

## SDLS095A – OCTOBER 1976 – REVISED MARCH 1988

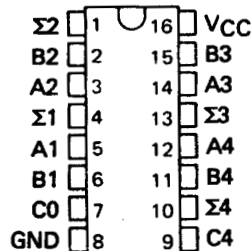
- SN54283, SN54LS283 . . . J OR W PACKAGE  
SN54S283 . . . J PACKAGE  
SN74283 . . . N PACKAGE  
SN74LS283, SN74S283 . . . D OR N PACKAGE

|        | TWO<br>8-BIT | TWO<br>16-BIT | TYPICAL POWER<br>DISSIPATION<br>PER ADDER |
|--------|--------------|---------------|-------------------------------------------|
| TYPE   | WORDS        | WORDS         |                                           |
| '283   | 23ns         | 43ns          | 310 mW                                    |
| 'LS283 | 25ns         | 45ns          | 95 mW                                     |
| 'S283  | 15ns         | 30ns          | 510 mW                                    |

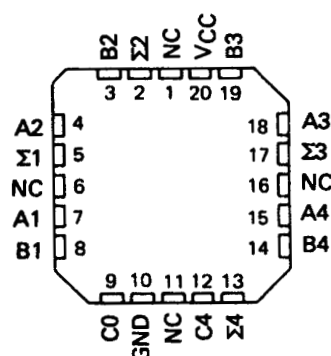
The '283 and 'LS283 adders are electrically and functionally identical to the '83A and 'LS83A, respectively; only the arrangement of the terminals has been changed. The 'S283 high performance versions are also functionally identical.

The adder logic, including the carry, is implemented in its true form. End around carry can be accomplished without the need for logic or level inversion.

(TOP VIEW)



**(TOP VIEW)**



NC - No internal connection

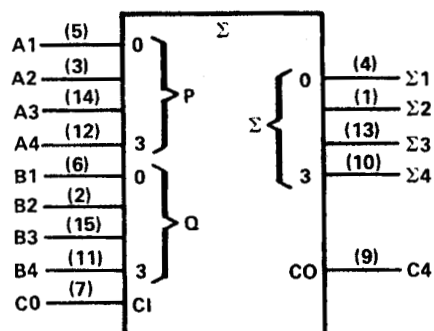
| INPUT |    |    |    | OUTPUT         |    |    |                |    |    |
|-------|----|----|----|----------------|----|----|----------------|----|----|
|       |    |    |    | WHEN<br>C0 = L |    |    | WHEN<br>C0 = H |    |    |
|       |    |    |    | WHEN<br>C2 = L |    |    | WHEN<br>C2 = H |    |    |
| A1    | B1 | A2 | B2 | Σ1             | Σ2 | C2 | Σ1             | Σ2 | C2 |
| A3    | B3 | A4 | B4 | Σ3             | Σ4 | C4 | Σ3             | Σ4 | C4 |
| L     | L  | L  | L  | L              | L  | L  | H              | L  | L  |
| H     | L  | L  | L  | L              | H  | L  | L              | H  | L  |
| L     | H  | L  | L  | L              | H  | L  | L              | H  | L  |
| H     | H  | L  | L  | L              | H  | L  | H              | H  | L  |
| L     | L  | H  | L  | L              | L  | H  | L              | H  | L  |
| H     | L  | H  | L  | L              | H  | H  | L              | L  | L  |
| L     | H  | H  | L  | L              | H  | H  | L              | L  | H  |
| H     | H  | H  | L  | L              | L  | L  | H              | L  | H  |
| L     | L  | L  | H  | L              | L  | H  | L              | H  | L  |
| H     | L  | L  | H  | L              | H  | H  | L              | L  | H  |
| L     | H  | L  | H  | L              | L  | H  | L              | L  | H  |
| H     | H  | L  | H  | L              | L  | H  | L              | L  | H  |
| L     | L  | H  | H  | L              | L  | H  | H              | L  | H  |
| H     | L  | H  | H  | L              | H  | L  | L              | H  | H  |
| L     | H  | H  | H  | L              | H  | H  | H              | H  | H  |

**NOTE:** Input conditions at A1, B1, A2, B2, and C0 are used to determine outputs  $\Sigma 1$  and  $\Sigma 2$  and the value of the internal carry C2. The values at C2, A3, B3, A4, and B4 are then used to determine outputs  $\Sigma 3$ ,  $\Sigma 4$ , and C4.

