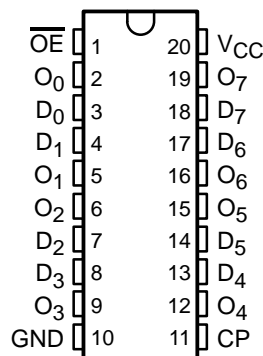


# CY54FCT374T, CY74FCT374T 8-BIT REGISTERS WITH 3-STATE OUTPUTS

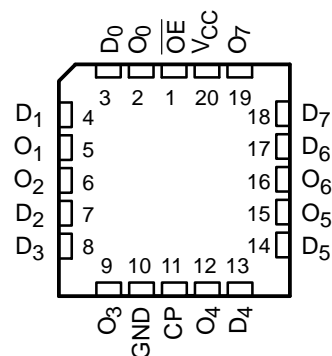
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- Function, Pinout, and Drive Compatible With FCT and F Logic
- Reduced  $V_{OH}$  (Typically = 3.3 V) Versions of Equivalent FCT Functions
- Edge-Rate Control Circuitry for Significantly Improved Noise Characteristics
- $I_{off}$  Supports Partial-Power-Down Mode Operation
- Matched Rise and Fall Times
- Fully Compatible With TTL Input and Output Logic Levels
- ESD Protection Exceeds JESD 22
  - 2000-V Human-Body Model (A114-A)
  - 200-V Machine Model (A115-A)
  - 1000-V Charged-Device Model (C101)
- Edge-Triggered D-Type Inputs
- 250-MHz Typical Switching Rate
- CY54FCT374T
  - 32-mA Output Sink Current
  - 12-mA Output Source Current
- CY74FCT374T
  - 64-mA Output Sink Current
  - 32-mA Output Source Current
- 3-State Outputs

CY54FCT374T . . . D PACKAGE  
CY74FCT374T . . . P, Q, OR SO PACKAGE  
(TOP VIEW)



CY54FCT374T . . . L PACKAGE  
(TOP VIEW)



## description

The 'FCT374T devices are high-speed, low-power, octal D-type flip-flops, featuring separate D-type inputs for each flip-flop. These devices have 3-state outputs for bus-oriented applications. A buffered clock (CP) and output-enable ( $\overline{OE}$ ) inputs are common to all flip-flops. The eight flip-flops in the 'FCT374T store the state of their individual D inputs that meet the setup-time and hold-time requirements on the low-to-high CP transition. When  $\overline{OE}$  is low, the contents of the eight flip-flops are available at the outputs. When  $\overline{OE}$  is high, the outputs are in the high-impedance state. The state of  $\overline{OE}$  does not affect the state of the flip-flops.

These devices are fully specified for partial-power-down applications using  $I_{off}$ . The  $I_{off}$  circuitry disables the outputs, preventing damaging current backflow through the device when it is powered down.



Please be aware that an important notice concerning availability, standard warranty, and use in critical applications of Texas Instruments semiconductor products and disclaimers thereto appears at the end of this data sheet.

PRODUCTION DATA information is current as of publication date. Products conform to specifications per the terms of Texas Instruments standard warranty. Production processing does not necessarily include testing of all parameters.

**TEXAS  
INSTRUMENTS**

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On products compliant to MIL-PRF-38535, all parameters are tested unless otherwise noted. On all other products, production processing does not necessarily include testing of all parameters.

ORDERING INFORMATION

| T <sub>A</sub> | PACKAGE†  |               | SPEED (ns) | ORDERABLE PART NUMBER | TOP-SIDE MARKING |
|----------------|-----------|---------------|------------|-----------------------|------------------|
| –40°C to 85°C  | QSOP – Q  | Tape and reel | 5.2        | CY74FCT374CTQCT       | FCT374C          |
|                | SOIC – SO | Tube          | 5.2        | CY74FCT374CTSOC       | FCT374C          |
|                |           | Tape and reel | 5.2        | CY74FCT374CTSOCT      |                  |
|                | DIP – P   | Tube          | 6.5        | CY74FCT374ATPC        | CY74FCT374ATPC   |
|                | QSOP – Q  | Tape and reel | 6.5        | CY74FCT374ATQCT       | FCT374A          |
|                | SOIC – SO | Tube          | 6.5        | CY74FCT374ATSOC       | FCT374A          |
|                |           | Tape and reel | 6.5        | CY74FCT374ATSOCT      |                  |
|                | QSOP – Q  | Tape and reel | 10         | CY74FCT374TQCT        | FCT374           |
| –55°C to 125°C | SOIC – SO | Tube          | 10         | CY74FCT374TSOC        | FCT374           |
|                |           | Tape and reel | 10         | CY74FCT374TSOCT       |                  |
|                | CDIP – D  | Tube          | 6.2        | CY54FCT374CTDMB       |                  |
|                | LCC – L   | Tube          | 6.2        | CY54FCT374CTLMB       |                  |
|                | CDIP – D  | Tube          | 7.2        | CY54FCT374ATDMB       |                  |
|                | LCC – L   | Tube          | 7.2        | CY54FCT374ATLMB       |                  |
|                | CDIP – D  | Tube          | 11         | CY54FCT374TDMB        |                  |
|                | LCC – L   | Tube          | 11         | CY54FCT374TLMB        |                  |

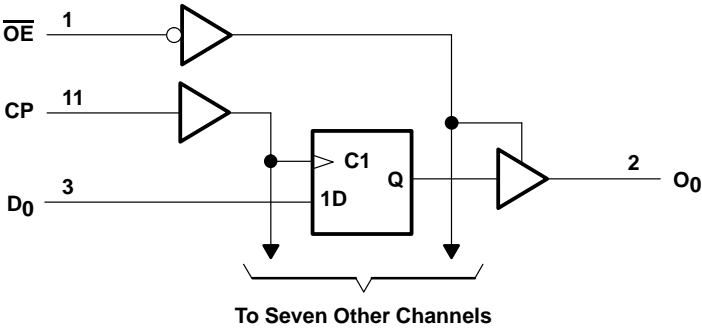
† Package drawings, standard packing quantities, thermal data, symbolization, and PCB design guidelines are available at [www.ti.com/sc/package](http://www.ti.com/sc/package).

