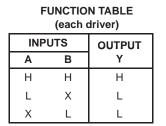
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- High Capacitive-Drive Capability
- Typical Delay Time of 3.2 ns (C_L = 50 pF) and Typical Power Dissipation of Less Than 13 mW Per Gate
- Package Options Include Plastic Small-Outline (DW) Packages, Ceramic Chip Carriers (FK), and Standard Plastic (N) and Ceramic (J) 300-mil DIPs

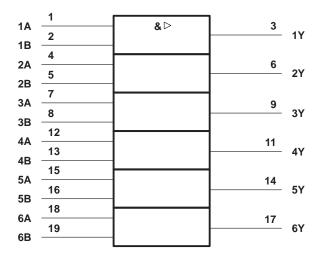
description

These devices contain six independent 2-input AND drivers. They perform the Boolean functions $Y = A \bullet B$ or $Y = \overline{A} + \overline{B}$ in positive logic.

The SN54AS808B is characterized for operation over the full military temperature range of -55° C to 125°C. The SN74AS808B is characterized for operation from 0°C to 70°C.



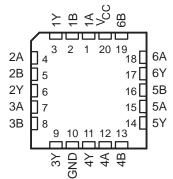
logic symbol[†]



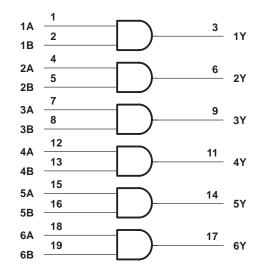
[†] This symbol is in accordance with ANSI/IEEE Std 91-1984 and IEC Publication 617-12.

| SN54AS808B J PACKAGE SN74AS808B DW OR N PACKAGE (TOP VIEW) | | | | | | | |
|---|---|--|---|--|--|--|--|
| 1A [1B [1Y [2A [2Y [3A [3B [3Y [GND [| 1 2 3 4 5 6 7 8 9 10 | 20 19 18 17 16 15 14 13 12 11 | V _{CC} 6B 6A 6Y 5B 5A 5Y 4B 4A 4Y | | | | |

SN54AS808B . . . FK PACKAGE (TOP VIEW)



logic diagram (positive logic)



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.

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

| Operating free-air temperature range, TA: | SN54AS808B | 55°C to 125°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

| | | SN54AS808B | | | SN | | | |
|----------------|--------------------------------|------------|-----|-----|-----|-----|-----|------|
| | | MIN | NOM | MAX | MIN | NOM | MAX | UNIT |
| VCC | Supply voltage | 4.5 | 5 | 5.5 | 4.5 | 5 | 5.5 | V |
| VIH | High-level input voltage | 2 | | | 2 | | | V |
| VIL | Low-level input voltage | | | 0.8 | | | 0.8 | V |
| ЮН | High-level output current | | | -40 | | | -48 | mA |
| IOL | Low-level output current | | | 40 | | | 48 | mA |
| Т _А | Operating free-air temperature | -55 | | 125 | 0 | | 70 | °C |

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

| | 7507.0 | SN | 54AS80 | 8B | SN | | | | |
|------------------|----------------------------|---------------------------|--------------------|------|------|--------------------|------|------|------|
| PARAMETER | TEST C | TEST CONDITIONS | | | MAX | MIN | TYP‡ | MAX | UNIT |
| VIK | V _{CC} = 4.5 V, | l _l = –18 mA | | | -1.2 | | | -1.2 | V |
| | V_{CC} = 4.5 V to 5.5 V, | $I_{OH} = -2 \text{ mA}$ | V _{CC} -2 | 2 | | V _{CC} -2 | 2 | | |
| | | $I_{OH} = -3 \text{ mA}$ | 2.4 | 3.2 | | 2.4 | 3.2 | | V |
| VOH | V _{CC} = 4.5 V | $I_{OH} = -40 \text{ mA}$ | 2 | | | | | | V |
| | | $I_{OH} = -48 \text{ mA}$ | | | | 2 | | | |
| | | $I_{OL} = 40 \text{ mA}$ | | 0.25 | 0.5 | | | | v |
| V _{OL} | $V_{CC} = 4.5 V$ | I _{OL} = 48 mA | | | | | 0.35 | 0.5 | V |
| Ц | V _{CC} = 5.5 V, | $V_{I} = 7 V$ | | | 0.1 | | | 0.1 | mA |
| IIН | V _{CC} = 5.5 V, | VI = 2.7 V | | | 20 | | | 20 | μΑ |
| ١ | V _{CC} = 5.5 V, | VI = 0.4 V | | | -0.5 | | | -0.5 | mA |
| ١ _O § | V _{CC} = 5.5 V, | V _O = 2.25 V | -50 | | -200 | -50 | | -200 | mA |
| ICCH | V _{CC} = 5.5 V, | V _I = 4.5 V | | 8 | 13 | | 8 | 13 | mA |
| ICCL | V _{CC} = 5.5 V, | $V_{I} = 0$ | | 20 | 33 | | 20 | 33 | mA |

