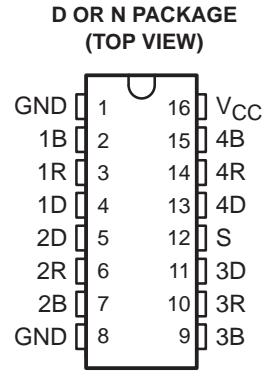


- Schottky Circuitry for High Speed, Typical Propagation Delay Time . . . 12 ns
- Drivers Feature Open-Collector Outputs for Party-Line (Data Bus) Operation
- Driver Outputs Can Sink 100 mA at 0.8 V Maximum
- pnp Inputs for Minimal Input Loading
- Designed to Be Interchangeable With Advanced Micro Devices AM26S10



description

The AM26S10C is a quadruple bus transceiver utilizing Schottky-diode-clamped transistors for high speed. The drivers feature open-collector outputs capable of sinking 100 mA at 0.8 V maximum. The driver and strobe inputs use pnp transistors to reduce the input loading.

The driver of the AM26S10C is inverting and has two ground connections for improved ground current-handling capability. For proper operation, the ground pins should be tied together.

The AM26S10C is characterized for operation over the temperature range of 0°C to 70°C.

Function Tables

**AM26S10C
(transmitting)**

| INPUTS | | OUTPUTS | |
|--------|---|---------|---|
| S | D | B | R |
| L | H | L | H |
| L | L | H | L |

**AM26S10C
(receiving)**

| INPUTS | | | OUTPUT |
|--------|---|---|--------|
| S | B | D | R |
| H | H | X | L |
| H | L | X | H |

H = high level, L = low level, X = irrelevant

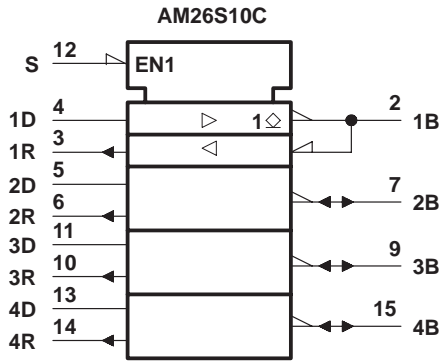


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AM26S10C QUADRUPLE BUS TRANSCEIVERS

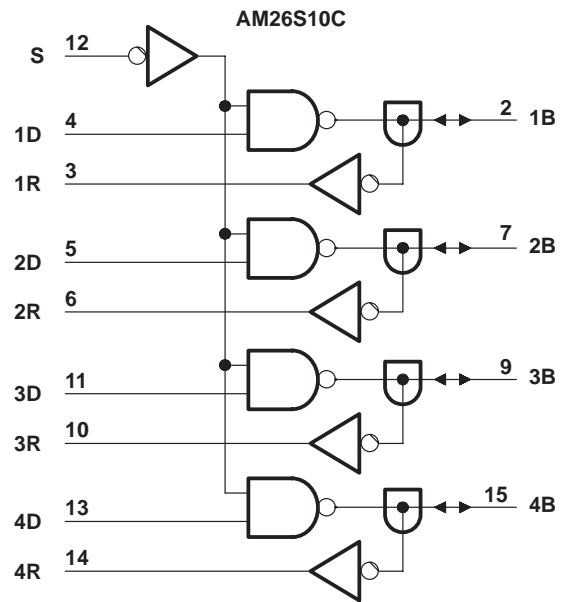
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logic symbol†