FUNCTION TABLE

| INPUTS |    |                 | OUTPUT<br>O |
|--------|----|-----------------|-------------|
| D      | CP | $\overline{OE}$ |             |
| H      | ↑  | L               | H           |
| L      | ↑  | L               | L           |
| X      | X  | H               | Z           |

H = High logic level, L = Low logic level,  
X = Don't care, Z = High-impedance state,  
↑ = Low-to-high clock transition

logic diagram (positive logic)



# CY54FCT374T, CY74FCT374T

## 8-BIT REGISTERS

## WITH 3-STATE OUTPUTS

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### absolute maximum ratings over operating free-air temperature range (unless otherwise noted)<sup>†</sup>

|  |                |
|--|----------------|
| Supply voltage range to ground potential                         | –0.5 V to 7 V  |
| DC input voltage range   | –0.5 V to 7 V  |
| DC output voltage range  | –0.5 V to 7 V  |
| DC output current (maximum sink current/pin)                     | 120 mA         |
| Package thermal impedance, $\theta_{JA}$ (see Note 1): P package | 69°C/W         |
| Q package  | 68°C/W         |
| SO package   | 58°C/W         |
| Ambient temperature range with power applied, $T_A$              | –65°C to 135°C |
| Storage temperature range, $T_{stg}$                             | –65°C to 150°C |

<sup>†</sup> Stresses beyond those listed under “absolute maximum ratings” may cause permanent damage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated under “recommended operating conditions” is not implied.

Exposure to absolute-maximum-rated conditions for extended periods may affect device reliability.

NOTE 1: The package thermal impedance is calculated in accordance with JESD 51-7.

### recommended operating conditions (see Note 2)

|                                      | CY54FCT374T |     |     | CY74FCT374T |     |      | UNIT |
|--------------------------------------|-------------|-----|-----|-------------|-----|------|------|
|                                      | MIN         | NOM | MAX | MIN         | NOM | MAX  |      |
| $V_{CC}$ Supply voltage              | 4.5         | 5   | 5.5 | 4.75        | 5   | 5.25 | V    |
| $V_{IH}$ High-level input voltage    | 2           |     |     | 2           |     |      | V    |
| $V_{IL}$ Low-level input voltage     |             |     | 0.8 |             |     | 0.8  | V    |
| $I_{OH}$ High-level output current   |             |     | –12 |             |     | –32  | mA   |
| $I_{OL}$ Low-level output current    |             |     | 32  |             |     | 64   | mA   |
| $T_A$ Operating free-air temperature | –55         |     | 125 | –40         |     | 85   | °C   |

NOTE 2: All unused inputs of the device must be held at  $V_{CC}$  or GND to ensure proper device operation.



# CY54FCT374T, CY74FCT374T

## 8-BIT REGISTERS

### WITH 3-STATE OUTPUTS

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

| PARAMETER         | TEST CONDITIONS  | CY54FCT374T |      |         | CY74FCT374T |      |         | UNIT          |
|-------------------|--|-------------|------|---------|-------------|------|---------|---------------|
|                   |  | MIN         | TYP† | MAX     | MIN         | TYP† | MAX     |               |
| $V_{IK}$          | $V_{CC} = 4.5 \text{ V}$ , $I_{IN} = -18 \text{ mA}$   | -0.7        | -1.2 |         |             |      |         | V             |
|                   | $V_{CC} = 4.75 \text{ V}$ , $I_{IN} = -18 \text{ mA}$  |             |      |         | -0.7        | -1.2 |         |               |
| $V_{OH}$          | $V_{CC} = 4.5 \text{ V}$ , $I_{OH} = -12 \text{ mA}$   | 2.4         | 3.3  |         |             |      |         | V             |
|                   | $V_{CC} = 4.75 \text{ V}$  |             |      |         | 2           |      |         |               |
|                   |  |             |      |         | 2.4         | 3.3  |         |               |
| $V_{OL}$          | $V_{CC} = 4.5 \text{ V}$ , $I_{OL} = 32 \text{ mA}$  | 0.3         | 0.55 |         |             |      |         | V             |
|                   | $V_{CC} = 4.75 \text{ V}$ , $I_{OL} = 64 \text{ mA}$   |             |      |         | 0.3         | 0.55 |         |               |
| $V_{hys}$         | All inputs   | 0.2         |      |         | 0.2         |      |         | V             |
| $I_I$             | $V_{CC} = 5.5 \text{ V}$ , $V_{IN} = V_{CC}$   |             |      | 5       |             |      |         | $\mu\text{A}$ |
|                   | $V_{CC} = 5.25 \text{ V}$ , $V_{IN} = V_{CC}$  |             |      |         |             |      | 5       |               |
| $I_{IH}$          | $V_{CC} = 5.5 \text{ V}$ , $V_{IN} = 2.7 \text{ V}$  |             |      | $\pm 1$ |             |      |         | $\mu\text{A}$ |
|                   | $V_{CC} = 5.25 \text{ V}$ , $V_{IN} = 2.7 \text{ V}$   |             |      |         |             |      | $\pm 1$ |               |
| $I_{IL}$          | $V_{CC} = 5.5 \text{ V}$ , $V_{IN} = 0.5 \text{ V}$  |             |      | $\pm 1$ |             |      |         | $\mu\text{A}$ |
|                   | $V_{CC} = 5.25 \text{ V}$ , $V_{IN} = 0.5 \text{ V}$   |             |      |         |             |      | $\pm 1$ |               |
| $I_{off}$         | $V_{CC} = 0 \text{ V}$ , $V_{OUT} = 4.5 \text{ V}$   |             |      | $\pm 1$ |             |      | $\pm 1$ | $\mu\text{A}$ |
| $I_{OS}^\ddagger$ | $V_{CC} = 5.5 \text{ V}$ , $V_{OUT} = 0 \text{ V}$   | -60         | -120 | -225    |             |      |         | mA            |
|                   | $V_{CC} = 5.25 \text{ V}$ , $V_{OUT} = 0 \text{ V}$  |             |      |         | -60         | -120 | -225    |               |
| $I_{OZH}$         | $V_{CC} = 5.5 \text{ V}$ , $V_{IN} = 2.7 \text{ V}$  |             |      | 10      |             |      |         | $\mu\text{A}$ |
|                   | $V_{CC} = 5.25 \text{ V}$ , $V_{IN} = 2.7 \text{ V}$   |             |      |         |             |      | 10      |               |
| $I_{OZL}$         | $V_{CC} = 5.5 \text{ V}$ , $V_{IN} = 0.5 \text{ V}$  |             |      | -10     |             |      |         | $\mu\text{A}$ |
|                   | $V_{CC} = 5.25 \text{ V}$ , $V_{IN} = 0.5 \text{ V}$   |             |      |         |             |      | -10     |               |
| $I_{CC}$          | $V_{CC} = 5.5 \text{ V}$ , $V_{IN} \leq 0.2 \text{ V}$ , $V_{IN} \geq V_{CC} - 0.2 \text{ V}$  | 0.1         | 0.2  |         |             |      |         | mA            |
|                   | $V_{CC} = 5.25 \text{ V}$ , $V_{IN} \leq 0.2 \text{ V}$ , $V_{IN} \geq V_{CC} - 0.2 \text{ V}$ |             |      |         | 0.1         | 0.2  |         |               |
| $\Delta I_{CC}$   | $V_{CC} = 5.5 \text{ V}$ , $V_{IN} = 3.4 \text{ V}^\S$ , $f_1 = 0$ , Outputs open              | 0.5         | 2    |         |             |      |         | mA            |
|                   | $V_{CC} = 5.25 \text{ V}$ , $V_{IN} = 3.4 \text{ V}^\S$ , $f_1 = 0$ , Outputs open             |             |      |         | 0.5         | 2    |         |               |

