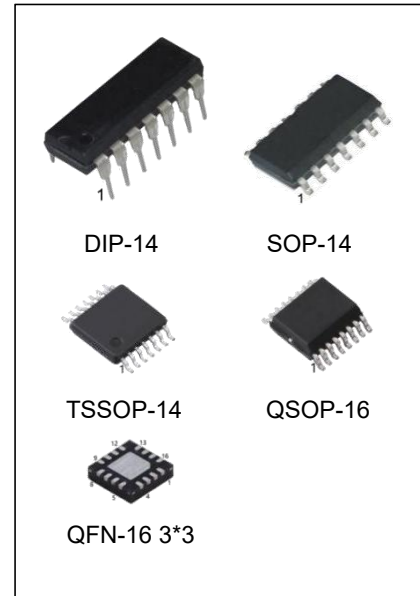


## Quad 2-Input Or Gate

### Features

- Wide operating voltage range  $V_{DD}=3V$  to 18V
- Fully static operation
- 5V-10V-15V parametric ratings
- Standardized symmetrical output characteristics
- Inputs and outputs are protected against electrostatic effects
- Specified from  $-40^{\circ}C$  to  $+85^{\circ}C$



### Ordering Information

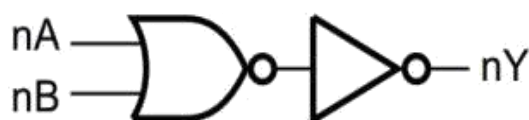
| DEVICE       | Package Type | MARKING | Packing | Packing Qty  |
|--------------|--------------|---------|---------|--------------|
| CD4071DN     | DIP-14       | CD4071D | TUBE    | 1000pcs/box  |
| CD4071DM/TR  | SOP-14       | CD4071D | REEL    | 2500pcs/reel |
| CD4071DMT/TR | TSSOP-14     | CD4071D | REEL    | 2500pcs/reel |
| CD4071DMS/TR | QSOP-16      | CD4071D | REEL    | 2500pcs/reel |
| CD4071DLQ/TR | QFN-16 3*3   | 4071D   | REEL    | 5000pcs/reel |

## Description

The CD4071D is a quad 2-input OR gate, These quad gates are monolithic complementary MOS(CMOS) integrated circuits constructed with N- and P-channel enhancement mode transistors.

They have equal source and sink current capabilities. The devices also have buffered outputs which improve transfer characteristics by providing very high gain. All inputs are buffered.

## Logic Diagram

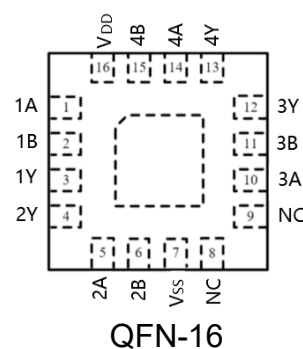
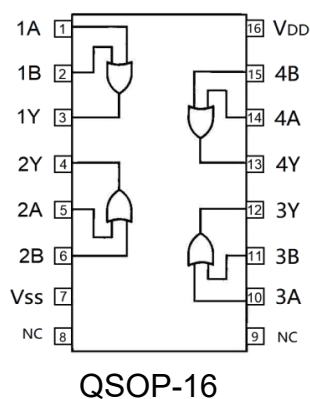
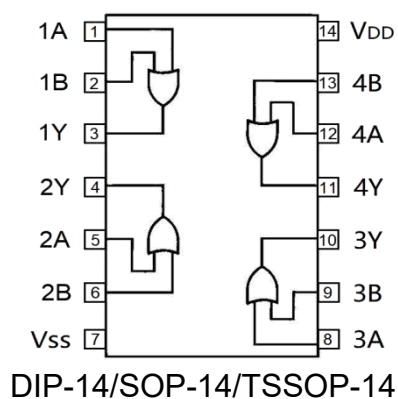


Logic Diagram (one gate)

