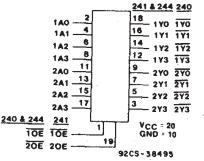
Technical Data _____ CD54/74AC240/241/244 CD54/74ACT240/241/244

Advance Information





Octal Buffer/Line Drivers, 3-State

CD54/74AC/ACT240 - Inverting

CD54/74AC/ACT241 - Non-Inverting CD54/74AC/ACT244 - Non-Inverting

3.6 ns @ $V_{CC} = 5 V$, $T_A = 25^{\circ} C$, $C_L = 50 pF$

Type Features:

Buffered inputs

Typical propagation delay:

FUNCTIONAL DIAGRAM & TERMINAL ASSIGNMENT

The RCA CD54/74AC240, CD54/74AC241, and CD54/74AC244 and the CD54/74ACT240, CD54/74ACT241, and CD54/74ACT244 3-state octal buffer/line drivers use the RCA ADVANCED CMOS technology. The CD54/74AC/ACT240 and CD54/74AC/ACT244 have active-LOW output enables ($\overline{10E}$, $\overline{20E}$). The CD54/74AC/ACT241 has one active-LOW ($\overline{10E}$) and one active-HIGH (20E) output enable.

The CD74AC240 and CD74ACT240 are supplied in 20-lead dual-in-line plastic packages (E suffix) and 20-lead small-outline packages (M and M96 suffixes). The CD74AC241 is supplied in 20-lead dual-in-line plastic packages (E suffix) and the CD74ACT241 is supplied in 20-lead dual-in-line plastic packages (E suffix) and 20-lead small-outline packages (M96 suffix). The CD74AC244 and CD74ACT244 are supplied in 20-lead dual-in-line plastic packages (E suffix), 20-lead small-outline packages (M and M96 suffixes), and 20-lead shrink small-outline packages (SM96 suffix). These package types are operable over the following temperature ranges: Commerical (0 to 70° C); Industrial (-40 to +85°C); and Extended Industrial/Military (-55 to + 125°C).

The CD54AC240 and CD54AC244 and the CD54ACT240, CD54ACT241, and CD54ACT244 are supplied in 20-lead hermetic dual-in-line ceramic packages (F3A suffix) and are operable over the -55 to $+125^{\circ}$ 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 TABLES

| INPU | OUTPUT | |
|----------|------------|---|
| 10E, 20E | 10E, 20E A | |
| L | L | н |
| L | н | L |
| н | x | Z |

(AC/ACT240)

| INP | UTS | OUTPUT | INP | UTS | OUTPUT |
|-----|-----|--------|-----|-----|--------|
| 10E | 1A | 1Y | 20E | 2A | 2Y |
| L | L | L | L | х | Z |
| L | н | н | н | L | L |
| н | х | Z | н | н | н |

(AC/ACT241)

| INPU | OUTPUT | |
|----------|-----------|---|
| 10E, 20E | 0E, 20E A | |
| L | • L | L |
| L | Н | н |
| н | х | Z |

(AC/ACT244)

H = HIGH Voltage Level

- L = LOW Voltage Level
- X = Immaterial
- Z = HIGH Impedance

This data sheet is applicable to the CD54/74AC240, CD54ACT240, and CD54/74ACT241. The CD54/74AC241 were not acquired from Harris Semiconductor. See SCHS244 for information on the CD74ACT240, CD74AC244, and CD74ACT244. Copyright © 2004, Texas Instruments Incorporated

Technical, Data

CD54/74AC240/241/244 CD54/74ACT240/241/244

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 $V_0 < -0.5$ V or $V_0 > V_{cc} + 0.5$ V) | +50 mA |
| DC OUTPUT SOURCE OR SINK CURRENT per Output Pin, I _o (for V _o $>$ -0.5 V or V _o $<$ 1 | Vcc + 0.5 V) ±50 mA |
| DC V _{∞} or GROUND CURRENT (I_{cc} or I_{GND}) | ±100 mA* |
| POWER DISSIPATION PER PACKAGE (Po): | |
| For T _A = -40 to +85°C (Package Type E) | |
| For T _A = -40 to +70°C (Package Type M) | |
| For T _A = +70 to +85°C (Package Type M) | |
| $FOI I A = +70 10 +05 C (Fackage Type W) \dots $ | Derate Linearly at 6 mW/°C to 310 mW |
| OPERATING-TEMPERATURE RANGE (T _A): CD54 | 55 to +125°C |
| | 55 to +125°C |
| OPERATING-TEMPERATURE RANGE (T _A): CD54 CD74 | 55 to +125°C 40 to +85°C |
| OPERATING-TEMPERATURE RANGE (T _A): CD54 | 55 to +125°C 40 to +85°C |
| OPERATING-TEMPERATURE RANGE (T _A): CD54 CD74 STORAGE TEMPERATURE (T _{stg}) | |
| OPERATING-TEMPERATURE RANGE (T _A): CD54 CD74 STORAGE TEMPERATURE (T _{stg}) LEAD TEMPERATURE (DURING SOLDERING): | 55 to +125°C 40 to +85°C 65 to +150°C +265°C |

* For up to 4 outputs per device: add \pm 25 mA for each additional output.