† Typical values are at  $V_{CC} = 5 \text{ V}$ ,  $T_A = 25^\circ\text{C}$ .

‡ Not more than one output should be shorted at a time. Duration of short should not exceed one second. The use of high-speed test apparatus and/or sample-and-hold techniques are preferable to minimize internal chip heating and more accurately reflect operational values. Otherwise, prolonged shorting of a high output can raise the chip temperature well above normal and cause invalid readings in other parametric tests. In any sequence of parameter tests,  $I_{OS}$  tests should be performed last.

§ Per TTL-driven input ( $V_{IN} = 3.4 \text{ V}$ ); all other inputs at  $V_{CC}$  or GND

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

| PARAMETER           | TEST CONDITIONS  |  |   | CY54FCT374T |      |      | CY74FCT374T |      |      | UNIT       |
|---------------------|--|--|---|-------------|------|------|-------------|------|------|------------|
|                     |  |  |   | MIN         | TYP† | MAX  | MIN         | TYP† | MAX  |            |
| I <sub>CCD</sub> †† | V <sub>CC</sub> = 5.5 V, Outputs open,<br>One bit switching at 50% duty cycle, $\overline{OE}$ = GND,<br>V <sub>IN</sub> ≤ 0.2 V or V <sub>IN</sub> ≥ V <sub>CC</sub> – 0.2 V  |  |   |             | 0.06 | 0.12 |             |      |      | mA/<br>MHz |
|                     | V <sub>CC</sub> = 5.25 V, Outputs open,<br>One bit switching at 50% duty cycle, $\overline{OE}$ = GND,<br>V <sub>IN</sub> ≤ 0.2 V or V <sub>IN</sub> ≥ V <sub>CC</sub> – 0.2 V |  |   |             |      |      |             | 0.06 | 0.12 |            |
| I <sub>C</sub>      | V <sub>CC</sub> = 5.5 V,<br>f <sub>0</sub> = 10 MHz,<br>Outputs open,<br>$\overline{OE}$ = GND   | One bit<br>switching<br>at f <sub>1</sub> = 5 MHz<br>at 50% duty<br>cycle      | V <sub>IN</sub> ≤ 0.2 V or<br>V <sub>IN</sub> ≥ V <sub>CC</sub> – 0.2 V |             | 0.7  | 1.4  |             |      |      | mA         |
|                     |  |  | V <sub>IN</sub> = 3.4 V or GND  |             | 1.2  | 3.4  |             |      |      |            |
|                     |  | Eight bits<br>switching<br>at f <sub>1</sub> = 2.5 MHz<br>at 50% duty<br>cycle | V <sub>IN</sub> ≤ 0.2 V or<br>V <sub>IN</sub> ≥ V <sub>CC</sub> – 0.2 V |             | 1.6  | 3.2  |             |      |      |            |
|                     |  |  | V <sub>IN</sub> = 3.4 V or GND  |             | 3.9  | 12.2 |             |      |      |            |
|                     | V <sub>CC</sub> = 5.25 V,<br>f <sub>0</sub> = 10 MHz,<br>Outputs open,<br>$\overline{OE}$ = GND  | One bit<br>switching<br>at f <sub>1</sub> = 5 MHz<br>at 50% duty<br>cycle      | V <sub>IN</sub> ≤ 0.2 V or<br>V <sub>IN</sub> ≥ V <sub>CC</sub> – 0.2 V |             |      |      |             | 0.7  | 1.4  |            |
|                     |  |  | V <sub>IN</sub> = 3.4 V or GND  |             |      |      |             | 1.2  | 3.4  |            |
|                     |  | Eight bits<br>switching<br>at f <sub>1</sub> = 2.5 MHz<br>at 50% duty<br>cycle | V <sub>IN</sub> ≤ 0.2 V or<br>V <sub>IN</sub> ≥ V <sub>CC</sub> – 0.2 V |             |      |      |             | 1.6  | 3.2  |            |
|                     |  |  | V <sub>IN</sub> = 3.4 V or GND  |             |      |      |             | 3.9  | 12.2 |            |
| C <sub>i</sub>      |  |  |   |             | 5    | 10   |             | 5    | 10   | pF         |
| C <sub>O</sub>      |  |  |   |             | 9    | 12   |             | 9    | 12   | pF         |

† Typical values are at  $V_{CC} = 5$  V,  $T_A = 25^\circ\text{C}$ .

†† This parameter is derived for use in total power-supply calculations.

#  $I_C = I_{CC} + \Delta I_{CC} \times D_H \times N_T + I_{CCD} (f_0/2 + f_1 \times N_1)$

Where:

$I_C$  = Total supply current

$I_{CC}$  = Power-supply current with CMOS input levels

$\Delta I_{CC}$  = Power-supply current for a TTL high input ( $V_{IN} = 3.4$  V)

$D_H$  = Duty cycle for TTL inputs high

$N_T$  = Number of TTL inputs at  $D_H$

$I_{CCD}$  = Dynamic current caused by an input transition pair (HLH or LHL)

$f_0$  = Clock frequency for registered devices, otherwise zero

$f_1$  = Input signal frequency

$N_1$  = Number of inputs changing at  $f_1$

All currents are in milliamperes and all frequencies are in megahertz.

|| Values for these conditions are examples of the  $I_{CC}$  formula.