# SN54283, SN54LS283, SN54S283, SN74283, SN74LS283, SN74S283 4-BIT BINARY FULL ADDERS WITH FAST CARRY

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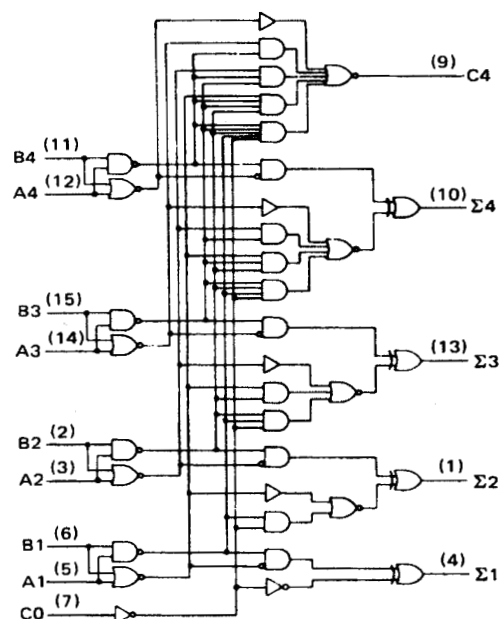
## logic symbol†



†This symbol is in accordance with ANSI/IEEE Std. 91-1984 and IEC Publication 617-12.

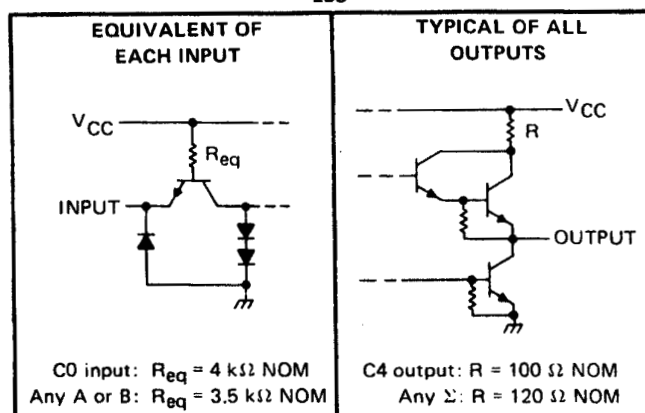
Pin numbers shown are for D, J, N, and W packages.

## logic diagram (positive logic)

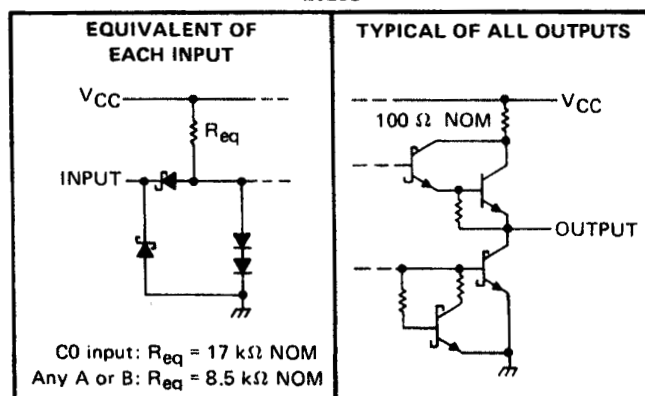


Pin numbers shown are for D, J, N, and W packages.

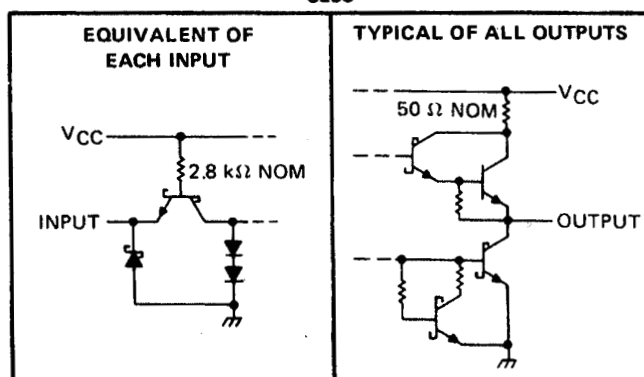
## schematics of inputs and outputs '283