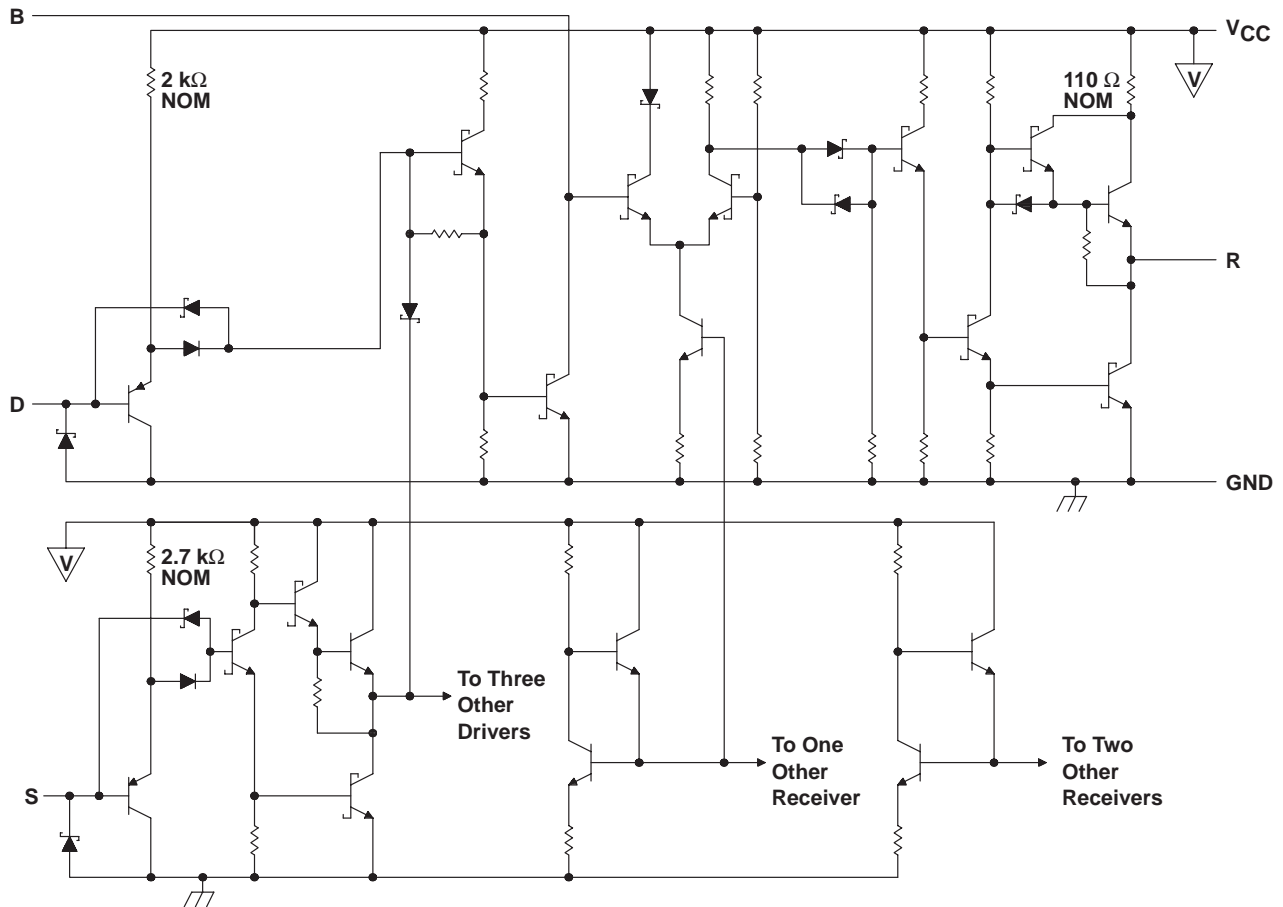


† These symbols are in accordance with ANSI/IEEE Std 91-1984 and IEC Publication 617-12.

logic diagram (positive logic)



schematic (each transceiver)



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

| | |
|--|------------------------------|
| Supply voltage, V_{CC} (see Note 1) | –0.5 V to 7 V |
| Driver or strobe input voltage range, V_I | –0.5 V to 5.5 V |
| Bus voltage range, driver output off, V_O | –0.5 V to 5.25 V |
| Driver or strobe input current range, I_I | –30 mA to 5 mA |
| Driver output current, I_O | 200 mA |
| Receiver output current, I_O | 30 mA |
| Continuous total power dissipation | See Dissipation Rating Table |
| Operating free-air temperature range, T_A | 0°C to 70°C |
| Storage temperature range, T_{stg} | –65°C to 150°C |
| Lead temperature 1,6 mm (1/16 inch) from case for 10 seconds | 260°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: All voltage values are with respect to network ground terminals connected together.