RECOMMENDED OPERATING CONDITIONS:

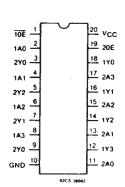
For maximum reliability, normal operating conditions should be selected so that operation is always within the following ranges:

| CHARACTERISTIC | LIN | | | |
|---|------|------|------|-------|
| CHARACTERISTIC | | MIN. | MAX. | UNITS |
| 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, VI, Vo | | 0 | VCC | V |
| Operating Temperature, T _A | CD54 | -55 | +125 | °C |
| | CD74 | -40 | +85 | 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.



VCS 3407 CD54/74AC, ACT240 TYPES TERMINAL ASSIGNMENT



20 VCC TOE 19 20E 2 1A0 240 -3 18 110 17 2A3 4 1A1 16 111 5 2Y2 15 2A2 6 1A2 7 14 1Y2 2¥1 1A3 8 13 2A1 240 -9 12 173 11 2A0 GND 10 92C5-36863

CD54/74AC, ACT241 TYPES TERMINAL ASSIGNMENT

CD54/74AC, ACT244 TYPES TERMINAL ASSIGNMENT

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ار مراجع می مشکوم می این Technical Data CD54/74AC240/241/244 CD54/74ACT240/241/244

STATIC ELECTRICAL CHARACTERISTICS: AC Series

| · · · · · · · · · · · · · · · · · · · | | | | | | AMBIEN | T TEMPE | RATURE | E (T _A) - ° (| C ¹ | |
|---------------------------------------|---------------------|--|------------------------|------------------------|----------|--------|---------|----------|---------------------------|----------------|-------|
| CHARACTERISTICS | | TEST CONDITIONS | | V _{cc} (V) | + | +25 | | o +85 | -55 to +125 | | UNITS |
| | | V, (V) | l _o (mA) | (V) | MIN. | MAX. | MIN. | MAX. | MIN. | MAX. | |
| High-Level Input | | | | 1.5 | 1.2 | - | 1.2 | — | 1.2 | - | |
| Voltage | Ун | | | 3 | 2.1 | | 2.1 | —. | 2.1 | | V. |
| | | | | 5.5 | 3.85 | — | 3.85 | | 3.85 | | |
| Low-Level Input | | | | 1.5 | _ | 0.3 | _ | 0.3 | | 0.3 | |
| Voltage | VIL | | | 3 | | 0.9 | | 0.9 | <u> </u> | 0.9 |) v |
| | | | | 5.5 | _ | 1.65 | - | 1.65 | - | 1.65 | |
| High-Level Output | | | -0.05 | 1.5 | 1.4 | _ | 1.4 | | 1.4 | · <u>·</u> | |
| Voltage | Vон | ViH | -0.05 | 3 | 2.9 | | 2.9 | | 2.9 | — |] |
| | | or | -0.05 | 4.5 | 4.4 | _ | 4.4 | — | 4.4 | |] |
| | | ViL | -4 | 3 | 2.58 | _ | 2.48 | | 2.4 | <u> </u> | l v |
| | | | -24 | 4.5 | 3.94 | 1 | 3.8 | <u> </u> | 3.7 | · | · · |
| | #, * { -75 5.5 3.85 | 3.85 | - | | <u> </u> | | | | | | |
| | | #, <u> </u> | -50 | 5.5 | _ | | - | _ | 3.85 | | 1 |
| Low-Level Output | | ` | 0.05 | 1.5 | - | 0.1 | - | 0.1 | - | 0.1 | 1 |
| Voltage | VOL | ViH | 0.05 | 3 | | 0.1 | _ | 0.1 | — | 0.1 | |
| | | or | 0.05 | 4.5 | | 0.1 | | 0.1 | - | 0.1 | 1 |
| | | VIL | 12 | 3 | _ | 0.36 | _ | 0.44 | _ | 0.5 |] v [|
| | | | 24 | 4.5 | | 0.36 | - | 0.44 | _ | 0.5 | 1 |
| | | #, * { | 75 | 5.5 | _ | | _ | 1.65 | _ | · | 1 |
| | | <i>"</i> , | 50 | 5.5 | | | _ | _ | · · · | 1.65 | 1 |
| Input Leakage Current | h | V _{cc} or GND | | 5.5 | _ | ±0.1 | - | ±1 | _ | ±1 | μΑ |
| 3-State Leakage Current | loz | VH or VIL | | | | | | | | | |
| | | V _o = V _{cc} or GND | | 5.5 | | ±0.5 | | ±5 | | ±10 | μA |
| Quiescent Supply Current, MSI | loc | V _{cc} or GND | 0 | 5.5 | _ | 8 | _ | 80 | _ | 160 | μΑ |

