

# SN54174, SN54175, SN54LS174, SN54LS175, SN54S174, SN54S175, SN74174, SN74175, SN74LS174, SN74LS175, SN74S174, SN74S175 HEX/QUADRUPLE D-TYPE FLIP-FLOPS WITH CLEAR

SDLS068A – DECEMBER 1972 – REVISED OCTOBER 2001

'174, 'LS174, 'S174 ... HEX D-TYPE FLIP-FLOPS

'175, 'LS175, 'S175 ... QUADRUPLE D-TYPE FLIP-FLOPS

- '174, 'LS174, 'S174 Contain Six Flip-Flops with Single-Rail Outputs
- '175, 'LS175, 'S175 Contain Four Flip-Flops with Double-Rail Outputs
- Three Performance Ranges Offered: See Table Lower Right
- Buffered Clock and Direct Clear Inputs
- Individual Data Input to Each Flip-Flop
- Applications include:  
Buffer/Storage Registers  
Shift Registers  
Pattern Generators

## description

These monolithic, positive-edge-triggered flip-flops utilize TTL circuitry to implement D-type flip-flop logic. All have a direct clear input, and the '175, 'LS175, and 'S175 feature complementary outputs from each flip-flop.

Information at the D inputs meeting the setup time requirements is transferred to the Q outputs on the positive-going edge of the clock pulse. Clock triggering occurs at a particular voltage level and is not directly related to the transition time of the positive-going pulse. When the clock input is at either the high or low level, the D input signal has no effect at the output.

These circuits are fully compatible for use with most TTL circuits.

FUNCTION TABLE  
(EACH FLIP-FLOP)

| INPUTS |       |   | OUTPUTS |             |
|--------|-------|---|---------|-------------|
| CLEAR  | CLOCK | D | Q       | $\bar{Q}$   |
| L      | X     | X | L       | H           |
| H      | ↑     | H | H       | L           |
| H      | ↑     | L | L       | H           |
| H      | L     | X | $Q_0$   | $\bar{Q}_0$ |

H = high level (steady state)

L = low level (steady state)

X = irrelevant

↑ = transition from low to high level

$Q_0$  = the level of Q before the indicated steady-state input conditions were established.

† = '175, 'LS175, and 'S175 only

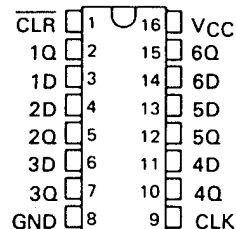
| TYPES          | TYPICAL<br>MAXIMUM | TYPICAL<br>POWER |
|----------------|--------------------|------------------|
|                | CLOCK              | DISSIPATION      |
|                | FREQUENCY          | PER FLIP-FLOP    |
| '174, '175     | 35 MHz             | 38 mW            |
| 'LS174, 'LS175 | 40 MHz             | 14 mW            |
| 'S174, 'S175   | 110 MHz            | 75 mW            |

SN54174, SN54LS174, SN54S174 ... J OR W PACKAGE

SN74174 ... N PACKAGE

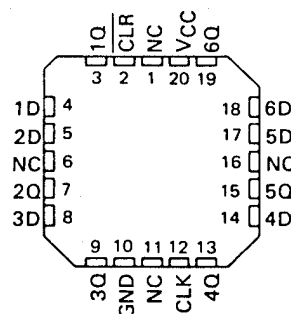
SN74LS174, SN74S174 ... D OR N PACKAGE

(TOP VIEW)



SN54LS174, SN54S174 ... FK PACKAGE

(TOP VIEW)

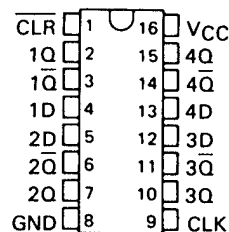


SN54175, SN54LS175, SN54S175 ... J OR W PACKAGE

SN74175 ... N PACKAGE

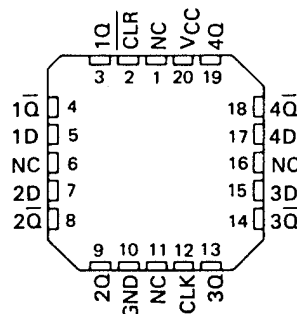
SN74LS175, SN74S175 ... D OR N PACKAGE

(TOP VIEW)



SN54LS175, SN54S175 ... FK PACKAGE

(TOP VIEW)



NC – No internal connection

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**

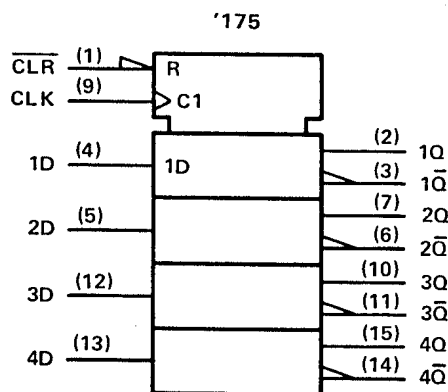
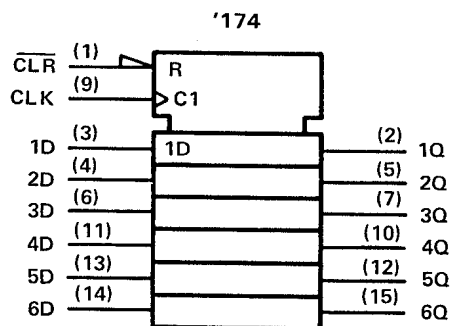
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# SN54174, SN54175, SN54LS174, SN54LS175, SN54S174, SN54S175, SN74174, SN74175, SN74LS174, SN74LS175, SN74S174, SN74S175 HEX/QUADRUPLE D-TYPE FLIP-FLOPS WITH CLEAR

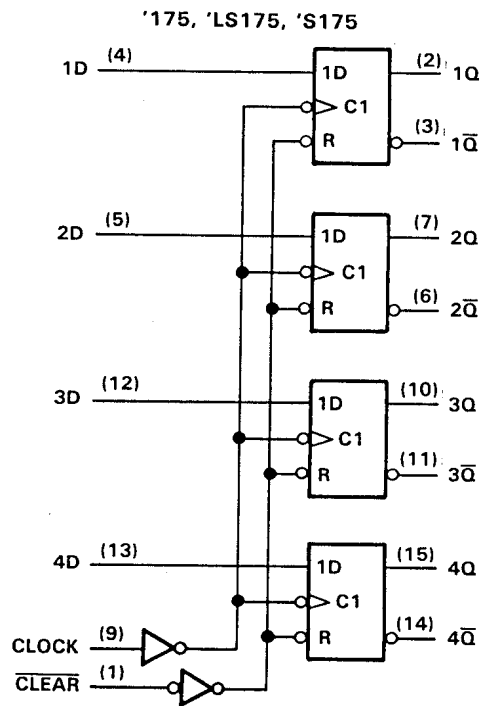
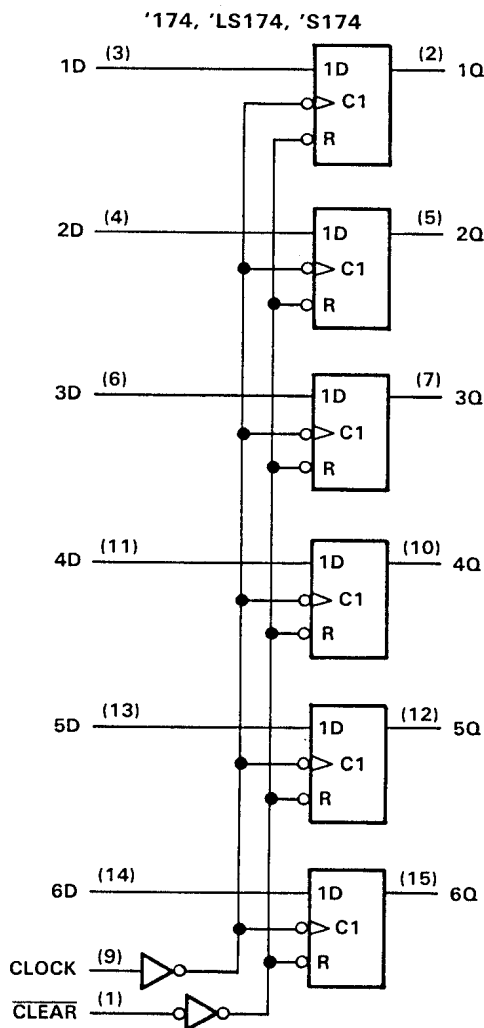
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## logic symbols†