## 'LS283



## 'S283



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

|                                                                    |                |
|--------------------------------------------------------------------|----------------|
| Supply voltage, $V_{CC}$ (see Note 1)                              | 7V             |
| Input voltage: '283, 'S283                                         | 5.5V           |
| 'LS283                                                             | 7V             |
| Interemitter voltage (see Note 2)                                  | 5.5V           |
| Operating free-air temperature range: SN54283, SN54LS283, SN54S283 | -55°C to 125°C |
| SN74283, SN74LS283, SN74S283                                       | 0°C to 70°C    |
| Storage temperature range                                          | -65°C to 150°C |

NOTES: 1. Voltage values, except interemitter voltage, are with respect to network ground terminal.

2. This is the voltage between two emitters of a multiple-emitter transistor. This rating applies for the '283 and 'S283 only between the following pairs: A1 and B1, A2 and B2, A3 and B3, A4 and B4.

# SN54283, SN74283

## 4-BIT BINARY FULL ADDERS WITH FAST CARRY

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### recommended operating conditions

|                                                |                      |  | SN54283 |     |     | SN74283 |     |      | UNIT |    |
|------------------------------------------------|----------------------|--|---------|-----|-----|---------|-----|------|------|----|
|                                                |                      |  | MIN     | NOM | MAX | MIN     | NOM | MAX  |      |    |
| Supply Voltage, V <sub>CC</sub>                |                      |  | 4.5     | 5   | 5.5 | 4.75    | 5   | 5.25 | V    |    |
| High-level output current, I <sub>OH</sub>     | Any output except C4 |  | -800    |     |     | -800    |     |      | μA   |    |
|                                                | Output C4            |  | -400    |     |     | -400    |     |      |      |    |
| Low-level output current, I <sub>OL</sub>      | Any output except C4 |  | 16      |     |     | 16      |     |      | mA   |    |
|                                                | Output C4            |  | 8       |     |     | 8       |     |      |      |    |
| Operating free-air temperature, T <sub>A</sub> |                      |  | -55     |     |     | 0       |     |      | 70   | °C |

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

| PARAMETER |                                        | TEST CONDITIONS†                                                                                     |                                  | SN54283 |      |      | SN74283 |      |      | UNIT    |
|-----------|----------------------------------------|------------------------------------------------------------------------------------------------------|----------------------------------|---------|------|------|---------|------|------|---------|
|           |                                        |                                                                                                      |                                  | MIN     | TYP‡ | MAX  | MIN     | TYP‡ | MAX  |         |
| $V_{IH}$  | High-level input voltage               |                                                                                                      |                                  | 2       |      |      | 2       |      |      | V       |
| $V_{IL}$  | Low-level input voltage                |                                                                                                      |                                  |         |      | 0.8  |         |      | 0.8  | V       |
| $V_{IK}$  | Input clamp voltage                    | $V_{CC} = \text{MIN}$ , $I_I = -12 \text{ mA}$                                                       |                                  |         |      | -1.5 |         |      | -1.5 | V       |
| $V_{OH}$  | High-level output voltage              | $V_{CC} = \text{MIN}$ , $V_{IH} = 2 \text{ V}$ ,<br>$V_{IL} = 0.8 \text{ V}$ , $I_{OH} = \text{MAX}$ |                                  | 2.4     | 3.6  |      | 2.4     | 3.6  |      | V       |
| $V_{OL}$  | Low-level output voltage               | $V_{CC} = \text{MIN}$ , $V_{IH} = 2 \text{ V}$ ,<br>$V_{IL} = 0.8 \text{ V}$ , $I_{OL} = \text{MAX}$ |                                  |         | 0.2  | 0.4  |         | 0.2  | 0.4  | V       |
| $I_I$     | Input current at maximum input voltage | $V_{CC} = \text{MAX}$ , $V_I = 5.5 \text{ V}$                                                        |                                  |         |      | 1    |         |      | 1    | mA      |
| $I_{IH}$  | High-level input current               | $V_{CC} = \text{MAX}$ , $V_I = 2.4 \text{ V}$                                                        |                                  |         |      | 40   |         |      | 40   | $\mu$ A |
| $I_{IL}$  | Low-level input current                | $V_{CC} = \text{MAX}$ , $V_I = 0.4 \text{ V}$                                                        |                                  |         |      | -1.6 |         |      | -1.6 | mA      |
| $I_{OS}$  | Short-circuit output current §         | Any output except C4                                                                                 | $V_{CC} = \text{MAX}$            | -20     | -55  |      | -18     | -55  |      | mA      |
|           |                                        | Output C4                                                                                            |                                  | -20     | -70  |      | -18     | -70  |      | mA      |
| $I_{CC}$  | Supply current                         | $V_{CC} = \text{MAX}$ ,<br>Outputs open                                                              | All B low, other inputs at 4.5 V |         | 56   |      |         | 56   |      | mA      |
|           |                                        |                                                                                                      | All inputs at 4.5 V              |         | 66   | 99   |         | 66   | 110  |         |