#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.

_ Technical Data

CD54/74AC240/241/244 CD54/74ACT240/241/244

STATIC ELECTRICAL CHARACTERISTICS: ACT Series

| | | | | | | AMBIEN | Т ТЕМРЕ | RATURE | E (T _A) - ° (| c |] |
|--|-----|------------------------------|------------------------|------------------|------|--------|---------|--------|---------------------------|------|-------|
| CHARACTERISTICS | | TEST CONDITIONS | | V _{cc} | + | +25 | | o +85 | -55 to +125 | | UNITS |
| | | (V) | l _o (mA) | (V) | MIN. | MAX. | MIN. | MAX. | MIN. | MAX. | |
| High-Level Input Voltage | ViH | | | 4.5 to 5.5 | 2 | | 2 | | 2 | _ | v |
| Low-Level Input Voltage | VıL | | | 4.5 to 5.5 | _ | 0.8 | | 0.8 | | 0.8 | v |
| High-Level Output | | ViH | -0.05 | 4.5 | 4.4 | | 4.4 | · | 4.4 | | |
| Voltage | Vон | or Vi⊾ , | -24 | 4.5 | 3.94 | | 3.8 | — | 3.7 | — | |
| | | #, * { | -75 | 5.5 | — | | 3.85 | | — | |] |
| | | | -50 | 5.5 | — | _ | | | · 3.85 | — |] |
| Low-Level Output | | ViH | 0.05 | 4.5 | | 0.1 | | 0.1 | — | 0.1 |] |
| Voltage | Vol | or ViL | 24 | 4.5 | _ | 0.36 | — | 0.44 | - | 0.5 | v |
| | | #, * { | 75 | 5.5 | _ | | | 1.65 | | |] |
| | | | 50 | 5.5 | | | | | | 1.65 | |
| Input Leakage Current | l, | V _{cc} or GND | | 5.5 | | ±0.1 | _ | ±1 | _ | ±1 | μΑ |
| 3-State Leakage Current | loz | ViH Or ViL | | | | | | | | | |
| | | Vo = Vcc or | | 5.5 | | ±0.5 | ` | ±5 | | ±10 | μΑ |
| | | GND | | | | | | | | | |
| Quiescent Supply Current, MSI | Icc | V _{cc} or GND | 0 | 5.5 | _ | 8 | | 80 | — | 160 | μA |
| Additional Quiescent S Current per Input Pi TTL Inputs High 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.

| CD54/74ACT240 | | | | | |
|------------------|------|--|--|--|--|
| INPUT UNIT LOADS | | | | | |
| nA0 - A3 | 1.42 | | | | |
| 10E | 0.83 | | | | |
| 20E | 0.83 | | | | |

ACT INPUT LOADING TABLES CD54/74ACT241

INPUT

nA0 - A3

10Ē

20E

| ACT241 | CD54/74ACT244 | | | |
|-------------|---------------|------------|--|--|
| UNIT LOADS* | INPUT | UNIT LOADS | | |
| 0.5 | nA0 - A3 | 0.5 | | |
| 0.83 | 10E | 0.83 | | |
| 1.67 | 20E | 0.83 | | |

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

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Technical Data _ CD54/74AC240/241/244 CD54/74ACT240/241/244