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

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



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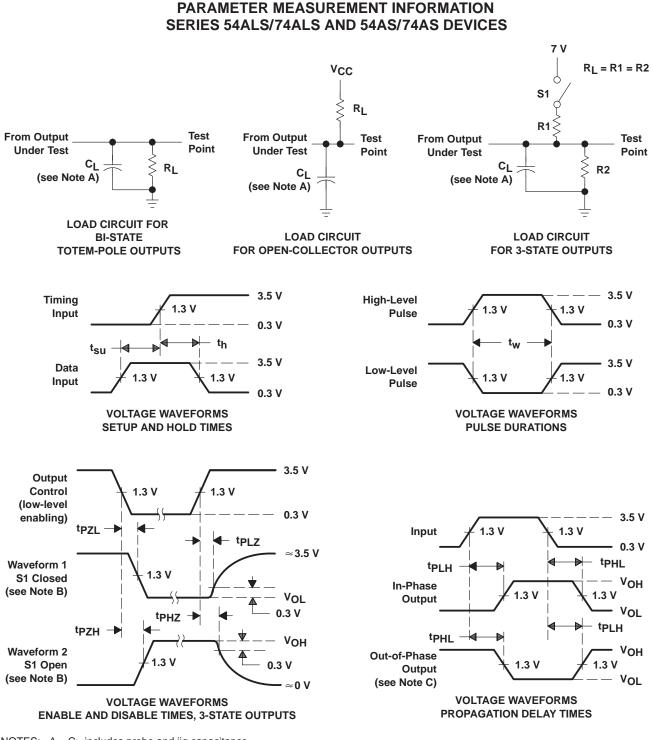
switching characteristics (see Figure 1)

| PARAMETER | PARAMETER FROM (INPUT) | | CL RL | V _{CC} = 4.5 V to 5.5 V, C _L = 50 pF, R _L = 500 Ω, T _A = MIN to MAX [†] | | | | | |
|------------------|---------------------------|---|----------|---|--------------|-----|----|--|--|
| | | | MIN | MAX | SN74A MIN | MAX | | | |
| ^t PLH | A or B | V | 1 | 6.5 | 1 | 6 | - | | |
| ^t PHL | AUB | T | 1 | 6.5 | 1 | 6 | ns | | |

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



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NOTES: A. CL includes probe and jig capacitance.

- B. Waveform 1 is for an output with internal conditions such that the output is low except when disabled by the output control. Waveform 2 is for an output with internal conditions such that the output is high except when disabled by the output control.
 C. When measuring propagation delay items of 3-state outputs, switch S1 is open.
- D. All input pulses have the following characteristics: PRR \leq 1 MHz, t_f = t_f = 2 ns, duty cycle = 50%.
- E. The outputs are measured one at a time with one transition per measurement.