# CY54FCT374T, CY74FCT374T

## 8-BIT REGISTERS

## WITH 3-STATE OUTPUTS

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

|                 |                                | CY54FCT374T |     | CY54FCT374AT |     | CY54FCT374CT |     | UNIT |
|-----------------|--------------------------------|-------------|-----|--------------|-----|--------------|-----|------|
|                 |                                | MIN         | MAX | MIN          | MAX | MIN          | MAX |      |
| t <sub>w</sub>  | Pulse duration, CP high or low | 7           |     | 6            |     | 6            |     | ns   |
| t <sub>su</sub> | Setup time, data before CP↑    | 2           |     | 2            |     | 2            |     | ns   |
| t <sub>h</sub>  | Hold time, data after CP↑      | 1.5         |     | 1.5          |     | 1.5          |     | ns   |

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

|                 |                                | CY74FCT374T |     | CY74FCT374AT |     | CY74FCT374CT |     | UNIT |
|-----------------|--------------------------------|-------------|-----|--------------|-----|--------------|-----|------|
|                 |                                | MIN         | MAX | MIN          | MAX | MIN          | MAX |      |
| t <sub>w</sub>  | Pulse duration, CP high or low | 7           |     | 5            |     | 5            |     | ns   |
| t <sub>su</sub> | Setup time, data before CP↑    | 2           |     | 2            |     | 2            |     | ns   |
| t <sub>h</sub>  | Hold time, data after CP↑      | 1.5         |     | 1.5          |     | 1.5          |     | ns   |

**switching characteristics over operating free-air temperature range (see Figure 1)**

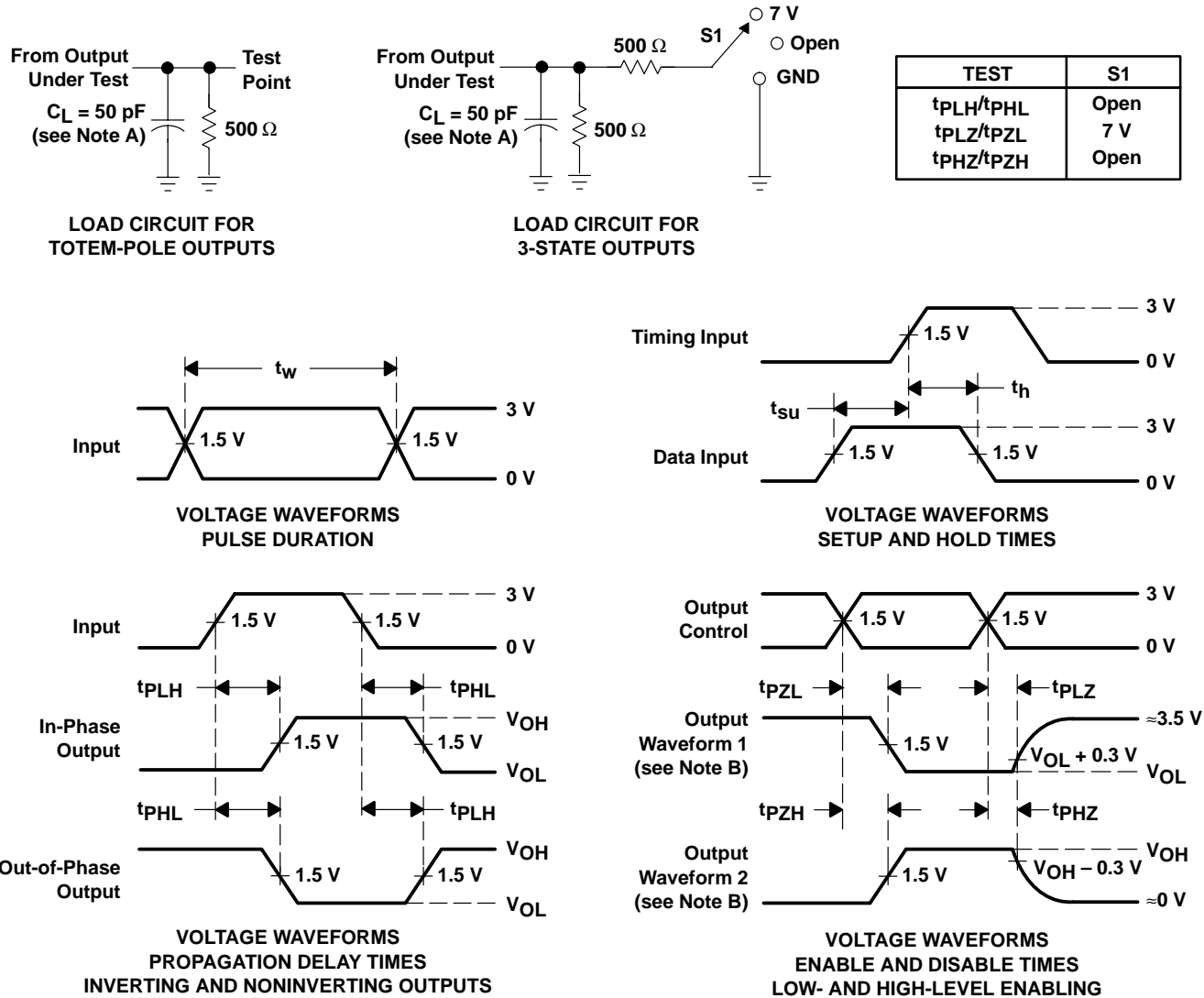
| PARAMETER        | FROM<br>(INPUT) | TO<br>(OUTPUT) | CY54FCT374T |     | CY54FCT374AT |     | CY54FCT374CT |     | UNIT |
|------------------|-----------------|----------------|-------------|-----|--------------|-----|--------------|-----|------|
|                  |                 |                | MIN         | MAX | MIN          | MAX | MIN          | MAX |      |
| t <sub>PLH</sub> | CP              | O              | 2           | 11  | 2            | 7.2 | 2            | 6.2 | ns   |
| t <sub>PHL</sub> |                 |                | 2           | 11  | 2            | 7.2 | 2            | 6.2 |      |
| t <sub>PZH</sub> | $\overline{OE}$ | O              | 1.5         | 14  | 1.5          | 7.5 | 1.5          | 6.2 | ns   |
| t <sub>PZL</sub> |                 |                | 1.5         | 14  | 1.5          | 7.5 | 1.5          | 6.2 |      |
| t <sub>PHZ</sub> | $\overline{OE}$ | O              | 1.5         | 8   | 1.5          | 6.5 | 1.5          | 5.7 | ns   |
| t <sub>PLZ</sub> |                 |                | 1.5         | 8   | 1.5          | 6.5 | 1.5          | 5.7 |      |