÷.,

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

| | | | AMBI | | | | |
|---|-----------------------------------|------------------------|----------------|---------------------|--------------------|--------------------|----|
| CHARACTERISTICS | SYMBOL | V _{cc} (V) | -40 t | o +85 | -55 te | | |
| <u> </u> | | (*) | MIN. | MAX. | MIN. | MAX. | 1 |
| Propagation Delays: Data to Outputs AC240 | tplh tphl | 1.5 3.3* 5† | 2.6 1.9 | 82 9.2 6.5 | 2.5 1.8 | 90 10.1 7.2 | ns |
| AC241, 244 | tplh tphl | 1.5 3.3 5 | 3 2.2 | 93 10.5 7.5 | 2.9 2.1 | 103 11.5 8.2 | ns |
| Output Enable Times | tpzi. tpzh | 1.5 3.3 5 | 4.6 3.1 | 136 16.4 10.9 | 4.5 3 | 150 18 12 | ns |
| Output Disable Times | tplz tphz | 1.5 3.3 5 | 3.9 3.1 | 136 13.6 10.9 | — 3.8 3 | 150 15 12 | ns |
| Power Dissipation Capacitance AC240 AC241, 244 | Cpd§ | | | Тур. Тур. | 65 Typ. 71 Typ. | | pF |
| Min. (Valley) V _{он} During Switching of Other Outputs (Output Under Test Not Switching) | V _{онv} 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 Тур. @ 25°С | | v | | |
| Input Capacitance | Ci | | | 10 | - | 10 | pF |
| 3-State Output Capacitance | Co | | | 15 | | 15 | pF |

SWITCHING CHARACTERISTICS: ACT Series; t, t, = 3 ns, CL = 50 pF

| · · · | | | AMBI | Γ _A) - °C | | | |
|---|-----------------------------------|-----------------|---------------|-----------------------|--------------------|-------|----|
| CHARACTERISTICS | SYMBOL | V _{cc} | -40 to +85 | | -55 to | UNITS | |
| | | (V) | MIN. | MAX. | MIN. | MAX. | |
| Propagation Delays: Data to Outputs ACT240 | tрін tphl | 5† | 2.3 | 7.8 | 2.2 | 8.6 | ns |
| ACT241, 244 | tрын tрнц | 5 | 2.5 | 8.7 | 2.4 | 9.6 | ns |
| Output Enable Times | tezi tezi | 5 | 3.5 | 12.2 | 3.4 | 13.4 | ns |
| Output Disable Times | tplz tphz | 5 | 3.5 | 12.2 | 3.4 | 13.4 | ns |
| Power Dissipation Capacitance ACT240 ACT241, 244 | Сро§ | _ | | Тур. Тур. | б5 Тур. 71 Тур. | | pF |
| Min. (Valley) V _{он} During Switching of Other Outputs (Output Under Test Not Switching) | V _{онv} 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 | Ci | | _ | 10 | - | 10 | pF |
| 3-State Output Capacitance | Co | _ | | 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 package. For AC series: $P_D = V_{CC}^2 f_i (C_{PD} + C_L)$ For ACT series: $P_D = V_{CC}^2 f_i (C_{PD} + C_L) + V_{CC} \Delta I_{CC}$ where f_i = input frequency

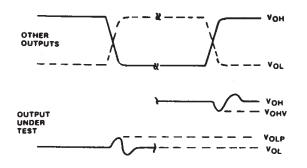
 C_L = output load capacitance

\$¹²,

 $V_{cc} =$ supply voltage.

Technical Data CD54/74AC240/241/244 CD54/74ACT240/241/244

PARAMETER MEASUREMENT INFORMATION



NOTES:

- 1. VOHY AND VOLP ARE MEASURED WITH RESPECT TO A GROUND REFERENCE NEAR THE OUTPUT UNDER TEST. 2. INPUT PULSES HAVE THE FOLLOWING CHARACTERISTICS:
- PRA ≤ 1 MHZ, tr = 3 na, tr = 3 na, SKEW 1 na. 3. R.F. FIXTURE WITH 700-MHZ DESIGN RULES REQUIRED. IC SHOULD BE SOLDERED INTO TEST BOARD AND BYPASSED WITH 0.1 # CAPACITOR. SCOPE AND PROBES REQUIRE 700-MHz BANDWIDTH.

9205-42406

Fig. 1 - Simultaneous switching transient waveforms.

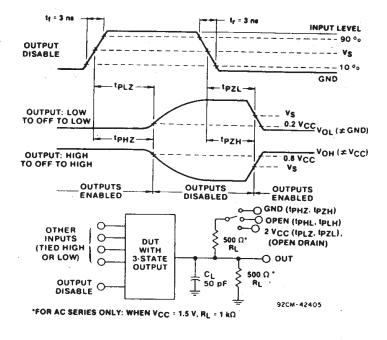
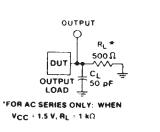
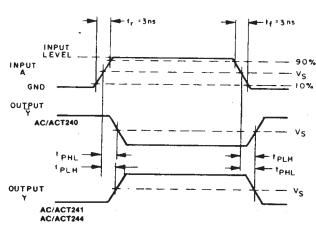


Fig. 2 - Three-state propagation delay times and test circuit.



