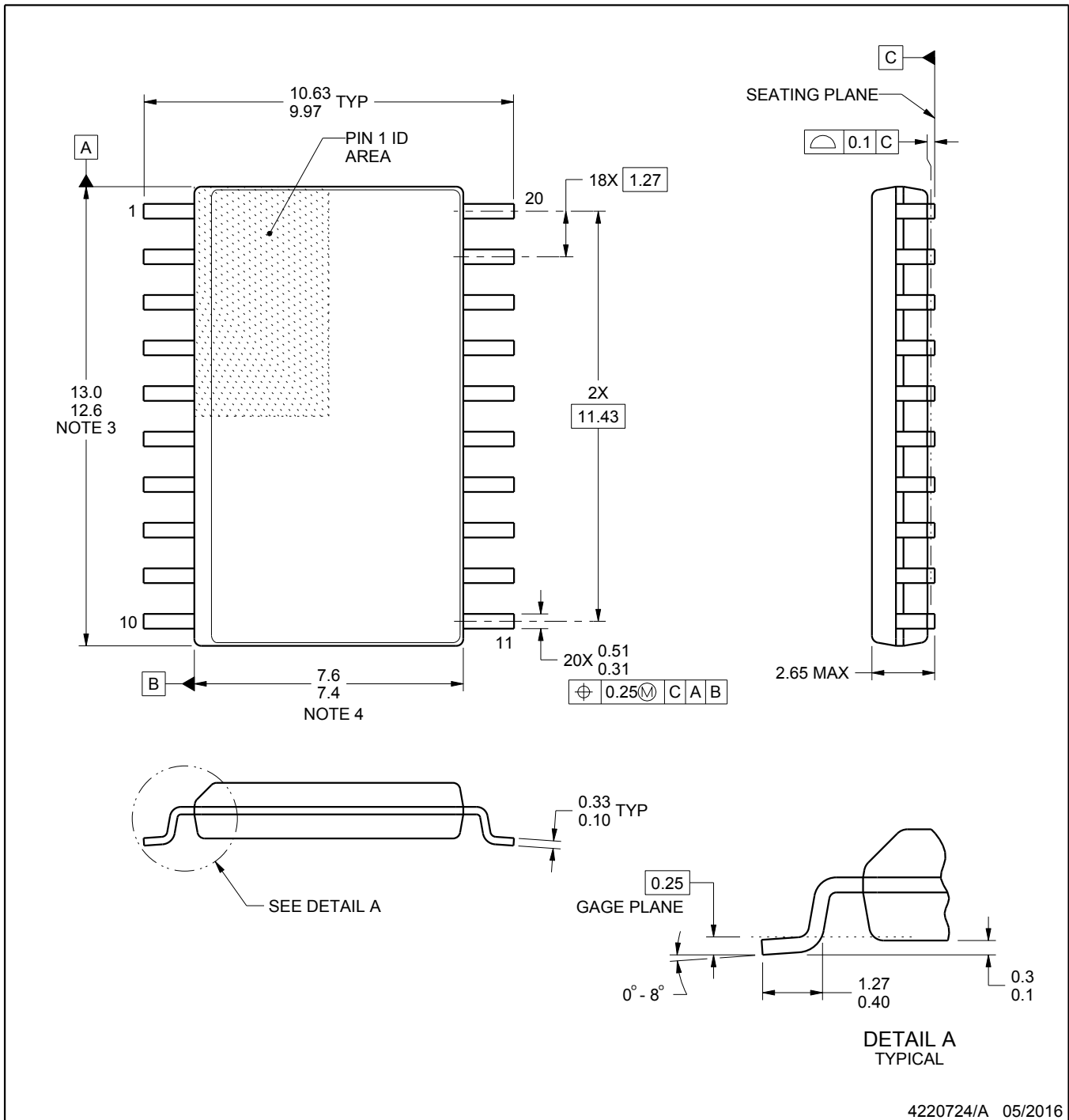
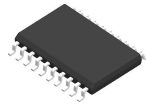
PINS **	14	16	18	20
DIM				
A MAX	0.775 (19,69)	0.775 (19,69)	0.920 (23,37)	1.060 (26,92)
A MIN	0.745 (18,92)	0.745 (18,92)	0.850 (21,59)	0.940 (23,88)
MS-001 VARIATION	AA	BB	AC	AD



14/18 Pin Only
20 Pin vendor option

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.



