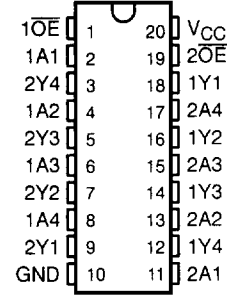


SN54BCT244, SN74BCT244 OCTAL BUFFERS/DRIVERS WITH 3-STATE OUTPUTS

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- State-of-the-Art BICMOS Design Significantly Reduces I_{CCZ}
- P-N-P Inputs Reduce DC Loading
- ESD Protection Exceeds 2000 V Per MIL-STD-883C, Method 3015
- 3-State Outputs Drive Bus Lines or Buffer Memory Address Registers
- Package Options Include Plastic Small-Outline (DW) and Shrink Small-Outline (DB) Packages, Ceramic Chip Carriers (FK) and Flatpacks (W), and Standard Plastic and Ceramic 300-mil DIPs (J, N)

SN54BCT244 . . . J OR W PACKAGE
SN74BCT244 . . . DB OR DW OR N PACKAGE
(TOP VIEW)



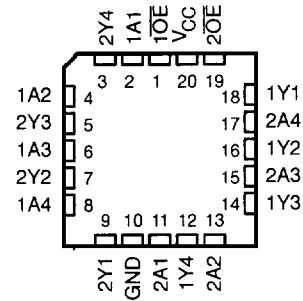
description

These octal buffers and line drivers are designed specifically to improve both the performance and density of 3-state memory address drivers, clock drivers, and bus-oriented receivers and transmitters. Taken together with the 'BCT240 and 'BCT241, these devices provide the choice of selected combinations of inverting and noninverting outputs, symmetrical \overline{OE} (active-low output-enable) inputs, and complementary OE and \overline{OE} inputs.

The 'BCT244 is organized as two 4-bit buffers/line drivers with separate output-enable (\overline{OE}) inputs. When \overline{OE} is low, the device passes data from the A inputs to the Y outputs. When \overline{OE} is high, the outputs are in the high-impedance state.

The SN54BCT244 is characterized for operation over the full military temperature range of -55°C to 125°C . The SN74BCT244 is characterized for operation from 0°C to 70°C .

SN54BCT244 . . . FK PACKAGE
(TOP VIEW)



FUNCTION TABLE
(each buffer)

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

PRODUCTION DATA Information is current as of publication date. Products conform to specifications per the terms of Texas Instruments standard warranty. Production processing does not necessarily include testing of all parameters.

TEXAS
INSTRUMENTS

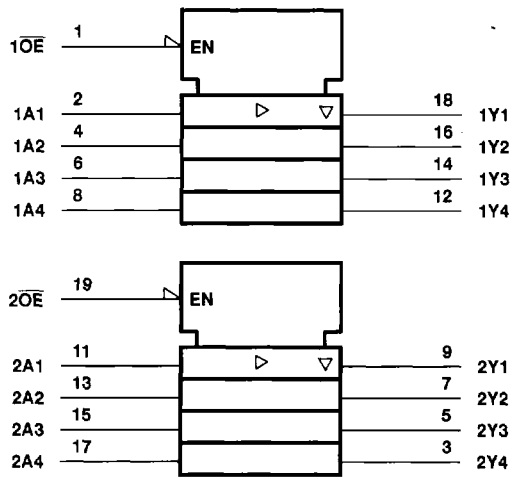
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SN54BCT244, SN74BCT244
OCTAL BUFFERS/DRIVERS
WITH 3-STATE OUTPUTS

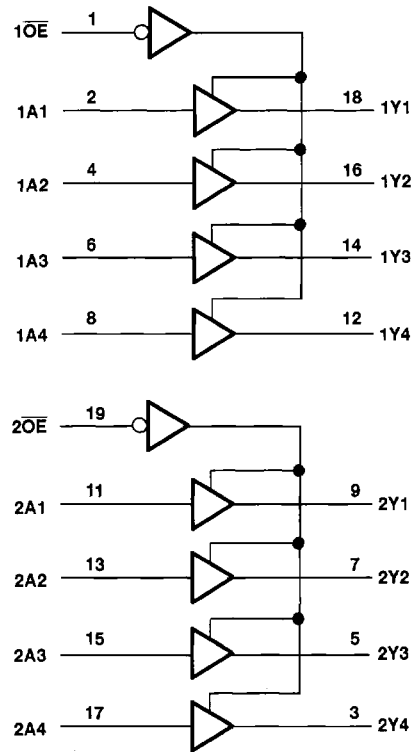
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logic symbol†



† 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 (see Note 1) | - 0.5 V to 7 V |
| 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: SN54BCT244 | 96 mA |
| SN74BCT244 | 128 mA |
| Operating free-air temperature range: SN54BCT244 | - 55°C to 125°C |
| SN74BCT244 | 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.

NOTE 1: The input and output voltage ratings may be exceeded if the input and output current ratings are observed.



