CDx4AC374、CDx4ACT374、CD74AC534 三态正边沿触发式八路 D 型触发器

1 特性

- 防 SCR 闩锁 CMOS 工艺和电路设计
- 双极 FAST*/AS/S 的速度，同时功耗显著降低
- 平衡传播延迟
- 交流类型的工作电压范围为 1.5V 至 5.5V，并在电源电压的 30% 时具有平衡的抗噪性能
- ±24mA 输出驱动电流
  - 扇出到 15 个 FAST* IC
  - 驱动 50Ω 传输线路

*

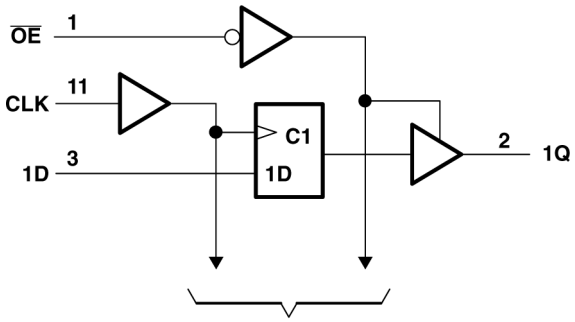
2 说明

’AC374 器件的八个触发器是边沿触发式 D 型触发器。在时钟 (CLK) 输入发生正转换时，Q 输出被设置为在数据 (D) 输入端设置的逻辑电平。

器件信息

器件型号	封装(1)	封装尺寸(2)	本体尺寸(3)
CDx4AC/ACT374, CD74AC534	DW（SOIC，20）	12.80mm x 10.3mm	12.80mm x 7.50mm
	N（PDIP，20）	24.33mm x 9.4mm	24.33mm x 6.35mm

(1) 有关更多信息，请参阅第 10 节。
(2) 封装尺寸（长 × 宽）为标称值，并包括引脚（如适用）。
(3) 本体尺寸（长 × 宽）为标称值，不包括引脚。



逻辑图（正逻辑）

* FAST 是 Fairchild Semiconductor Corp. 的注册商标。

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3 Pin Configuration and Functions

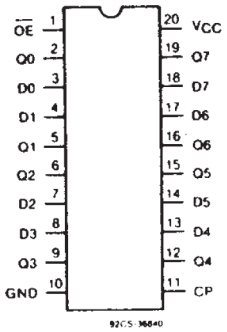


图 3-1. CDx4AC/ACT374, CD74AC534

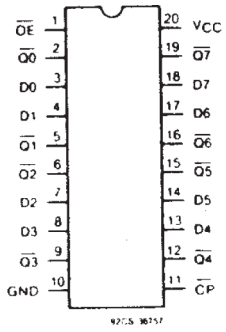


图 3-2. CDx4AC/ACT374, CD74AC534

表 3-1. Pin Functions

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

4 Specifications

4.1 Absolute Maximum Ratings

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

			MIN	MAX	UNIT
V_{CC}	Supply-voltage		-0.5	6	V
I_{IK}	Input diode current	(V_I < -0.5 V or V, > V_{CC} ± 0.5 V)		±20	mA
I_{OK}	Output diode current	V_O< -0.5 V or V_O> V_{CC} + 0.5 V)		±50	mA
I_O	Output source or sink current per output pin	(V_O > -0.5 V or V_O < V_{CC} + 0.5 V)		±50	mA
	DC V_{cc} or ground current (I_{CC} or I_{GND})			±100	mA(2)
T_{stg}	Storage temperature		-65	+150	°C

(1) Operation outside the Absolute Maximum Ratings may cause permanent device damage. Absolute Maximum Ratings do not imply functional operation of the device at these or any other conditions beyond those listed under Recommended Operating Conditions. If used outside the Recommended Operating Conditions but within the Absolute Maximum Ratings, the device may not be fully functional, and this may affect device reliability, functionality, performance, and shorten the device lifetime.
(2) For up to 4 outputs per device; add ± 25 mA for each additional output.

4.2 ESD Ratings

			VALUE	UNIT
$V_{(ESD)}$	Electrostatic discharge	Human body model (HBM), per ANSI/ESDA/JEDEC JS-0011	±2000	V

4.3 Recommended Operating Conditions:

For maximum reliability, normal operating conditions should be selected so that operation is always within the following ranges:

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

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

4.4 Thermal Information

THERMAL METRIC(1)		CDx4AC/ACT374, CD74AC534		UNIT
		DW (SOIC)	N (PDIP)	
		20 PINS	20 PINS	
$R_{\theta JA}$	Junction-to-ambient thermal resistance	101.2	50	°C/W

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

4.5 Electrical Characteristics: AC Series

CHARACTERISTICS		TEST CONDITIONS		V_{CC} (V)	AMBIENT TEMPERATURE (T_A) - °C						UNIT
					+25		-40 to +85		-55 to +125		
		V_I (V)	I_O (mA)		MIN	MAX	MIN	MAX	MIN	MAX	
V_{IH}	High-Level Input Voltage			1.5	1.2	—	1.2	—	1.2	—	
				3	2.1	—	2.1	—	2.1	—	V
				5.5	3.85	—	3.85	—	3.85	—	
V_{IL}	Low-Level Input Voltage			1.5	—	0.3	—	0.3	—	0.3	
				3	—	0.9	—	0.9		0.9	V
				5.5	—	1.65	—	1.65	—	1.65	
V_{OH}	High-Level Output Voltage	V_{IH} or V_{IL} (1), (2)	-0.05	1.5	1.4	—	1.4	—	1.4	—	
			-0.05	3	2.9	—	2.9	—	2.9	—	
			-0.05	4.5	4.4	__	4.4	—	4.4	—	
			-4	3	2.58	—	2.48	—	2.4	—	
			-24	4.5	3.94	—	3.8	—	3.7	—	V
			-75	5.5	—	—	3.85	—	—	—	
			-50	5.5	—	—	—	—	3.85	—	
V_{OH}	Low-Level Output Voltage	V_{IH} or V_{IL} (1), (2)	0.05	1.5	—	0.1	—	0.1	—	0.1	
			0.05	3	—	0.1	—	0.1	—	0.1	
			0.05	4.5	—	0.1	—	0.1	—	0.1	
			12	3	—	0.36	—	0.44	—	0.5	V
			24	4.5	—	0.36	—	0.44	—	0.5	
			75	5.5	—	—	—	1.65	—	—	
			50	5.5	—	—	—	—	—	1.65	
I_I	Input Leakage Current	V_{CC} or GND		5.5	—	±0.1	—	±1	—	±1	μA
I_{OZ}	3-State Leakage Current	V_{IH} or V_{IL} V_O = V_{CC} or GND		5.5	—	±0.5	—	±5	—	±10	μA
I_{CC}	Quiescent Supply Current, MSI	V_{CC} or GND	0	5.5	—	8	—	80	—	160	μA

(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 50-ohm transmission-line-drive capability at +85°C, 75 ohms at +125°C.

