

SN54ALS253, SN74ALS253, SN74AS253A DUAL 1-OF-4 DATA SELECTORS/MULTIPLEXERS WITH 3-STATE OUTPUTS

SDAS216A – APRIL 1982 – REVISED DECEMBER 1994

- 3-State Versions of the 'ALS153 and SN74AS153
- Permits Multiplexing From n Lines to One Line
- Performs Parallel-to-Serial Conversion
- Package Options Include Plastic Small-Outline (D) Packages, Ceramic Chip Carriers (FK), and Standard Plastic (N) and Ceramic (J) 300-mil DIPs

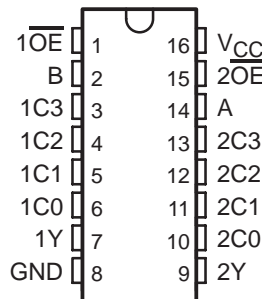
description

These data selectors/multiplexers contain inverters and drivers to supply full binary decoding data selection to the AND-OR gates. Separate output control inputs are provided for each of the two 4-line sections.

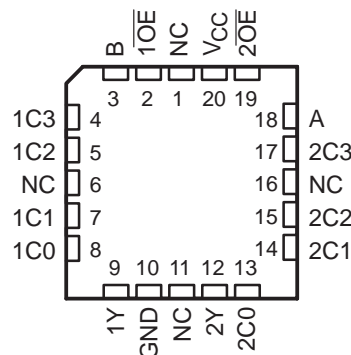
The 3-state outputs can interface with and drive data lines of bus-organized systems. With all but one of the common outputs disabled (at a high-impedance state), the low impedance of the single enabled output drives the bus line to a high or low logic level. Each output has its own output-enable (\overline{OE}) input. The output is disabled when \overline{OE} is high.

The SN54ALS253 is characterized for operation over the full military temperature range of -55°C to 125°C . The SN74ALS253 and SN74AS253A are characterized for operation from 0°C to 70°C .

SN54ALS253 . . . J PACKAGE
SN74ALS253, SN74AS253A . . . D OR N PACKAGE
(TOP VIEW)



SN54ALS253 . . . FK PACKAGE
(TOP VIEW)



NC – No internal connection

FUNCTION TABLE

| SELECT† | | DATA | | | | \overline{OE} | OUTPUT Y |
|---------|---|------|----|----|----|-----------------|----------|
| B | A | C0 | C1 | C2 | C3 | | |
| X | X | X | X | X | X | H | Z |
| L | L | L | X | X | X | L | L |
| L | L | H | X | X | X | L | H |
| L | H | X | L | X | X | L | L |
| L | H | X | H | X | X | L | H |
| H | L | X | X | L | X | L | L |
| H | L | X | X | H | X | L | H |
| H | H | X | X | X | L | L | L |
| H | H | X | X | X | H | L | H |

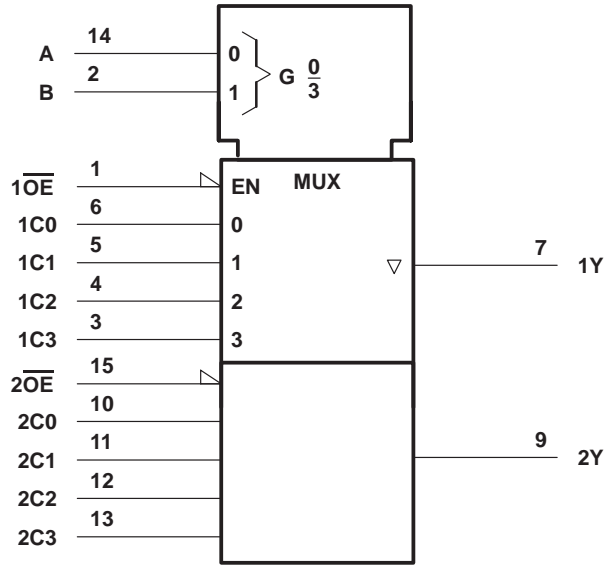
† Select inputs A and B are common to both sections.