DISSIPATION RATING TABLE

| PACKAGE | $T_A \leq 25^\circ\text{C}$ POWER RATING | DERATING FACTOR ABOVE $T_A = 25^\circ\text{C}$ | $T_A = 70^\circ\text{C}$ POWER RATING |
|---------|---|---|--|
| D | 950 mW | 7.6 mW/°C | 608 mW |
| N | 1150 mW | 9.2 mW/°C | 736 mW |

recommended operating conditions

| | | MIN | NOM | MAX | UNIT |
|--|----------|------|-----|------|------|
| Supply voltage, V_{CC} | | 4.75 | 5 | 5.25 | V |
| High-level input voltage, V_{IH} | D or S | 2 | | | V |
| | B | 2.25 | | | |
| Low-level input voltage, V_{IL} | D or S | 0.8 | | | V |
| | B | 1.75 | | | |
| Receiver high-level output current, I_{OH} | | –1 | | | mA |
| Low-level output current, I_{OL} | Driver | 100 | | | mA |
| | Receiver | 20 | | | |
| Operating free-air temperature, T_A | | 0 | 70 | | °C |

AM26S10C QUADRUPLE BUS TRANSCEIVERS

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electrical characteristics over recommended operating free-air temperature range

| PARAMETER | | TEST CONDITIONS | | MIN | TYP† | MAX | UNIT |
|---------------------|--|--|---|--|------|-------|------|
| V _{IK} | Input clamp voltage | D or S | V _{CC} = 4.75 V, I _I = -18 mA | | | -1.2 | V |
| V _{OH} | High-level output voltage | R | V _{CC} = 4.75 V, I _{OH} = -1 mA, V _{IH} = 2 V, V _{IL} = 0.8 V | 2.7 | 3.4 | | V |
| V _{OH} | Low-level output voltage | R | V _{CC} = 4.75 V, V _{IH} = 2 V, V _{IL} = 0.8 V | I _{OL} = 20 mA | | 0.5 | V |
| | | | | I _{OL} = 40 mA | 0.33 | 0.5 | |
| | | B | | I _{OL} = 70 mA | 0.42 | 0.7 | |
| | | | | I _{OL} = 100 mA | 0.51 | 0.8 | |
| I _{O(off)} | Off-stage output current | B | V _{IH} = 2 V, V _{IL} = 0.8 V | V _{CC} = 5.25 V, V _O = 0.8 V | | -50 | μA |
| | | | | V _{CC} = 5.25 V, V _O = 4.5 V | | 100 | |
| | | | | V _{CC} = 0, V _O = 4.5 V | | 100 | |
| I _{IH} | High-level input current | D | V _{CC} = 5.25 V, V _I = 2.7 V | | | 30 | μA |
| | | S | | | | 20 | |
| I _I | Input current at maximum input voltage | D or S | V _{CC} = 5.25 V, V _I = 5.5 V | | | 100 | μA |
| I _{IL} | Low-level input current | D | V _{CC} = 5.25 V, V _I = 0.4 V | | | -0.54 | mA |
| | | S | | | | -0.36 | |
| I _{OS} | Short-circuit output current‡ | R | V _{CC} = 5.25 V | -18 | | -60 | mA |
| I _{CC} | Supply current | V _{CC} = 5.25 V, Strobe at 0 V, No load, All driver outputs low | | | 45 | 70 | mA |
| | | | | | | 80 | |

† All typical values are at T_A = 25°C and V_{CC} = 5 V.

