**CD54/74AC374, CD54/74AC534
CD54/74ACT374, CD54/74ACT534**

![Texas Instruments logo] **TEXAS INSTRUMENTS**

Data sheet acquired from Harris Semiconductor
SCHS290
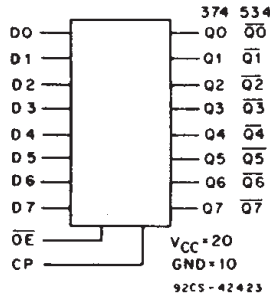
FUNCTIONAL DIAGRAM

Octal D-Type Flip-Flops, 3-State
Positive-Edge Triggered
CD54/74AC/ACT374 - Non-Inverting
CD54/74AC/ACT534 - Inverting

Type Features:
- Buffered inputs
- Typical propagation delay:
  5 ns @ V_{CC} = 5 V, T_A = 25°C, C_L = 50 pF

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.

Family Features:
- Exceeds 2-kV ESD Protection - MIL-STD-883, Method 3015
- SCR-Latch-up-resistant CMOS process and circuit design
- Speed of bipolar FAST*/AS/S with significantly reduced power consumption
- Balanced propagation delays
- AC types feature 1.5-V to 5.5-V operation and balanced noise immunity at 30% of the supply
- ± 24-mA output drive current
  - Fanout to 15 FAST* ICs
  - Drives 50-ohm transmission lines

*FAST is a Registered Trademark of Fairchild Semiconductor Corp.

TRUTH TABLE

INPUTS			OUTPUTS	
			374	534
$\overline{OE}$	CP	Dn	Qn	$\overline{Qn}$
L	_/‾	H	H	L
L	_/‾	L	L	H
L	L	X	QO	QO
H	X	X	Z	Z

H = High level (steady state)
L = Low level (steady state)
X = Don't care
_/‾ = Transition from low to high level
QO = The level of Q before the indicated steady-state input conditions were established
Z = High impedance

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File Number **1883**

CD54/74AC374, CD54/74AC534
CD54/74ACT374, CD54/74ACT534

MAXIMUM RATINGS, *Absolute-Maximum Values:*

DC SUPPLY-VOLTAGE (V_{CC}) .... -0.5 to 6 V
DC INPUT DIODE CURRENT, I_{IK} (for $V_i < -0.5$ V or $V_i > V_{CC} + 0.5$ V) .... ±20 mA
DC OUTPUT DIODE CURRENT, I_{OK} (for $V_O < -0.5$ V or $V_O > V_{CC} + 0.5$ V) .... ±50 mA
DC OUTPUT SOURCE OR SINK CURRENT per Output Pin, I_O (for $V_O > -0.5$ V or $V_O < V_{CC} + 0.5$ V) .... ±50 mA
DC V_{CC} or GROUND CURRENT (I_{CC} or I_{GND}) .... ±100 mA*
POWER DISSIPATION PER PACKAGE (P_D):
   For $T_A = -55$ to $+100°$C (PACKAGE TYPE E) .... 500 mW
   For $T_A = +100$ to $+125°$C (PACKAGE TYPE E) .... Derate Linearly at 8 mW/°C to 300 mW
   For $T_A = -55$ to $+70°$C (PACKAGE TYPE M) .... 400 mW
   For $T_A = +70$ to $+125°$C (PACKAGE TYPE M) .... Derate Linearly at 6 mW/°C to 70 mW
OPERATING-TEMPERATURE RANGE (T_A) .... -55 to +125°C
STORAGE TEMPERATURE (T_{stg}) .... -65 to +150°C
LEAD TEMPERATURE (DURING SOLDERING):
   At distance 1/16 ± 1/32 in. (1.59 ± 0.79 mm) from case for 10 s maximum .... +265°C
   Unit inserted into PC board min. thickness 1/16 in. (1.59 mm) with solder contacting lead tips only .... +300°C

*For up to 4 outputs per device; add ± 25 mA for each additional output.

RECOMMENDED OPERATING CONDITIONS:

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

CHARACTERISTIC	LIMITS		UNITS
	MIN.	MAX.	
Supply-Voltage Range, V_{CC}*:			
(For T_A = Full Package-Temperature Range)			
AC Types	1.5	5.5	V
ACT Types	4.5	5.5	V
DC Input or Output Voltage, V_I, V_O	0	V_{CC}	V
Operating Temperature, T_A	-55	+125	°C
Input Rise and Fall Slew Rate, dt/dv			
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

*Unless otherwise specified, all voltages are referenced to ground.