†These symbols are in accordance with ANSI/IEEE Std. 91-1984 and IEC Publication 617-12.  
 Pin numbers shown are for D, J, N, and W packages.

## logic diagrams (positive logic)



Pin numbers shown are for D, J, N, and W packages.



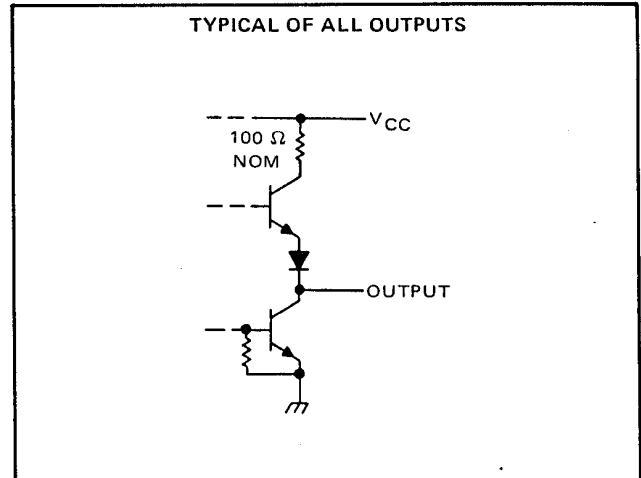
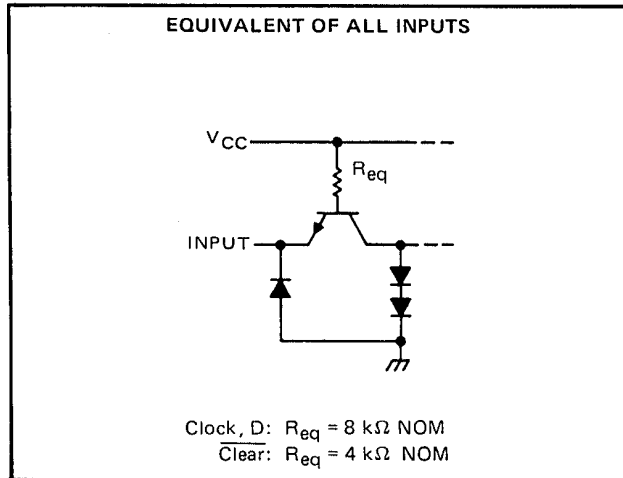
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SN54174, SN54175, SN54LS174, SN54LS175, SN54S174, SN54S175,  
SN74174, SN74175, SN74LS174, SN74LS175, SN74S174, SN74S175  
HEX/QUADRUPLE D-TYPE FLIP-FLOPS WITH CLEAR

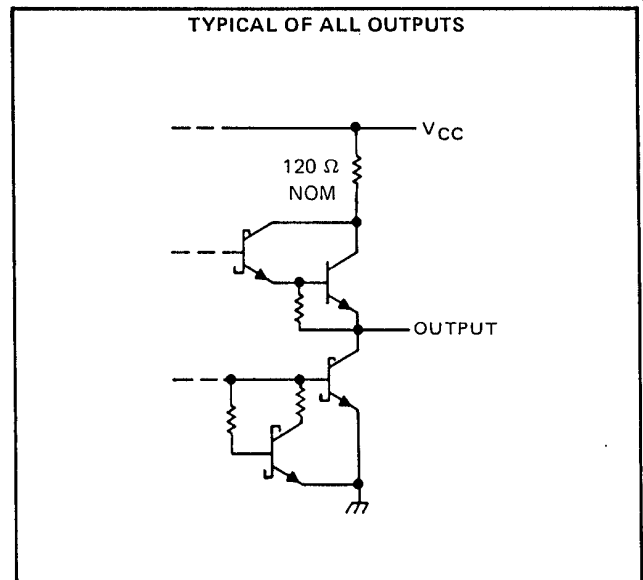
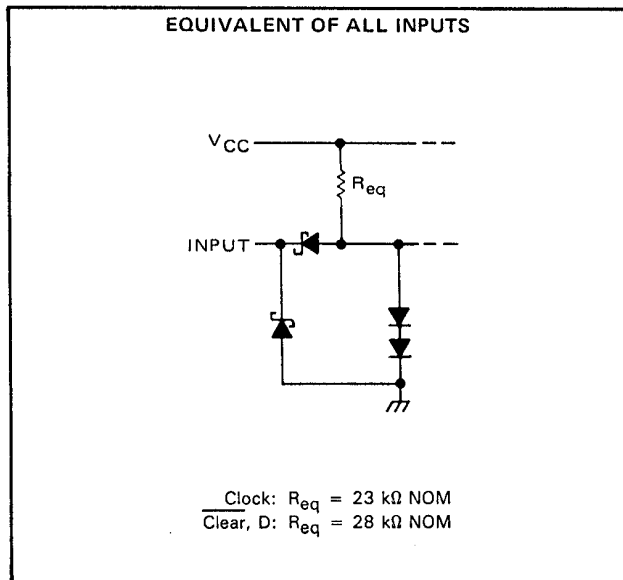
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schematics of inputs and outputs

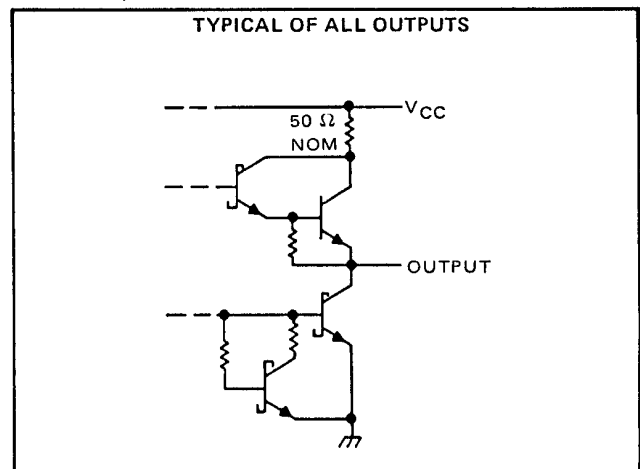
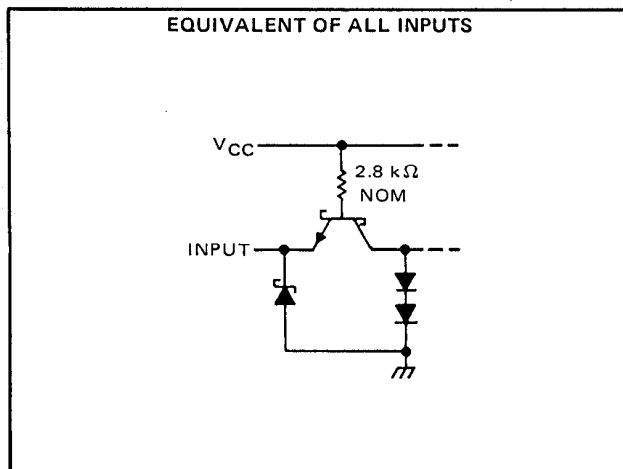
SN54174, SN54175, SN74174, SN74175



