

SN54ALS465A THRU SN54ALS468A SN74ALS465A THRU SN74ALS468A OCTAL BUFFERS WITH 3-STATE OUTPUTS

SDAS223 – D2661, APRIL 1982 – REVISED MAY 1986

- Mechanically and Functionally Interchangeable With DM71/81LS97 and DM71/81LS98
- P-N-P Inputs Reduce Bus Loading
- 3-State Outputs Rated at I_{OL} of 12 mA and 24 mA for SN54ALS' and SN74ALS', Respectively
- Package Options Include Plastic Small Outline Packages, Ceramic Chip Carriers, and Standard Plastic and Ceramic 300-mil DIPs
- Dependable Texas Instruments Quality and Reliability

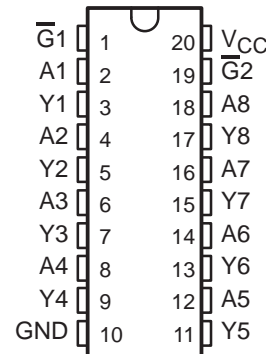
| DEVICE | DATA PATH |
|----------|-----------|
| 'ALS465A | True |
| 'ALS466A | Inverting |
| 'ALS467A | True |
| 'ALS468A | Inverting |

description

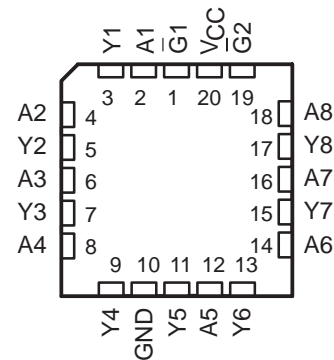
These octal buffers utilize the latest advanced low-power Schottky technology. The 'ALS465A and 'ALS466A have a two-input active-low AND enable gate controlling all eight data buffers. The 'ALS467A and 'ALS468A have two separate active-low enable inputs each controlling four data buffers. In each case, a high level on any \bar{G} places the affected outputs at high impedance.

The SN54ALS465A, SN54ALS466A, SN54ALS467A, and SN54ALS468A are characterized for operation over the full military temperature range of -55°C to 125°C . The SN74ALS465A, SN74ALS466A, SN74ALS467A, and SN74ALS468A are characterized for operation from 0°C to 70°C .

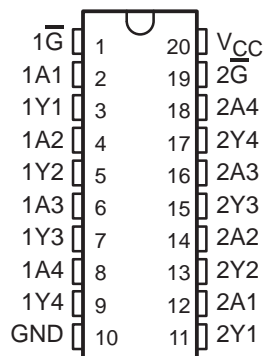
SN54ALS465A, SN54ALS466A . . . J PACKAGE
SN74ALS465A, SN74ALS466A . . . DW OR N PACKAGE
(TOP VIEW)



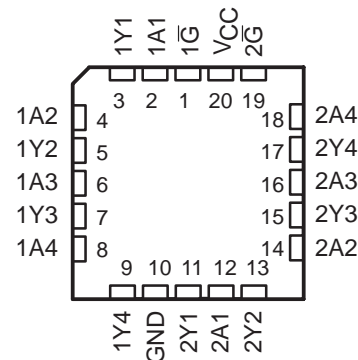
SN54ALS465A, SN54ALS466A . . . FK PACKAGE
(TOP VIEW)



SN54ALS467A, SN54ALS468A . . . J PACKAGE
SN74ALS467A, SN74ALS468A . . . DW OR N PACKAGE
(TOP VIEW)



SN54ALS467A, SN54ALS468A . . . FK PACKAGE
(TOP VIEW)