TERMINAL ASSIGNMENT DIAGRAMS
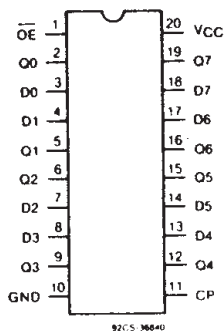
CD54/74AC/ACT374
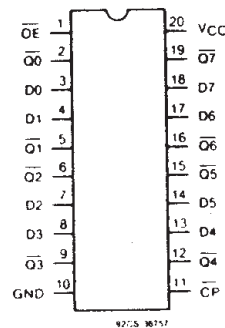
CD54/74AC/ACT534

CD54/74AC374, CD54/74AC534
CD54/74ACT374, CD54/74ACT534

STATIC ELECTRICAL CHARACTERISTICS: AC Series

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

\#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.

*Test verifies a minimum 50-ohm transmission-line-drive capability at +85°C, 75 ohms at +125°C.

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CD54/74AC374, CD54/74AC534
CD54/74ACT374, CD54/74ACT534

STATIC ELECTRICAL CHARACTERISTICS: ACT Series

CHARACTERISTICS	TEST CONDITIONS		V_{CC} (V)	AMBIENT TEMPERATURE (T_A) - °C						UNITS
				+25		-40 to +85		-55 to +125		
	V_I (V)	I_O (mA)		MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	
High-Level Input Voltage V_{IH}			4.5 to 5.5	2	—	2	—	2	—	V
Low-Level Input Voltage V_{IL}			4.5 to 5.5	—	0.8	—	0.8	—	0.8	V
High-Level Output Voltage V_{OH}	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	—	
	#, * {	-75	5.5	—	—	3.85	—	—	—	
		-50	5.5	—	—	—	—	3.85	—	
Low-Level Output Voltage V_{OL}	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	
	#, * {	75	5.5	—	—	—	1.65	—	—	
		50	5.5	—	—	—	—	—	1.65	
Input Leakage Current I_I	V_{CC} or GND		5.5	—	±0.1	—	±1	—	±1	μA
3-State Leakage Current I_{OZ}	V_{IH} or V_{IL} $V_O =$ V_{CC} or GND		5.5	—	±0.5	—	±5	—	±10	μA
Quiescent Supply Current, MSI I_{CC}	V_{CC} or GND	0	5.5	—	8	—	80	—	160	μA
Additional Quiescent Supply Current per Input Pin TTL Inputs High ΔI_{CC} 1 Unit Load	V_{CC}-2.1		4.5 to 5.5	—	2.4	—	2.8	—	3	mA

#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.

* 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*
D, $\overline{OE}$	0.7
CP	1.17

*Unit load is ΔI_{CC} limit specified in Static Characteristics Chart, e.g., 2.4 mA max. @ 25°C.

CD54/74AC374, CD54/74AC534
CD54/74ACT374, CD54/74ACT534

PREREQUISITE FOR SWITCHING: AC Series

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

*3.3 V: min. is @ 3 V
†5 V: min. is @ 4.5 V

SWITCHING CHARACTERISTICS: AC Series; t_r, t_f = 3 ns, C_L = 50 pF

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

*3.3 V: min. is @ 3.6 V
max. is @ 3 V

†5 V: min. is @ 5.5 V
max. is @ 4.5 V

§C_{PD} is used to determine the dynamic power consumption, per flip flop.

$$P_D = C_{PD} V_{CC}^2 f_i + \Sigma V_{CC}^2 f_o C_L$$ where f_i = input frequency
f_o = output frequency
C_L = output load capacitance
V_{CC} = supply voltage.