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

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

§ Only one output should be shorted at a time.

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

| PARAMETER <sup>6</sup> | FROM (INPUT)                     | TO (OUTPUT)    | TEST CONDITIONS                                               | MIN | TYP | MAX | UNIT |
|------------------------|----------------------------------|----------------|---------------------------------------------------------------|-----|-----|-----|------|
| t <sub>PLH</sub>       | C0                               | Any Σ          | C <sub>L</sub> = 15 pF, R <sub>L</sub> = 400 Ω,<br>See Note 3 | 14  | 21  | ns  |      |
| t <sub>PHL</sub>       |                                  |                |                                                               | 12  | 21  |     |      |
| t <sub>PLH</sub>       | A <sub>i</sub> or B <sub>i</sub> | Σ <sub>i</sub> |                                                               | 16  | 24  | ns  |      |
| t <sub>PHL</sub>       |                                  |                |                                                               | 16  | 24  |     |      |
| t <sub>PLH</sub>       | C0                               | C4             | C <sub>L</sub> = 15 pF, R <sub>L</sub> = 780 Ω,<br>See Note 3 | 9   | 14  | ns  |      |
| t <sub>PHL</sub>       |                                  |                |                                                               | 11  | 16  |     |      |
| t <sub>PLH</sub>       | A <sub>i</sub> or B <sub>i</sub> | C4             |                                                               | 9   | 14  | ns  |      |
| t <sub>PHL</sub>       |                                  |                |                                                               | 11  | 16  |     |      |

¶  $t_{PLH}$  = propagation delay time, low-to-high-level output

$t_{PHL}$  = propagation delay time, high-to-low-level output

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



# SN54LS283, SN74LS283

## 4-BIT BINARY FULL ADDERS WITH FAST CARRY

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### recommended operating conditions

|                                       | SN54LS283 |     |      | SN74LS283 |     |      | 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           |
| Operating free-air temperature, $T_A$ | -55       |     | 125  | 0         |     | 70   | $^{\circ}$ C |