**switching characteristics over operating free-air temperature range (see Figure 1)**

| PARAMETER        | FROM<br>(INPUT) | TO<br>(OUTPUT) | CY74FCT374T |      | CY74FCT374AT |     | CY74FCT374CT |     | UNIT |
|------------------|-----------------|----------------|-------------|------|--------------|-----|--------------|-----|------|
|                  |                 |                | MIN         | MAX  | MIN          | MAX | MIN          | MAX |      |
| t <sub>PLH</sub> | CP              | O              | 2           | 10   | 2            | 6.5 | 2            | 5.2 | ns   |
| t <sub>PHL</sub> |                 |                | 2           | 10   | 2            | 6.5 | 2            | 5.2 |      |
| t <sub>PZH</sub> | $\overline{OE}$ | O              | 1.5         | 12.5 | 1.5          | 6.5 | 1.5          | 5.5 | ns   |
| t <sub>PZL</sub> |                 |                | 1.5         | 12.5 | 1.5          | 6.5 | 1.5          | 5.5 |      |
| t <sub>PHZ</sub> | $\overline{OE}$ | O              | 1.5         | 8    | 1.5          | 5.5 | 1.5          | 5   | ns   |
| t <sub>PLZ</sub> |                 |                | 1.5         | 8    | 1.5          | 5.5 | 1.5          | 5   |      |



## PARAMETER MEASUREMENT INFORMATION



- NOTES: A.  $C_L$  includes probe and jig capacitance.  
 B. Waveform 1 is for an output with internal conditions such that the output is low except when disabled by the output control. Waveform 2 is for an output with internal conditions such that the output is high except when disabled by the output control.  
 C. The outputs are measured one at a time with one input transition per measurement.

**Figure 1. Load Circuit and Voltage Waveforms**

## PACKAGING INFORMATION

| Orderable part number           | Status<br>(1) | Material type<br>(2) | Package   Pins | Package qty   Carrier | RoHS<br>(3) | Lead finish/<br>Ball material<br>(4) | MSL rating/<br>Peak reflow<br>(5) | Op temp (°C) | Part marking<br>(6)                        |
|---------------------------------|---------------|----------------------|----------------|-----------------------|-------------|--------------------------------------|-----------------------------------|--------------|--|
| <a href="#">5962-9221802M2A</a> | Active        | Production           | LCCC (FK)   20 | 55   TUBE             | No          | SNPB                                 | N/A for Pkg Type                  | -55 to 125   | 5962-<br>9221802M2A<br>CY54FCT<br>374TLMB  |
| <a href="#">5962-9221802MRA</a> | Active        | Production           | CDIP (J)   20  | 20   TUBE             | No          | SNPB                                 | N/A for Pkg Type                  | -55 to 125   | 5962-9221802MR<br>A<br>CY54FCT374TDMB      |
| <a href="#">5962-9221804M2A</a> | Active        | Production           | LCCC (FK)   20 | 55   TUBE             | No          | SNPB                                 | N/A for Pkg Type                  | -55 to 125   | 5962-<br>9221804M2A<br>CY54FCT<br>374ATLMB |
| <a href="#">5962-9221804MRA</a> | Active        | Production           | CDIP (J)   20  | 20   TUBE             | No          | SNPB                                 | N/A for Pkg Type                  | -55 to 125   | 5962-9221804MR<br>A<br>CY54FCT374ATDM<br>B |
| <a href="#">5962-9221806M2A</a> | Active        | Production           | LCCC (FK)   20 | 55   TUBE             | No          | SNPB                                 | N/A for Pkg Type                  | -55 to 125   | 5962-<br>9221806M2A<br>CY54FCT<br>374CTLMB |
| <a href="#">5962-9222203M2A</a> | Active        | Production           | LCCC (FK)   20 | 55   TUBE             | No          | SNPB                                 | N/A for Pkg Type                  | -55 to 125   | 5962-<br>9222203M2A<br>CY54FCT<br>574ATLMB |
| <a href="#">5962-9222203MRA</a> | Active        | Production           | CDIP (J)   20  | 20   TUBE             | No          | SNPB                                 | N/A for Pkg Type                  | -55 to 125   | 5962-9222203MR<br>A                        |
| <a href="#">5962-9222205MRA</a> | Active        | Production           | CDIP (J)   20  | 20   TUBE             | No          | SNPB                                 | N/A for Pkg Type                  | -55 to 125   | 5962-9222205MR<br>A                        |
| <a href="#">CY54FCT374ATDMB</a> | Active        | Production           | CDIP (J)   20  | 20   TUBE             | No          | SNPB                                 | N/A for Pkg Type                  | -55 to 125   | 5962-9221804MR<br>A<br>CY54FCT374ATDM<br>B |
| <a href="#">CY54FCT374ATLMB</a> | Active        | Production           | LCCC (FK)   20 | 55   TUBE             | No          | SNPB                                 | N/A for Pkg Type                  | -            | 5962-<br>9221804M2A<br>CY54FCT<br>374ATLMB |