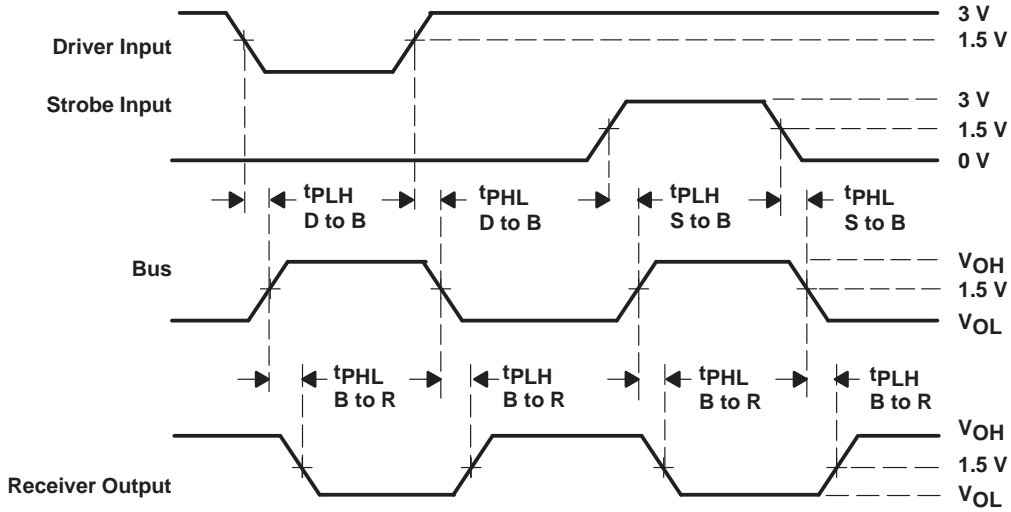
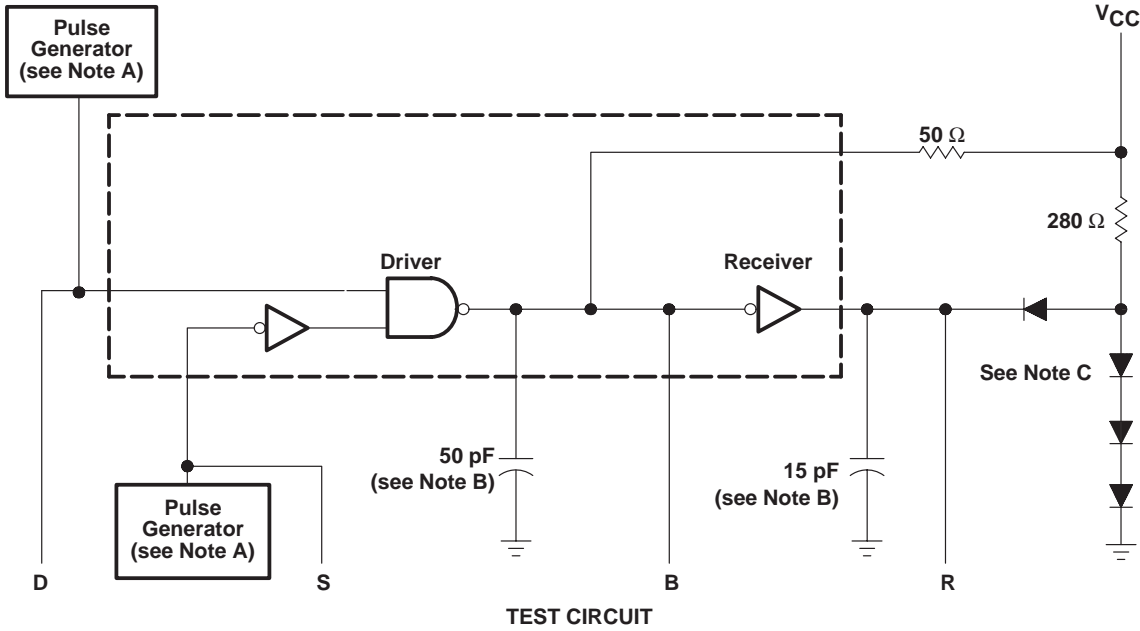
‡ Not more than one output should be shorted to ground at a time, and duration of the short circuit should not exceed one second.

switching characteristics, V_{CC} = 5 V, T_A = 25°C

| PARAMETER | FROM (INPUT) | TO (OUTPUT) | TEST CONDITIONS | AM26S10C | | | UNIT |
|------------------|--------------|-------------|-----------------|----------|-----|-----|------|
| | | | | MIN | TYP | MAX | |
| t _{PLH} | D | B | See Figure 1 | | 10 | 15 | ns |
| t _{PHL} | | | | | 10 | 15 | |
| t _{PLH} | S | B | | | 14 | 18 | ns |
| t _{PHL} | | | | | 13 | 18 | |
| t _{PLH} | B | R | | | 10 | 15 | ns |
| t _{PHL} | | | | | 10 | 15 | |
| t _{TLH} | | B | | | 4 | 10 | ns |
| t _{THL} | | | | | 2 | 4 | |



PARAMETER MEASUREMENT INFORMATION



- NOTES: A. The pulse generators have the following characteristics: $Z_O = 50 \Omega$, $t_r = 10 \pm 5 \text{ ns}$.
 B. Includes probe and jig capacitance.
 C. All diodes are 1N916 or equivalent.