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

| PARAMETER |                                           | TEST CONDITIONS <sup>†</sup>                                                                        | SN54LS283 |                  |      | SN74LS283 |                  |      | UNIT    |
|-----------|-------------------------------------------|-----------------------------------------------------------------------------------------------------|-----------|------------------|------|-----------|------------------|------|---------|
|           |                                           |                                                                                                     | MIN       | TYP <sup>‡</sup> | MAX  | MIN       | TYP <sup>‡</sup> | 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                 | $V_{CC} = \text{MIN}, V_{IH} = 2 \text{ V}, V_{IL} = V_{IL \text{ max}}, I_{OH} = -400 \mu\text{A}$ | 2.5       | 3.4              |      | 2.7       | 3.4              |      | V       |
| $V_{OL}$  | Low-level output voltage                  | $V_{CC} = \text{MIN}, V_{IH} = 2 \text{ V}, I_{OL} = 4 \text{ mA}$                                  | 0.25      | 0.4              |      | 0.25      | 0.4              |      | V       |
|           |                                           | $V_{IL} = V_{IL \text{ max}}, I_{OL} = 8 \text{ mA}$                                                |           |                  |      | 0.35      | 0.5              |      |         |
| $I_I$     | Input current at maximum input voltage    | Any A or B                                                                                          |           | 0.2              |      |           | 0.2              |      | mA      |
|           |                                           | C0                                                                                                  |           | 0.1              |      |           | 0.1              |      |         |
| $I_{IH}$  | High-level input current                  | Any A or B                                                                                          |           | 40               |      |           | 40               |      | $\mu$ A |
|           |                                           | C0                                                                                                  |           | 20               |      |           | 20               |      |         |
| $I_{IL}$  | Low-level input current                   | Any A or B                                                                                          |           | -0.8             |      |           | -0.8             |      | mA      |
|           |                                           | C0                                                                                                  |           | -0.4             |      |           | -0.4             |      |         |
| $I_{OS}$  | Short-circuit output current <sup>§</sup> | $V_{CC} = \text{MAX}$                                                                               | -20       |                  | -100 | -20       |                  | -100 | mA      |
| $I_{CC}$  | Supply current                            | All inputs grounded                                                                                 | 22        | 39               |      | 22        | 39               |      | mA      |
|           |                                           | All B low, other inputs at 4.5 V                                                                    | 19        | 34               |      | 19        | 34               |      |         |
|           |                                           | All inputs at 4.5 V                                                                                 | 19        | 34               |      | 19        | 34               |      |         |

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

<sup>‡</sup> All typical values are at  $V_{CC} = 5 \text{ V}, T_A = 25^{\circ}\text{C}$ .

<sup>§</sup> Only one output should be shorted at a time and duration of the short-circuit should not exceed one second.

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

| PARAMETER <sup>†</sup> | FROM (INPUT)                     | TO (OUTPUT)    | TEST CONDITIONS                       |                        | MIN | TYP | MAX | UNIT |
|------------------------|----------------------------------|----------------|---------------------------------------|------------------------|-----|-----|-----|------|
| t <sub>PLH</sub>       | C0                               | Any Σ          | C <sub>L</sub> = 15 pF,<br>See Note 3 | R <sub>L</sub> = 2 kΩ, | 16  | 24  | ns  |      |
| t <sub>PHL</sub>       |                                  |                |                                       |                        | 15  | 24  |     |      |
| t <sub>PLH</sub>       | A <sub>i</sub> or B <sub>i</sub> | Σ <sub>i</sub> |                                       |                        | 15  | 24  | ns  |      |
| t <sub>PHL</sub>       |                                  |                |                                       |                        | 15  | 24  |     |      |
| t <sub>PLH</sub>       | C0                               | C4             |                                       |                        | 11  | 17  | ns  |      |
| t <sub>PHL</sub>       |                                  |                |                                       |                        | 11  | 22  |     |      |
| t <sub>PLH</sub>       | A <sub>i</sub> or B <sub>i</sub> | C4             |                                       |                        | 11  | 17  | ns  |      |
| t <sub>PHL</sub>       |                                  |                |                                       |                        | 12  | 17  |     |      |

<sup>†</sup>  $t_{PLH}$  = propagation delay time, low-to-high-level output

$t_{PHL}$  = propagation delay time, high-to-low-level output

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



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# SN54S283, SN74S283

## 4-BIT BINARY FULL ADDERS WITH FAST CARRY

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### recommended operating conditions