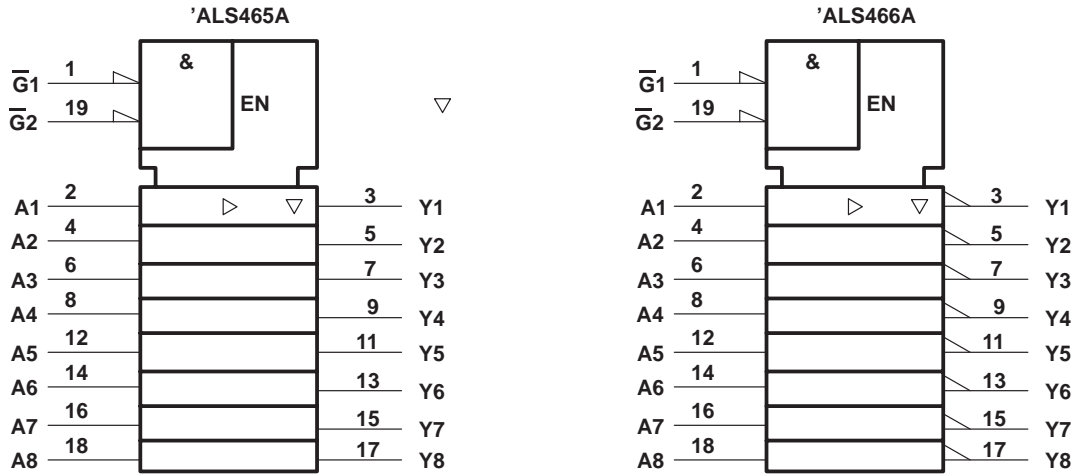
PRODUCTION DATA information is current as of publication date. Products conform to specifications per the terms of Texas Instruments standard warranty. Production processing does not necessarily include testing of all parameters.



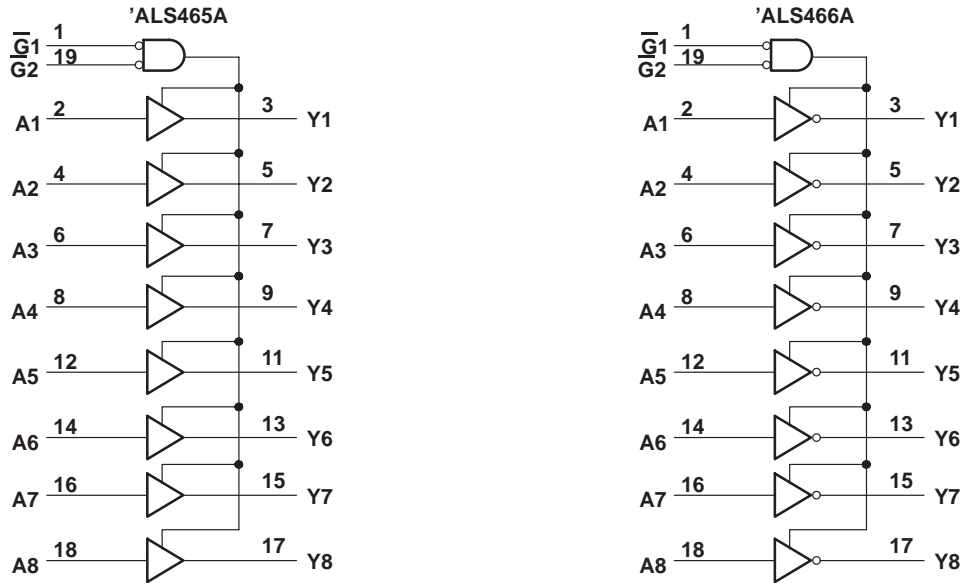
SN54ALS465A THRU SN54ALS468A SN74ALS465A THRU SN74ALS468A OCTAL BUFFERS WITH 3-STATE OUTPUTS

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logic symbols†

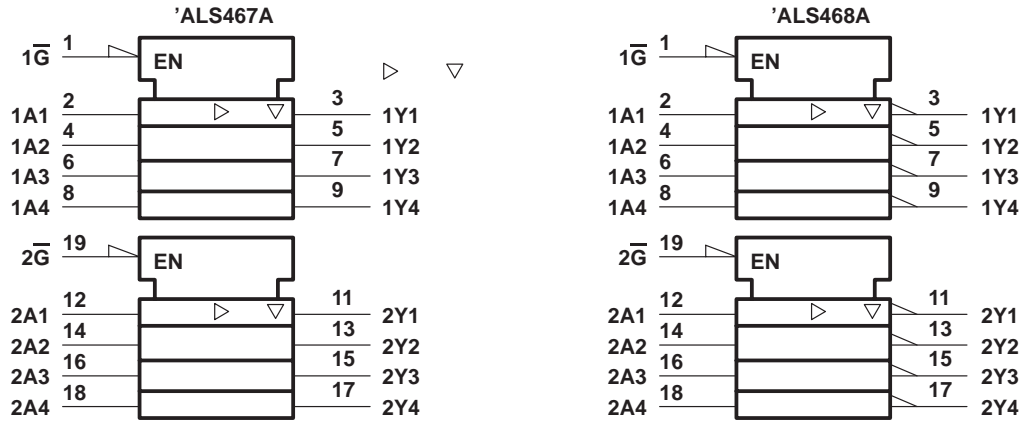


logic diagrams (positive logic)