Figure 1. Load Circuits and Voltage Waveforms





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PACKAGING INFORMATION

| Orderable Device | Status ⁽¹⁾ | Package Type | Package Drawing | Pins | Package Qty | Eco Plan ⁽²⁾ | Lead/ Ball Finish | MSL Peak Temp ⁽³⁾ | Samples (Requires Login) |
|------------------|-----------------------|--------------|--------------------|------|-------------|----------------------------|----------------------|------------------------------|-----------------------------|
| 5962-88522012A | ACTIVE | LCCC | FK | 20 | 1 | TBD | Call TI | Call TI | |
| 5962-8852201RA | ACTIVE | CDIP | J | 20 | 1 | TBD | Call TI | Call TI | |
| 5962-8852201SA | OBSOLETE | CDIP | J | 20 | | TBD | Call TI | Call TI | |
| SN54AS808BJ | ACTIVE | CDIP | J | 20 | 1 | TBD | A42 | N / A for Pkg Type | |
| SN74AS808BDW | ACTIVE | SOIC | DW | 20 | 25 | Green (RoHS & no Sb/Br) | CU NIPDAU | Level-1-260C-UNLIM | |
| SN74AS808BDWE4 | ACTIVE | SOIC | DW | 20 | 25 | Green (RoHS & no Sb/Br) | CU NIPDAU | Level-1-260C-UNLIM | |
| SN74AS808BDWG4 | ACTIVE | SOIC | DW | 20 | 25 | Green (RoHS & no Sb/Br) | CU NIPDAU | Level-1-260C-UNLIM | |
| SN74AS808BDWR | ACTIVE | SOIC | DW | 20 | 2000 | Green (RoHS & no Sb/Br) | CU NIPDAU | Level-1-260C-UNLIM | |
| SN74AS808BDWRE4 | ACTIVE | SOIC | DW | 20 | 2000 | Green (RoHS & no Sb/Br) | CU NIPDAU | Level-1-260C-UNLIM | |
| SN74AS808BDWRG4 | ACTIVE | SOIC | DW | 20 | 2000 | Green (RoHS & no Sb/Br) | CU NIPDAU | Level-1-260C-UNLIM | |
| SN74AS808BN | ACTIVE | PDIP | Ν | 20 | 20 | Pb-Free (RoHS) | CU NIPDAU | N / A for Pkg Type | |
| SN74AS808BN3 | OBSOLETE | PDIP | Ν | 20 | | TBD | Call TI | Call TI | |
| SN74AS808BNE4 | ACTIVE | PDIP | Ν | 20 | 20 | Pb-Free (RoHS) | CU NIPDAU | N / A for Pkg Type | |
| SNJ54AS808BFK | ACTIVE | LCCC | FK | 20 | 1 | TBD | POST-PLATE | N / A for Pkg Type | |
| SNJ54AS808BJ | ACTIVE | CDIP | J | 20 | 1 | TBD | A42 | N / A for Pkg Type | |

⁽¹⁾ The marketing status values are defined as follows:

ACTIVE: Product device recommended for new designs.

LIFEBUY: TI has announced that the device will be discontinued, and a lifetime-buy period is in effect.

NRND: Not recommended for new designs. Device is in production to support existing customers, but TI does not recommend using this part in a new design.

PREVIEW: Device has been announced but is not in production. Samples may or may not be available.

OBSOLETE: TI has discontinued the production of the device.

⁽²⁾ Eco Plan - The planned eco-friendly classification: Pb-Free (RoHS), Pb-Free (RoHS Exempt), or Green (RoHS & no Sb/Br) - please check http://www.ti.com/productcontent for the latest availability information and additional product content details.

TBD: The Pb-Free/Green conversion plan has not been defined.

Pb-Free (RoHS): TI's terms "Lead-Free" or "Pb-Free" mean semiconductor products that are compatible with the current RoHS requirements for all 6 substances, including the requirement that lead not exceed 0.1% by weight in homogeneous materials. Where designed to be soldered at high temperatures, TI Pb-Free products are suitable for use in specified lead-free processes.