SN54LS174, SN54LS175, SN74LS174, SN74LS175



SN54S174, SN54S175, SN74S174, SN74S175



# SN54174, SN54175, SN74174, SN74175 HEX/QUADRUPLE D-TYPE FLIP-FLOPS WITH CLEAR

SDLS068A – DECEMBER 1972 – REVISED OCTOBER 2001

absolute maximum ratings over operating free-air temperature range (unless otherwise noted)

|                                                                 |                |
|-----------------------------------------------------------------|----------------|
| Supply voltage, $V_{CC}$ (see Note 1)                           | 7 V            |
| Input voltage                                                   | 5.5 V          |
| Operating free-air temperature range: SN54174, SN54175 Circuits | –55°C to 125°C |
| SN74174, SN74175 Circuits                                       | 0°C to 70°C    |
| Storage temperature range                                       | –65°C to 150°C |

NOTE 1: Voltage values are with respect to network ground terminal.

recommended operating conditions

|                                       |                      | SN54174, SN54175 |     |      | SN74174, SN74175 |     |      | UNIT    |
|---------------------------------------|----------------------|------------------|-----|------|------------------|-----|------|---------|
|                                       |                      | MIN              | NOM | MAX  | MIN              | NOM | MAX  |         |
| Supply voltage, $V_{CC}$              |                      | 4.5              | 5   | 5.5  | 4.75             | 5   | 5.25 | V       |
| High-level output current, $I_{OH}$   |                      |                  |     | –800 |                  |     | –800 | $\mu$ A |
| Low-level output current, $I_{OL}$    |                      |                  |     | 16   |                  |     | 16   | mA      |
| Clock frequency, $f_{clock}$          |                      | 0                |     | 25   | 0                |     | 25   | MHz     |
| Width of clock or clear pulse, $t_w$  |                      | 20               |     |      | 20               |     |      | ns      |
| Setup time, $t_{su}$                  | Data input           | 20               |     |      | 20               |     |      | ns      |
|                                       | Clear inactive-state | 25               |     |      | 25               |     |      | ns      |
| Data hold time, $t_h$                 |                      | 5                |     |      | 5                |     |      | ns      |
| Operating free-air temperature, $T_A$ |                      | –55              |     | 125  | 0                |     | 70   | °C      |

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

| PARAMETER                                    | TEST CONDITIONS†                                                                                           | MIN                    | TYP‡     | MAX        | UNIT    |
|----------------------------------------------|------------------------------------------------------------------------------------------------------------|------------------------|----------|------------|---------|
| $V_{IH}$ High-level input voltage            |                                                                                                            | 2                      |          |            | V       |
| $V_{IL}$ Low-level input voltage             |                                                                                                            |                        |          | 0.8        | V       |
| $V_{IK}$ Input clamp voltage                 | $V_{CC} = \text{MIN}$ , $I_I = -12 \text{ mA}$                                                             |                        |          | –1.5       | V       |
| $V_{OH}$ High-level output voltage           | $V_{CC} = \text{MIN}$ , $V_{IH} = 2 \text{ V}$ ,<br>$V_{IL} = 0.8 \text{ V}$ , $I_{OH} = -800 \mu\text{A}$ | 2.4                    | 3.4      |            | V       |
| $V_{OL}$ Low-level output voltage            | $V_{CC} = \text{MIN}$ , $V_{IH} = 2 \text{ V}$ ,<br>$V_{IL} = 0.8 \text{ V}$ , $I_{OL} = 16 \text{ mA}$    |                        | 0.2      | 0.4        | V       |
| $I_I$ Input current at maximum input voltage | $V_{CC} = \text{MAX}$ , $V_I = 5.5 \text{ V}$                                                              |                        |          | 1          | mA      |
| $I_{IH}$ High-level input current            | $V_{CC} = \text{MAX}$ , $V_I = 2.4 \text{ V}$                                                              |                        |          | 40         | $\mu$ A |
| $I_{IL}$ Low-level input current             | $V_{CC} = \text{MAX}$ , $V_I = 0.4 \text{ V}$                                                              |                        |          | –1.6       | mA      |
| $I_{OS}$ Short-circuit output current§       | $V_{CC} = \text{MAX}$                                                                                      | SN54' –20<br>SN74' –18 |          | –57<br>–57 | mA      |
| $I_{CC}$ Supply current                      | $V_{CC} = \text{MAX}$ , See Note 2                                                                         | '174 45<br>'175 30     | 65<br>45 |            | mA      |

† For conditions shown as MIN or MAX, use the appropriate value specified under recommended operating conditions for the applicable device type.

‡ All 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.

NOTE 2: With all outputs open and 4.5 V applied to all data and clear inputs,  $I_{CC}$  is measured after a momentary ground, then 4.5 V, is applied to clock.

switching characteristics,  $V_{CC} = 5 \text{ V}$ ,  $T_A = 25^\circ\text{C}$

| PARAMETER                                                                                        | TEST CONDITIONS                                               | MIN | TYP | MAX | UNIT |
|--------------------------------------------------------------------------------------------------|---------------------------------------------------------------|-----|-----|-----|------|
| $f_{max}$ Maximum clock frequency                                                                |                                                               | 25  | 35  |     | MHz  |
| $t_{PLH}$ Propagation delay time, low-to-high-level output from clear<br>(SN54175, SN74175 only) | $C_L = 15 \text{ pF}$ ,<br>$R_L = 400 \Omega$ ,<br>See Note 3 |     | 16  | 25  | ns   |
| $t_{PHL}$ Propagation delay time, high-to-low-level output from clear                            |                                                               |     | 23  | 35  | ns   |
| $t_{PLH}$ Propagation delay time, low-to-high-level output from clock                            |                                                               |     | 20  | 30  | ns   |
| $t_{PHL}$ Propagation delay time, high-to-low-level output from clock                            |                                                               |     | 24  | 35  | ns   |

NOTE 3: Load circuits and voltage waveforms are shown in Section 1.



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# SN54LS174, SN54LS175, SN74LS174, SN74LS175 HEX/QUADRUPLE D-TYPE FLIP-FLOPS WITH CLEAR

SDLS068A – DECEMBER 1972 – REVISED OCTOBER 2001

## absolute maximum ratings over operating free-air temperature range (unless otherwise noted)

|                                                                     |                |
|---------------------------------------------------------------------|----------------|
| Supply voltage, $V_{CC}$ (see Note 1)                               | 7 V            |
| Input voltage                                                       | 7 V            |
| Operating free-air temperature range: SN54LS174, SN54LS175 Circuits | –55°C to 125°C |
| SN74LS174, SN74LS175 Circuits                                       | 0°C to 70°C    |
| Storage temperature range                                           | –65°C to 150°C |

NOTE 1: Voltage values are with respect to network ground terminal.