4.6 Electrical Characteristics: ACT Series

CHARACTERISTICS		TEST CONDITIONS		V_{CC} (V)	AMBIENT TEMPERATURE (T_A) - °C						UNIT
					+25		-40 to +85		-55 to +125		
		V_I (V)	I_O (mA)		MIN	MAX	MIN	MAX	MIN	MAX	
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} (1), (2)	-0.05	4.5	4.4	—	4.4	—	4.4	—	
			-24	4.5	3.94	—	3.8	—	3.7	—	V
			-75	5.5	—	—	3.85	—	—	—	
			-50	5.5	—	—	—	—	3.85	—	

CHARACTERISTICS		TEST CONDITIONS		V_{CC} (V)	AMBIENT TEMPERATURE (T_A) - °C						UNIT
					+25		-40 to +85		-55 to +125		
		V_I (V)	I_O (mA)		MIN	MAX	MIN	MAX	MIN	MAX	
V_{OL}	Low-Level Output Voltage	V_{IH} or V_{IL} (1), (2)	0.05	4.5	—	0.1	—	0.1	—	0.1	V
			24	4.5	—	0.36	—	0.44	—	0.5	
			75	5.5	—	—	—	1.65	—	—	
			50	5.5	—	—	—	—	—	1.65	
I_I	Input Leakage Current	V_{CC} or GND		5.5	—	±0.1	—	±1	—	±1	μA
I_{OZ}	3-State Leakage Current	V_{IH} or V_{IL} V_O = V_{CC} or GND		5.5	—	±0.5	—	±5	—	±10	μA
I_{CC}	Quiescent Supply Current, MSI	V_{CC} or GND	0	5.5	—	8	—	80	—	160	μA
ΔI_{CC}	Additional Quiescent 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 50-ohm transmission-line-drive capability at +85°C. 75 ohms at + 125°C.

Act Input Loading Table

INPUT	UNIT LOADS(2)
D, $\overline{OE}$	0.7
CP	1.17

4.7 Prerequisite for Switching: AC Series

CHARACTERISTICS		V_{CC} (V)	AMBIENT TEMPERATURE (T_A) - °C				UNIT
			-40 to +85		-55 to+125		
			MIN	MAX	MIN	MAX	
t_w	Clock Pulse Width	1.5	44	—	50	—	ns
		3.3(1)	4.9	—	5.6	—	
		5(2)	3.5	—	4	—	
t_{SU}	Setup Time Data to Clock	1.5	2	—	2		ns
		3.3	2	—	2	—	
		5	2	—	2	—	
t_H	Hold Time Data to Clock	1.5	2	—	2		ns
		3.3	2	—	2	—	
		5	2	—	2	—	
f_{MAX}	Maximum Clock Frequency	1.5	11	—	10	—	MHz
		3.3	101	—	89	—	
		5	143	—	125	—	

(1) 3.3 V: min. is @ 3 V
(2) 5 V: min. is @ 4.5 V

4.8 Switching Characteristics: AC Series

t_r, t_i = 3 ns, C_L = 50 pF

SYMBOL	CHARACTERISTICS	V_{CC} (V)	AMBIENT TEMPERATURE (T_A) - °C				UNIT
			-40 to +85		-55 to+125		
			MIN	MAX	MIN	MAX	
t_{PLH}, t_{PHL}	Propagation Delays: Clock to Q AC374	1.5	—	123	—	135	ns
		3.3(1)	3.9	13.7	3.8	15.1	
		5(2)	2.8	9.8	2.7	10.8	
t_{PLH}, t_{PHL}	Clock to $\overline{Q}$ AC534	1.5		128	—	141	ns
		3.3	4.1	14.4	4	15.8	
		5	2.9	10.3	2.8	11.3	
t_{PLH}, t_{PZH}	Output Enable to Q, $\overline{Q}$	1.5	—	165	—	181	ns
		3.3	5.6	19.8	5.5	21.8	
		5	3.7	13.2	3.6	14.5	
t_{PLZ}, t_{PHZ}	Output Disable to Q, $\overline{Q}$	1.5	—	165	—	181	ns
		3.3	4.7	16.5	4.5	18.1	
		5	3.7	13.2	3.6	14.5	
C_{PD} (3)	Power Dissipation Capacitance	—	67 Typ.		67 Typ.		pF
V_{OHV}	Min. (Valley) V_{OH} During Switching of Other Outputs (Output Under Test Not Switching)	5	4 Typ. @ 25°C				V
	Max. (Peak) V_{OL} During Switching of Other Outputs (Output Under Test Not Switching)	5	1 Typ. @25°C				V
C_I	Input Capacitance	—	—	10	—	10	pF
C_O	3-State Output Capacitance	—	—	15	—	15	pF

(1) 3.3V: min. is @ 3.6 V
(2) 5 V: min. is @ 5.5 V
(3) C_{PD} is used to determine the dynamic power consumption, per flip flop.

4.9 Prerequisite for Switching: ACT Series

SYMBOL	CHARACTERISTICS	V_{CC} (V)	AMBIENT TEMPERATURE (T_A) - °C				UNIT
			-40 to +85		-55 to+125		
			MIN	MAX	MIN	MAX	
t_W	Clock Pulse Width	5(1)	3.9	—	4.5	—	ns
t_{SU}	Setup Time Data to Clock	5	2	—	2	—	ns
t_H	Hold Time Data to Clock	5	2.6	—	3	—	ns
f_{MAX}	Maximum Clock Frequency	5	125	—	110	—	MHz

(1) 5 V: min. is @ 4.5 V

4.10 Switching Characteristics: ACT Series

over recommended operating free-air temperature range, ACT Series; t_r, t_i = 3 ns, C_L = 50 pF (unless otherwise noted) (see Load Circuit and Voltage Waveforms)

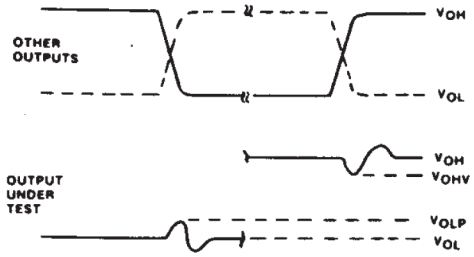
SYMBOL	CHARACTERISTICS	V_{CC} (V)	AMBIENT TEMPERATURE (T_A) - °C				UNIT
			-40 to +85		-55 to +125		
			MIN	MAX	MIN	MAX	
t_{PLH}, t_{PHL}	Propagation Delays: Clock to Q ACT374	5(1)	2.9	10.2	2.8	11.2	ns
t_{PLH}, t_{PHL}	Clock to $\overline{Q}$ ACT534	5	3	10.6	2.9	11.7	ns

over recommended operating free-air temperature range, ACT Series; t_r, t_f = 3 ns, C_L = 50 pF (unless otherwise noted) (see Load Circuit and Voltage Waveforms)