| Orderable part number              | Status<br>(1) | Material type<br>(2) | Package   Pins  | Package qty   Carrier | RoHS<br>(3) | Lead finish/<br>Ball material<br>(4) | MSL rating/<br>Peak reflow<br>(5) | Op temp (°C) | Part marking<br>(6)                        |
|------------------------------------|---------------|----------------------|-----------------|-----------------------|-------------|--------------------------------------|-----------------------------------|--------------|--|
| <a href="#">CY54FCT374CTLMB</a>    | Active        | Production           | LCCC (FK)   20  | 55   TUBE             | No          | SNPB                                 | N/A for Pkg Type                  | -55 to 125   | 5962-<br>9221806M2A<br>CY54FCT<br>374CTLMB |
| <a href="#">CY54FCT374TDMB</a>     | Active        | Production           | CDIP (J)   20   | 20   TUBE             | No          | SNPB                                 | N/A for Pkg Type                  | -55 to 125   | 5962-9221802MR<br>A<br>CY54FCT374TDMB      |
| <a href="#">CY54FCT374TLMB</a>     | Active        | Production           | LCCC (FK)   20  | 55   TUBE             | No          | SNPB                                 | N/A for Pkg Type                  | -55 to 125   | 5962-<br>9221802M2A<br>CY54FCT<br>374TLMB  |
| <a href="#">CY54FCT574ATLMB</a>    | Active        | Production           | LCCC (FK)   20  | 55   TUBE             | No          | SNPB                                 | N/A for Pkg Type                  | -55 to 125   | 5962-<br>9222203M2A<br>CY54FCT<br>574ATLMB |
| <a href="#">CY74FCT374ATPC</a>     | Active        | Production           | PDIP (N)   20   | 20   TUBE             | Yes         | NIPDAU                               | N/A for Pkg Type                  | -40 to 85    | CY74FCT374ATPC                             |
| <a href="#">CY74FCT374ATPC.B</a>   | Active        | Production           | PDIP (N)   20   | 20   TUBE             | Yes         | NIPDAU                               | N/A for Pkg Type                  | -40 to 85    | CY74FCT374ATPC                             |
| <a href="#">CY74FCT374ATQCT</a>    | Active        | Production           | SSOP (DBQ)   20 | 2500   LARGE T&R      | Yes         | NIPDAU                               | Level-2-260C-1 YEAR               | -40 to 85    | FCT374A                                    |
| <a href="#">CY74FCT374ATQCT.B</a>  | Active        | Production           | SSOP (DBQ)   20 | 2500   LARGE T&R      | Yes         | NIPDAU                               | Level-2-260C-1 YEAR               | -40 to 85    | FCT374A                                    |
| <a href="#">CY74FCT374ATSOC</a>    | Active        | Production           | SOIC (DW)   20  | 25   TUBE             | Yes         | NIPDAU                               | Level-1-260C-UNLIM                | -40 to 85    | FCT374A                                    |
| <a href="#">CY74FCT374ATSOC.B</a>  | Active        | Production           | SOIC (DW)   20  | 25   TUBE             | Yes         | NIPDAU                               | Level-1-260C-UNLIM                | -40 to 85    | FCT374A                                    |
| <a href="#">CY74FCT374ATSOCT</a>   | Active        | Production           | SOIC (DW)   20  | 2000   LARGE T&R      | Yes         | NIPDAU                               | Level-1-260C-UNLIM                | -40 to 85    | FCT374A                                    |
| <a href="#">CY74FCT374ATSOCT.B</a> | Active        | Production           | SOIC (DW)   20  | 2000   LARGE T&R      | Yes         | NIPDAU                               | Level-1-260C-UNLIM                | -40 to 85    | FCT374A                                    |
| <a href="#">CY74FCT374CTSOC</a>    | Active        | Production           | SOIC (DW)   20  | 25   TUBE             | Yes         | NIPDAU                               | Level-1-260C-UNLIM                | -40 to 85    | FCT374C                                    |
| <a href="#">CY74FCT374CTSOC.B</a>  | Active        | Production           | SOIC (DW)   20  | 25   TUBE             | Yes         | NIPDAU                               | Level-1-260C-UNLIM                | -40 to 85    | FCT374C                                    |
| <a href="#">CY74FCT374TQCT</a>     | Active        | Production           | SSOP (DBQ)   20 | 2500   LARGE T&R      | Yes         | NIPDAU                               | Level-2-260C-1 YEAR               | -40 to 85    | FCT374                                     |
| <a href="#">CY74FCT374TQCT.B</a>   | Active        | Production           | SSOP (DBQ)   20 | 2500   LARGE T&R      | Yes         | NIPDAU                               | Level-2-260C-1 YEAR               | -40 to 85    | FCT374                                     |
| <a href="#">CY74FCT374TSOC</a>     | Active        | Production           | SOIC (DW)   20  | 25   TUBE             | Yes         | NIPDAU                               | Level-1-260C-UNLIM                | -40 to 85    | FCT374                                     |
| <a href="#">CY74FCT374TSOC.B</a>   | Active        | Production           | SOIC (DW)   20  | 25   TUBE             | Yes         | NIPDAU                               | Level-1-260C-UNLIM                | -40 to 85    | FCT374                                     |
| <a href="#">CY74FCT574ATQCT</a>    | Active        | Production           | SSOP (DBQ)   20 | 2500   LARGE T&R      | Yes         | NIPDAU                               | Level-2-260C-1 YEAR               | -40 to 85    | FCT574A                                    |
| <a href="#">CY74FCT574ATQCT.B</a>  | Active        | Production           | SSOP (DBQ)   20 | 2500   LARGE T&R      | Yes         | NIPDAU                               | Level-2-260C-1 YEAR               | -40 to 85    | FCT574A                                    |
| <a href="#">CY74FCT574ATSOC</a>    | Active        | Production           | SOIC (DW)   20  | 25   TUBE             | Yes         | NIPDAU                               | Level-1-260C-UNLIM                | -40 to 85    | FCT574A                                    |
| <a href="#">CY74FCT574ATSOC.B</a>  | Active        | Production           | SOIC (DW)   20  | 25   TUBE             | Yes         | NIPDAU                               | Level-1-260C-UNLIM                | -40 to 85    | FCT574A                                    |
| <a href="#">CY74FCT574CTQCT</a>    | Active        | Production           | SSOP (DBQ)   20 | 2500   LARGE T&R      | Yes         | NIPDAU                               | Level-2-260C-1 YEAR               | -40 to 85    | FCT574C                                    |