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# CD54/74AC374, CD54/74AC534
CD54/74ACT374, CD54/74ACT534

PREREQUISITE FOR SWITCHING: ACT Series

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

†5 V: min. is @ 4.5 V

SWITCHING CHARACTERISTICS: ACT Series; t_r, t_f = 3 ns, C_L = 50 pF

CHARACTERISTICS	SYMBOL	V_{CC} (V)	AMBIENT TEMPERATURE (T_A) - °C				UNITS
			-40 to +85		-55 to +125		
			MIN.	MAX.	MIN.	MAX.	
Propagation Delays: Clock to Q ACT374	t_{PLH} t_{PHL}	5†	2.9	10.2	2.8	11.2	ns
Clock to $\overline{Q}$ ACT534	t_{PLH} t_{PHL}	5	3	10.6	2.9	11.7	ns
Output Enable and Disable to Q ACT374	t_{PLZ} t_{PHZ} t_{PZL} t_{PZH}	5	3.7	13.2	3.6	14.5	ns
Output Enable and Disable to $\overline{Q}$ ACT534	t_{PLZ} t_{PHZ} t_{PZL} t_{PZH}	5	3.7	13.2	3.6	14.5	ns
Power Dissipation Capacitance	C_{PD}§	—	67 Typ.		67 Typ.		pF
Min. (Valley) V_{OH} During Switching of Other Outputs (Output Under Test Not Switching)	V_{OHV} See Fig. 1	5	4 Typ. @ 25°C				V
Max. (Peak) V_{OL} During Switching of Other Outputs (Output Under Test Not Switching)	V_{OLP} See Fig. 1	5	1 Typ. @ 25°C				V
Input Capacitance	C_i	—	—	10	—	10	pF
3-State Output Capacitance	C_O	—	—	15	—	15	pF

†5 V: min. is @ 5.5 V
        max. is @ 4.5 V

§C_{PD} is used to determine the dynamic power consumption, per flip flop.
$P_D = C_{PD} V_{CC}^2 f_i + V_{CC}^2 f_0 C_L + V_{CC} \Delta I_{CC}$ where f_i = input frequency
                               f_0 = output frequency
                               C_L = output load capacitance
                               V_{CC} = supply voltage.

PARAMETER MEASUREMENT INFORMATION
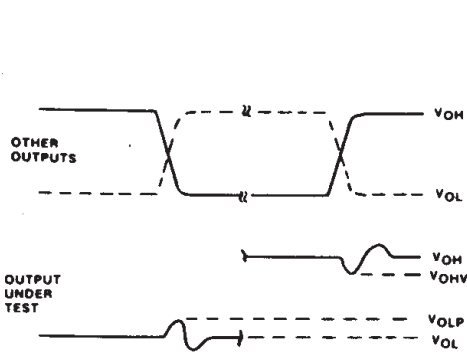
NOTES:
1. V_{OHV} AND V_{OLP} ARE MEASURED WITH RESPECT TO A GROUND REFERENCE NEAR THE OUTPUT UNDER TEST.
2. INPUT PULSES HAVE THE FOLLOWING CHARACTERISTICS: PRR ≤ 1 MHz, t_r = 3 ns, t_f = 3 ns, SKEW 1 ns.
3. R.F. FIXTURE WITH 700-MHz DESIGN RULES REQUIRED. IC SHOULD BE SOLDERED INTO TEST BOARD AND BYPASSED WITH 0.1 μF CAPACITOR. SCOPE AND PROBES REQUIRE 700-MHz BANDWIDTH.

92CS-42406

Fig. 1 - Simultaneous switching transient waveforms.
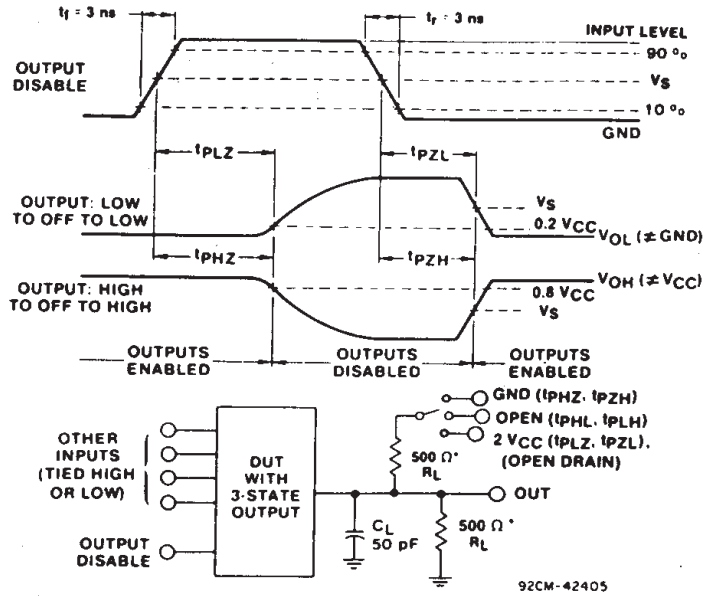
For AC series only: When V_{CC} = 1.5V, R_L = 1 kΩ

Fig. 2 - Three-state propagation delay waveforms and test circuit.