SYMBOL	CHARACTERISTICS	V_{CC} (V)	AMBIENT TEMPERATURE (T_A) - °C				UNIT
			-40 to +85		-55 to +125		
			MIN	MAX	MIN	MAX	
t_{PLZ}, t_{PHZ}, t_{PZL}, t_{PZH}	Output Enable and Disable to Q ACT374	5	3.7	13.2	3.6	14.5	ns
t_{PLZ}, t_{PHZ}, t_{PZL}, t_{PZH}	Output Enable and Disable to $\overline{Q}$ ACT534	5	3.7	13.2	3.6	14.5	ns
C_{PD} (2)	Power Dissipation Capacitance	—		67 Typ.		67 Typ.	pF
V_{OHV}	Min. (Valley) V_{OH} During Switching of Other Outputs (Output Under Test Not Switching)	5	4 Typ. @ 25°C				V
V_{OLP}	Max. (Peak) V_{OL} During Switching of Other Outputs (Output Under Test Not Switching)	5	1 Typ. @25°C				V
C_I	Input Capacitance	—	—	10	—	10	pF
C_O	3-State Output Capacitance	—	—	15	—	15	pF

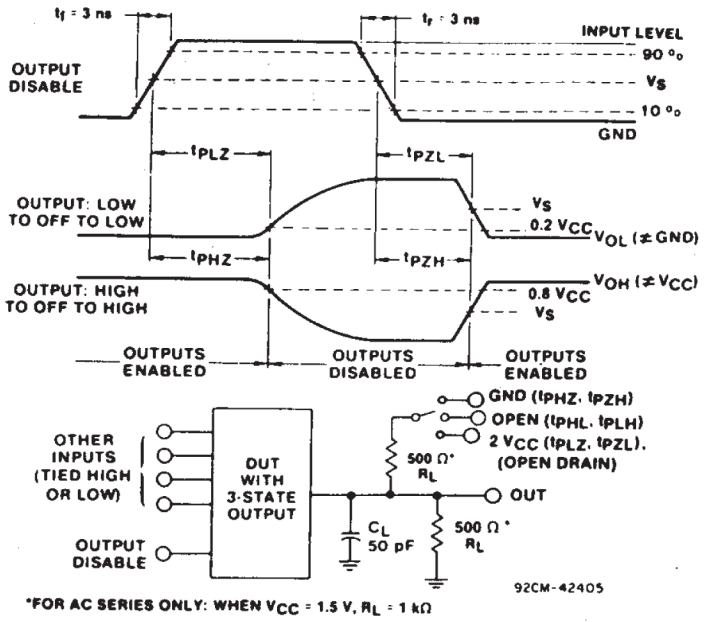
(1) 5V: min. is @ 5.5 V
(2) C_{PD} is used to determine the dynamic power consumption, per flip flop.

5 Parameter Measurement Information



A. 1 V_{OHV} AND V_{OLP} ARE MEASURED WITH RESPECT TO A GROUND REFERENCE NEAR THE OUTPUT UNDER TEST.
B. INPUT PULSES HAVE THE FOLLOWING CHARACTERISTICS: PRR ⩽ 1 MHz, t_f = 3 ns, t_f = 3 ns, SKEW 1 ns.
C. R.F. FIXTURE WITH 700-MHz DESIGN RULES REQUIRED. I_C SHOULD BE SOLDERED INTO TEST BOARD ANO BYPASSED WITH 0.1 μF CAPACITOR. SCOPE ANO PROBES REQUIRE 700-MHz BANDWIDTH
D. 92CS-42406

图 5-1. Simultaneous Switching Transient Waveforms.



*For AC series only: When V_{CC} = 1.5V, R_L = 1 kΩ

图 5-2. Three-state Propagation Delay Waveforms and Test Circuit.

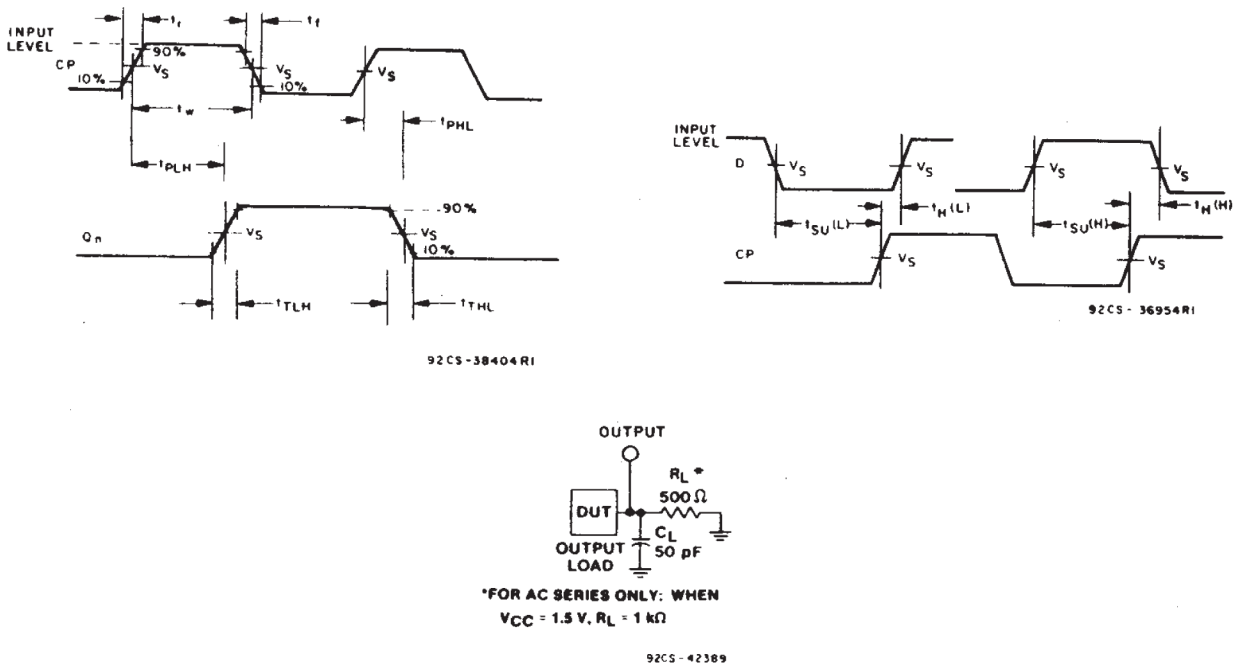


图 5-3. Propagation Delay Times and Test Circuit.