9255 42389



9205-42407

Fig. 3 - Propagation delay times and test circuit.

| | CD54/74AC | CD54/74ACT |
|------------------------------|---------------------|---------------------|
| Input Level | V _{cc} | 3 V |
| Input Switching Voltage, Vs | 0.5 V _{cc} | 1.5 V |
| Output Switching Voltage, Vs | 0.5 V _{cc} | 0.5 V _{cc} |

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11-Apr-2013

PACKAGING INFORMATION

| Orderable Device | Status (1) | Package Type | Package Drawing | Pins | Package Qty | Eco Plan (2) | Lead/Ball Finish | MSL Peak Temp | Op Temp (°C) | Top-Side Markings (4) | Samples |
|------------------|---------------|--------------|--------------------|------|----------------|----------------------------|------------------|--------------------|--------------|-----------------------|---------|
| CD54AC240F3A | ACTIVE | CDIP | J | 20 | 1 | TBD | A42 | N / A for Pkg Type | -55 to 125 | CD54AC240F3A | Samples |
| CD54AC244F3A | ACTIVE | CDIP | J | 20 | 1 | TBD | A42 | N / A for Pkg Type | -55 to 125 | CD54AC244F3A | Samples |
| CD54ACT240F3A | ACTIVE | CDIP | J | 20 | 1 | TBD | A42 | N / A for Pkg Type | -55 to 125 | CD54ACT240F3A | Samples |
| CD54ACT241F3A | ACTIVE | CDIP | J | 20 | 1 | TBD | A42 | N / A for Pkg Type | -55 to 125 | CD54ACT241F3A | Samples |
| CD54ACT244F3A | ACTIVE | CDIP | J | 20 | 1 | TBD | A42 | N / A for Pkg Type | -55 to 125 | CD54ACT244F3A | Samples |
| CD74AC240E | ACTIVE | PDIP | Ν | 20 | 20 | Pb-Free (RoHS) | CU NIPDAU | N / A for Pkg Type | -55 to 125 | CD74AC240E | Samples |
| CD74AC240EE4 | ACTIVE | PDIP | Ν | 20 | 20 | Pb-Free (RoHS) | CU NIPDAU | N / A for Pkg Type | -55 to 125 | CD74AC240E | Samples |
| CD74AC240M | ACTIVE | SOIC | DW | 20 | 25 | Green (RoHS & no Sb/Br) | CU NIPDAU | Level-1-260C-UNLIM | -55 to 125 | AC240M | Samples |
| CD74AC240M96 | ACTIVE | SOIC | DW | 20 | 2000 | Green (RoHS & no Sb/Br) | CU NIPDAU | Level-1-260C-UNLIM | -55 to 125 | AC240M | Samples |
| CD74AC240M96E4 | ACTIVE | SOIC | DW | 20 | 2000 | Green (RoHS & no Sb/Br) | CU NIPDAU | Level-1-260C-UNLIM | -55 to 125 | AC240M | Samples |
| CD74AC240M96G4 | ACTIVE | SOIC | DW | 20 | 2000 | Green (RoHS & no Sb/Br) | CU NIPDAU | Level-1-260C-UNLIM | -55 to 125 | AC240M | Samples |
| CD74AC240ME4 | ACTIVE | SOIC | DW | 20 | 25 | Green (RoHS & no Sb/Br) | CU NIPDAU | Level-1-260C-UNLIM | -55 to 125 | AC240M | Samples |
| CD74AC240MG4 | ACTIVE | SOIC | DW | 20 | 25 | Green (RoHS & no Sb/Br) | CU NIPDAU | Level-1-260C-UNLIM | -55 to 125 | AC240M | Samples |
| CD74AC244E | ACTIVE | PDIP | N | 20 | 20 | Pb-Free (RoHS) | CU NIPDAU | N / A for Pkg Type | -55 to 125 | CD74AC244E | Samples |
| CD74AC244EE4 | ACTIVE | PDIP | N | 20 | 20 | Pb-Free (RoHS) | CU NIPDAU | N / A for Pkg Type | -55 to 125 | CD74AC244E | Samples |
| CD74AC244M | ACTIVE | SOIC | DW | 20 | 25 | Green (RoHS & no Sb/Br) | CU NIPDAU | Level-1-260C-UNLIM | -55 to 125 | AC244M | Samples |
| CD74AC244M96 | ACTIVE | SOIC | DW | 20 | 2000 | Green (RoHS & no Sb/Br) | CU NIPDAU | Level-1-260C-UNLIM | -55 to 125 | AC244M | Samples |
| CD74AC244M96E4 | ACTIVE | SOIC | DW | 20 | 2000 | Green (RoHS & no Sb/Br) | CU NIPDAU | Level-1-260C-UNLIM | -55 to 125 | AC244M | Samples |



