

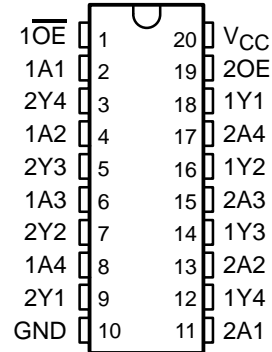
- BiCMOS Design Significantly Reduces I_{CCZ}
- ESD Protection Exceeds 2000 V Per MIL-STD-883C, Method 3015; Exceeds 200 V Using Machine Model (C = 200 pF, R = 0)
- Open-Collector Outputs Drive Bus Lines or Buffer Memory Address Registers
- Package Options Include Plastic Small-Outline (DW) Packages and Standard Plastic 300-mil DIPs (N)

description

This octal buffer and line driver is designed specifically to improve both the performance and density of 3-state memory address drivers, clock drivers, and bus-oriented receivers and transmitters. This device provides complementary output-enable (OE and \overline{OE}) inputs and noninverting outputs.

The SN74BCT757 is characterized for operation from 0°C to 70°C.

**DW OR N PACKAGE
(TOP VIEW)**



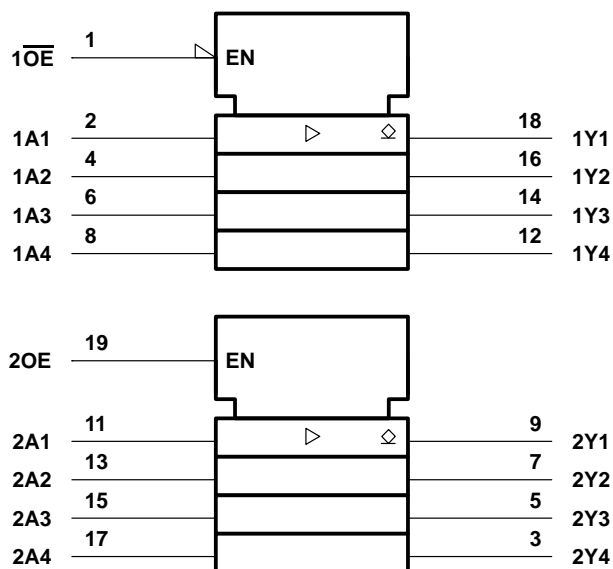
FUNCTION TABLES

| INPUTS | | OUTPUT |
|------------------|----|--------|
| $\overline{1OE}$ | 1A | 1Y |
| H | X | H |
| L | L | L |
| L | H | H |

| INPUTS | | OUTPUT |
|--------|----|--------|
| 2OE | 2A | 2Y |
| L | X | H |
| H | L | L |
| H | H | H |

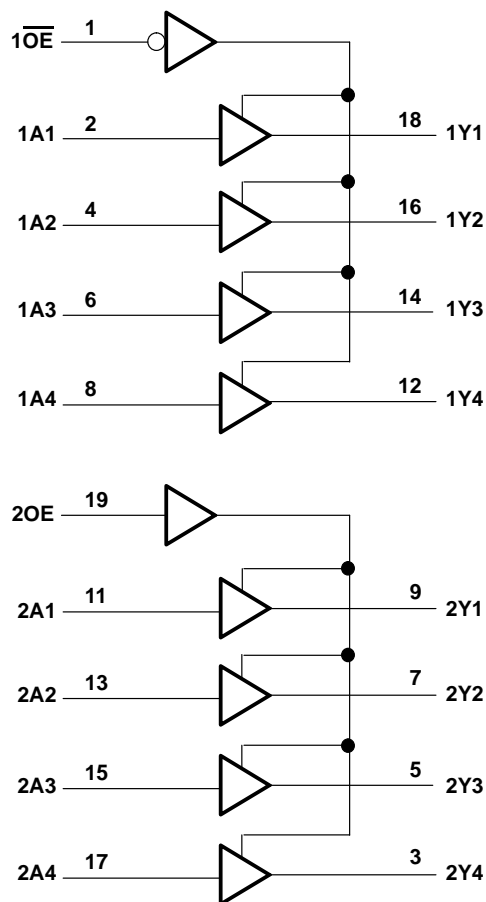
SN74BCT757
OCTAL BUFFER/DRIVER
WITH OPEN-COLLECTOR OUTPUTS
 SCBS041D – NOVEMBER 1989 – REVISED NOVEMBER 1993

logic symbol†



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

logic diagram (positive logic)



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

| | |
|---|--------------------|
| Supply voltage range, V_{CC} | –0.5 V to 7 V |
| Input voltage range, V_I | –0.5 V to 7 V |
| Input current range, I_I | –30 mA to 5 mA |
| Voltage range applied to any output in the disabled or power-off state, V_O | –0.5 V to 5.5 V |
| Voltage range applied to any output in the high state, V_O | –0.5 V to V_{CC} |
| Current into any output in the low state, I_O | 128 mA |
| Operating free-air temperature range | 0°C to 70°C |
| Storage temperature range | –65°C to 150°C |

‡ Stresses beyond those listed under “absolute maximum ratings” may cause permanent damage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated under “recommended operating conditions” is not implied. Exposure to absolute-maximum-rated conditions for extended periods may affect device reliability.

recommended operating conditions (see Note 1)

| | MIN | NOM | MAX | UNIT |
|--------------------------------------|-----|-----|-----|------|
| V_{CC} Supply voltage | 4.5 | 5 | 5.5 | V |
| V_{IH} High-level input voltage | 2 | | | V |
| V_{IL} Low-level input voltage | | | 0.8 | V |
| V_{OH} High-level output voltage | | | 5.5 | V |
| I_{IK} Input clamp current | | | -18 | mA |
| I_{OL} Low-level output current | | | 64 | mA |
| T_A Operating free-air temperature | 0 | | 70 | °C |

NOTE 1: Unused or floating inputs must be held high or low.

