

SN54ABT648, SN74ABT648
 OCTAL BUS TRANSCEIVERS AND REGISTERS
 WITH 3-STATE OUTPUTS

PRODUCT PREVIEW

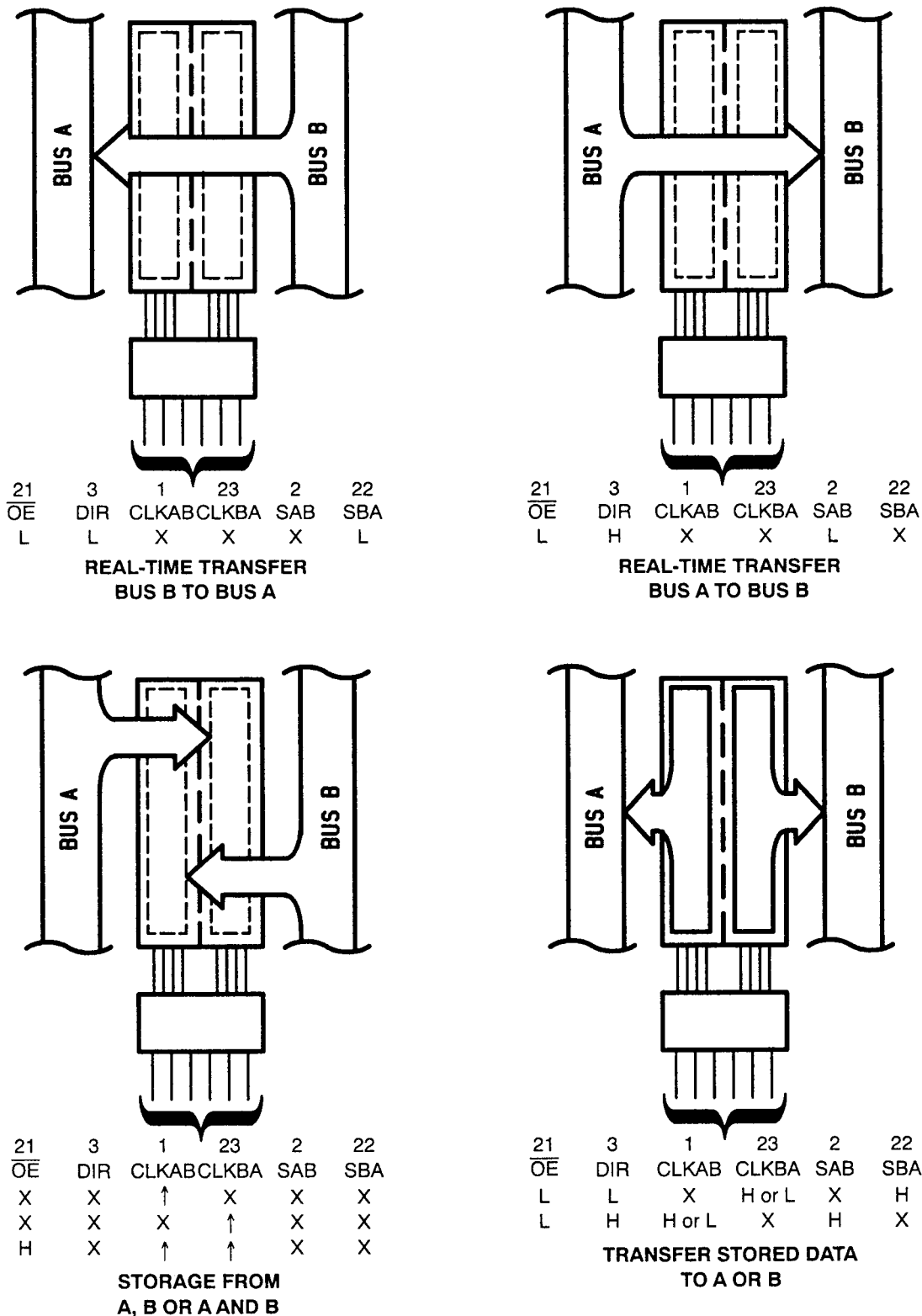


Figure 1. Bus-Management Functions

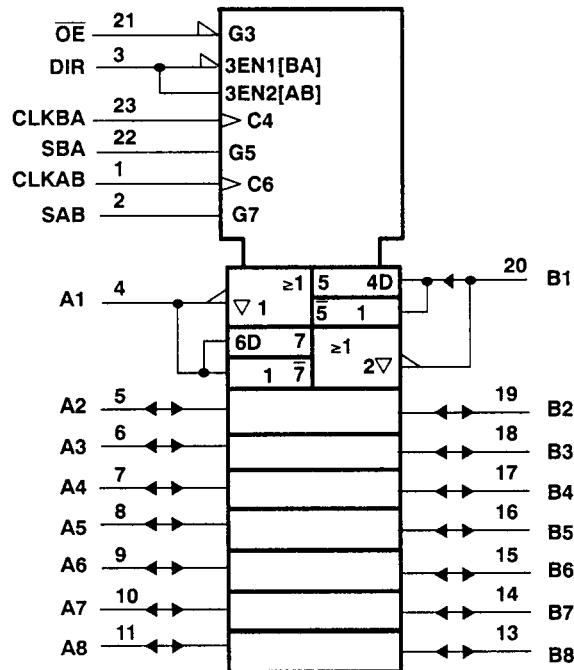
SN54ABT648, SN74ABT648 OCTAL BUS TRANSCEIVERS AND REGISTERS WITH 3-STATE OUTPUTS