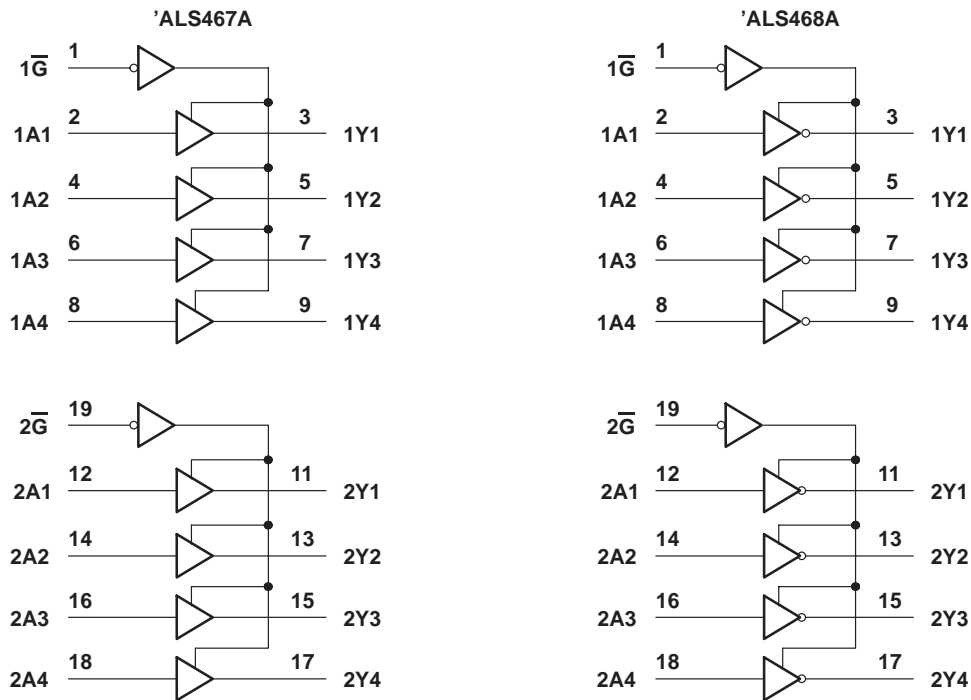


† These symbols are in accordance with ANSI/IEEE Std 91-1984 and IEC Publication 617-12.
Pin numbers shown are for DW, J, and N packages.

logic symbols†



logic diagrams (positive logic)



† These symbols are in accordance with ANSI/IEEE Std 91-1984 and IEC Publication 617-12.
 Pin numbers shown are for DW, J, and N packages.

SN54ALS465A THRU SN54ALS468A SN74ALS465A THRU SN74ALS468A OCTAL BUFFERS WITH 3-STATE OUTPUTS

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

| | |
|--|----------------|
| Supply voltage, V_{CC} | 7 V |
| Input voltage | 7 V |
| Voltage applied to a disabled 3-state output | 5.5 V |
| Operating free-air temperature range: SN54ALS465A thru SN54ALS468A | -55°C to 125°C |
| SN74ALS465A thru SN74ALS468A | 0°C to 70°C |
| Storage temperature range | -65°C to 150°C |

recommended operating conditions

| | | SN54ALS465A THRU SN54ALS468A | | | SN74ALS465A THRU SN74ALS468A | | | 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 | | | 0.7 | | | 0.8 | V |
| I_{OH} | High-level output current | | | -12 | | | -15 | mA |
| I_{OL} | Low-level output current | | | 12 | | | 24 | mA |
| | | | | | | | 48† | |
| T_A | Operating free-air temperature | -55 | | 125 | 0 | | 70 | °C |

† The extended limit applies only if V_{CC} is maintained between 4.75 V and 5.25 V.

The 48-mA limit applies for SN74ALS465A-1, SN74ALS466A-1, SN74ALS467A-1, and SN74ALS468A-1 only.