	CDx4AC	CDx4ACT
Input Level	V_{CC}	3 V
Input Switching Voltage, V_S	0.5 V_{CC}	1.5 V
Output Switching Voltage. V_S	0.5 V_{CC}	0.5 V_{CC}

6 Detailed Description

6.1 Overview

The eight flip-flops of the ’ AC374 devices are D-type edge-triggered flip-flops. On the positive transition of the clock (CLK) input, the Q outputs are set to the logic levels set up at the data (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 the increased drive provide the capability to drive bus lines in bus-organized systems without need for interface or pullup components.

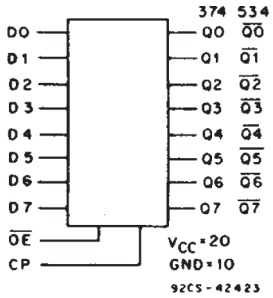
$\overline{OE}$ does not affect internal operations of the flip-flop. Old data can be retained or new data can be entered while the outputs are in the high-impedance state.

The RCA-CD54/74AC374 and CD54/74AC534 and the CD54/74ACT374 and CD54/74ACT534 octal D-type, 3-state, positive-edge triggered flip-flops use the RCA ADVANCED CMOS technology. The eight flip-flops enter data into their registers on the LOW-to-HIGH transition of the clock (CP). The Output Enable ($\overline{OE}$) controls the 3-state outputs and is independent of the register operation. When the Output Enable ($\overline{OE}$) is HIGH, the outputs are in the high-impedance state. The CD54/74AC/ACT374 and CD54/74AC/ACT534 share the same pin configurations, but the CD54/74AC/ACT374 outputs are non-inverted while the CD54/74AC/ACT534 devices have inverted outputs. (For flow-through pin configurations, see CD54/74AC/ACT564 and CD54/74AC/ACT574.)

The CD74AC/ACT374 and CD74AC/ACT534 are supplied in 20-lead dual-in-line plastic packages (E suffix) and in 20-lead dual-in-line small-outline plastic packages (M suffix). Both package types are operable over the following temperature ranges: Commercial (0 to 70°C); Industrial (-40 to +85°C); and Extended Industrial/Military (-55 to +125°C).

The CD54AC/ACT374 and CD54AC/ACT534, available in chip form (H suffix), are operable over the -55 to +125°C temperature range.

6.2 Functional Block Diagram



6.3 Device Functional Modes

表 6-1. Truth Table

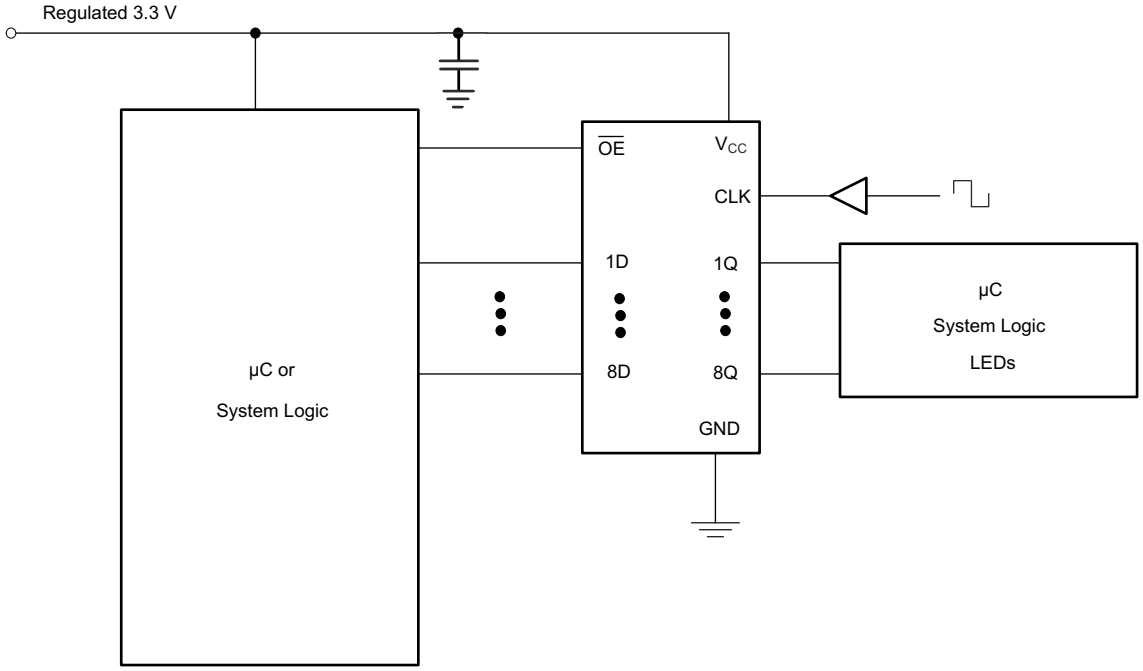
INPUTS			OUTPUTS	
			374	534
$\overline{OE}$	CP	Dn	Qn	$\overline{Q}$n
L	↑	H	H	L
L	↑	L	L	H
L	L	X	QO	QO
H	X	X	Z	Z

7 Application and Implementation

备注

以下应用部分中的信息不属于 TI 器件规格的范围，TI 不担保其准确性和完整性。TI 的客 户应负责确定器件是否适用于其应用。客户应验证并测试其设计，以确保系统功能。

7.1 Typical Application



7.1.1 Design Requirements

This device uses CMOS technology and has balanced output drive. Care should be taken 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 so routing and load conditions should be considered to prevent ringing.

7.1.2 Detailed Design Procedure

1. Recommended Input conditions
   - Rise time and fall time specs: See ($\Delta t/\Delta V$) in *Recommended Operating Conditions* table.
   - Specified high and low levels: See (V_{IH} and V_{IL}) in *Recommended Operating Conditions* table.
   - Inputs are overvoltage tolerant allowing them to go as high as 5.5 V at any valid V_{CC}.
2. Recommend output conditions
   - Load currents should not exceed 50 mA per output and 100 mA total for the part.
   - Outputs should not be pulled above V_{CC}.

7.2 Power Supply Recommendations

The power supply can be any voltage between the min and max supply voltage rating located in *节 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.