## Truth Table

| Input |    | Outputs |
|-------|----|---------|
| nA    | nB | Y       |
| 0     | 0  | 0       |
| 0     | 1  | 1       |
| 1     | 0  | 1       |
| 1     | 1  | 1       |

## Connection Diagrams



## Pin Description

| PIN No.       |          | NAME            | I/O | FUNCTION                |
|---------------|----------|-----------------|-----|-------------------------|
| DIP/SOP/TSSOP | QSOP/QFN |                 |     |                         |
| 1             | 1        | 1A              | I   | Data Input              |
| 2             | 2        | 1B              | I   | Data Input              |
| 3             | 3        | 1Y              | O   | Data Output             |
| 4             | 4        | 2Y              | O   | Data Output             |
| 5             | 5        | 2A              | I   | Data Input              |
| 6             | 6        | 2B              | I   | Data Input              |
| 7             | 7        | V <sub>SS</sub> | -   | Ground                  |
| 8             | 10       | 3A              | I   | Data Input              |
| 9             | 11       | 3B              | I   | Data Input              |
| 10            | 12       | 3Y              | O   | Data Output             |
| 11            | 13       | 4Y              | O   | Data Output             |
| 12            | 14       | 4A              | I   | Data Input              |
| 13            | 15       | 4B              | I   | Data Input              |
| 14            | 16       | V <sub>DD</sub> | -   | Positive Supply Voltage |
| -             | 8        | NC              | -   | not connected           |
| -             | 9        | NC              | -   | not connected           |

## Absolute Maximum Ratings

| Symbol          | Parameter                       | MIN  | MAX                  | Unit |
|-----------------|---------------------------------|------|----------------------|------|
| V <sub>DD</sub> | Supply Voltage                  | -0.5 | 20                   | V    |
| V <sub>I</sub>  | DC Input Voltage                | 0.5  | V <sub>CC</sub> +0.5 | V    |
| P <sub>D</sub>  | Power Dissipation               |      | 500                  | mW   |
| T <sub>J</sub>  | Junction Temperature            |      | 125                  | °C   |
| T <sub>OP</sub> | Operating Temperature           | -40  | 85                   | °C   |
| T <sub>L</sub>  | Lead Temperature ( 10 Seconds ) |      | 260                  | °C   |

Absolute maximum ratings are those values beyond which the device could be permanently damaged, These are stress ratings only, which do not imply functional operation of the device at these or any other conditions beyond those indicated under Recommended Operating Conditions.

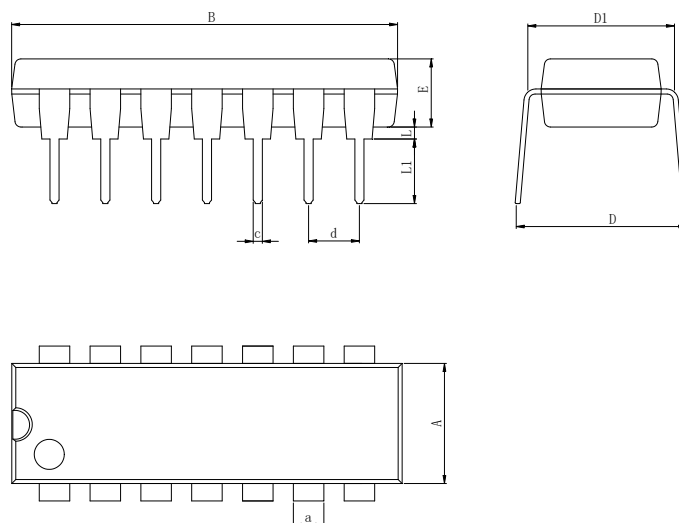
## Electrical Characteristics

(T<sub>a</sub>=25°C, voltages are referenced to VSS (ground=0V), unless otherwise specified)