Figure 1. Test Circuit and Voltage Waveforms

AM26S10C QUADRUPLE BUS TRANSCEIVERS

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APPLICATION INFORMATION

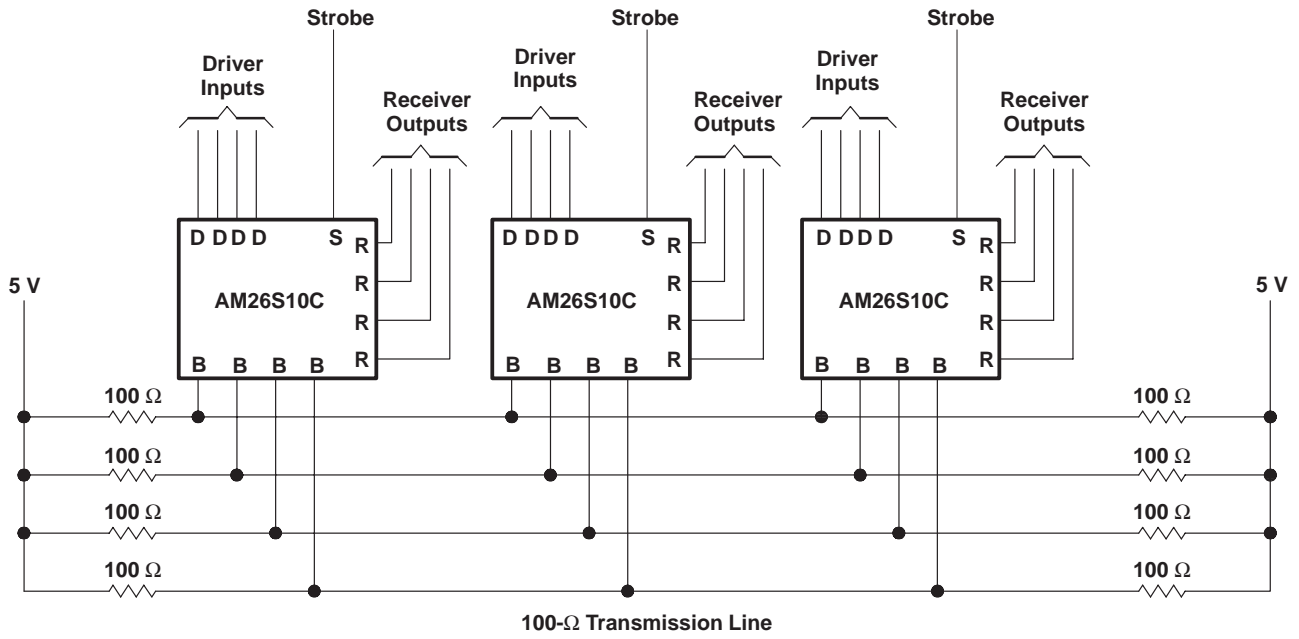


Figure 2. Party-Line System

PACKAGING INFORMATION

| Orderable Device | Status ⁽¹⁾ | Package Type | Package Drawing | Pins | Package Qty | Eco Plan ⁽²⁾ | Lead/Ball Finish | MSL Peak Temp ⁽³⁾ |
|------------------|-----------------------|--------------|-----------------|------|-------------|-------------------------|------------------|------------------------------|
| AM26S10CD | ACTIVE | SOIC | D | 16 | 40 | Green (RoHS & no Sb/Br) | CU NIPDAU | Level-1-260C-UNLIM |
| AM26S10CDE4 | ACTIVE | SOIC | D | 16 | 40 | Green (RoHS & no Sb/Br) | CU NIPDAU | Level-1-260C-UNLIM |
| AM26S10CDG4 | ACTIVE | SOIC | D | 16 | 40 | Green (RoHS & no Sb/Br) | CU NIPDAU | Level-1-260C-UNLIM |
| AM26S10CDR | ACTIVE | SOIC | D | 16 | 2500 | Green (RoHS & no Sb/Br) | CU NIPDAU | Level-1-260C-UNLIM |
| AM26S10CDRE4 | ACTIVE | SOIC | D | 16 | 2500 | Green (RoHS & no Sb/Br) | CU NIPDAU | Level-1-260C-UNLIM |
| AM26S10CDRG4 | ACTIVE | SOIC | D | 16 | 2500 | Green (RoHS & no Sb/Br) | CU NIPDAU | Level-1-260C-UNLIM |
| AM26S10CN | ACTIVE | PDIP | N | 16 | 25 | Pb-Free (RoHS) | CU NIPDAU | N / A for Pkg Type |
| AM26S10CNE4 | ACTIVE | PDIP | N | 16 | 25 | Pb-Free (RoHS) | CU NIPDAU | 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.

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.