7.3 Layout

7.3.1 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
CD54AC374	Click here	Click here	Click here	Click here	Click here
CD74AC374	Click here	Click here	Click here	Click here	Click here
CD54ACT374	Click here	Click here	Click here	Click here	Click here
CD74ACT374	Click here	Click here	Click here	Click here	Click here
CD74AC534	Click here	Click here	Click here	Click here	Click here

8.2 接收文档更新通知

要接收文档更新通知，请导航至 ti.com 上的器件产品文件夹。点击*通知* 进行注册，即可每周接收产品信息更改摘要。有关更改的详细信息，请查看任何已修订文档中包含的修订历史记录。

8.3 支持资源

TI E2E™ 中文支持论坛是工程师的重要参考资料，可直接从专家处获得快速、经过验证的解答和设计帮助。搜索现有解答或提出自己的问题，获得所需的快速设计帮助。

链接的内容由各个贡献者“按原样”提供。这些内容并不构成 TI 技术规范，并且不一定反映 TI 的观点；请参阅 TI 的使用条款。

8.4 Trademarks

TI E2E™ is a trademark of Texas Instruments.
所有商标均为其各自所有者的财产。

8.5 静电放电警告

静电放电 (ESD) 会损坏这个集成电路。德州仪器 (TI) 建议通过适当的预防措施处理所有集成电路。如果不遵守正确的处理和安装程序，可能会损坏集成电路。

ESD 的损坏小至导致微小的性能降级，大至整个器件故障。精密的集成电路可能更容易受到损坏，这是因为非常细微的参数更改都可能会导致器件与其发布的规格不相符。

8.6 术语表

TI 术语表　　本术语表列出并解释了术语、首字母缩略词和定义。

9 Revision History

注：以前版本的页码可能与当前版本的页码不同

Changes from Revision * (December 1998) to Revision A (March 2024)	Page
• 添加了*器件信息* 表、*引脚功能* 表、*ESD 等级* 表、*热性能信息* 表、*器件功能模式*、*应用和实施* 部分、*器件和文档支持* 部分以及*机械、封装和可订购信息* 部分	1
• Updated R θ JA values: DW = 40 to 101.2, 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)
CD54AC374F3A	Active	Production	CDIP (J) | 20	20 | TUBE	No	SNPB	N/A for Pkg Type	-55 to 125	CD54AC374F3A
CD54AC374F3A.A	Active	Production	CDIP (J) | 20	20 | TUBE	No	SNPB	N/A for Pkg Type	-55 to 125	CD54AC374F3A
CD54ACT374F3A	Active	Production	CDIP (J) | 20	20 | TUBE	No	SNPB	N/A for Pkg Type	-55 to 125	CD54ACT374F3A
CD54ACT374F3A.A	Active	Production	CDIP (J) | 20	20 | TUBE	No	SNPB	N/A for Pkg Type	-55 to 125	CD54ACT374F3A
CD74AC374E	Active	Production	PDIP (N) | 20	20 | TUBE	Yes	NIPDAU	N/A for Pkg Type	-55 to 125	CD74AC374E
CD74AC374E.A	Active	Production	PDIP (N) | 20	20 | TUBE	Yes	NIPDAU	N/A for Pkg Type	-55 to 125	CD74AC374E
CD74AC374M	Obsolete	Production	SOIC (DW) | 20	-	-	Call TI	Call TI	-55 to 125	AC374M
CD74AC374M96	Active	Production	SOIC (DW) | 20	2000 | LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	-55 to 125	AC374M
CD74AC374M96.A	Active	Production	SOIC (DW) | 20	2000 | LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	-55 to 125	AC374M
CD74AC534M96	Active	Production	SOIC (DW) | 20	2000 | LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	-55 to 125	AC534M
CD74AC534M96.A	Active	Production	SOIC (DW) | 20	2000 | LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	-55 to 125	AC534M
CD74ACT374E	Active	Production	PDIP (N) | 20	20 | TUBE	Yes	NIPDAU	N/A for Pkg Type	-55 to 125	CD74ACT374E
CD74ACT374E.A	Active	Production	PDIP (N) | 20	20 | TUBE	Yes	NIPDAU	N/A for Pkg Type	-55 to 125	CD74ACT374E
CD74ACT374M	Obsolete	Production	SOIC (DW) | 20	-	-	Call TI	Call TI	-55 to 125	ACT374M
CD74ACT374M96	Active	Production	SOIC (DW) | 20	2000 | LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	-55 to 125	ACT374M
CD74ACT374M96.A	Active	Production	SOIC (DW) | 20	2000 | LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	-55 to 125	ACT374M

(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.

OTHER QUALIFIED VERSIONS OF CD54AC374, CD54ACT374, CD74AC374, CD74ACT374 :

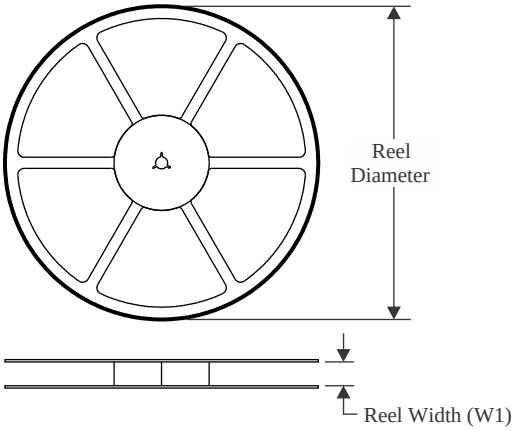
- Catalog : CD74AC374, CD74ACT374
- Military : CD54AC374, CD54ACT374

NOTE: Qualified Version Definitions:

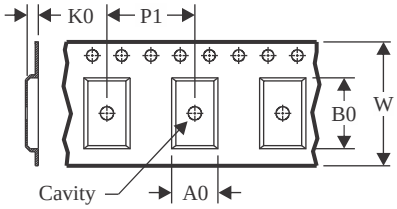
- Catalog - TI's standard catalog product
- Military - QML certified for Military and Defense Applications