| Symbol          | Parameter                 | Test Condition |                 |                 | MIN   | TYP  | MAX  | Unit |
|-----------------|---------------------------|----------------|-----------------|-----------------|-------|------|------|------|
|                 |                           | V <sub>O</sub> | V <sub>IN</sub> | V <sub>DD</sub> |       |      |      |      |
| I <sub>DD</sub> | Supply Current            |                | 0,5             | 5               | --    |      | 1    | uA   |
|                 |                           |                | 0,10            | 10              | --    |      | 1    | uA   |
|                 |                           |                | 0,18            | 18              | --    |      | 2    | uA   |
| I <sub>OL</sub> | Low Level Output Current  | 0.4            | 0,5             | 5               | 1     | 2    | --   | mA   |
|                 |                           | 0.5            | 0,10            | 10              | 2     | 5    | --   | mA   |
|                 |                           | 1.5            | 0,15            | 15              | 10    | 20   | --   | mA   |
| I <sub>OH</sub> | High Level Output Current | 4.6            | 0,5             | 5               | -0.5  | -1   | --   | mA   |
|                 |                           | 2.5            | 0,5             | 5               | -2    | -4   | --   | mA   |
|                 |                           | 9.5            | 0,10            | 10              | -1    | -2.2 | --   | mA   |
|                 |                           | 13.5           | 0,15            | 15              | -4    | -8   | --   | mA   |
| V <sub>OL</sub> | Low Level Output Voltage  |                | 0,5             | 5               | --    | 0.0  | 0.05 | V    |
|                 |                           |                | 0,10            | 10              | --    | 0.0  | 0.05 | V    |
|                 |                           |                | 0,15            | 15              | --    | 0.0  | 0.05 | V    |
| V <sub>OH</sub> | High Level Output Voltage |                | 0,5             | 5               | 4.95  | 5    | --   | V    |
|                 |                           |                | 0,10            | 10              | 9.95  | 10   | --   | V    |
|                 |                           |                | 0,15            | 15              | 14.95 | 15   | --   | V    |
| V <sub>IL</sub> | Low Level Output Voltage  | 0.5,4.5        |                 | 5               | --    |      | 1.5  | V    |
|                 |                           | 1,9            |                 | 10              | --    |      | 3    | V    |
|                 |                           | 1.5,13.5       |                 | 15              | --    |      | 4    | V    |
| V <sub>IH</sub> | High Level Output Voltage | 0.5            |                 | 5               | 3.5   |      | --   | V    |
|                 |                           | 1              |                 | 10              | 7     |      | --   | V    |
|                 |                           | 1.5            |                 | 15              | 11    |      | --   | V    |
| I <sub>I</sub>  | Input Leakage Current     |                | 0,18            | 18              | --    |      | ±1   | uA   |

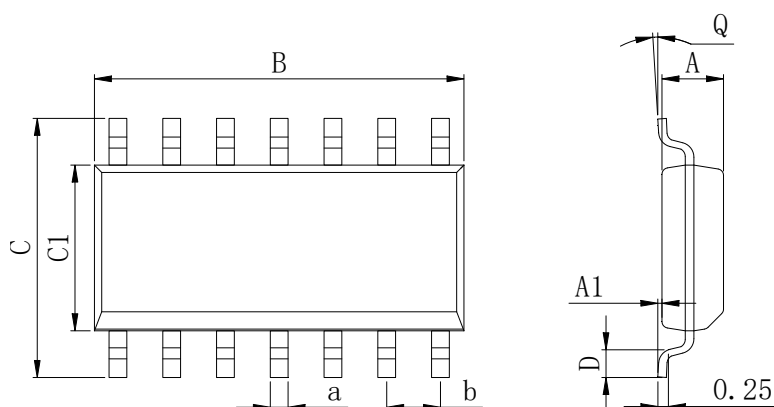
## Physical Dimensions

### DIP-14



| Dimensions In Millimeters(DIP-14) |      |       |      |      |      |      |      |      |      |          |
|-----------------------------------|------|-------|------|------|------|------|------|------|------|----------|
| Symbol:                           | A    | B     | D    | D1   | E    | L    | L1   | a    | c    | d        |
| Min:                              | 6.10 | 18.94 | 8.10 | 7.42 | 3.10 | 0.50 | 3.00 | 1.50 | 0.40 | 2.54 BSC |
| Max:                              | 6.68 | 19.56 | 10.9 | 7.82 | 3.55 | 0.70 | 3.60 | 1.55 | 0.50 |          |