## recommended operating conditions

|                                       | SN54LS174<br>SN54LS175 |     |      | SN74LS174<br>SN74LS175 |     |      | UNIT    |
|---------------------------------------|------------------------|-----|------|------------------------|-----|------|---------|
|                                       | MIN                    | NOM | MAX  | MIN                    | NOM | MAX  |         |
| Supply voltage, $V_{CC}$              | 4.5                    | 5   | 5.5  | 4.75                   | 5   | 5.25 | V       |
| High-level output current, $I_{OH}$   |                        |     | –400 |                        |     | –400 | $\mu$ A |
| Low-level output current, $I_{OL}$    |                        |     | 4    |                        |     | 8    | mA      |
| Clock frequency, $f_{clock}$          | 0                      |     | 30   | 0                      |     | 30   | MHz     |
| Width of clock or clear pulse, $t_w$  | 20                     |     |      | 20                     |     |      | ns      |
| Setup time, $t_{su}$                  | Data input             |     |      | 20                     |     |      | ns      |
|                                       | Clear inactive-state   |     |      | 25                     |     |      | ns      |
| Data hold time, $t_h$                 | 5                      |     |      | 5                      |     |      | ns      |
| Operating free-air temperature, $T_A$ | –55                    |     | 125  | 0                      |     | 70   | °C      |

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

| PARAMETER                                    | TEST CONDITIONS†                                                                                                | SN54LS174<br>SN54LS175  |      |      | SN74LS174<br>SN74LS175 |      |      | UNIT    |
|----------------------------------------------|-----------------------------------------------------------------------------------------------------------------|-------------------------|------|------|------------------------|------|------|---------|
|                                              |                                                                                                                 | MIN                     | TYP‡ | MAX  | MIN                    | TYP‡ | MAX  |         |
| $V_{IH}$ High-level input voltage            |                                                                                                                 | 2                       |      |      | 2                      |      |      | V       |
| $V_{IL}$ Low-level input voltage             |                                                                                                                 |                         |      | 0.7  |                        |      | 0.8  | V       |
| $V_{IK}$ Input clamp voltage                 | $V_{CC} = \text{MIN}$ , $I_I = -18 \text{ mA}$                                                                  |                         |      | –1.5 |                        |      | –1.5 | V       |
| $V_{OH}$ High-level output voltage           | $V_{CC} = \text{MIN}$ , $V_{IH} = 2 \text{ V}$ ,<br>$V_{IL} = V_{IL \text{ max}}$ , $I_{OH} = -400 \mu\text{A}$ | 2.5                     | 3.5  |      | 2.7                    | 3.5  |      | V       |
| $V_{OL}$ Low-level output voltage            | $V_{CC} = \text{MIN}$ , $V_{IH} = 2 \text{ V}$ ,<br>$V_{IL} = V_{IL \text{ max}}$                               | $I_{OL} = 4 \text{ mA}$ |      | 0.25 | 0.4                    | 0.25 |      | 0.4     |
|                                              |                                                                                                                 | $I_{OL} = 8 \text{ mA}$ |      |      |                        | 0.35 |      | 0.5     |
| $I_I$ Input current at maximum input voltage | $V_{CC} = \text{MAX}$ , $V_I = 7 \text{ V}$                                                                     |                         |      | 0.1  |                        |      | 0.1  | mA      |
| $I_{IH}$ High-level input current            | $V_{CC} = \text{MAX}$ , $V_I = 2.7 \text{ V}$                                                                   |                         |      | 20   |                        |      | 20   | $\mu$ A |
| $I_{IL}$ Low-level input current             | $V_{CC} = \text{MAX}$ , $V_I = 0.4 \text{ V}$                                                                   |                         |      | –0.4 |                        |      | –0.4 | mA      |
| $I_{OS}$ Short-circuit output current§       | $V_{CC} = \text{MAX}$                                                                                           | –20                     |      | –100 | –20                    |      | –100 | mA      |
| $I_{CC}$ Supply current                      | $V_{CC} = \text{MAX}$ , See Note 2                                                                              | 'LS174                  |      | 16   | 26                     | 16   |      | 26      |
|                                              |                                                                                                                 | 'LS175                  |      | 11   | 18                     | 11   |      | 18      |

† For conditions shown as MIN or MAX, use the appropriate value specified under recommended operating conditions.

‡ All 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, and duration of the short-circuit should not exceed one second.

NOTE 2: With all outputs open and 4.5 V applied to all data and clear inputs,  $I_{CC}$  is measured after a momentary ground, then 4.5 V, is applied to clock.

## switching characteristics, $V_{CC} = 5 \text{ V}$ , $T_A = 25^\circ\text{C}$

| PARAMETER                                                             | TEST CONDITIONS                                                      | 'LS174 |     |     | 'LS175 |     |     | UNIT |
|-----------------------------------------------------------------------|----------------------------------------------------------------------|--------|-----|-----|--------|-----|-----|------|
|                                                                       |                                                                      | MIN    | TYP | MAX | MIN    | TYP | MAX |      |
| $f_{max}$ Maximum clock frequency                                     | $C_L = 15 \text{ pF}$ ,<br>$R_L = 2 \text{ k}\Omega$ ,<br>See Note 3 | 30     | 40  |     | 30     | 40  |     | MHz  |
| $t_{PLH}$ Propagation delay time, low-to-high-level output from clear |                                                                      |        |     |     | 20     | 30  |     | ns   |
| $t_{PHL}$ Propagation delay time, high-to-low-level output from clear |                                                                      |        |     | 23  | 35     | 20  | 30  | ns   |
| $t_{PLH}$ Propagation delay time, low-to-high-level output from clock |                                                                      |        |     | 20  | 30     | 13  | 25  | ns   |
| $t_{PHL}$ Propagation delay time, high-to-low-level output from clock |                                                                      |        |     | 21  | 30     | 16  | 25  | ns   |

NOTE 3: Load circuits and voltage waveforms are shown in Section 1.



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# SN54S174, SN54S175, SN74S174, SN74S175

## HEX/QUADRUPLE D-TYPE FLIP-FLOPS WITH CLEAR

SDLS068A – DECEMBER 1972 – REVISED OCTOBER 2001

### absolute maximum ratings over operating free-air temperature range (unless otherwise noted)

|                                                                   |                |
|-------------------------------------------------------------------|----------------|
| Supply voltage, $V_{CC}$ (see Note 1)                             | 7 V            |
| Input voltage                                                     | 5.5 V          |
| Operating free-air temperature range: SN54S174, SN54S175 Circuits | –55°C to 125°C |
| SN74S174, SN74S175 Circuits                                       | 0°C to 70°C    |
| Storage temperature range                                         | –65°C to 150°C |

NOTE 1: Voltage values are with respect to network ground terminal.

### recommended operating conditions

|                                       |                      | SN54S174, SN54S175 |     |     | SN74S174, SN74S175 |     |      | UNIT |
|---------------------------------------|----------------------|--------------------|-----|-----|--------------------|-----|------|------|
|                                       |                      | MIN                | NOM | MAX | MIN                | NOM | MAX  |      |
| Supply voltage, $V_{CC}$              |                      | 4.5                | 5   | 5.5 | 4.75               | 5   | 5.25 | V    |
| High-level output current, $I_{OH}$   |                      |                    |     | –1  |                    |     | –1   | mA   |
| Low-level output current, $I_{OL}$    |                      |                    |     | 20  |                    |     | 20   | mA   |
| Clock frequency, $f_{clock}$          |                      | 0                  |     | 75  | 0                  |     | 75   | MHz  |
| Pulse width, $t_w$                    | Clock                | 7                  |     |     | 7                  |     |      | ns   |
|                                       | Clear                | 10                 |     |     | 10                 |     |      |      |
| Setup time, $t_{su}$                  | Data input           | 5                  |     |     | 5                  |     |      | ns   |
|                                       | Clear inactive-state | 5                  |     |     | 5                  |     |      |      |
| Data hold time, $t_h$                 |                      | 3                  |     |     | 3                  |     |      | ns   |
| Operating free-air temperature, $T_A$ |                      | –55                |     | 125 | 0                  |     | 70   | °C   |