| Orderable part number           | Status<br>(1) | Material type<br>(2) | Package   Pins  | Package qty   Carrier | RoHS<br>(3) | Lead finish/<br>Ball material<br>(4) | MSL rating/<br>Peak reflow<br>(5) | Op temp (°C) | Part marking<br>(6) |
|---------------------------------|---------------|----------------------|-----------------|-----------------------|-------------|--------------------------------------|-----------------------------------|--------------|---------------------|
| CY74FCT574CTQCT.B               | Active        | Production           | SSOP (DBQ)   20 | 2500   LARGE T&R      | Yes         | NIPDAU                               | Level-2-260C-1 YEAR               | -40 to 85    | FCT574C             |
| <a href="#">CY74FCT574CTSOC</a> | Active        | Production           | SOIC (DW)   20  | 25   TUBE             | Yes         | NIPDAU                               | Level-1-260C-UNLIM                | -40 to 85    | FCT574C             |
| CY74FCT574CTSOC.B               | Active        | Production           | SOIC (DW)   20  | 25   TUBE             | Yes         | NIPDAU                               | Level-1-260C-UNLIM                | -40 to 85    | FCT574C             |
| <a href="#">CY74FCT574TQCT</a>  | Active        | Production           | SSOP (DBQ)   20 | 2500   LARGE T&R      | Yes         | NIPDAU                               | Level-2-260C-1 YEAR               | -40 to 85    | FCT574              |
| CY74FCT574TQCT.B                | Active        | Production           | SSOP (DBQ)   20 | 2500   LARGE T&R      | Yes         | NIPDAU                               | Level-2-260C-1 YEAR               | -40 to 85    | FCT574              |
| <a href="#">CY74FCT574TSOC</a>  | Active        | Production           | SOIC (DW)   20  | 25   TUBE             | Yes         | NIPDAU                               | Level-1-260C-UNLIM                | -40 to 85    | FCT574              |
| CY74FCT574TSOC.B                | Active        | Production           | SOIC (DW)   20  | 25   TUBE             | Yes         | NIPDAU                               | Level-1-260C-UNLIM                | -40 to 85    | FCT574              |
| CY74FCT574TSOCG4                | Active        | Production           | SOIC (DW)   20  | 25   TUBE             | Yes         | NIPDAU                               | Level-1-260C-UNLIM                | -40 to 85    | FCT574              |
| CY74FCT574TSOCG4.B              | Active        | Production           | SOIC (DW)   20  | 25   TUBE             | Yes         | NIPDAU                               | Level-1-260C-UNLIM                | -40 to 85    | FCT574              |

<sup>(1)</sup> **Status:** For more details on status, see our [product life cycle](#).

<sup>(2)</sup> **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.

<sup>(3)</sup> **RoHS values:** Yes, No, RoHS Exempt. See the [TI RoHS Statement](#) for additional information and value definition.

<sup>(4)</sup> **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.

<sup>(5)</sup> **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.

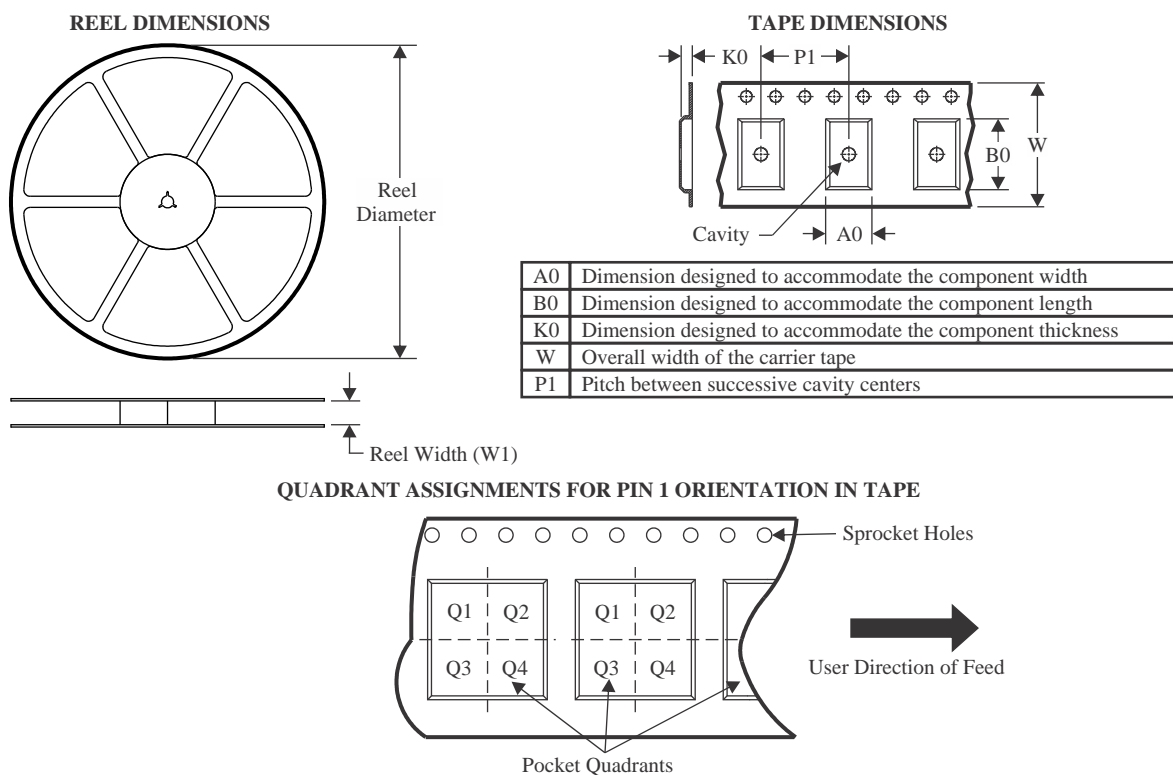
<sup>(6)</sup> **Part marking:** There may be an additional marking, which relates to the logo, the lot trace code information, or the environmental category of the part.

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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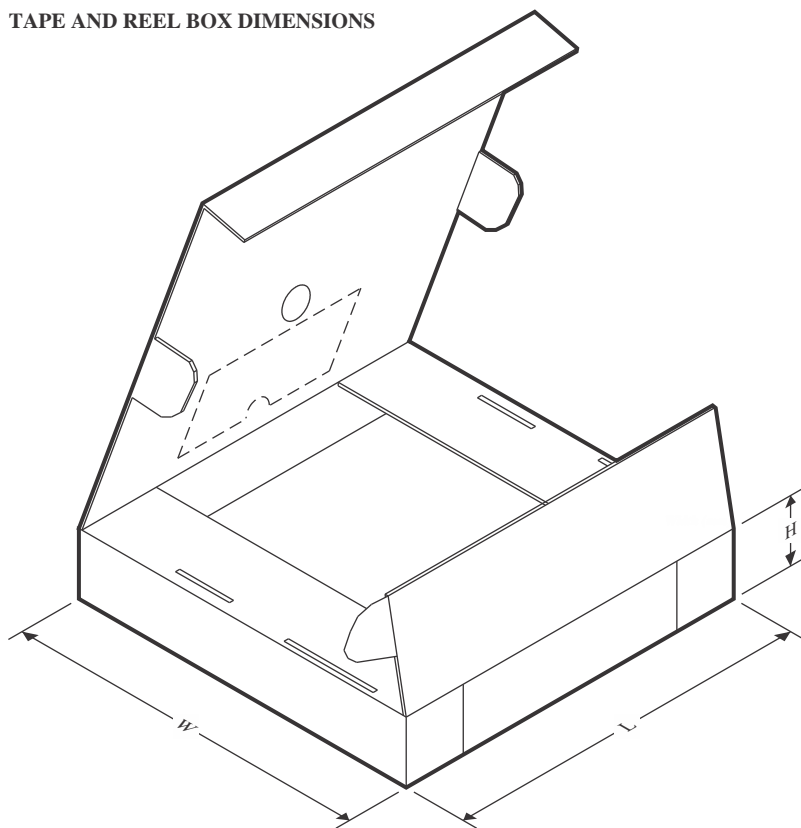
## TAPE AND REEL INFORMATION