PACKAGE OPTION ADDENDUM

11-Apr-2013

| Orderable Device | Status | Package Type | Package Drawing | Pins | Package Qty | Eco Plan (2) | Lead/Ball Finish | MSL Peak Temp | Op Temp (°C) | Top-Side Markings | Samples |
|------------------|--------|--------------|--------------------|------|----------------|----------------------------|------------------|--------------------|--------------|-------------------|---------|
| CD74AC244M96G4 | ACTIVE | SOIC | DW | 20 | 2000 | Green (RoHS & no Sb/Br) | CU NIPDAU | Level-1-260C-UNLIM | -55 to 125 | AC244M | Samples |
| CD74AC244ME4 | ACTIVE | SOIC | DW | 20 | 25 | Green (RoHS & no Sb/Br) | CU NIPDAU | Level-1-260C-UNLIM | -55 to 125 | AC244M | Samples |
| CD74AC244MG4 | ACTIVE | SOIC | DW | 20 | 25 | Green (RoHS & no Sb/Br) | CU NIPDAU | Level-1-260C-UNLIM | -55 to 125 | AC244M | Samples |
| CD74AC244SM96 | ACTIVE | SSOP | DB | 20 | 2000 | Green (RoHS & no Sb/Br) | CU NIPDAU | Level-1-260C-UNLIM | -55 to 125 | AC244SM | Samples |
| CD74AC244SM96E4 | ACTIVE | SSOP | DB | 20 | 2000 | Green (RoHS & no Sb/Br) | CU NIPDAU | Level-1-260C-UNLIM | -55 to 125 | AC244SM | Samples |
| CD74AC244SM96G4 | ACTIVE | SSOP | DB | 20 | 2000 | Green (RoHS & no Sb/Br) | CU NIPDAU | Level-1-260C-UNLIM | -55 to 125 | AC244SM | Samples |
| CD74ACT240E | ACTIVE | PDIP | N | 20 | 20 | Pb-Free (RoHS) | CU NIPDAU | N / A for Pkg Type | -55 to 125 | CD74ACT240E | Sample |
| CD74ACT240EE4 | ACTIVE | PDIP | Ν | 20 | 20 | Pb-Free (RoHS) | CU NIPDAU | N / A for Pkg Type | -55 to 125 | CD74ACT240E | Samples |
| CD74ACT240M | ACTIVE | SOIC | DW | 20 | 25 | Green (RoHS & no Sb/Br) | CU NIPDAU | Level-1-260C-UNLIM | -55 to 125 | ACT240M | Samples |
| CD74ACT240M96 | ACTIVE | SOIC | DW | 20 | 2000 | Green (RoHS & no Sb/Br) | CU NIPDAU | Level-1-260C-UNLIM | -55 to 125 | ACT240M | Samples |
| CD74ACT240M96E4 | ACTIVE | SOIC | DW | 20 | 2000 | Green (RoHS & no Sb/Br) | CU NIPDAU | Level-1-260C-UNLIM | -55 to 125 | ACT240M | Sample |
| CD74ACT240M96G4 | ACTIVE | SOIC | DW | 20 | 2000 | Green (RoHS & no Sb/Br) | CU NIPDAU | Level-1-260C-UNLIM | -55 to 125 | ACT240M | Samples |
| CD74ACT240ME4 | ACTIVE | SOIC | DW | 20 | 25 | Green (RoHS & no Sb/Br) | CU NIPDAU | Level-1-260C-UNLIM | -55 to 125 | ACT240M | Samples |
| CD74ACT240MG4 | ACTIVE | SOIC | DW | 20 | 25 | Green (RoHS & no Sb/Br) | CU NIPDAU | Level-1-260C-UNLIM | -55 to 125 | ACT240M | Sample |
| CD74ACT241E | ACTIVE | PDIP | Ν | 20 | 20 | Pb-Free (RoHS) | CU NIPDAU | N / A for Pkg Type | -55 to 125 | CD74ACT241E | Sample |
| CD74ACT241EE4 | ACTIVE | PDIP | Ν | 20 | 20 | Pb-Free (RoHS) | CU NIPDAU | N / A for Pkg Type | -55 to 125 | CD74ACT241E | Sample |
| CD74ACT241M96 | ACTIVE | SOIC | DW | 20 | 2000 | Green (RoHS & no Sb/Br) | CU NIPDAU | Level-1-260C-UNLIM | -55 to 125 | ACT241M | Sample |
| CD74ACT241M96E4 | ACTIVE | SOIC | DW | 20 | 2000 | Green (RoHS & no Sb/Br) | CU NIPDAU | Level-1-260C-UNLIM | -55 to 125 | ACT241M | Samples |