TAPE AND REEL INFORMATION

REEL DIMENSIONS

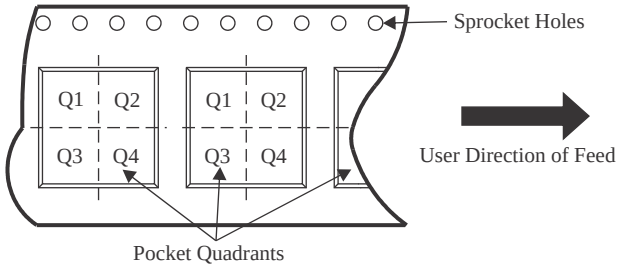


TAPE DIMENSIONS



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

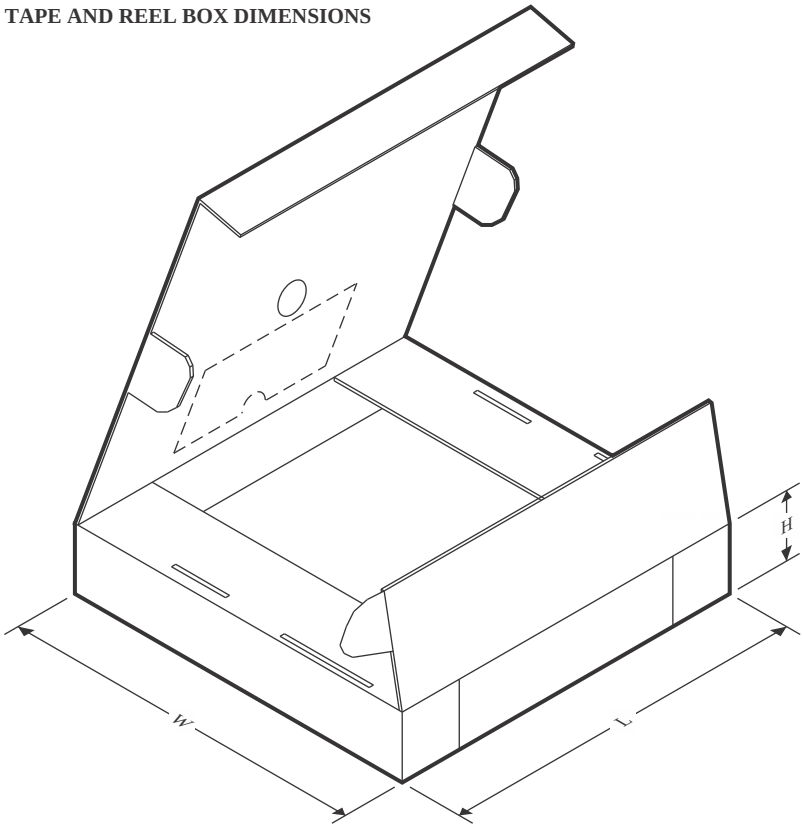
QUADRANT ASSIGNMENTS FOR PIN 1 ORIENTATION IN TAPE



*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
CD74AC374M96	SOIC	DW	20	2000	330.0	24.4	10.8	13.3	2.7	12.0	24.0	Q1
CD74AC534M96	SOIC	DW	20	2000	330.0	24.4	10.8	13.3	2.7	12.0	24.0	Q1
CD74ACT374M96	SOIC	DW	20	2000	330.0	24.4	10.8	13.3	2.7	12.0	24.0	Q1
CD74ACT374M96	SOIC	DW	20	2000	330.0	24.4	10.9	13.3	2.7	12.0	24.0	Q1

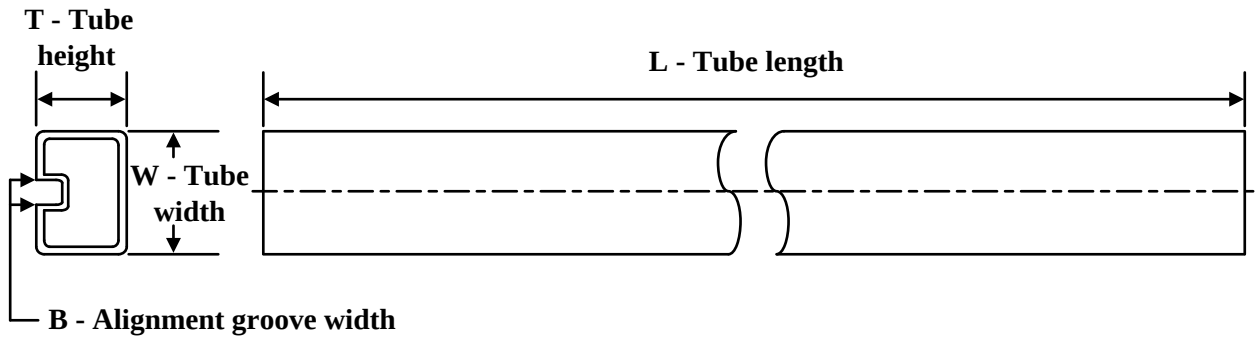
TAPE AND REEL BOX DIMENSIONS



*All dimensions are nominal

Device	Package Type	Package Drawing	Pins	SPQ	Length (mm)	Width (mm)	Height (mm)
CD74AC374M96	SOIC	DW	20	2000	356.0	356.0	45.0
CD74AC534M96	SOIC	DW	20	2000	356.0	356.0	45.0
CD74ACT374M96	SOIC	DW	20	2000	356.0	356.0	45.0
CD74ACT374M96	SOIC	DW	20	2000	356.0	356.0	45.0

TUBE



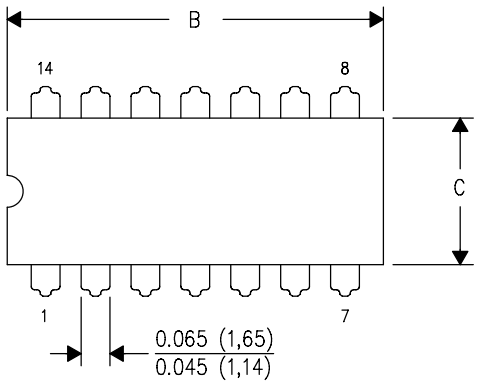
*All dimensions are nominal

Device	Package Name	Package Type	Pins	SPQ	L (mm)	W (mm)	T (µm)	B (mm)
CD74AC374E	N	PDIP	20	20	506	13.97	11230	4.32
CD74AC374E.A	N	PDIP	20	20	506	13.97	11230	4.32
CD74ACT374E	N	PDIP	20	20	506	13.97	11230	4.32
CD74ACT374E.A	N	PDIP	20	20	506	13.97	11230	4.32