\*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 |
|------------------|--------------|-----------------|------|------|--------------------|--------------------|---------|---------|---------|---------|--------|---------------|
| CY74FCT374ATQCT  | SSOP         | DBQ             | 20   | 2500 | 330.0              | 16.4               | 6.5     | 9.0     | 2.1     | 8.0     | 16.0   | Q1            |
| CY74FCT374ATSOCT | SOIC         | DW              | 20   | 2000 | 330.0              | 24.4               | 10.8    | 13.3    | 2.7     | 12.0    | 24.0   | Q1            |
| CY74FCT374TQCT   | SSOP         | DBQ             | 20   | 2500 | 330.0              | 16.4               | 6.5     | 9.0     | 2.1     | 8.0     | 16.0   | Q1            |
| CY74FCT574ATQCT  | SSOP         | DBQ             | 20   | 2500 | 330.0              | 16.4               | 6.5     | 9.0     | 2.1     | 8.0     | 16.0   | Q1            |
| CY74FCT574CTQCT  | SSOP         | DBQ             | 20   | 2500 | 330.0              | 16.4               | 6.5     | 9.0     | 2.1     | 8.0     | 16.0   | Q1            |
| CY74FCT574TQCT   | SSOP         | DBQ             | 20   | 2500 | 330.0              | 16.4               | 6.5     | 9.0     | 2.1     | 8.0     | 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) |
|------------------|--------------|-----------------|------|------|-------------|------------|-------------|
| CY74FCT374ATQCT  | SSOP         | DBQ             | 20   | 2500 | 353.0       | 353.0      | 32.0        |
| CY74FCT374ATSOCT | SOIC         | DW              | 20   | 2000 | 356.0       | 356.0      | 45.0        |
| CY74FCT374TQCT   | SSOP         | DBQ             | 20   | 2500 | 353.0       | 353.0      | 32.0        |
| CY74FCT574ATQCT  | SSOP         | DBQ             | 20   | 2500 | 353.0       | 353.0      | 32.0        |
| CY74FCT574CTQCT  | SSOP         | DBQ             | 20   | 2500 | 353.0       | 353.0      | 32.0        |
| CY74FCT574TQCT   | SSOP         | DBQ             | 20   | 2500 | 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) |
|--------------------|--------------|--------------|------|-----|--------|--------|--------|--------|
| 5962-9221802M2A    | FK           | LCCC         | 20   | 55  | 506.98 | 12.06  | 2030   | NA     |
| 5962-9221804M2A    | FK           | LCCC         | 20   | 55  | 506.98 | 12.06  | 2030   | NA     |
| 5962-9221806M2A    | FK           | LCCC         | 20   | 55  | 506.98 | 12.06  | 2030   | NA     |
| 5962-9222203M2A    | FK           | LCCC         | 20   | 55  | 506.98 | 12.06  | 2030   | NA     |
| CY54FCT374ATLMB    | FK           | LCCC         | 20   | 55  | 506.98 | 12.06  | 2030   | NA     |
| CY54FCT374CTLMB    | FK           | LCCC         | 20   | 55  | 506.98 | 12.06  | 2030   | NA     |
| CY54FCT374TLMB     | FK           | LCCC         | 20   | 55  | 506.98 | 12.06  | 2030   | NA     |
| CY54FCT574ATLMB    | FK           | LCCC         | 20   | 55  | 506.98 | 12.06  | 2030   | NA     |
| CY74FCT374ATPC     | N            | PDIP         | 20   | 20  | 506    | 13.97  | 11230  | 4.32   |
| CY74FCT374ATPC.B   | N            | PDIP         | 20   | 20  | 506    | 13.97  | 11230  | 4.32   |
| CY74FCT374ATSOC    | DW           | SOIC         | 20   | 25  | 507    | 12.83  | 5080   | 6.6    |
| CY74FCT374ATSOC.B  | DW           | SOIC         | 20   | 25  | 507    | 12.83  | 5080   | 6.6    |
| CY74FCT374CTSOC    | DW           | SOIC         | 20   | 25  | 507    | 12.83  | 5080   | 6.6    |
| CY74FCT374CTSOC.B  | DW           | SOIC         | 20   | 25  | 507    | 12.83  | 5080   | 6.6    |
| CY74FCT374TSOC     | DW           | SOIC         | 20   | 25  | 507    | 12.83  | 5080   | 6.6    |
| CY74FCT374TSOC.B   | DW           | SOIC         | 20   | 25  | 507    | 12.83  | 5080   | 6.6    |
| CY74FCT574ATSOC    | DW           | SOIC         | 20   | 25  | 507    | 12.83  | 5080   | 6.6    |
| CY74FCT574ATSOC.B  | DW           | SOIC         | 20   | 25  | 507    | 12.83  | 5080   | 6.6    |
| CY74FCT574CTSOC    | DW           | SOIC         | 20   | 25  | 507    | 12.83  | 5080   | 6.6    |
| CY74FCT574CTSOC.B  | DW           | SOIC         | 20   | 25  | 507    | 12.83  | 5080   | 6.6    |
| CY74FCT574TSOC     | DW           | SOIC         | 20   | 25  | 507    | 12.83  | 5080   | 6.6    |
| CY74FCT574TSOC.B   | DW           | SOIC         | 20   | 25  | 507    | 12.83  | 5080   | 6.6    |
| CY74FCT574TSOCG4   | DW           | SOIC         | 20   | 25  | 507    | 12.83  | 5080   | 6.6    |
| CY74FCT574TSOCG4.B | DW           | SOIC         | 20   | 25  | 507    | 12.83  | 5080   | 6.6    |

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