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

| PARAMETER                                    | TEST CONDITIONS†                                                                                 | MIN    | TYP‡ | MAX  | UNIT |
|----------------------------------------------|--------------------------------------------------------------------------------------------------|--------|------|------|------|
| $V_{IH}$ High-level input voltage            |                                                                                                  | 2      |      |      | V    |
| $V_{IL}$ Low-level input voltage             |                                                                                                  |        |      | 0.8  | V    |
| $V_{IK}$ Input clamp voltage                 | $V_{CC} = \text{MIN}, I_I = -18 \text{ mA}$                                                      |        |      | –1.2 | V    |
| $V_{OH}$ High-level output voltage           | $V_{CC} = \text{MIN}, V_{IH} = 2 \text{ V},$<br>$V_{IL} = 0.8 \text{ V}, I_{OH} = -1 \text{ mA}$ | SN54S' | 2.5  | 3.4  | V    |
|                                              |                                                                                                  | SN74S' | 2.7  | 3.4  |      |
| $V_{OL}$ Low-level output voltage            | $V_{CC} = \text{MIN}, V_{IH} = 2 \text{ V},$<br>$V_{IL} = 0.8 \text{ V}, I_{OL} = 20 \text{ mA}$ |        |      | 0.5  | V    |
| $I_I$ Input current at maximum input voltage | $V_{CC} = \text{MAX}, V_I = 5.5 \text{ V}$                                                       |        |      | 1    | mA   |
| $I_{IH}$ High-level input current            | $V_{CC} = \text{MAX}, V_I = 2.7 \text{ V}$                                                       |        |      | 50   | µA   |
| $I_{IL}$ Low-level input current             | $V_{CC} = \text{MAX}, V_I = 0.5 \text{ V}$                                                       |        |      | –2   | mA   |
| $I_{OS}$ Short-circuit output current§       | $V_{CC} = \text{MAX}$                                                                            | –40    |      | –100 | mA   |
| $I_{CC}$ Supply current                      | $V_{CC} = \text{MAX}, \text{ See Note 2}$                                                        | '174   | 90   | 144  | mA   |
|                                              |                                                                                                  | '175   | 60   | 96   |      |

† For conditions shown as MIN or MAX, use the appropriate value specified under recommended operating conditions for the applicable device type.

‡ All 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, and duration of the short-circuit should not exceed one second.

NOTE 2: With all outputs open and 4.5 V applied to all data and clear inputs,  $I_{CC}$  is measured after a momentary ground, then 4.5 V, is applied to clock.

### switching characteristics, $V_{CC} = 5 \text{ V}, T_A = 25^\circ\text{C}$

| PARAMETER                                                                                            | TEST CONDITIONS                                             | MIN | TYP  | MAX | UNIT |
|------------------------------------------------------------------------------------------------------|-------------------------------------------------------------|-----|------|-----|------|
| $f_{max}$ Maximum clock frequency                                                                    |                                                             | 75  | 110  |     | MHz  |
| $t_{PLH}$ Propagation delay time, low-to-high-level Q output from clear<br>(SN54S175, SN74S175 only) | $C_L = 15 \text{ pF},$<br>$R_L = 280 \Omega,$<br>See Note 3 |     | 10   | 15  | ns   |
| $t_{PHL}$ Propagation delay time, high-to-low-level Q output from clear                              |                                                             |     | 13   | 22  | ns   |
| $t_{PLH}$ Propagation delay time, low-to-high-level output from clock                                |                                                             |     | 8    | 12  | ns   |
| $t_{PHL}$ Propagation time, high-to-low-level output from clock                                      |                                                             |     | 11.5 | 17  | ns   |

NOTE 3: Load circuits and voltage waveforms are shown in Section 1.



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## 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="#">JM38510/07105BEA</a> | Active        | Production           | CDIP (J)   16  | 25   TUBE             | No          | SNPB                                 | N/A for Pkg Type                  | -55 to 125   | JM38510/<br>07105BEA |
| JM38510/07105BEA.A               | Active        | Production           | CDIP (J)   16  | 25   TUBE             | No          | SNPB                                 | N/A for Pkg Type                  | -55 to 125   | JM38510/<br>07105BEA |
| <a href="#">JM38510/07105BFA</a> | Active        | Production           | CFP (W)   16   | 25   TUBE             | No          | SNPB                                 | N/A for Pkg Type                  | -55 to 125   | JM38510/<br>07105BFA |
| JM38510/07105BFA.A               | Active        | Production           | CFP (W)   16   | 25   TUBE             | No          | SNPB                                 | N/A for Pkg Type                  | -55 to 125   | JM38510/<br>07105BFA |
| <a href="#">JM38510/07106BEA</a> | Active        | Production           | CDIP (J)   16  | 25   TUBE             | No          | SNPB                                 | N/A for Pkg Type                  | -55 to 125   | JM38510/<br>07106BEA |
| JM38510/07106BEA.A               | Active        | Production           | CDIP (J)   16  | 25   TUBE             | No          | SNPB                                 | N/A for Pkg Type                  | -55 to 125   | JM38510/<br>07106BEA |
| <a href="#">JM38510/30106B2A</a> | Active        | Production           | LCCC (FK)   20 | 55   TUBE             | No          | SNPB                                 | N/A for Pkg Type                  | -55 to 125   | JM38510/<br>30106B2A |
| JM38510/30106B2A.A               | Active        | Production           | LCCC (FK)   20 | 55   TUBE             | No          | SNPB                                 | N/A for Pkg Type                  | -55 to 125   | JM38510/<br>30106B2A |
| <a href="#">JM38510/30106BEA</a> | Active        | Production           | CDIP (J)   16  | 25   TUBE             | No          | SNPB                                 | N/A for Pkg Type                  | -55 to 125   | JM38510/<br>30106BEA |
| JM38510/30106BEA.A               | Active        | Production           | CDIP (J)   16  | 25   TUBE             | No          | SNPB                                 | N/A for Pkg Type                  | -55 to 125   | JM38510/<br>30106BEA |
| <a href="#">JM38510/30106BFA</a> | Active        | Production           | CFP (W)   16   | 25   TUBE             | No          | SNPB                                 | N/A for Pkg Type                  | -55 to 125   | JM38510/<br>30106BFA |
| JM38510/30106BFA.A               | Active        | Production           | CFP (W)   16   | 25   TUBE             | No          | SNPB                                 | N/A for Pkg Type                  | -55 to 125   | JM38510/<br>30106BFA |
| <a href="#">JM38510/30107B2A</a> | Active        | Production           | LCCC (FK)   20 | 55   TUBE             | No          | SNPB                                 | N/A for Pkg Type                  | -55 to 125   | JM38510/<br>30107B2A |
| JM38510/30107B2A.A               | Active        | Production           | LCCC (FK)   20 | 55   TUBE             | No          | SNPB                                 | N/A for Pkg Type                  | -55 to 125   | JM38510/<br>30107B2A |
| <a href="#">JM38510/30107BEA</a> | Active        | Production           | CDIP (J)   16  | 25   TUBE             | No          | SNPB                                 | N/A for Pkg Type                  | -55 to 125   | JM38510/<br>30107BEA |
| JM38510/30107BEA.A               | Active        | Production           | CDIP (J)   16  | 25   TUBE             | No          | SNPB                                 | N/A for Pkg Type                  | -55 to 125   | JM38510/<br>30107BEA |