|                                       |                      | SN54S283 |     |     | SN74S283 |     |      | 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, $I_{OH}$   | Any output except C4 | -1       |     |     | -1       |     |      | mA           |
|                                       | Output C4            | -500     |     |     | -500     |     |      | $\mu$ A      |
| Low-level output current, $I_{OL}$    | Any output except C4 | 20       |     |     | 20       |     |      | mA           |
|                                       | Output C4            | 10       |     |     | 10       |     |      |              |
| Operating free-air temperature, $T_A$ |                      | -55      |     |     | 0        |     |      | $^{\circ}$ 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              | SN54S283                                                                                             | $V_{CC} = \text{MIN}$ , $V_{IH} = 2 \text{ V}$ , | 2.5 | 3.4  |      | V       |
|           |                                        | SN74S283                                                                                             | $V_{IL} = 0.8 \text{ V}$ , $I_{OH} = \text{MAX}$ | 2.7 | 3.4  |      |         |
| $V_{OL}$  | Low-level output voltage               | $V_{CC} = \text{MIN}$ , $V_{IH} = 2 \text{ V}$ ,<br>$V_{IL} = 0.8 \text{ V}$ , $I_{OL} = \text{MAX}$ |                                                  |     |      | 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   | $\mu$ A |
| $I_{IL}$  | Low-level input current                | $V_{CC} = \text{MAX}$ , $V_I = 0.5 \text{ V}$                                                        |                                                  |     |      | -2   | mA      |
| $I_{OS}$  | Short-circuit output current§          | Any output except C4                                                                                 | $V_{CC} = \text{MAX}$                            | -40 |      | -100 | mA      |
|           |                                        | Output C4                                                                                            |                                                  | -20 |      | -100 |         |
| $I_{CC}$  | Supply current                         | $V_{CC} = \text{MAX}$ ,<br>Outputs open                                                              | All B low, other inputs at 4.5 V                 |     | 80   |      | mA      |
|           |                                        |                                                                                                      | All inputs at 4.5 V                              |     | 95   | 160  |         |

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

§ Only one output should be shorted at a time, and duration of the short-circuit should not exceed one second.

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

| PARAMETER† | FROM (INPUT)   | TO (OUTPUT)  | TEST CONDITIONS                                            | MIN | TYP  | MAX | UNIT |
|------------|----------------|--------------|------------------------------------------------------------|-----|------|-----|------|
| $t_{PLH}$  | C0             | Any $\Sigma$ | $C_L = 15 \text{ pF}$ , $R_L = 280 \Omega$ ,<br>See Note 3 |     | 11   | 18  | ns   |
| $t_{PHL}$  |                |              |                                                            |     | 12   | 18  |      |
| $t_{PLH}$  | $A_i$ or $B_i$ | $\Sigma_i$   |                                                            |     | 12   | 18  | ns   |
| $t_{PHL}$  |                |              |                                                            |     | 11.5 | 18  |      |
| $t_{PLH}$  | C0             | C4           | $C_L = 15 \text{ pF}$ , $R_L = 560 \Omega$ ,<br>See Note 3 |     | 6    | 11  | ns   |
| $t_{PHL}$  |                |              |                                                            |     | 7.5  | 11  |      |
| $t_{PLH}$  | $A_i$ or $B_i$ | C4           |                                                            |     | 7.5  | 12  | ns   |
| $t_{PHL}$  |                |              |                                                            |     | 8.5  | 12  |      |