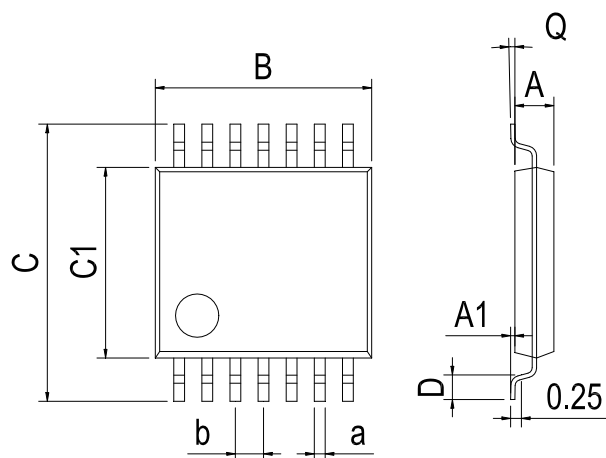
### SOP-14



| Dimensions In Millimeters(SOP-14) |      |      |      |      |      |      |    |      |          |
|-----------------------------------|------|------|------|------|------|------|----|------|----------|
| Symbol:                           | A    | A1   | B    | C    | C1   | D    | Q  | a    | b        |
| Min:                              | 1.35 | 0.05 | 8.55 | 5.80 | 3.80 | 0.40 | 0° | 0.35 | 1.27 BSC |
| Max:                              | 1.55 | 0.20 | 8.75 | 6.20 | 4.00 | 0.80 | 8° | 0.45 |          |