| 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="#">JM38510/30107BFA</a> | Active        | Production           | CFP (W)   16   | 25   TUBE             | No          | SNPB                                 | N/A for Pkg Type                  | -55 to 125   | JM38510/<br>30107BFA |
| JM38510/30107BFA.A               | Active        | Production           | CFP (W)   16   | 25   TUBE             | No          | SNPB                                 | N/A for Pkg Type                  | -55 to 125   | JM38510/<br>30107BFA |
| <a href="#">M38510/07105BEA</a>  | Active        | Production           | CDIP (J)   16  | 25   TUBE             | No          | SNPB                                 | N/A for Pkg Type                  | -55 to 125   | JM38510/<br>07105BEA |
| <a href="#">M38510/07105BFA</a>  | Active        | Production           | CFP (W)   16   | 25   TUBE             | No          | SNPB                                 | N/A for Pkg Type                  | -55 to 125   | JM38510/<br>07105BFA |
| <a href="#">M38510/07106BEA</a>  | Active        | Production           | CDIP (J)   16  | 25   TUBE             | No          | SNPB                                 | N/A for Pkg Type                  | -55 to 125   | JM38510/<br>07106BEA |
| <a href="#">M38510/30106B2A</a>  | Active        | Production           | LCCC (FK)   20 | 55   TUBE             | No          | SNPB                                 | N/A for Pkg Type                  | -55 to 125   | JM38510/<br>30106B2A |
| <a href="#">M38510/30106BEA</a>  | Active        | Production           | CDIP (J)   16  | 25   TUBE             | No          | SNPB                                 | N/A for Pkg Type                  | -55 to 125   | JM38510/<br>30106BEA |
| <a href="#">M38510/30106BFA</a>  | Active        | Production           | CFP (W)   16   | 25   TUBE             | No          | SNPB                                 | N/A for Pkg Type                  | -55 to 125   | JM38510/<br>30106BFA |
| <a href="#">M38510/30107B2A</a>  | Active        | Production           | LCCC (FK)   20 | 55   TUBE             | No          | SNPB                                 | N/A for Pkg Type                  | -55 to 125   | JM38510/<br>30107B2A |
| <a href="#">M38510/30107BEA</a>  | Active        | Production           | CDIP (J)   16  | 25   TUBE             | No          | SNPB                                 | N/A for Pkg Type                  | -55 to 125   | JM38510/<br>30107BEA |
| <a href="#">M38510/30107BFA</a>  | Active        | Production           | CFP (W)   16   | 25   TUBE             | No          | SNPB                                 | N/A for Pkg Type                  | -55 to 125   | JM38510/<br>30107BFA |
| <a href="#">SN54LS174J</a>       | Active        | Production           | CDIP (J)   16  | 25   TUBE             | No          | SNPB                                 | N/A for Pkg Type                  | -55 to 125   | SN54LS174J           |
| SN54LS174J.A                     | Active        | Production           | CDIP (J)   16  | 25   TUBE             | No          | SNPB                                 | N/A for Pkg Type                  | -55 to 125   | SN54LS174J           |
| <a href="#">SN54LS175J</a>       | Active        | Production           | CDIP (J)   16  | 25   TUBE             | No          | SNPB                                 | N/A for Pkg Type                  | -55 to 125   | SN54LS175J           |
| SN54LS175J.A                     | Active        | Production           | CDIP (J)   16  | 25   TUBE             | No          | SNPB                                 | N/A for Pkg Type                  | -55 to 125   | SN54LS175J           |
| <a href="#">SN54S174J</a>        | Active        | Production           | CDIP (J)   16  | 25   TUBE             | No          | SNPB                                 | N/A for Pkg Type                  | -55 to 125   | SN54S174J            |
| SN54S174J.A                      | Active        | Production           | CDIP (J)   16  | 25   TUBE             | No          | SNPB                                 | N/A for Pkg Type                  | -55 to 125   | SN54S174J            |
| <a href="#">SN54S175J</a>        | Active        | Production           | CDIP (J)   16  | 25   TUBE             | No          | SNPB                                 | N/A for Pkg Type                  | -55 to 125   | SN54S175J            |
| SN54S175J.A                      | Active        | Production           | CDIP (J)   16  | 25   TUBE             | No          | SNPB                                 | N/A for Pkg Type                  | -55 to 125   | SN54S175J            |
| <a href="#">SN74LS174D</a>       | Obsolete      | Production           | SOIC (D)   16  | -                     | -           | Call TI                              | Call TI                           | 0 to 70      | LS174                |
| <a href="#">SN74LS174DR</a>      | Active        | Production           | SOIC (D)   16  | 2500   LARGE T&R      | Yes         | NIPDAU                               | Level-1-260C-UNLIM                | 0 to 70      | LS174                |
| SN74LS174DR.A                    | Active        | Production           | SOIC (D)   16  | 2500   LARGE T&R      | Yes         | NIPDAU                               | Level-1-260C-UNLIM                | 0 to 70      | LS174                |
| <a href="#">SN74LS174N</a>       | Active        | Production           | PDIP (N)   16  | 25   TUBE             | Yes         | NIPDAU                               | N/A for Pkg Type                  | 0 to 70      | SN74LS174N           |