PACKAGE OPTION ADDENDUM

11-Apr-2013

| Orderable Device | Status (1) | Package Type | Package Drawing | Pins | Package Qty | Eco Plan (2) | Lead/Ball Finish | MSL Peak Temp | Op Temp (°C) | Top-Side Markings (4) | Samples |
|------------------|---------------|--------------|--------------------|------|----------------|----------------------------|------------------|--------------------|--------------|-----------------------|---------|
| CD74ACT241M96G4 | ACTIVE | SOIC | DW | 20 | 2000 | Green (RoHS & no Sb/Br) | CU NIPDAU | Level-1-260C-UNLIM | -55 to 125 | ACT241M | Samples |
| CD74ACT244E | ACTIVE | PDIP | N | 20 | 20 | Pb-Free (RoHS) | CU NIPDAU | N / A for Pkg Type | -55 to 125 | CD74ACT244E | Samples |
| CD74ACT244EE4 | ACTIVE | PDIP | N | 20 | 20 | Pb-Free (RoHS) | CU NIPDAU | N / A for Pkg Type | -55 to 125 | CD74ACT244E | Samples |
| CD74ACT244M | ACTIVE | SOIC | DW | 20 | 25 | Green (RoHS & no Sb/Br) | CU NIPDAU | Level-1-260C-UNLIM | -55 to 125 | ACT244M | Samples |
| CD74ACT244M96 | ACTIVE | SOIC | DW | 20 | 2000 | Green (RoHS & no Sb/Br) | CU NIPDAU | Level-1-260C-UNLIM | -55 to 125 | ACT244M | Samples |
| CD74ACT244M96E4 | ACTIVE | SOIC | DW | 20 | 2000 | Green (RoHS & no Sb/Br) | CU NIPDAU | Level-1-260C-UNLIM | -55 to 125 | ACT244M | Samples |
| CD74ACT244M96G4 | ACTIVE | SOIC | DW | 20 | 2000 | Green (RoHS & no Sb/Br) | CU NIPDAU | Level-1-260C-UNLIM | -55 to 125 | ACT244M | Samples |
| CD74ACT244ME4 | ACTIVE | SOIC | DW | 20 | 25 | Green (RoHS & no Sb/Br) | CU NIPDAU | Level-1-260C-UNLIM | -55 to 125 | ACT244M | Samples |
| CD74ACT244MG4 | ACTIVE | SOIC | DW | 20 | 25 | Green (RoHS & no Sb/Br) | CU NIPDAU | Level-1-260C-UNLIM | -55 to 125 | ACT244M | Samples |
| CD74ACT244SM96 | ACTIVE | SSOP | DB | 20 | 2000 | Green (RoHS & no Sb/Br) | CU NIPDAU | Level-1-260C-UNLIM | -55 to 125 | ACT244SM | Samples |
| CD74ACT244SM96E4 | ACTIVE | SSOP | DB | 20 | 2000 | Green (RoHS & no Sb/Br) | CU NIPDAU | Level-1-260C-UNLIM | -55 to 125 | ACT244SM | Samples |
| CD74ACT244SM96G4 | ACTIVE | SSOP | DB | 20 | 2000 | Green (RoHS & no Sb/Br) | CU NIPDAU | Level-1-260C-UNLIM | -55 to 125 | ACT244SM | 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.



PACKAGE OPTION ADDENDUM

11-Apr-2013

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⁾ Multiple Top-Side Markings will be inside parentheses. Only one Top-Side 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 Top-Side Marking for that device.