†  $t_{PLH}$  = propagation delay time, low-to-high-level output

$t_{PHL}$  = propagation delay time, high-to-low-level output

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



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**PACKAGING INFORMATION**

| Orderable Device  | Status <sup>(1)</sup> | Package Type | Package Drawing | Pins | Package Qty | Eco Plan <sup>(2)</sup>    | Lead/<br>Ball Finish | MSL Peak Temp <sup>(3)</sup> | Samples<br>(Requires Login) |
|-------------------|-----------------------|--------------|-----------------|------|-------------|----------------------------|----------------------|------------------------------|-----------------------------|
| 5962-7604301VEA   | ACTIVE                | CDIP         | J               | 16   | 25          | TBD                        | A42                  | N / A for Pkg Type           |                             |
| 76043012A         | ACTIVE                | LCCC         | FK              | 20   | 1           | TBD                        | Call TI              | Call TI                      |                             |
| 7604301EA         | ACTIVE                | CDIP         | J               | 16   | 1           | TBD                        | Call TI              | Call TI                      |                             |
| 7604301FA         | ACTIVE                | CFP          | W               | 16   | 1           | TBD                        | Call TI              | Call TI                      |                             |
| JM38510/31202B2A  | ACTIVE                | LCCC         | FK              | 20   | 1           | TBD                        | POST-PLATE           | N / A for Pkg Type           |                             |
| JM38510/31202BEA  | ACTIVE                | CDIP         | J               | 16   | 1           | TBD                        | A42                  | N / A for Pkg Type           |                             |
| JM38510/31202BF A | ACTIVE                | CFP          | W               | 16   | 1           | TBD                        | A42                  | N / A for Pkg Type           |                             |
| M38510/31202B2A   | ACTIVE                | LCCC         | FK              | 20   | 1           | TBD                        | POST-PLATE           | N / A for Pkg Type           |                             |
| M38510/31202BEA   | ACTIVE                | CDIP         | J               | 16   | 1           | TBD                        | A42                  | N / A for Pkg Type           |                             |
| M38510/31202BF A  | ACTIVE                | CFP          | W               | 16   | 1           | TBD                        | A42                  | N / A for Pkg Type           |                             |
| SN54LS283J        | ACTIVE                | CDIP         | J               | 16   | 1           | TBD                        | A42                  | N / A for Pkg Type           |                             |
| SN54S283J         | ACTIVE                | CDIP         | J               | 16   | 1           | TBD                        | A42                  | N / A for Pkg Type           |                             |
| SN74283N          | OBSOLETE              | PDIP         | N               | 16   |             | TBD                        | Call TI              | Call TI                      |                             |
| SN74LS283D        | ACTIVE                | SOIC         | D               | 16   | 40          | Green (RoHS<br>& no Sb/Br) | CU NIPDAU            | Level-1-260C-UNLIM           |                             |
| SN74LS283DE4      | ACTIVE                | SOIC         | D               | 16   | 40          | Green (RoHS<br>& no Sb/Br) | CU NIPDAU            | Level-1-260C-UNLIM           |                             |
| SN74LS283DG4      | ACTIVE                | SOIC         | D               | 16   | 40          | Green (RoHS<br>& no Sb/Br) | CU NIPDAU            | Level-1-260C-UNLIM           |                             |
| SN74LS283N        | ACTIVE                | PDIP         | N               | 16   | 25          | Pb-Free (RoHS)             | CU NIPDAU            | N / A for Pkg Type           |                             |
| SN74LS283N3       | OBSOLETE              | PDIP         | N               | 16   |             | TBD                        | Call TI              | Call TI                      |                             |
| SN74LS283NE4      | ACTIVE                | PDIP         | N               | 16   | 25          | Pb-Free (RoHS)             | CU NIPDAU            | N / A for Pkg Type           |                             |
| SN74LS283NSR      | ACTIVE                | SO           | NS              | 16   | 2000        | Green (RoHS<br>& no Sb/Br) | CU NIPDAU            | Level-1-260C-UNLIM           |                             |
| SN74LS283NSRE4    | ACTIVE                | SO           | NS              | 16   | 2000        | Green (RoHS<br>& no Sb/Br) | CU NIPDAU            | Level-1-260C-UNLIM           |                             |
| SN74LS283NSRG4    | ACTIVE                | SO           | NS              | 16   | 2000        | Green (RoHS<br>& no Sb/Br) | CU NIPDAU            | Level-1-260C-UNLIM           |                             |
| SN74S283D         | OBSOLETE              | SOIC         | D               | 16   |             | TBD                        | Call TI              | Call TI                      |                             |
| SN74S283N         | ACTIVE                | PDIP         | N               | 16   | 25          | Pb-Free (RoHS)             | CU NIPDAU            | N / A for Pkg Type           |                             |
| SN74S283N3        | OBSOLETE              | PDIP         | N               | 16   |             | TBD                        | Call TI              | Call TI                      |                             |

| Orderable Device | Status <sup>(1)</sup> | Package Type | Package Drawing | Pins | Package Qty | Eco Plan <sup>(2)</sup> | Lead/<br>Ball Finish | MSL Peak Temp <sup>(3)</sup> | Samples<br>(Requires Login) |
|------------------|-----------------------|--------------|-----------------|------|-------------|-------------------------|----------------------|------------------------------|-----------------------------|
| SN74S283NE4      | ACTIVE                | PDIP         | N               | 16   | 25          | Pb-Free (RoHS)          | CU NIPDAU            | N / A for Pkg Type           |                             |
| SNJ54LS283FK     | ACTIVE                | LCCC         | FK              | 20   | 1           | TBD                     | POST-PLATE           | N / A for Pkg Type           |                             |
| SNJ54LS283J      | ACTIVE                | CDIP         | J               | 16   | 1           | TBD                     | A42                  | N / A for Pkg Type           |                             |
| SNJ54LS283W      | ACTIVE                | CFP          | W               | 16   | 1           | TBD                     | A42                  | N / A for Pkg Type           |                             |
| SNJ54S283FK      | ACTIVE                | LCCC         | FK              | 20   | 1           | TBD                     | POST-PLATE           | N / A for Pkg Type           |                             |
| SNJ54S283J       | ACTIVE                | CDIP         | J               | 16   | 1           | TBD                     | A42                  | N / A for Pkg Type           |                             |
| SNJ54S283W       | ACTIVE                | CFP          | W               | 16   | 1           | TBD                     | A42                  | N / A for Pkg Type           |                             |