| 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) |
|------------------------------|---------------|----------------------|----------------|-----------------------|-------------|--------------------------------------|-----------------------------------|--------------|---------------------|
| SN74LS174N.A                 | Active        | Production           | PDIP (N)   16  | 25   TUBE             | Yes         | NIPDAU                               | N/A for Pkg Type                  | 0 to 70      | SN74LS174N          |
| <a href="#">SN74LS174NSR</a> | Active        | Production           | SOP (NS)   16  | 2000   LARGE T&R      | Yes         | NIPDAU                               | Level-1-260C-UNLIM                | 0 to 70      | 74LS174             |
| SN74LS174NSR.A               | Active        | Production           | SOP (NS)   16  | 2000   LARGE T&R      | Yes         | NIPDAU                               | Level-1-260C-UNLIM                | 0 to 70      | 74LS174             |
| <a href="#">SN74LS175D</a>   | Obsolete      | Production           | SOIC (D)   16  | -                     | -           | Call TI                              | Call TI                           | 0 to 70      | LS175               |
| <a href="#">SN74LS175DR</a>  | Active        | Production           | SOIC (D)   16  | 2500   LARGE T&R      | Yes         | NIPDAU                               | Level-1-260C-UNLIM                | 0 to 70      | LS175               |
| SN74LS175DR.A                | Active        | Production           | SOIC (D)   16  | 2500   LARGE T&R      | Yes         | NIPDAU                               | Level-1-260C-UNLIM                | 0 to 70      | LS175               |
| <a href="#">SN74LS175N</a>   | Active        | Production           | PDIP (N)   16  | 25   TUBE             | Yes         | NIPDAU                               | N/A for Pkg Type                  | 0 to 70      | SN74LS175N          |
| SN74LS175N.A                 | Active        | Production           | PDIP (N)   16  | 25   TUBE             | Yes         | NIPDAU                               | N/A for Pkg Type                  | 0 to 70      | SN74LS175N          |
| SN74LS175NE4                 | Active        | Production           | PDIP (N)   16  | 25   TUBE             | Yes         | NIPDAU                               | N/A for Pkg Type                  | 0 to 70      | SN74LS175N          |
| <a href="#">SN74LS175NSR</a> | Active        | Production           | SOP (NS)   16  | 2000   LARGE T&R      | Yes         | NIPDAU                               | Level-1-260C-UNLIM                | 0 to 70      | 74LS175             |
| SN74LS175NSR.A               | Active        | Production           | SOP (NS)   16  | 2000   LARGE T&R      | Yes         | NIPDAU                               | Level-1-260C-UNLIM                | 0 to 70      | 74LS175             |
| <a href="#">SN74S175D</a>    | Active        | Production           | SOIC (D)   16  | 40   TUBE             | Yes         | NIPDAU                               | Level-1-260C-UNLIM                | 0 to 70      | S175                |
| SN74S175D.A                  | Active        | Production           | SOIC (D)   16  | 40   TUBE             | Yes         | NIPDAU                               | Level-1-260C-UNLIM                | 0 to 70      | S175                |
| <a href="#">SN74S175N</a>    | Active        | Production           | PDIP (N)   16  | 25   TUBE             | Yes         | NIPDAU                               | N/A for Pkg Type                  | 0 to 70      | SN74S175N           |
| SN74S175N.A                  | Active        | Production           | PDIP (N)   16  | 25   TUBE             | Yes         | NIPDAU                               | N/A for Pkg Type                  | 0 to 70      | SN74S175N           |
| <a href="#">SNJ54LS174FK</a> | Active        | Production           | LCCC (FK)   20 | 55   TUBE             | No          | SNPB                                 | N/A for Pkg Type                  | -55 to 125   | SNJ54LS<br>174FK    |
| SNJ54LS174FK.A               | Active        | Production           | LCCC (FK)   20 | 55   TUBE             | No          | SNPB                                 | N/A for Pkg Type                  | -55 to 125   | SNJ54LS<br>174FK    |
| <a href="#">SNJ54LS174J</a>  | Active        | Production           | CDIP (J)   16  | 25   TUBE             | No          | SNPB                                 | N/A for Pkg Type                  | -55 to 125   | SNJ54LS174J         |
| SNJ54LS174J.A                | Active        | Production           | CDIP (J)   16  | 25   TUBE             | No          | SNPB                                 | N/A for Pkg Type                  | -55 to 125   | SNJ54LS174J         |
| <a href="#">SNJ54LS174W</a>  | Active        | Production           | CFP (W)   16   | 25   TUBE             | No          | SNPB                                 | N/A for Pkg Type                  | -55 to 125   | SNJ54LS174W         |
| SNJ54LS174W.A                | Active        | Production           | CFP (W)   16   | 25   TUBE             | No          | SNPB                                 | N/A for Pkg Type                  | -55 to 125   | SNJ54LS174W         |
| <a href="#">SNJ54LS175FK</a> | Active        | Production           | LCCC (FK)   20 | 55   TUBE             | No          | SNPB                                 | N/A for Pkg Type                  | -55 to 125   | SNJ54LS<br>175FK    |
| SNJ54LS175FK.A               | Active        | Production           | LCCC (FK)   20 | 55   TUBE             | No          | SNPB                                 | N/A for Pkg Type                  | -55 to 125   | SNJ54LS<br>175FK    |
| <a href="#">SNJ54LS175J</a>  | Active        | Production           | CDIP (J)   16  | 25   TUBE             | No          | SNPB                                 | N/A for Pkg Type                  | -55 to 125   | SNJ54LS175J         |
| SNJ54LS175J.A                | Active        | Production           | CDIP (J)   16  | 25   TUBE             | No          | SNPB                                 | N/A for Pkg Type                  | -55 to 125   | SNJ54LS175J         |
| <a href="#">SNJ54LS175W</a>  | Active        | Production           | CFP (W)   16   | 25   TUBE             | No          | SNPB                                 | N/A for Pkg Type                  | -55 to 125   | SNJ54LS175W         |
| SNJ54LS175W.A                | Active        | Production           | CFP (W)   16   | 25   TUBE             | No          | SNPB                                 | N/A for Pkg Type                  | -55 to 125   | SNJ54LS175W         |
| <a href="#">SNJ54S174J</a>   | Active        | Production           | CDIP (J)   16  | 25   TUBE             | No          | SNPB                                 | N/A for Pkg Type                  | -55 to 125   | SNJ54S174J          |

| 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) |
|----------------------------|---------------|----------------------|----------------|-----------------------|-------------|--------------------------------------|-----------------------------------|--------------|---------------------|
| SNJ54S174J.A               | Active        | Production           | CDIP (J)   16  | 25   TUBE             | No          | SNPB                                 | N/A for Pkg Type                  | -55 to 125   | SNJ54S174J          |
| <a href="#">SNJ54S174W</a> | Active        | Production           | CFP (W)   16   | 25   TUBE             | No          | SNPB                                 | N/A for Pkg Type                  | -55 to 125   | SNJ54S174W          |
| SNJ54S174W.A               | Active        | Production           | CFP (W)   16   | 25   TUBE             | No          | SNPB                                 | N/A for Pkg Type                  | -55 to 125   | SNJ54S174W          |
| <a href="#">SNJ54S175J</a> | Active        | Production           | CDIP (J)   16  | 25   TUBE             | No          | SNPB                                 | N/A for Pkg Type                  | -55 to 125   | SNJ54S175J          |
| SNJ54S175J.A               | Active        | Production           | CDIP (J)   16  | 25   TUBE             | No          | SNPB                                 | N/A for Pkg Type                  | -55 to 125   | SNJ54S175J          |

<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.

**Important Information and Disclaimer:** The information provided on this page represents TI's knowledge and belief as of the date that it is provided. TI bases its knowledge and belief on information provided by third parties, and makes no representation or warranty as to the accuracy of such information. Efforts are underway to better integrate information from third parties. TI has taken and continues to take reasonable steps to provide representative and accurate information but may not have conducted destructive testing or chemical analysis on incoming materials and chemicals. TI and TI suppliers consider certain information to be proprietary, and thus CAS numbers and other limited information may not be available for release.

In no event shall TI's liability arising out of such information exceed the total purchase price of the TI part(s) at issue in this document sold by TI to Customer on an annual basis.

**OTHER QUALIFIED VERSIONS OF SN54LS174, SN54LS175, SN54S175, SN74LS174, SN74LS175, SN74S175 :**

- Catalog : [SN74LS174](#), [SN74LS175](#), [SN74S175](#)
- Military : [SN54LS174](#), [SN54LS175](#), [SN54S175](#)

NOTE: Qualified Version Definitions:

