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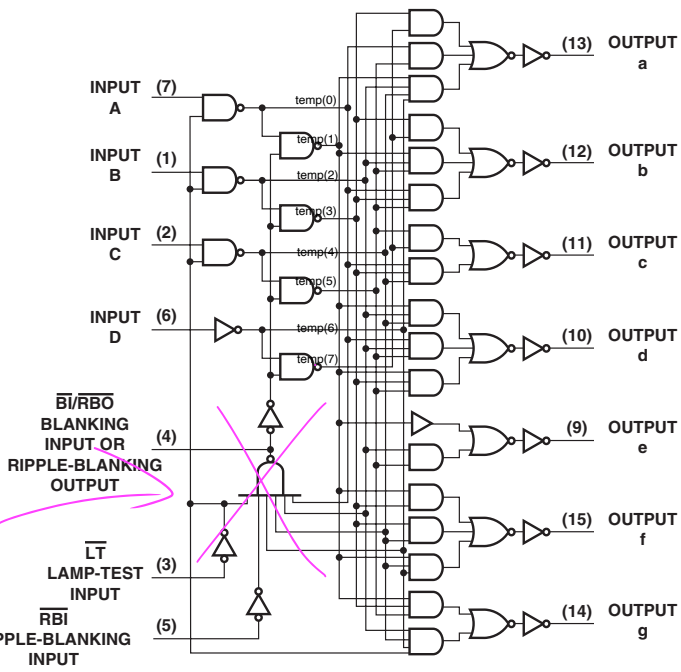
## BCD-TO-SEVEN-SEGMENT DECODERS/DRIVERS

- Open-Collector Outputs
- Lamp-Test Provision
- Leading/Trailing Zero Suppression

**Logic Diagram**






: OBSOLETED or NOT RECOMMENDED FOR NEW DESIGNS

## FUNCTION TABLE

| No. | INPUTS | | | | | | BI/RBO† | OUTPUTS | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | LT | RBI | D | C | B | A | | a | b | c | d | e | f | g |
| 0 | H | H | L | L | L | L | H | ON | ON | ON | ON | ON | ON | OFF |
| 1 | H | X | L | L | L | H | H | OFF | ON | ON | OFF | OFF | OFF | OFF |
| 2 | H | X | L | L | H | L | H | ON | ON | OFF | ON | ON | OFF | ON |
| 3 | H | X | L | L | H | H | H | ON | ON | ON | ON | OFF | OFF | ON |
| 4 | H | X | L | H | L | L | H | OFF | ON | ON | OFF | OFF | ON | ON |
| 5 | H | X | L | H | L | H | H | ON | OFF | ON | ON | OFF | ON | ON |
| 6 | H | X | L | H | H | L | H | OFF | OFF | ON | ON | ON | ON | ON |
| 7 | H | X | L | H | H | H | H | ON | ON | ON | OFF | OFF | OFF | OFF |
| 8 | H | X | H | L | L | L | H | ON | ON | ON | ON | ON | ON | ON |
| 9 | H | X | H | L | L | H | H | ON | ON | ON | OFF | OFF | ON | ON |
| 10 | H | X | H | L | H | L | H | OFF | OFF | OFF | ON | ON | OFF | ON |
| 11 | H | X | H | L | H | H | H | OFF | OFF | ON | ON | OFF | OFF | ON |
| 12 | H | X | H | H | L | L | H | OFF | ON | OFF | OFF | OFF | ON | ON |
| 13 | H | X | H | H | L | H | H | ON | OFF | OFF | ON | OFF | ON | ON |
| 14 | H | X | H | H | H | L | H | OFF | OFF | OFF | ON | ON | ON | ON |
| 15 | H | X | H | H | H | H | H | OFF | OFF | OFF | OFF | OFF | OFF | OFF |
| BI | X | X | X | X | X | X | L | OFF | OFF | OFF | OFF | OFF | OFF | OFF |
| RBI | H | L | L | L | L | L | L | OFF | OFF | OFF | OFF | OFF | OFF | OFF |
| LT | L | X | X | X | X | X | H | ON | ON | ON | ON | ON | ON | ON |

H = high level, L = low level, irrelevant

NOTES:
1. The blanking input (BI) must be open held at high logic level when output functions 0 through 15 are desired. The ripple-blanking input (RBI) must be open or high it blanking of a decimal zero is not desired.
2. When a low logic level is applied directly to the blanking input (BI), all segment outputs are off regardless of the level of any other input.
3. When ripple-blanking input (RBI) and inputs A, B, C, and D are at a low level with the lamp test input high, all segment outputs go off and the ripple-blanking input/ripple blanking output (BI/RBI) is open or held high and a low is applied to the lamp-test input, all segment outputs are on.

† BI/RBO is wire AND logic serving as blanking input (BI) and/or ripple-blanking output (RBI).

### ELECTRICAL CHARACTERISTICS AND RECOMMENDED OPERATING CONDITIONS

| PARAMETER | MAX or MIN | TTL | LS | UNIT |
|---|---|---|---|---|
| $I_{CC}$ | MAX | 103 | 13 | mA |
| $I_{OH}$ | MAX | -0.2 | -0.05 | mA |
| $I_{OL}$ | MAX | 8 | 3.2 | mA |

### TIMING REQUIREMENTS AND SWITCHING CHARACTERISTICS

| PARAMETER | INPUT | OUTPUT | MAX or MIN | TTL | LS |
|---|---|---|---|---|---|
| $t_{off}$ | A | A to g | MAX | 100 | 100 |
| $t_{on}$ | A | A to g | MAX | 100 | 100 |
| $t_{off}$ | RBI | A to g | MAX | 100 | 100 |
| $t_{on}$ | RBI | A to g | MAX | 100 | 100 |

UNIT: ns