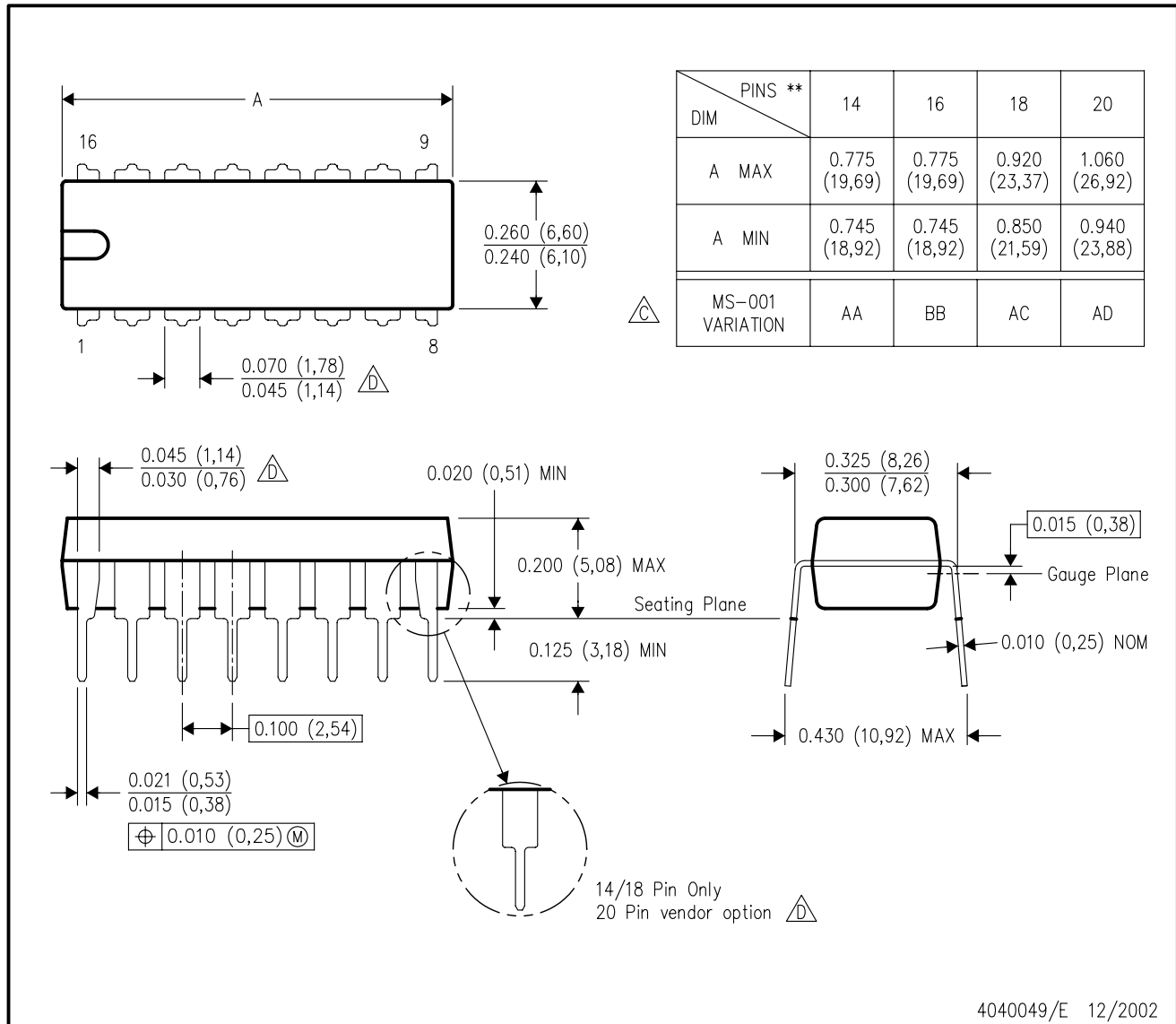
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N (R-PDIP-T**)