92CS-38404RI

92CS-36954RI

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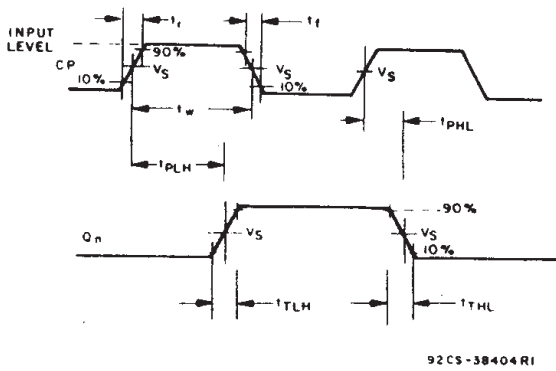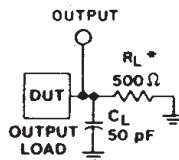
For AC SERIES ONLY: WHEN V_{CC} = 1.5 V, R_L = 1 kΩ

92CS-42389

Fig. 3 - Propagation delay times and test circuit.

	CD54/74AC	CD54/74ACT
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}

PACKAGING INFORMATION

Orderable Device	Status (1)	Package Type	Package Drawing	Pins	Package Qty	Eco Plan (2)	Lead/Ball Finish (6)	MSL Peak Temp (3)	Op Temp (°C)	Device Marking (4/5)	Samples
CD54AC374F3A	ACTIVE	CDIP	J	20	1	TBD	A42	N / A for Pkg Type	-55 to 125	CD54AC374F3A	Samples
CD54ACT374F3A	ACTIVE	CDIP	J	20	1	TBD	A42	N / A for Pkg Type	-55 to 125	CD54ACT374F3A	Samples
CD74AC374E	ACTIVE	PDIP	N	20	20	Pb-Free (RoHS)	CU NIPDAU	N / A for Pkg Type	-55 to 125	CD74AC374E	Samples
CD74AC374EE4	ACTIVE	PDIP	N	20	20	Pb-Free (RoHS)	CU NIPDAU	N / A for Pkg Type	-55 to 125	CD74AC374E	Samples
CD74AC374M	ACTIVE	SOIC	DW	20	25	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-55 to 125	AC374M	Samples
CD74AC374M96	ACTIVE	SOIC	DW	20	2000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-55 to 125	AC374M	Samples
CD74AC374M96E4	ACTIVE	SOIC	DW	20	2000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-55 to 125	AC374M	Samples
CD74AC374ME4	ACTIVE	SOIC	DW	20	25	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-55 to 125	AC374M	Samples
CD74AC534M96	ACTIVE	SOIC	DW	20	2000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-55 to 125	AC534M	Samples
CD74ACT374E	ACTIVE	PDIP	N	20	20	Pb-Free (RoHS)	CU NIPDAU	N / A for Pkg Type	-55 to 125	CD74ACT374E	Samples
CD74ACT374EE4	ACTIVE	PDIP	N	20	20	Pb-Free (RoHS)	CU NIPDAU	N / A for Pkg Type	-55 to 125	CD74ACT374E	Samples
CD74ACT374M	ACTIVE	SOIC	DW	20	25	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-55 to 125	ACT374M	Samples
CD74ACT374M96	ACTIVE	SOIC	DW	20	2000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-55 to 125	ACT374M	Samples
CD74ACT374ME4	ACTIVE	SOIC	DW	20	25	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-55 to 125	ACT374M	Samples

(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.

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

(5) Multiple Device Markings will be inside parentheses. Only one Device Marking contained in parentheses and separated by a "~" will appear on a device. If a line is indented then it is a continuation of the previous line and the two combined represent the entire Device Marking for that device.

