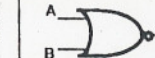
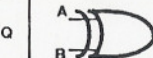
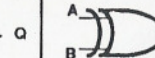
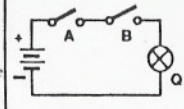
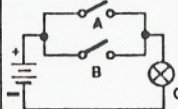
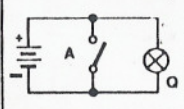
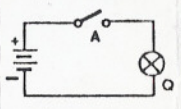
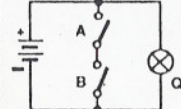
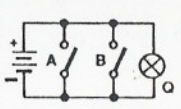
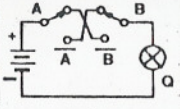
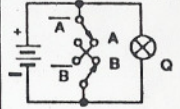
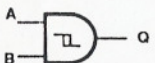
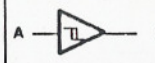
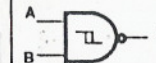
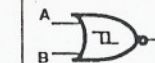
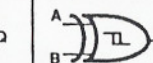
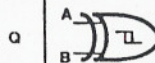
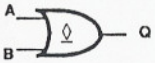
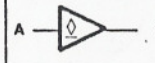
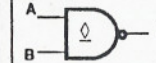
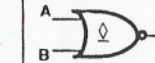
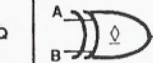
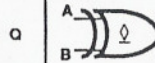
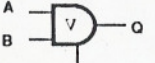
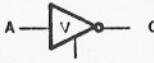
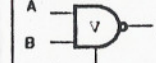
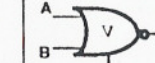
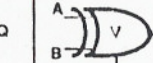
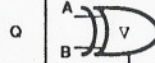
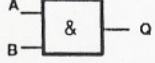
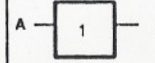
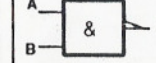
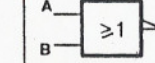
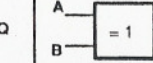
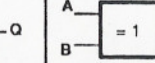


# RESUMEN DE COMPUERTAS DIGITALES

La siguiente tabla resume los símbolos lógicos, las ecuaciones lógicas, las tablas de verdad y los circuitos eléctricos equivalentes de las compuertas AND, OR, NOT, YES, NAND, NOR, XOR y XNOR. También se incluyen los símbolos de las compuertas especiales tipos Schmitt-trigger, colector abierto y tri-state así como la simbología ANSI/IEEE, de gran aceptación.

|                                | AND                                                                                                                                                                                                                | OR                                                                                  | NOT                                                                                 | YES                                                                                 | NAND                                                                                 | NOR                                                                                   | XOR                                                                                   | XNOR                                                                                  |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                        |   |   |   |   |   |   |                                                                                                        |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|--------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---|---|---|---|---|---|---|---|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|--------------------------------------------------------------------------------------------------------|---|---|---|---|---|---|--------------------------------------------------------------------------------------------------------|---|---|---|---|---|---|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Símbolo lógico                 |                                                                                                                                   |    |    |    |    |    |    |    |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                        |   |   |   |   |   |   |                                                                                                        |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Ecuación lógica                | $Q = A \cdot B = AB$                                                                                                                                                                                               | $Q = A + B$                                                                         | $Q = \overline{A}$                                                                  | $Q = A$                                                                             | $Q = \overline{A \cdot B}$                                                           | $Q = \overline{A + B}$                                                                | $Q = A \oplus B$                                                                      | $Q = \overline{A \oplus B}$                                                           |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                        |   |   |   |   |   |   |                                                                                                        |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Tabla de verdad                | <table><tr><th>A</th><th>B</th><th>Q</th></tr><tr><td>0</td><td>0</td><td>0</td></tr><tr><td>0</td><td>1</td><td>0</td></tr><tr><td>1</td><td>0</td><td>0</td></tr><tr><td>1</td><td>1</td><td>1</td></tr></table> | A                                                                                   | B                                                                                   | Q                                                                                   | 0                                                                                    | 0                                                                                     | 0                                                                                     | 0                                                                                     | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | <table><tr><th>A</th><th>B</th><th>Q</th></tr><tr><td>0</td><td>0</td><td>0</td></tr><tr><td>0</td><td>1</td><td>1</td></tr><tr><td>1</td><td>0</td><td>1</td></tr><tr><td>1</td><td>1</td><td>1</td></tr></table> | A | B | Q | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | <table><tr><th>A</th><th>Q</th></tr><tr><td>0</td><td>1</td></tr><tr><td>1</td><td>0</td></tr></table> | A | Q | 0 | 1 | 1 | 0 | <table><tr><th>A</th><th>Q</th></tr><tr><td>0</td><td>0</td></tr><tr><td>1</td><td>1</td></tr></table> | A | Q | 0 | 0 | 1 | 1 | <table><tr><th>A</th><th>B</th><th>Q</th></tr><tr><td>0</td><td>0</td><td>1</td></tr><tr><td>0</td><td>1</td><td>1</td></tr><tr><td>1</td><td>0</td><td>1</td></tr><tr><td>1</td><td>1</td><td>0</td></tr></table> | A | B | Q | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 0 | <table><tr><th>A</th><th>B</th><th>Q</th></tr><tr><td>0</td><td>0</td><td>1</td></tr><tr><td>0</td><td>1</td><td>0</td></tr><tr><td>1</td><td>0</td><td>0</td></tr><tr><td>1</td><td>1</td><td>0</td></tr></table> | A | B | Q | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | <table><tr><th>A</th><th>B</th><th>Q</th></tr><tr><td>0</td><td>0</td><td>0</td></tr><tr><td>0</td><td>1</td><td>1</td></tr><tr><td>1</td><td>0</td><td>1</td></tr><tr><td>1</td><td>1</td><td>0</td></tr></table> | A | B | Q | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 0 | <table><tr><th>A</th><th>B</th><th>Q</th></tr><tr><td>0</td><td>0</td><td>1</td></tr><tr><td>0</td><td>1</td><td>0</td></tr><tr><td>1</td><td>0</td><td>0</td></tr><tr><td>1</td><td>1</td><td>1</td></tr></table> | A | B | Q | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 1 |
| A                              | B                                                                                                                                                                                                                  | Q                                                                                   |                                                                                     |                                                                                     |                                                                                      |                                                                                       |                                                                                       |                                                                                       |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                        |   |   |   |   |   |   |                                                                                                        |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 0                              | 0                                                                                                                                                                                                                  | 0                                                                                   |                                                                                     |                                                                                     |                                                                                      |                                                                                       |                                                                                       |                                                                                       |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                        |   |   |   |   |   |   |                                                                                                        |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 0                              | 1                                                                                                                                                                                                                  | 0                                                                                   |                                                                                     |                                                                                     |                                                                                      |                                                                                       |                                                                                       |                                                                                       |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                        |   |   |   |   |   |   |                                                                                                        |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 1                              | 0                                                                                                                                                                                                                  | 0                                                                                   |                                                                                     |                                                                                     |                                                                                      |                                                                                       |                                                                                       |                                                                                       |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                        |   |   |   |   |   |   |                                                                                                        |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 1                              | 1                                                                                                                                                                                                                  | 1                                                                                   |                                                                                     |                                                                                     |                                                                                      |                                                                                       |                                                                                       |                                                                                       |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                        |   |   |   |   |   |   |                                                                                                        |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| A                              | B                                                                                                                                                                                                                  | Q                                                                                   |                                                                                     |                                                                                     |                                                                                      |                                                                                       |                                                                                       |                                                                                       |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                        |   |   |   |   |   |   |                                                                                                        |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 0                              | 0                                                                                                                                                                                                                  | 0                                                                                   |                                                                                     |                                                                                     |                                                                                      |                                                                                       |                                                                                       |                                                                                       |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                        |   |   |   |   |   |   |                                                                                                        |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 0                              | 1                                                                                                                                                                                                                  | 1                                                                                   |                                                                                     |                                                                                     |                                                                                      |                                                                                       |                                                                                       |                                                                                       |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                        |   |   |   |   |   |   |                                                                                                        |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 1                              | 0                                                                                                                                                                                                                  | 1                                                                                   |                                                                                     |                                                                                     |                                                                                      |                                                                                       |                                                                                       |                                                                                       |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                        |   |   |   |   |   |   |                                                                                                        |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 1                              | 1                                                                                                                                                                                                                  | 1                                                                                   |                                                                                     |                                                                                     |                                                                                      |                                                                                       |                                                                                       |                                                                                       |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                        |   |   |   |   |   |   |                                                                                                        |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| A                              | Q                                                                                                                                                                                                                  |                                                                                     |                                                                                     |                                                                                     |                                                                                      |                                                                                       |                                                                                       |                                                                                       |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                        |   |   |   |   |   |   |                                                                                                        |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 0                              | 1                                                                                                                                                                                                                  |                                                                                     |                                                                                     |                                                                                     |                                                                                      |                                                                                       |                                                                                       |                                                                                       |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                        |   |   |   |   |   |   |                                                                                                        |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 1                              | 0                                                                                                                                                                                                                  |                                                                                     |                                                                                     |                                                                                     |                                                                                      |                                                                                       |                                                                                       |                                                                                       |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                        |   |   |   |   |   |   |                                                                                                        |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| A                              | Q                                                                                                                                                                                                                  |                                                                                     |                                                                                     |                                                                                     |                                                                                      |                                                                                       |                                                                                       |                                                                                       |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                        |   |   |   |   |   |   |                                                                                                        |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 0                              | 0                                                                                                                                                                                                                  |                                                                                     |                                                                                     |                                                                                     |                                                                                      |                                                                                       |                                                                                       |                                                                                       |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                        |   |   |   |   |   |   |                                                                                                        |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 1                              | 1                                                                                                                                                                                                                  |                                                                                     |                                                                                     |                                                                                     |                                                                                      |                                                                                       |                                                                                       |                                                                                       |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                        |   |   |   |   |   |   |                                                                                                        |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| A                              | B                                                                                                                                                                                                                  | Q                                                                                   |                                                                                     |                                                                                     |                                                                                      |                                                                                       |                                                                                       |                                                                                       |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                        |   |   |   |   |   |   |                                                                                                        |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 0                              | 0                                                                                                                                                                                                                  | 1                                                                                   |                                                                                     |                                                                                     |                                                                                      |                                                                                       |                                                                                       |                                                                                       |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                        |   |   |   |   |   |   |                                                                                                        |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 0                              | 1                                                                                                                                                                                                                  | 1                                                                                   |                                                                                     |                                                                                     |                                                                                      |                                                                                       |                                                                                       |                                                                                       |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                        |   |   |   |   |   |   |                                                                                                        |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 1                              | 0                                                                                                                                                                                                                  | 1                                                                                   |                                                                                     |                                                                                     |                                                                                      |                                                                                       |                                                                                       |                                                                                       |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                        |   |   |   |   |   |   |                                                                                                        |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 1                              | 1                                                                                                                                                                                                                  | 0                                                                                   |                                                                                     |                                                                                     |                                                                                      |                                                                                       |                                                                                       |                                                                                       |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                        |   |   |   |   |   |   |                                                                                                        |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| A                              | B                                                                                                                                                                                                                  | Q                                                                                   |                                                                                     |                                                                                     |                                                                                      |                                                                                       |                                                                                       |                                                                                       |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                        |   |   |   |   |   |   |                                                                                                        |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 0                              | 0                                                                                                                                                                                                                  | 1                                                                                   |                                                                                     |                                                                                     |                                                                                      |                                                                                       |                                                                                       |                                                                                       |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                        |   |   |   |   |   |   |                                                                                                        |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 0                              | 1                                                                                                                                                                                                                  | 0                                                                                   |                                                                                     |                                                                                     |                                                                                      |                                                                                       |                                                                                       |                                                                                       |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                        |   |   |   |   |   |   |                                                                                                        |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 1                              | 0                                                                                                                                                                                                                  | 0                                                                                   |                                                                                     |                                                                                     |                                                                                      |                                                                                       |                                                                                       |                                                                                       |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                        |   |   |   |   |   |   |                                                                                                        |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 1                              | 1                                                                                                                                                                                                                  | 0                                                                                   |                                                                                     |                                                                                     |                                                                                      |                                                                                       |                                                                                       |                                                                                       |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                        |   |   |   |   |   |   |                                                                                                        |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| A                              | B                                                                                                                                                                                                                  | Q                                                                                   |                                                                                     |                                                                                     |                                                                                      |                                                                                       |                                                                                       |                                                                                       |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                        |   |   |   |   |   |   |                                                                                                        |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 0                              | 0                                                                                                                                                                                                                  | 0                                                                                   |                                                                                     |                                                                                     |                                                                                      |                                                                                       |                                                                                       |                                                                                       |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                        |   |   |   |   |   |   |                                                                                                        |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 0                              | 1                                                                                                                                                                                                                  | 1                                                                                   |                                                                                     |                                                                                     |                                                                                      |                                                                                       |                                                                                       |                                                                                       |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                        |   |   |   |   |   |   |                                                                                                        |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 1                              | 0                                                                                                                                                                                                                  | 1                                                                                   |                                                                                     |                                                                                     |                                                                                      |                                                                                       |                                                                                       |                                                                                       |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                        |   |   |   |   |   |   |                                                                                                        |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 1                              | 1                                                                                                                                                                                                                  | 0                                                                                   |                                                                                     |                                                                                     |                                                                                      |                                                                                       |                                                                                       |                                                                                       |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                        |   |   |   |   |   |   |                                                                                                        |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| A                              | B                                                                                                                                                                                                                  | Q                                                                                   |                                                                                     |                                                                                     |                                                                                      |                                                                                       |                                                                                       |                                                                                       |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                        |   |   |   |   |   |   |                                                                                                        |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 0                              | 0                                                                                                                                                                                                                  | 1                                                                                   |                                                                                     |                                                                                     |                                                                                      |                                                                                       |                                                                                       |                                                                                       |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                        |   |   |   |   |   |   |                                                                                                        |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 0                              | 1                                                                                                                                                                                                                  | 0                                                                                   |                                                                                     |                                                                                     |                                                                                      |                                                                                       |                                                                                       |                                                                                       |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                        |   |   |   |   |   |   |                                                                                                        |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 1                              | 0                                                                                                                                                                                                                  | 0                                                                                   |                                                                                     |                                                                                     |                                                                                      |                                                                                       |                                                                                       |                                                                                       |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                        |   |   |   |   |   |   |                                                                                                        |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 1                              | 1                                                                                                                                                                                                                  | 1                                                                                   |                                                                                     |                                                                                     |                                                                                      |                                                                                       |                                                                                       |                                                                                       |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                        |   |   |   |   |   |   |                                                                                                        |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Circuito eléctrico equivalente |                                                                                                                                   |    |    |    |    |    |    |    |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                        |   |   |   |   |   |   |                                                                                                        |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| SIMBOLOS ESPECIALES            |                                                                                                                                                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                      |                                                                                       |                                                                                       |                                                                                       |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                        |   |   |   |   |   |   |                                                                                                        |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Schmitt trigger                |                                                                                                                                   |    |    |    |    |    |    |    |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                        |   |   |   |   |   |   |                                                                                                        |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Colector abierto               |                                                                                                                                 |  |  |  |  |  |  |  |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                        |   |   |   |   |   |   |                                                                                                        |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Tri-state                      |                                                                                                                                 |  |  |  |  |  |  |  |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                        |   |   |   |   |   |   |                                                                                                        |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| ANSI/IEEE (*)                  |                                                                                                                                 |  |  |  |  |  |  |  |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                        |   |   |   |   |   |   |                                                                                                        |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |

(\*): Simbología del ANSI o Instituto Nacional de Estándares Americanos (American National Standards Institute) y el IEEE o Instituto de Ingenieros Eléctricos y Electrónicos (Institute of Electrical and Electronics Engineers).