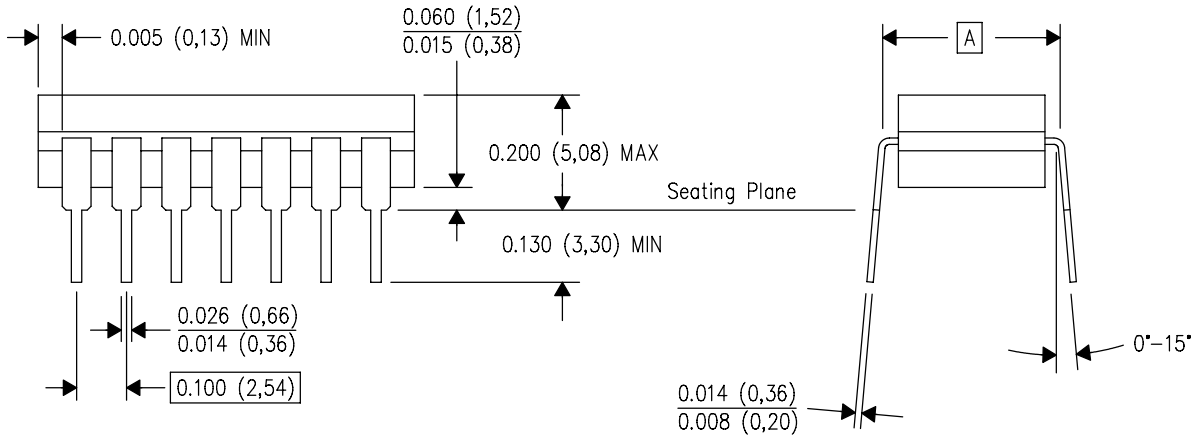
J (R–GDIP–T**)

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)



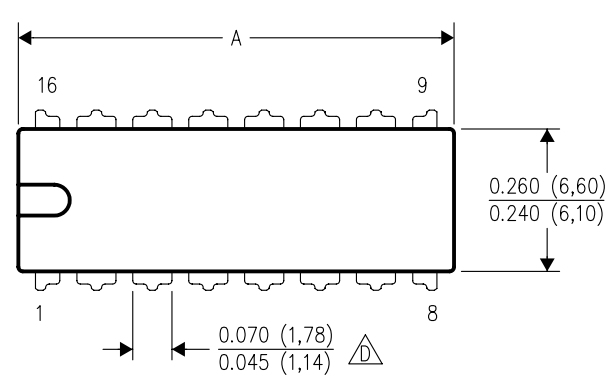
4040083/F 03/03

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.

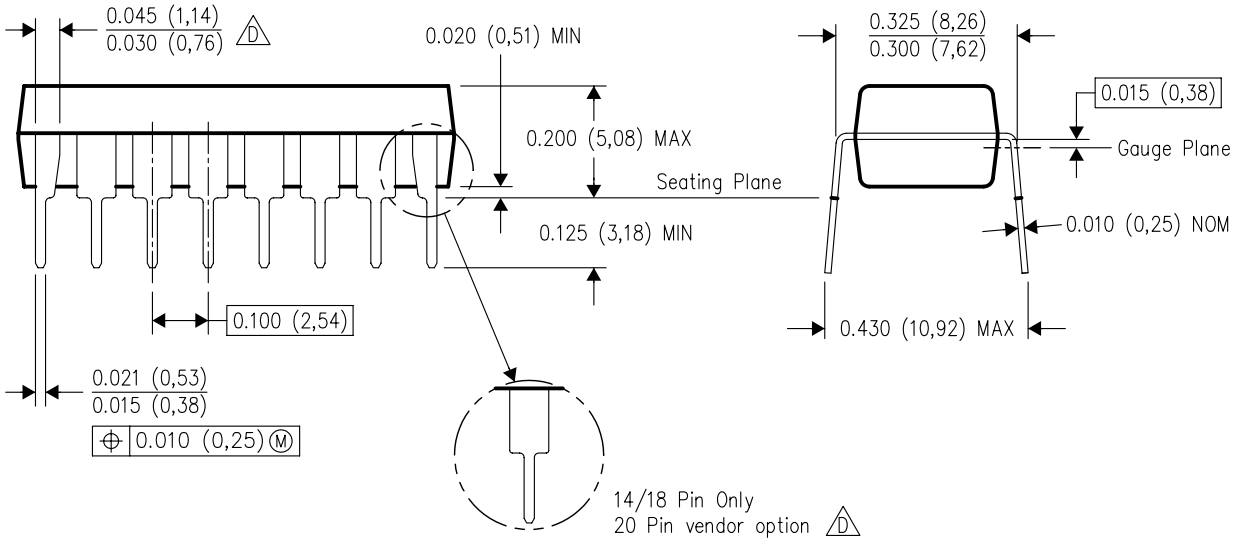
N (R–PDIP–T**)

PLASTIC DUAL–IN–LINE PACKAGE

16 PINS SHOWN

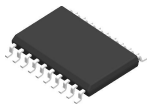


DIM \ PINS **	14	16	18	20
A MAX	0.775 (19,69)	0.775 (19,69)	0.920 (23,37)	1.060 (26,92)
A MIN	0.745 (18,92)	0.745 (18,92)	0.850 (21,59)	0.940 (23,88)
MS–001 VARIATION (C)	AA	BB	AC	AD



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.