5-Sep-2011

Pb-Free (RoHS Exempt): This component has a RoHS exemption for either 1) lead-based flip-chip solder bumps used between the die and package, or 2) lead-based die adhesive used between the die and leadframe. The component is otherwise considered Pb-Free (RoHS compatible) as defined above. Green (RoHS & no Sb/Br): TI defines "Green" to mean Pb-Free (RoHS compatible), and free of Bromine (Br) and Antimony (Sb) based flame retardants (Br or Sb do not exceed 0.1% by weight

in homogeneous material)

⁽³⁾ MSL, Peak Temp. -- The Moisture Sensitivity Level rating according to the JEDEC industry standard classifications, and peak solder temperature.

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OTHER QUALIFIED VERSIONS OF SN54AS808B, SN74AS808B :

Catalog: SN74AS808B

Military: SN54AS808B

NOTE: Qualified Version Definitions:

• Catalog - TI's standard catalog product

• Military - QML certified for Military and Defense Applications

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*Al

P1

(mm)

12.0

w

(mm)

24.0

Pin1

Quadrant

Q1

TAPE AND REEL INFORMATION





QUADRANT ASSIGNMENTS FOR PIN 1 ORIENTATION IN TAPE



| All dimensions are nominal | | | | | | | | | |
|----------------------------|-----------------|--------------------|----|------|--------------------------|--------------------------|---------|---------|---------|
| Device | Package Type | Package Drawing | | | Reel Diameter (mm) | Reel Width W1 (mm) | A0 (mm) | B0 (mm) | K0 (mm) |
| SN74AS808BDWR | SOIC | DW | 20 | 2000 | 330.0 | 24.4 | 10.8 | 13.0 | 2.7 |



PACKAGE MATERIALS INFORMATION

11-Mar-2008



*All dimensions are nominal

| Device | Package Type | Package Drawing | Pins | SPQ | Length (mm) | Width (mm) | Height (mm) |
|---------------|--------------|-----------------|------|------|-------------|------------|-------------|
| SN74AS808BDWR | SOIC | DW | 20 | 2000 | 346.0 | 346.0 | 41.0 |

J (R-GDIP-T**) 14 LEADS SHOWN

CERAMIC DUAL IN-LINE PACKAGE



NOTES: A. All linear dimensions are in inches (millimeters).

- B. This drawing is subject to change without notice.
- C. This package is hermetically sealed with a ceramic lid using glass frit.
- D. Index point is provided on cap for terminal identification only on press ceramic glass frit seal only.
- E. Falls within MIL STD 1835 GDIP1-T14, GDIP1-T16, GDIP1-T18 and GDIP1-T20.

LEADLESS CERAMIC CHIP CARRIER

FK (S-CQCC-N**) 28 TERMINAL SHOWN



NOTES: A. All linear dimensions are in inches (millimeters).

B. This drawing is subject to change without notice.

- C. This package can be hermetically sealed with a metal lid.
- D. Falls within JEDEC MS-004



N (R-PDIP-T**)

PLASTIC DUAL-IN-LINE PACKAGE

16 PINS SHOWN



NOTES:

- A. All linear dimensions are in inches (millimeters).B. This drawing is subject to change without notice.
- Falls within JEDEC MS-001, except 18 and 20 pin minimum body length (Dim A).
- \triangle The 20 pin end lead shoulder width is a vendor option, either half or full width.



DW (R-PDSO-G20)

PLASTIC SMALL OUTLINE



NOTES: A. All linear dimensions are in inches (millimeters). Dimensioning and tolerancing per ASME Y14.5M-1994.

B. This drawing is subject to change without notice.

C. Body dimensions do not include mold flash or protrusion not to exceed 0.006 (0,15).

D. Falls within JEDEC MS-013 variation AC.



LAND PATTERN DATA



NOTES:

- A. All linear dimensions are in millimeters.
- B. This drawing is subject to change without notice.
- C. Refer to IPC7351 for alternate board design.
- D. Laser cutting apertures with trapezoidal walls and also rounding corners will offer better paste release. Customers should contact their board assembly site for stencil design recommendations. Refer to IPC-7525
- E. Customers should contact their board fabrication site for solder mask tolerances between and around signal pads.



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