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

| PARAMETER | TEST CONDITIONS | SN54ALS465A THRU SN54ALS468A | | | SN74ALS465A THRU SN74ALS468A | | | UNIT |
|-----------|---|------------------------------------|------------------|------------|------------------------------------|------|------------|------|
| | | MIN | TYP‡ | MAX | MIN | TYP‡ | MAX | |
| V_{IK} | $V_{CC} = 4.5$ V, $I_I = -18$ mA | | | -1.5 | | | -1.5 | V |
| V_{OH} | $V_{CC} = 4.5$ V to 5.5 V, $I_{OH} = -0.4$ mA | | | $V_{CC}-2$ | | | $V_{CC}-2$ | V |
| | $V_{CC} = 4.5$ V, $I_{OH} = -3$ mA | 2.4 | 3.2 | | 2.4 | 3.2 | | |
| | $V_{CC} = 4.5$ V, $I_{OH} = -12$ mA | 2 | | | | | | |
| | $V_{CC} = 4.5$ V, $I_{OH} = -15$ mA | | | | 2 | | | |
| V_{OL} | $V_{CC} = 4.5$ V, $I_{OL} = 12$ mA | | 0.25 | 0.4 | | 0.25 | 0.4 | V |
| | $V_{CC} = 4.5$ V, $I_{OL} = 24$ mA ($I_{OL} = 48$ mA -1 versions) | | | | | 0.35 | 0.5 | |
| I_{OZH} | $V_{CC} = 5.5$ V, $V_O = 2.7$ V | | | 20 | | | 20 | μA |
| I_{OZL} | $V_{CC} = 5.5$ V, $V_O = 0.4$ V | | | -20 | | | -20 | μA |
| 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, $V_I = 0.4$ V | | | -0.1 | | | -0.1 | mA |
| $I_O^§$ | $V_{CC} = 5.5$ V, $V_O = 2.25$ V | -30 | | -112 | -30 | | -112 | mA |
| I_{CC} | 'ALS465A 'ALS467A | $V_{CC} = 5.5$ V | Outputs high | 11 | 21 | 11 | 16 | mA |
| | | | Outputs low | 19 | 33 | 19 | 28 | |
| | | | Outputs disabled | 23 | 38 | 23 | 33 | |
| | 'ALS466A 'ALS468A | $V_{CC} = 5.5$ V | Outputs high | 7 | 15 | 7 | 10 | mA |
| | | | Outputs low | 16 | 29 | 16 | 24 | |
| | | | Outputs disabled | 19 | 32 | 19 | 27 | |

‡ All typical values are at $V_{CC} = 5$ V, $T_A = 25$ °C.

§ The output conditions have been chosen to produce a current that closely approximates one half of the true short-circuit output current, I_{OS} .



SN54ALS465A THRU SN54ALS468A
SN74ALS465A THRU SN74ALS468A
OCTAL BUFFERS WITH 3-STATE OUTPUTS

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'ALS465A, 'ALS467A switching characteristics (see Note 1)

| PARAMETER | FROM (INPUT) | TO (OUTPUT) | 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 |
|------------------|-----------------|----------------|--|-----|----------------------------|-----|------|
| | | | SN54ALS465A SN54ALS467A | | SN74ALS465A SN74ALS467A | | |
| | | | MIN | MAX | MIN | MAX | |
| t _{PLH} | A | Y | 2 | 16 | 2 | 13 | ns |
| t _{PHL} | | | 4 | 15 | 4 | 12 | |
| t _{PZH} | \bar{G} | Any Y | 4 | 27 | 4 | 23 | ns |
| t _{PZL} | | | 5 | 30 | 5 | 25 | |
| t _{PHZ} | \bar{G} | Any Y | 2 | 12 | 2 | 10 | ns |
| t _{PLZ} | | | 3 | 21 | 3 | 18 | |

'ALS466A, ALS468A switching characteristics (see Note 1)

| PARAMETER | FROM (INPUT) | TO (OUTPUT) | 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 |
|------------------|-----------------|----------------|--|-----|----------------------------|-----|------|
| | | | SN54ALS466A SN54ALS468A | | SN74ALS466A SN74ALS468A | | |
| | | | MIN | MAX | MIN | MAX | |
| t _{PLH} | A | Y | 3 | 14 | 3 | 12 | ns |
| t _{PHL} | | | 2 | 11 | 2 | 9 | |
| t _{PZH} | \bar{G} | Any Y | 4 | 21 | 4 | 16 | ns |
| t _{PZL} | | | 7 | 25 | 7 | 23 | |
| t _{PHZ} | \bar{G} | Any Y | 2 | 12 | 2 | 10 | ns |
| t _{PLZ} | | | 2 | 20 | 2 | 17 | |

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

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

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