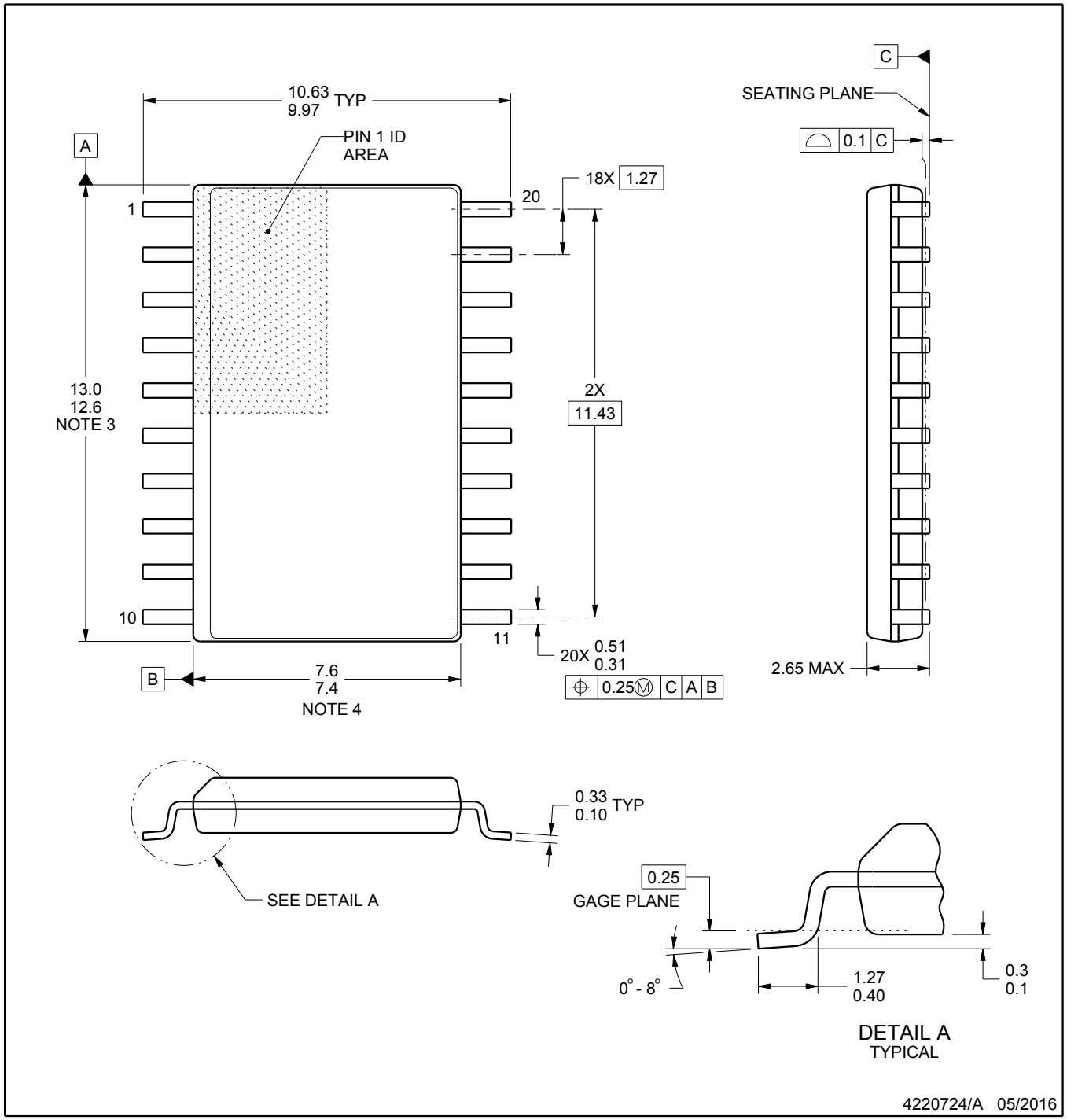


PACKAGE OUTLINE

DW0020A

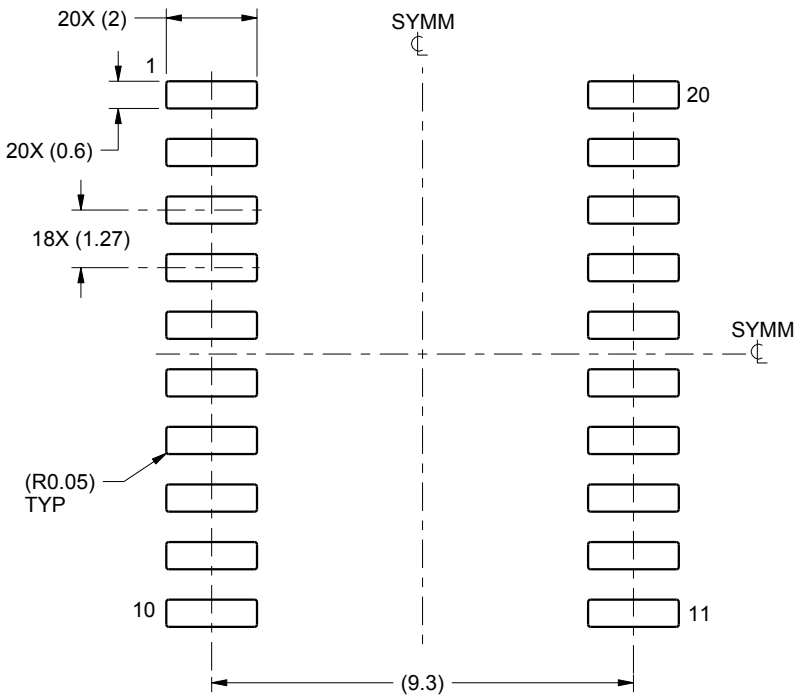
SOIC - 2.65 mm max height

SOIC

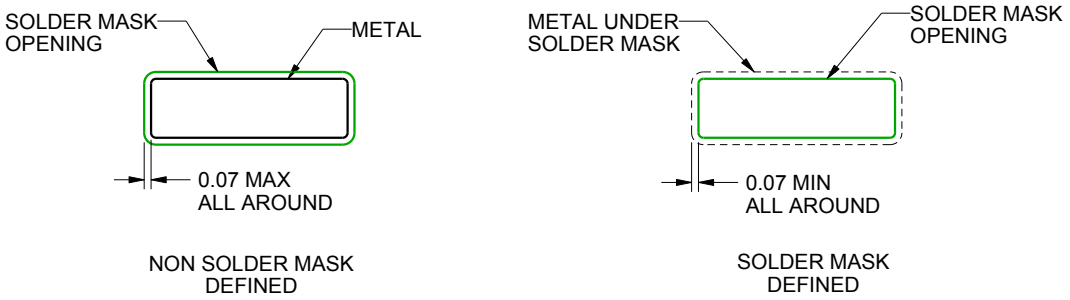


NOTES:

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

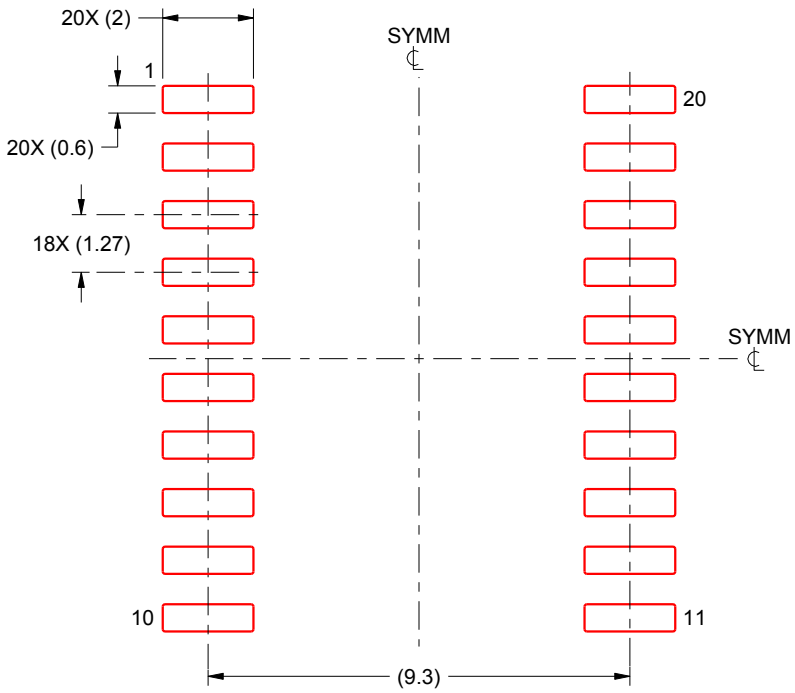


SOLDER MASK DETAILS

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.

重要通知和免责声明

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最后更新日期：2025 年 10 月