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OTHER QUALIFIED VERSIONS OF CD54AC240, CD54AC244, CD54ACT240, CD54ACT241, CD54ACT244, CD74AC240, CD74AC244, CD74ACT240, CD74ACT241, CD74ACT244 :

• Catalog: CD74AC240, CD74AC244, CD74ACT240, CD74ACT241, CD74ACT244

• Military: CD54AC240, CD54AC244, CD54ACT240, CD54ACT241, CD54ACT244

NOTE: Qualified Version Definitions:

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

PACKAGE MATERIALS INFORMATION

www.ti.com

TAPE AND REEL INFORMATION

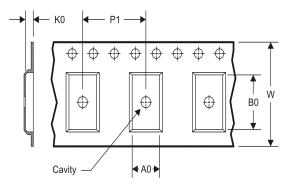
REEL DIMENSIONS

TEXAS INSTRUMENTS





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 |

TAPE AND REEL INFORMATION

*All dimensions are nominal

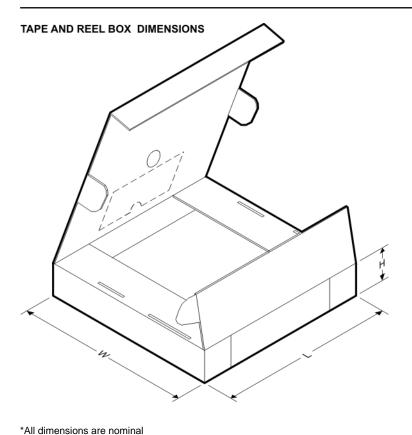
| Device | Package Type | Package Drawing | | SPQ | Reel Diameter (mm) | Reel Width W1 (mm) | A0 (mm) | B0 (mm) | K0 (mm) | P1 (mm) | W (mm) | Pin1 Quadrant |
|----------------|-----------------|--------------------|----|------|--------------------------|--------------------------|------------|------------|------------|------------|-----------|------------------|
| CD74AC240M96 | SOIC | DW | 20 | 2000 | 330.0 | 24.4 | 10.8 | 13.0 | 2.7 | 12.0 | 24.0 | Q1 |
| CD74AC244M96 | SOIC | DW | 20 | 2000 | 330.0 | 24.4 | 10.8 | 13.0 | 2.7 | 12.0 | 24.0 | Q1 |
| CD74AC244SM96 | SSOP | DB | 20 | 2000 | 330.0 | 16.4 | 8.2 | 7.5 | 2.5 | 12.0 | 16.0 | Q1 |
| CD74ACT240M96 | SOIC | DW | 20 | 2000 | 330.0 | 24.4 | 10.8 | 13.0 | 2.7 | 12.0 | 24.0 | Q1 |
| CD74ACT241M96 | SOIC | DW | 20 | 2000 | 330.0 | 24.4 | 10.8 | 13.0 | 2.7 | 12.0 | 24.0 | Q1 |
| CD74ACT244M96 | SOIC | DW | 20 | 2000 | 330.0 | 24.4 | 10.8 | 13.0 | 2.7 | 12.0 | 24.0 | Q1 |
| CD74ACT244SM96 | SSOP | DB | 20 | 2000 | 330.0 | 16.4 | 8.2 | 7.5 | 2.5 | 12.0 | 16.0 | Q1 |

TEXAS INSTRUMENTS

www.ti.com

PACKAGE MATERIALS INFORMATION

14-Jul-2012



| Device | Package Type | Package Drawing | Pins | SPQ | Length (mm) | Width (mm) | Height (mm) |
|----------------|--------------|-----------------|------|------|-------------|------------|-------------|
| CD74AC240M96 | SOIC | DW | 20 | 2000 | 367.0 | 367.0 | 45.0 |
| CD74AC244M96 | SOIC | DW | 20 | 2000 | 367.0 | 367.0 | 45.0 |
| CD74AC244SM96 | SSOP | DB | 20 | 2000 | 367.0 | 367.0 | 38.0 |
| CD74ACT240M96 | SOIC | DW | 20 | 2000 | 367.0 | 367.0 | 45.0 |
| CD74ACT241M96 | SOIC | DW | 20 | 2000 | 367.0 | 367.0 | 45.0 |
| CD74ACT244M96 | SOIC | DW | 20 | 2000 | 367.0 | 367.0 | 45.0 |
| CD74ACT244SM96 | SSOP | DB | 20 | 2000 | 367.0 | 367.0 | 38.0 |

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.



MECHANICAL DATA

MSSO002E - JANUARY 1995 - REVISED DECEMBER 2001

DB (R-PDSO-G**)

PLASTIC SMALL-OUTLINE

28 PINS SHOWN



NOTES: A. All linear dimensions are in millimeters.

- B. This drawing is subject to change without notice.
- C. Body dimensions do not include mold flash or protrusion not to exceed 0,15.
- D. Falls within JEDEC MO-150



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