FUNCTION TABLE

| INPUTS | | | | | | DATA I/O | | OPERATION OR FUNCTION |
|-----------------|-----|--------|--------|-----|-----|--------------|--------------|--|
| \overline{OE} | DIR | CLKAB | CLKBA | SAB | SBA | A1 THRU A8 | B1 THRU B8 | |
| X | X | ↑ | X | X | X | Input | Unspecified† | Store A, B unspecified† |
| X | X | X | ↑ | X | X | Unspecified† | Input | Store B, A unspecified† |
| H | X | ↑ | ↑ | X | X | Input | Input | Store A and B Data |
| H | X | H or L | H or L | X | X | Input | Input | Isolation, hold storage |
| L | L | X | X | X | L | Output | Input | Real-Time \overline{B} Data to A Bus |
| L | L | X | H or L | X | H | Output | Input | Stored \overline{B} Data to A Bus |
| L | H | X | X | L | X | Input | Output | Real-Time \overline{A} Data to B Bus |
| L | H | H or L | X | H | X | Input | Output | Store \overline{A} Data to B Bus |

† The data output functions may be enabled or disabled by various signals at the \overline{OE} and DIR inputs. Data input functions are always enabled, i.e., data at the bus pins will be stored on every low-to-high transition of the clock inputs.

logic symbol ‡



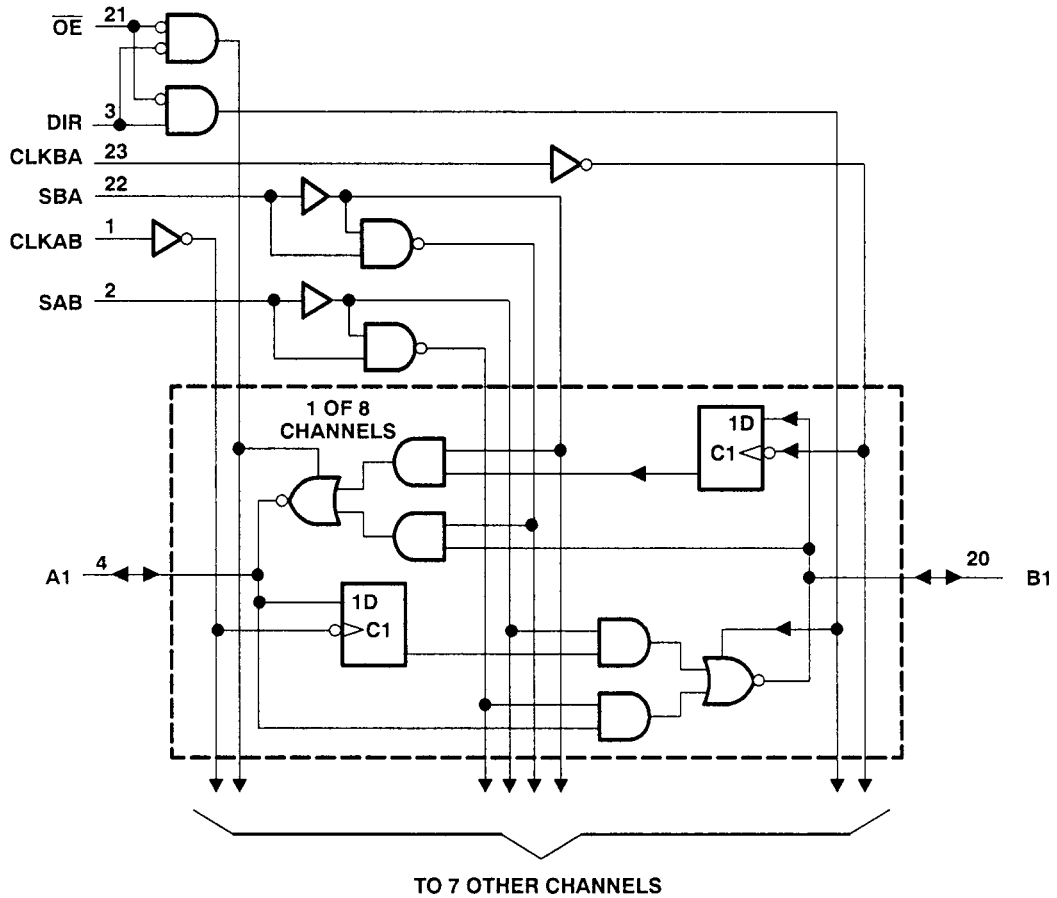
‡ This symbol is in accordance with ANSI/IEEE Std 91-1984 and IEC Publication 617-12.