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

| PARAMETER | TEST CONDITIONS | | MIN | TYP† | MAX | UNIT |
|-----------|---------------------------|--|---------------------------------|------|------|------|
| V_{IK} | $V_{CC} = 4.5\text{ V}$, | $I_I = -18\text{ mA}$ | | | -1.2 | V |
| V_{OL} | $V_{CC} = 4.5\text{ V}$, | $I_{OL} = 64\text{ mA}$ | 0.42 | | 0.55 | V |
| I_I | $V_{CC} = 5.5\text{ V}$, | $V_I = 7\text{ V}$ | | | 0.1 | mA |
| I_{IH} | $V_{CC} = 5.5\text{ V}$, | $V_I = 2.7\text{ V}$ | | | 20 | μA |
| I_{IL} | $V_{CC} = 5.5\text{ V}$, | $V_I = 0.5\text{ V}$ | | | -1 | mA |
| I_{OH} | $V_{CC} = 4.5\text{ V}$, | $V_{OH} = 5.5\text{ V}$ | | | 0.1 | mA |
| I_{CC} | $V_{CC} = 5.5\text{ V}$, | Outputs open | Outputs high | | 34 | mA |
| | | | Outputs low | | 77 | |
| | | | OE and \overline{OE} inactive | | 10 | |
| C_i | $V_{CC} = 5\text{ V}$, | $V_I = 2.5\text{ V}$ or 0.5 V | | 6 | | pF |
| C_o | $V_{CC} = 5\text{ V}$, | $V_O = 2.5\text{ V}$ or 0.5 V | | 4 | | pF |

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

switching characteristics over recommended ranges of supply voltage and operating free-air temperature, $C_L = 50\text{ pF}$ (unless otherwise noted) (see Note 2)

| PARAMETER | FROM (INPUT) | TO (OUTPUT) | $V_{CC} = 5\text{ V}$, $T_A = 25^\circ\text{C}$ | | | MIN | MAX | UNIT |
|-----------|------------------|-------------|---|------|------|------|------|------|
| | | | MIN | TYP | MAX | | | |
| t_{PLH} | A | Y | 6.9 | 8.3 | 9.6 | 6.6 | 10.1 | ns |
| t_{PHL} | | | 2.4 | 4.2 | 6 | 2 | 6.6 | |
| t_{PLH} | 2OE | Y | 11 | 14.8 | 17.9 | 10.8 | 19.7 | ns |
| t_{PHL} | | | 2.9 | 4.6 | 6.2 | 2.6 | 6.9 | |
| t_{PLH} | $\overline{1OE}$ | Y | 11.4 | 13.9 | 16.1 | 10 | 18 | ns |
| t_{PHL} | | | 4.4 | 6.1 | 7.8 | 4 | 8.5 | |

NOTE 2: Load circuits and voltage waveforms are shown in Section 1.

IMPORTANT NOTICE

Texas Instruments (TI) reserves the right to make changes to its products or to discontinue any semiconductor product or service without notice, and advises its customers to obtain the latest version of relevant information to verify, before placing orders, that the information being relied on is current.

TI warrants performance of its semiconductor products and related software to the specifications applicable at the time of sale in accordance with TI's standard warranty. Testing and other quality control techniques are utilized to the extent TI deems necessary to support this warranty. Specific testing of all parameters of each device is not necessarily performed, except those mandated by government requirements.

Certain applications using semiconductor products may involve potential risks of death, personal injury, or severe property or environmental damage ("Critical Applications").

TI SEMICONDUCTOR PRODUCTS ARE NOT DESIGNED, INTENDED, AUTHORIZED, OR WARRANTED TO BE SUITABLE FOR USE IN LIFE-SUPPORT APPLICATIONS, DEVICES OR SYSTEMS OR OTHER CRITICAL APPLICATIONS.

Inclusion of TI products in such applications is understood to be fully at the risk of the customer. Use of TI products in such applications requires the written approval of an appropriate TI officer. Questions concerning potential risk applications should be directed to TI through a local SC sales office.

In order to minimize risks associated with the customer's applications, adequate design and operating safeguards should be provided by the customer to minimize inherent or procedural hazards.

TI assumes no liability for applications assistance, customer product design, software performance, or infringement of patents or services described herein. Nor does TI warrant or represent that any license, either express or implied, is granted under any patent right, copyright, mask work right, or other intellectual property right of TI covering or relating to any combination, machine, or process in which such semiconductor products or services might be or are used.