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

## TAPE AND REEL INFORMATION



\*All dimensions are nominal

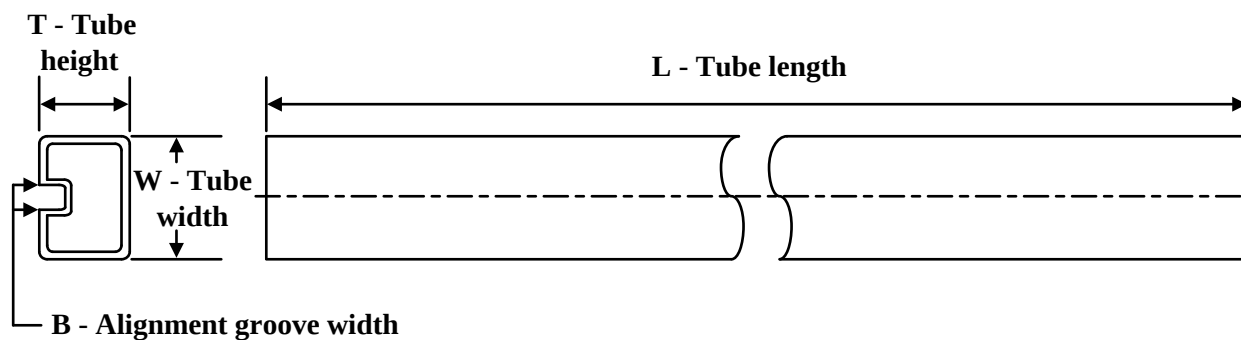
| Device       | Package Type | Package Drawing | Pins | SPQ  | Reel Diameter (mm) | Reel Width W1 (mm) | A0 (mm) | B0 (mm) | K0 (mm) | P1 (mm) | W (mm) | Pin1 Quadrant |
|--------------|--------------|-----------------|------|------|--------------------|--------------------|---------|---------|---------|---------|--------|---------------|
| SN74LS174DR  | SOIC         | D               | 16   | 2500 | 330.0              | 16.4               | 6.5     | 10.3    | 2.1     | 8.0     | 16.0   | Q1            |
| SN74LS174NSR | SOP          | NS              | 16   | 2000 | 330.0              | 16.4               | 8.1     | 10.4    | 2.5     | 12.0    | 16.0   | Q1            |
| SN74LS175DR  | SOIC         | D               | 16   | 2500 | 330.0              | 16.4               | 6.5     | 10.3    | 2.1     | 8.0     | 16.0   | Q1            |
| SN74LS175NSR | SOP          | NS              | 16   | 2000 | 330.0              | 16.4               | 8.1     | 10.4    | 2.5     | 12.0    | 16.0   | Q1            |

## TAPE AND REEL BOX DIMENSIONS



\*All dimensions are nominal

| Device       | Package Type | Package Drawing | Pins | SPQ  | Length (mm) | Width (mm) | Height (mm) |
|--------------|--------------|-----------------|------|------|-------------|------------|-------------|
| SN74LS174DR  | SOIC         | D               | 16   | 2500 | 353.0       | 353.0      | 32.0        |
| SN74LS174NSR | SOP          | NS              | 16   | 2000 | 353.0       | 353.0      | 32.0        |
| SN74LS175DR  | SOIC         | D               | 16   | 2500 | 340.5       | 336.1      | 32.0        |
| SN74LS175NSR | SOP          | NS              | 16   | 2000 | 353.0       | 353.0      | 32.0        |

**TUBE**


\*All dimensions are nominal

| Device             | Package Name | Package Type | Pins | SPQ | L (mm) | W (mm) | T (μm) | B (mm) |
|--------------------|--------------|--------------|------|-----|--------|--------|--------|--------|
| JM38510/07105BFA   | W            | CFP          | 16   | 25  | 506.98 | 26.16  | 6220   | NA     |
| JM38510/07105BFA.A | W            | CFP          | 16   | 25  | 506.98 | 26.16  | 6220   | NA     |
| JM38510/30106B2A   | FK           | LCCC         | 20   | 55  | 506.98 | 12.06  | 2030   | NA     |
| JM38510/30106B2A.A | FK           | LCCC         | 20   | 55  | 506.98 | 12.06  | 2030   | NA     |
| JM38510/30106BFA   | W            | CFP          | 16   | 25  | 506.98 | 26.16  | 6220   | NA     |
| JM38510/30106BFA.A | W            | CFP          | 16   | 25  | 506.98 | 26.16  | 6220   | NA     |
| JM38510/30107B2A   | FK           | LCCC         | 20   | 55  | 506.98 | 12.06  | 2030   | NA     |
| JM38510/30107B2A.A | FK           | LCCC         | 20   | 55  | 506.98 | 12.06  | 2030   | NA     |
| JM38510/30107BFA   | W            | CFP          | 16   | 25  | 506.98 | 26.16  | 6220   | NA     |
| JM38510/30107BFA.A | W            | CFP          | 16   | 25  | 506.98 | 26.16  | 6220   | NA     |
| M38510/07105BFA    | W            | CFP          | 16   | 25  | 506.98 | 26.16  | 6220   | NA     |
| M38510/30106B2A    | FK           | LCCC         | 20   | 55  | 506.98 | 12.06  | 2030   | NA     |
| M38510/30106BFA    | W            | CFP          | 16   | 25  | 506.98 | 26.16  | 6220   | NA     |
| M38510/30107B2A    | FK           | LCCC         | 20   | 55  | 506.98 | 12.06  | 2030   | NA     |
| M38510/30107BFA    | W            | CFP          | 16   | 25  | 506.98 | 26.16  | 6220   | NA     |
| SN74LS174N         | N            | PDIP         | 16   | 25  | 506    | 13.97  | 11230  | 4.32   |
| SN74LS174N         | N            | PDIP         | 16   | 25  | 506    | 13.97  | 11230  | 4.32   |
| SN74LS174N.A       | N            | PDIP         | 16   | 25  | 506    | 13.97  | 11230  | 4.32   |
| SN74LS174N.A       | N            | PDIP         | 16   | 25  | 506    | 13.97  | 11230  | 4.32   |
| SN74LS175N         | N            | PDIP         | 16   | 25  | 506    | 13.97  | 11230  | 4.32   |
| SN74LS175N         | N            | PDIP         | 16   | 25  | 506    | 13.97  | 11230  | 4.32   |
| SN74LS175N.A       | N            | PDIP         | 16   | 25  | 506    | 13.97  | 11230  | 4.32   |
| SN74LS175N.A       | N            | PDIP         | 16   | 25  | 506    | 13.97  | 11230  | 4.32   |
| SN74LS175NE4       | N            | PDIP         | 16   | 25  | 506    | 13.97  | 11230  | 4.32   |
| SN74LS175NE4       | N            | PDIP         | 16   | 25  | 506    | 13.97  | 11230  | 4.32   |
| SN74S175D          | D            | SOIC         | 16   | 40  | 507    | 8      | 3940   | 4.32   |
| SN74S175D.A        | D            | SOIC         | 16   | 40  | 507    | 8      | 3940   | 4.32   |
| SN74S175N          | N            | PDIP         | 16   | 25  | 506    | 13.97  | 11230  | 4.32   |
| SN74S175N          | N            | PDIP         | 16   | 25  | 506    | 13.97  | 11230  | 4.32   |

| Device         | Package Name | Package Type | Pins | SPQ | L (mm) | W (mm) | T (μm) | B (mm) |
|----------------|--------------|--------------|------|-----|--------|--------|--------|--------|
| SN74S175N.A    | N            | PDIP         | 16   | 25  | 506    | 13.97  | 11230  | 4.32   |
| SN74S175N.A    | N            | PDIP         | 16   | 25  | 506    | 13.97  | 11230  | 4.32   |
| SNJ54LS174FK   | FK           | LCCC         | 20   | 55  | 506.98 | 12.06  | 2030   | NA     |
| SNJ54LS174FK.A | FK           | LCCC         | 20   | 55  | 506.98 | 12.06  | 2030   | NA     |
| SNJ54LS174W    | W            | CFP          | 16   | 25  | 506.98 | 26.16  | 6220   | NA     |
| SNJ54LS174W.A  | W            | CFP          | 16   | 25  | 506.98 | 26.16  | 6220   | NA     |
| SNJ54LS175FK   | FK           | LCCC         | 20   | 55  | 506.98 | 12.06  | 2030   | NA     |
| SNJ54LS175FK.A | FK           | LCCC         | 20   | 55  | 506.98 | 12.06  | 2030   | NA     |
| SNJ54LS175W    | W            | CFP          | 16   | 25  | 506.98 | 26.16  | 6220   | NA     |
| SNJ54LS175W.A  | W            | CFP          | 16   | 25  | 506.98 | 26.16  | 6220   | NA     |

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