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**SN54BCT244, SN74BCT244
OCTAL BUFFERS/DRIVERS
WITH 3-STATE OUTPUTS**

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recommended operating conditions

| | | SN54BCT244 | | | SN74BCT244 | | | UNIT |
|-----------------|--------------------------------|------------|-----|-----|------------|-----|-----|------|
| | | MIN | NOM | MAX | MIN | NOM | MAX | |
| V _{CC} | Supply voltage | 4.5 | 5 | 5.5 | 4.5 | 5 | 5.5 | V |
| V _{IH} | High-level input voltage | 2 | | | 2 | | | V |
| V _{IL} | Low-level input voltage | | | 0.8 | | | 0.8 | V |
| I _{IK} | Input clamp current | | | -18 | | | -18 | mA |
| I _{OH} | High-level output current | | | -12 | | | -15 | mA |
| I _{OL} | Low-level output current | | | 48 | | | 64 | mA |
| T _A | Operating free-air temperature | -55 | | 125 | 0 | | 70 | °C |

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

| PARAMETER | TEST CONDITIONS | | SN54BCT244 | | | SN74BCT244 | | | UNIT |
|-------------------|--------------------------|--------------------------|------------|------|------|------------|------|------|------|
| | | | MIN | TYP† | MAX | MIN | TYP† | MAX | |
| V _{IK} | V _{CC} = 4.5 V, | I _I = -18 mA | | | -1.2 | | | -1.2 | V |
| V _{OH} | V _{CC} = 4.5 V | I _{OH} = -3 mA | 2.4 | 3.3 | | 2.4 | 3.3 | | V |
| | | I _{OH} = -12 mA | 2 | 3.2 | | | | | |
| | | I _{OH} = -15 mA | | | | 2 | 3.1 | | |
| V _{OL} | V _{CC} = 4.5 V | I _{OL} = 48 mA | | 0.38 | 0.55 | | | | V |
| | | I _{OL} = 64 mA | | | | | 0.42 | 0.55 | |
| I _I | V _{CC} = 5.5 V, | V _I = 7 V | | | 0.1 | | | 0.1 | mA |
| I _{IH} | V _{CC} = 5.5 V, | V _I = 2.7 V | | | 20 | | | 20 | μA |
| I _{IL} | V _{CC} = 5.5 V, | V _I = 0.5 V | | | -1 | | | -1 | mA |
| I _{OZH} | V _{CC} = 5.5 V, | V _O = 2.7 V | | | 50 | | | 50 | μA |
| I _{OZL} | V _{CC} = 5.5 V, | V _O = 0.5 V | | | -50 | | | -50 | μA |
| I _{OS} ‡ | V _{CC} = 5.5 V, | V _O = 0 | -100 | | -225 | -100 | | -225 | mA |
| I _{OCH} | V _{CC} = 5.5 V, | Outputs open | | 23 | 40 | | 23 | 40 | mA |
| I _{OCL} | V _{CC} = 5.5 V, | Outputs open | | 53 | 80 | | 53 | 80 | mA |
| I _{CCZ} | V _{CC} = 5.5 V, | Outputs open | | 4 | 10 | | 4 | 10 | mA |

† All typical values are at V_{CC} = 5 V.

‡ Not more than one output should be tested at a time, and the duration of the test should not exceed one second.



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SN54BCT244, SN74BCT244
OCTAL BUFFERS/DRIVERS
WITH 3-STATE OUTPUTS

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switching characteristics (see Note 2)

| PARAMETER | FROM (INPUT) | TO (OUTPUT) | V _{CC} = 5 V, C _L = 50 pF, R ₁ = 500 Ω, R ₂ = 500 Ω, T _A = 25°C | | | V _{CC} = 4.5 V to 5.5 V, C _L = 50 pF, R ₁ = 500 Ω, R ₂ = 500 Ω, T _A = MIN to MAX† | | | UNIT | |
|------------------|-----------------|----------------|--|-----|-----|--|-----|------------|------|-----|
| | | | BCT244 | | | SN54BCT244 | | SN74BCT244 | | |
| | | | MIN | TYP | MAX | MIN | MAX | MIN | | MAX |
| t _{PLH} | A | Y | 1.2 | 2.5 | 4.4 | 0.9 | 5.3 | 0.9 | 5 | ns |
| t _{PHL} | | | 1.7 | 3.2 | 5 | 1.4 | 6 | 1.4 | 5.5 | |
| t _{PZH} | \overline{OE} | Y | 2 | 5.7 | 7.8 | 2 | 9 | 2 | 8.7 | ns |
| t _{PZL} | | | 2 | 5.9 | 8.1 | 2 | 9.4 | 2 | 8.9 | |
| t _{PHZ} | \overline{OE} | Y | 2 | 5.4 | 6.7 | 2 | 8 | 2 | 7.7 | ns |
| t _{PLZ} | | | 2 | 6.1 | 7.6 | 2 | 9.8 | 2 | 8.9 | |

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

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