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.

EXAMPLE BOARD LAYOUT

DW0020A

SOIC - 2.65 mm max height

SOIC



LAND PATTERN EXAMPLE
SCALE:6X



SOLDER MASK DETAILS

4220724/A 05/2016

NOTES: (continued)

6. Publication IPC-7351 may have alternate designs.

7. Solder mask tolerances between and around signal pads can vary based on board fabrication site.

EXAMPLE STENCIL DESIGN

DW0020A

SOIC - 2.65 mm max height

SOIC



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

4220724/A 05/2016

NOTES: (continued)

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



TSSOP - 1.2 mm max height

SMALL OUTLINE PACKAGE



1. All linear dimensions are in millimeters. Any dimensions in parenthesis are for reference only. Dimensioning and tolerancing per ASME Y14.5M.
2. This drawing is subject to change without notice.
3. This dimension does not include mold flash, protrusions, or gate burrs. Mold flash, protrusions, or gate burrs shall not exceed 0.15 mm per side.
4. This dimension does not include interlead flash. Interlead flash shall not exceed 0.25 mm per side.
5. Reference JEDEC registration MO-153.

EXAMPLE BOARD LAYOUT

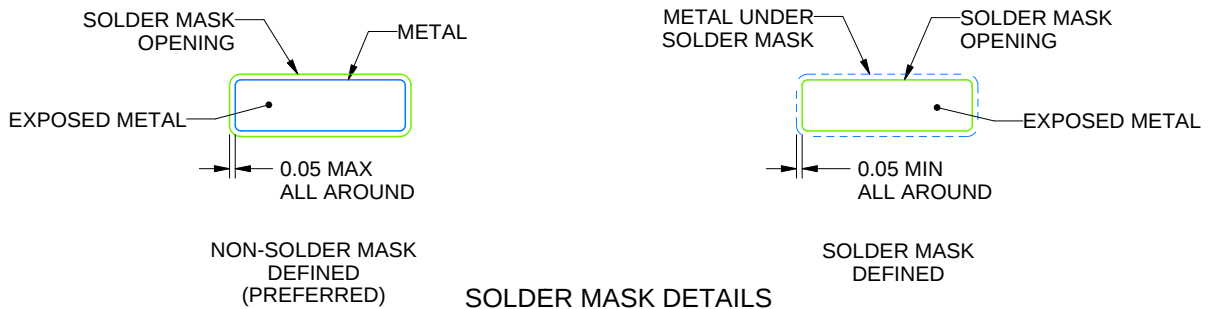
PW0020A

TSSOP - 1.2 mm max height

SMALL OUTLINE PACKAGE



LAND PATTERN EXAMPLE
EXPOSED METAL SHOWN
SCALE: 10X



4220206/A 02/2017

NOTES: (continued)

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

EXAMPLE STENCIL DESIGN

PW0020A

TSSOP - 1.2 mm max height

SMALL OUTLINE PACKAGE



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

4220206/A 02/2017

NOTES: (continued)

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



4214851/B 08/2019

NOTES:

1. All linear dimensions are in millimeters. Any dimensions in parenthesis are for reference only. Dimensioning and tolerancing per ASME Y14.5M.
2. This drawing is subject to change without notice.
3. This dimension does not include mold flash, protrusions, or gate burrs. Mold flash, protrusions, or gate burrs shall not exceed 0.15 mm per side.
4. This dimension does not include interlead flash. Interlead flash shall not exceed 0.25 mm per side.
5. Reference JEDEC registration MO-150.

EXAMPLE BOARD LAYOUT

DB0020A

SSOP - 2 mm max height

SMALL OUTLINE PACKAGE



LAND PATTERN EXAMPLE
EXPOSED METAL SHOWN
SCALE: 10X



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.

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