<sup>(1)</sup> The marketing status values are defined as follows:

**ACTIVE:** Product device recommended for new designs.

**LIFEBUY:** TI has announced that the device will be discontinued, and a lifetime-buy period is in effect.

**NRND:** Not recommended for new designs. Device is in production to support existing customers, but TI does not recommend using this part in a new design.

**PREVIEW:** Device has been announced but is not in production. Samples may or may not be available.

**OBSOLETE:** TI has discontinued the production of the device.

<sup>(2)</sup> Eco Plan - The planned eco-friendly classification: Pb-Free (RoHS), Pb-Free (RoHS Exempt), or Green (RoHS & no Sb/Br) - please check <http://www.ti.com/productcontent> for the latest availability information and additional product content details.

**TBD:** The Pb-Free/Green conversion plan has not been defined.

**Pb-Free (RoHS):** TI's terms "Lead-Free" or "Pb-Free" mean semiconductor products that are compatible with the current RoHS requirements for all 6 substances, including the requirement that lead not exceed 0.1% by weight in homogeneous materials. Where designed to be soldered at high temperatures, TI Pb-Free products are suitable for use in specified lead-free processes.

**Pb-Free (RoHS Exempt):** This component has a RoHS exemption for either 1) lead-based flip-chip solder bumps used between the die and package, or 2) lead-based die adhesive used between the die and leadframe. The component is otherwise considered Pb-Free (RoHS compatible) as defined above.

**Green (RoHS & no Sb/Br):** TI defines "Green" to mean Pb-Free (RoHS compatible), and free of Bromine (Br) and Antimony (Sb) based flame retardants (Br or Sb do not exceed 0.1% by weight in homogeneous material)

<sup>(3)</sup> MSL, Peak Temp. -- The Moisture Sensitivity Level rating according to the JEDEC industry standard classifications, and peak solder temperature.

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**OTHER QUALIFIED VERSIONS OF SN54283, SN54LS283, SN54LS283-SP, SN54S283, SN74283, SN74LS283, SN74S283 :**

- Catalog: [SN74283](#), [SN74LS283](#), [SN54LS283](#), [SN74S283](#)

- Military: [SN54283](#), [SN54LS283](#), [SN54S283](#)

- Space: [SN54LS283-SP](#)

NOTE: Qualified Version Definitions:

- Catalog - TI's standard catalog product
- Military - QML certified for Military and Defense Applications
- Space - Radiation tolerant, ceramic packaging and qualified for use in Space-based application

**TAPE AND REEL INFORMATION**
**REEL DIMENSIONS**

**TAPE DIMENSIONS**


|    |                                                           |
|----|-----------------------------------------------------------|
| A0 | Dimension designed to accommodate the component width     |
| B0 | Dimension designed to accommodate the component length    |
| K0 | Dimension designed to accommodate the component thickness |
| W  | Overall width of the carrier tape                         |
| P1 | Pitch between successive cavity centers                   |

**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 |
|--------------|--------------|-----------------|------|------|--------------------|--------------------|---------|---------|---------|---------|--------|---------------|
| SN74LS283NSR | SO           | NS              | 16   | 2000 | 330.0              | 16.4               | 8.2     | 10.5    | 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) |
|--------------|--------------|-----------------|------|------|-------------|------------|-------------|
| SN74LS283NSR | SO           | NS              | 16   | 2000 | 367.0       | 367.0      | 38.0        |

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### Applications

|                               |                                                                                          |
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