Pin numbers shown are for JT, DW, and NT packages.

PRODUCT PREVIEW

**SN54ABT648, SN74ABT648
OCTAL BUS TRANSCEIVERS AND REGISTERS
WITH 3-STATE OUTPUTS**

logic diagram (positive logic)



PRODUCT PREVIEW

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 (except I/O ports) (see Note 1) | -1.2 V to 7 V |
| Input voltage range, V_I (I/O ports) (see Note 1) | -1.2 V to 5.5 V |
| Voltage applied to any output in the high state or power-off state, V_O | -0.5 V to 5.5 V |
| Current into any output in the low state, I_O | 128 mA |
| Input clamp current, I_{IK} ($V_I < 0$) | -18 mA |
| Output clamp current, I_{OK} ($V_O < 0$) | -50 mA |
| 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 negative-voltage ratings may be exceeded if the input and output clamp-current ratings are observed.



SN54ABT648, SN74ABT648 OCTAL BUS TRANSCEIVERS AND REGISTERS WITH 3-STATE OUTPUTS

recommended operating conditions

| | | SN54ABT648 | | SN74ABT648 | | UNIT |
|-----------------|------------------------------------|------------|-----------------|------------|-----------------|------|
| | | MIN | MAX | MIN | MAX | |
| V _{CC} | Supply voltage | 4.5 | 5.5 | 4.5 | 5.5 | V |
| V _{IH} | High-level input voltage | 2 | | 2 | | V |
| V _{IL} | Low-level input voltage | | 0.8 | | 0.8 | V |
| V _I | Input voltage | 0 | V _{CC} | 0 | V _{CC} | V |
| I _{OH} | High-level output current | | -24 | | -32 | mA |
| I _{OL} | Low-level output current | | 48 | | 64 | mA |
| Δt/Δv | Input transition rise or fall rate | | 5 | | 5 | ns/V |
| T _A | Operating free-air temperature | -55 | 125 | -40 | 85 | °C |

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

| PARAMETER | TEST CONDITIONS | T _A = 25°C | | | SN54ABT648 | | SN74ABT648 | | UNIT |
|--------------------|--|-----------------------|------|------|------------|------|------------|------|------|
| | | MIN | TYP† | MAX | MIN | MAX | MIN | MAX | |
| V _{IK} | V _{CC} = 4.5 V, I _I = -18 mA | | | -1.2 | | -1.2 | | -1.2 | V |
| V _{OH} | V _{CC} = 4.5 V, I _{OH} = -3 mA | 2.5 | | | 2.5 | | 2.5 | | V |
| | V _{CC} = 5 V, I _{OH} = -3 mA | 3 | | | 3 | | 3 | | |
| | V _{CC} = 4.5 V, I _{OH} = -32 mA | 2 | | | 2 | | 2 | | |
| V _{OL} | V _{CC} = 4.5 V, I _{OL} = 48 mA | | | | 0.55 | | | | V |
| | V _{CC} = 4.5 V, I _{OL} = 64 mA | | | | | | 0.55 | | |
| I _I | V _{CC} = 5.5 V, V _I = V _{CC} or GND | | | ±1 | | ±1 | | ±1 | μA |
| I _{OZH} ‡ | V _{CC} = 5.5 V, V _O = 2.7 V | | | 50 | | 50 | | 50 | μA |
| I _{OZL} ‡ | V _{CC} = 5.5 V, V _O = 0.5 V | | | -50 | | -50 | | -50 | μA |
| I _O § | V _{CC} = 5.5 V, V _O = 2.5 V | -50 | -100 | -180 | -50 | -180 | -50 | -180 | mA |
| I _{CC} | V _{CC} = 5.5 V, I _O = 0, V _I = V _{CC} or GND | Outputs high | 1 | 50 | 50 | 50 | 50 | 50 | μA |
| | | Outputs low | 24 | 30 | 30 | 30 | 30 | 30 | μA |
| | | Outputs disabled | 0.5 | 50 | 50 | 50 | 50 | 50 | μA |
| ΔI _{CC} ¶ | V _{CC} = 5.5 V, One input at 3.4 V, Other inputs at V _{CC} or GND | | | 1.5 | | 1.5 | | 1.5 | mA |
| C _i | Control inputs | | | | | | | | pF |
| C _{io} | A or B ports | | | | | | | | pF |

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

‡ The parameters I_{OZH} and I_{OZL} include the input leakage current.

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

¶ This is the increase in supply current for each input that is at the specified TTL voltage level rather than V_{CC} or GND.

PRODUCT PREVIEW