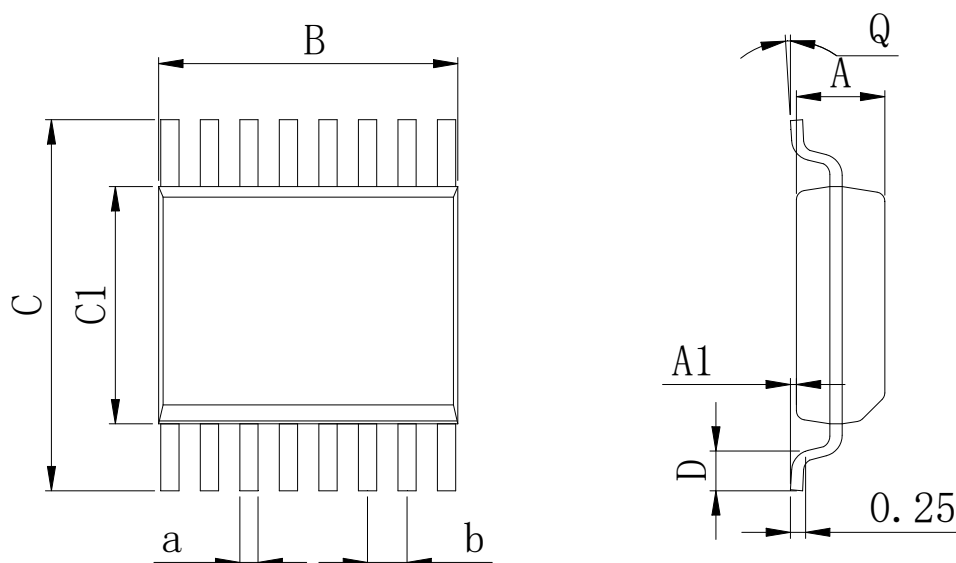
## Physical Dimensions

### TSSOP-14



| Dimensions In Millimeters(TSSOP-14) |      |      |      |      |      |      |    |      |          |
|-------------------------------------|------|------|------|------|------|------|----|------|----------|
| Symbol:                             | A    | A1   | B    | C    | C1   | D    | Q  | a    | b        |
| Min:                                | 0.85 | 0.05 | 4.90 | 6.20 | 4.30 | 0.40 | 0° | 0.20 | 0.65 BSC |
| Max:                                | 0.95 | 0.20 | 5.10 | 6.60 | 4.50 | 0.80 | 8° | 0.25 |          |

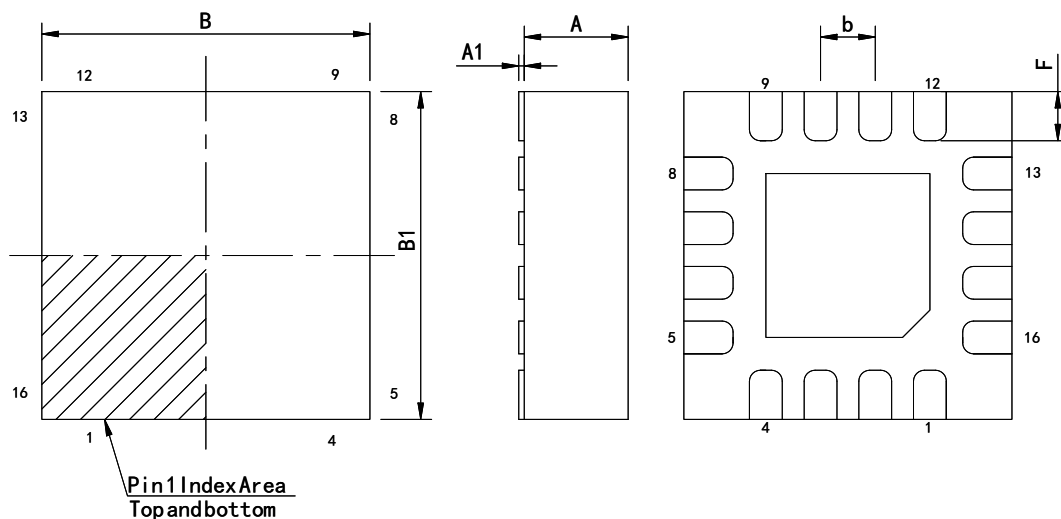
### QSOP-16



| Dimensions In Millimeters(QSOP-16) |      |      |      |      |      |      |    |      |           |
|------------------------------------|------|------|------|------|------|------|----|------|-----------|
| Symbol:                            | A    | A1   | B    | C    | C1   | D    | Q  | a    | b         |
| Min:                               | 1.35 | 0.05 | 4.80 | 5.80 | 3.80 | 0.40 | 0° | 0.20 | 0.635 BSC |
| Max:                               | 1.55 | 0.20 | 5.10 | 6.20 | 4.00 | 0.80 | 8° | 0.25 |           |

## Physical Dimensions

QFN-16 3\*3



| Dimensions In Millimeters(QFN-16 3*3) |      |      |      |      |      |      |      |         |
|---------------------------------------|------|------|------|------|------|------|------|---------|
| Symbol:                               | A    | A1   | B    | B1   | E    | F    | a    | b       |
| Min:                                  | 0.85 | 0    | 2.90 | 2.90 | 0.15 | 0.25 | 0.18 | 0.50TYP |
| Max:                                  | 0.95 | 0.05 | 3.10 | 3.10 | 0.25 | 0.45 | 0.30 |         |

## Revision History

| REVISION<br>NUMBER | DATE    | REVISION              | PAGE |
|--------------------|---------|-----------------------|------|
| V1.0               | 2019-11 | New                   | 1-9  |
| V1.1               | 2025-8  | Document Reformatting | 1-9  |

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