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

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OTHER QUALIFIED VERSIONS OF 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

![Texas Instruments logo] **PACKAGE MATERIALS INFORMATION**

TAPE AND REEL INFORMATION

REEL DIMENSIONS

Reel Diameter

Reel Width (W1)

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	13.0	2.7	12.0	24.0	Q1
CD74AC534M96	SOIC	DW	20	2000	330.0	24.4	10.8	13.0	2.7	12.0	24.0	Q1
CD74ACT374M96	SOIC	DW	20	2000	330.0	24.4	10.8	13.0	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	367.0	367.0	45.0
CD74AC534M96	SOIC	DW	20	2000	367.0	367.0	45.0
CD74ACT374M96	SOIC	DW	20	2000	367.0	367.0	45.0

J (R—GDIP—T**)   CERAMIC DUAL IN—LINE PACKAGE
14 LEADS SHOWN

DIM / PINS **	14	16	18	20
$\boxed{A}$	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)

B

14   8

$\frac{0.065\ (1,65)}{0.045\ (1,14)}$

1   7

C

0.005 (0,13) MIN

$\frac{0.060\ (1,52)}{0.015\ (0,38)}$

0.200 (5,08) MAX

Seating Plane

0.130 (3,30) MIN

$\frac{0.026\ (0,66)}{0.014\ (0,36)}$

$\boxed{0.100\ (2,54)}$

$\boxed{A}$

0°—15°

$\frac{0.014\ (0,36)}{0.008\ (0,20)}$

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

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	AA	BB	AC	AD

0.260 (6,60) / 0.240 (6,10)

0.070 (1,78) / 0.045 (1,14)

0.045 (1,14) / 0.030 (0,76)

0.020 (0,51) MIN

0.200 (5,08) MAX

Seating Plane

0.125 (3,18) MIN

0.100 (2,54)

0.021 (0,53) / 0.015 (0,38)

⊕ 0.010 (0,25) Ⓜ

0.325 (8,26) / 0.300 (7,62)

0.015 (0,38)

Gauge Plane

0.010 (0,25) NOM

0.430 (10,92) MAX

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.
    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.

10.63 / 9.97 TYP

A

PIN 1 ID AREA

1

18X 1.27

20

13.0 / 12.6 NOTE 3

2X 11.43

10

11

B

7.6 / 7.4 NOTE 4

20X 0.51 / 0.31

⊕ 0.25 Ⓜ C A B

C

SEATING PLANE

◻ 0.1 C

2.65 MAX

SEE DETAIL A

0.33 / 0.10 TYP

0.25 GAGE PLANE

0° - 8°

1.27 / 0.40

0.3 / 0.1

DETAIL A
TYPICAL

4220724/A   05/2016

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.

20X (2)

SYMM
℄

1

20

20X (0.6)

18X (1.27)

SYMM
℄

(R0.05)
TYP

10

11

(9.3)

LAND PATTERN EXAMPLE
SCALE:6X

SOLDER MASK
OPENING

METAL

METAL UNDER
SOLDER MASK

SOLDER MASK
OPENING

0.07 MAX
ALL AROUND

0.07 MIN
ALL AROUND

NON SOLDER MASK
DEFINED

SOLDER MASK
DEFINED
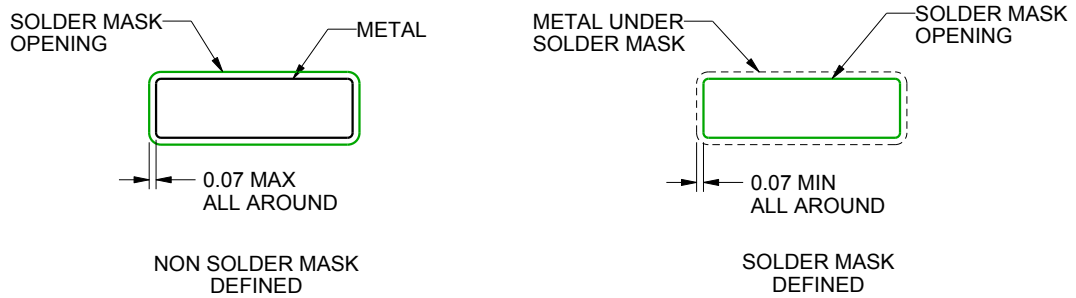
SOLDER MASK DETAILS

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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.

20X (2)

1

20X (0.6)

18X (1.27)

SYMM

10

SYMM

20

11

(9.3)

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.

IMPORTANT NOTICE