PLASTIC DUAL-IN-LINE PACKAGE

16 PINS SHOWN

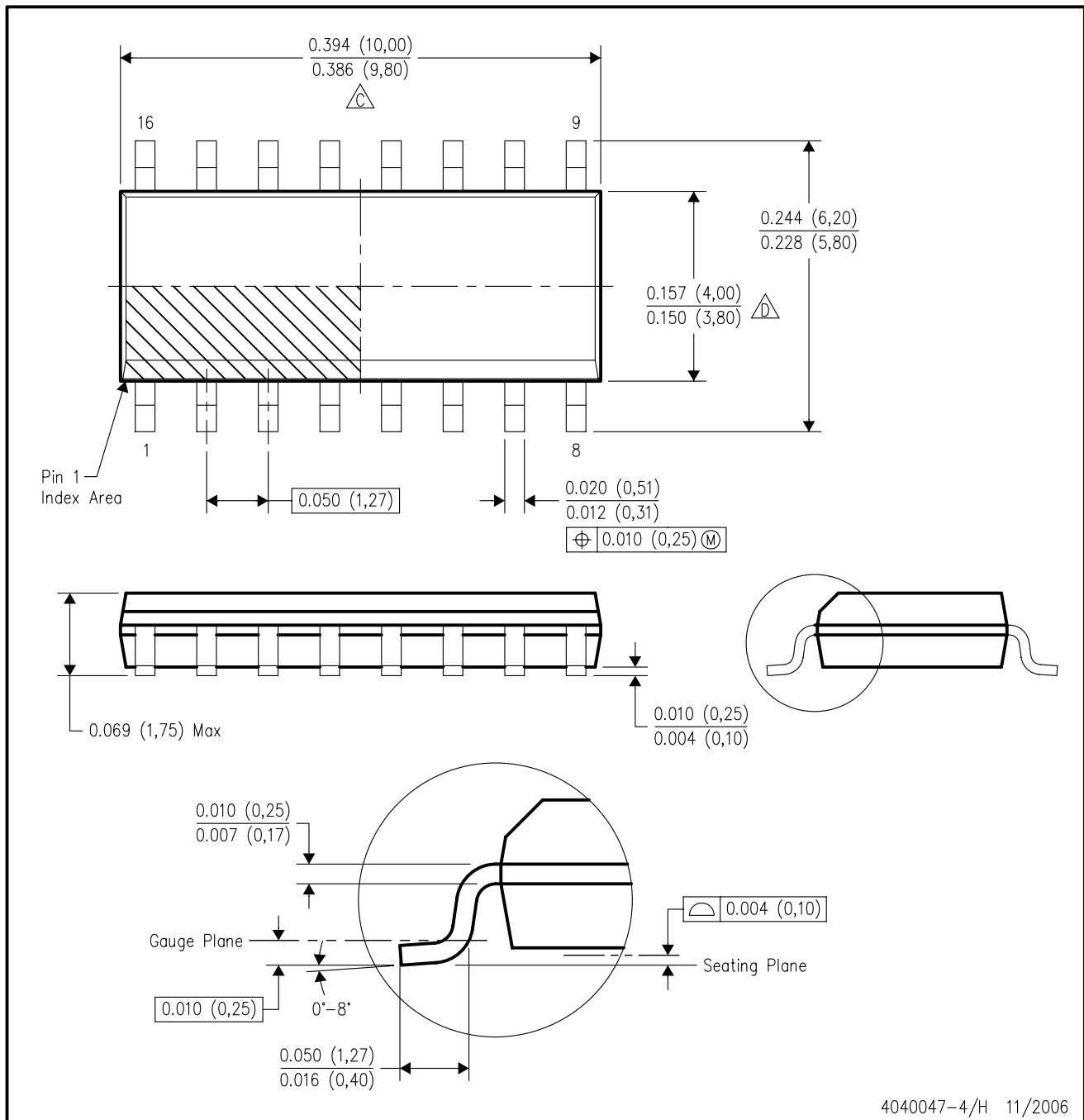


- NOTES:
- A. All linear dimensions are in inches (millimeters).
 - B. This drawing is subject to change without notice.
 - $\triangle C$ Falls within JEDEC MS-001, except 18 and 20 pin minimum body length (Dim A).
 - $\triangle D$ The 20 pin end lead shoulder width is a vendor option, either half or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

4040049/E 12/2002

D (R-PDSO-G16)

PLASTIC SMALL-OUTLINE PACKAGE



4040047-4/H 11/2006

- NOTES:
- A. All linear dimensions are in inches (millimeters).
 - B. This drawing is subject to change without notice.
 - C. Body length does not include mold flash, protrusions, or gate burrs. Mold flash, protrusions, or gate burrs shall not exceed .006 (0,15) per end.
 - D. Body width does not include interlead flash. Interlead flash shall not exceed .017 (0,43) per side.
 - E. Reference JEDEC MS-012 variation AC.

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