SN54ALS253, SN74ALS253, SN74AS253A

DUAL 1-OF-4 DATA SELECTORS/MULTIPLEXERS WITH 3-STATE OUTPUTS

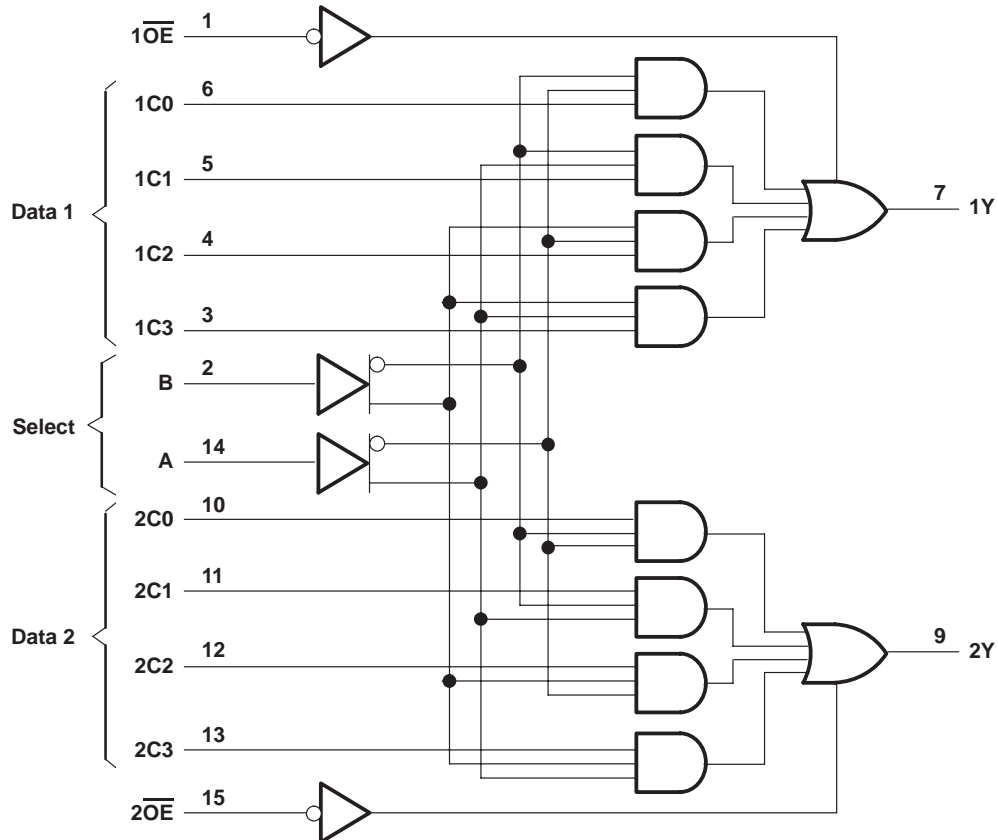
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logic symbol†



† This symbol is in accordance with ANSI/IEEE Std 91-1984 and IEC Publication 617-12. Pin numbers shown are for the D, J, and N packages.

logic diagram (positive logic)



Pin numbers shown are for the D, J, and N packages.



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SN54ALS253, SN74ALS253, SN74AS253A DUAL 1-OF-4 DATA SELECTORS/MULTIPLEXERS 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, V_I | 7 V |
| Voltage applied to a disabled 3-state output | 5.5 V |
| Operating free-air temperature range, T_A : SN54ALS253 | –55°C to 125°C |
| SN74ALS253 | 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.

recommended operating conditions

| | | SN54ALS253 | | | SN74ALS253 | | | 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 | | | –1 | | | –2.6 | mA |
| I_{OL} | Low-level output current | | | 12 | | | 24 | 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 | SN54ALS253 | | | SN74ALS253 | | | UNIT |
|--------------|--|---------------------------|------|--------------|------------|------|------|------|
| | | MIN | TYP‡ | MAX | MIN | TYP‡ | MAX | |
| V_{IK} | $V_{CC} = 4.5\text{ V}$, $I_I = -18\text{ mA}$ | | | –1.5 | | | –1.5 | V |
| V_{OH} | $V_{CC} = 4.5\text{ V to }5.5\text{ V}$, $I_{OH} = -0.4\text{ mA}$ | $V_{CC} - 2$ | | $V_{CC} - 2$ | | | | V |
| | $V_{CC} = 4.5\text{ V}$ | $I_{OH} = -1\text{ mA}$ | 2.4 | 3.3 | | | | |
| | | $I_{OH} = -2.6\text{ mA}$ | | | 2.4 | 3.2 | | |
| V_{OL} | $V_{CC} = 4.5\text{ V}$ | $I_{OL} = 12\text{ mA}$ | 0.25 | 0.4 | 0.25 | 0.4 | V | |
| | | $I_{OL} = 24\text{ mA}$ | | | 0.35 | 0.5 | | |
| I_{OZH} | $V_{CC} = 5.5\text{ V}$, $V_O = 2.7\text{ V}$ | | | 20 | | | 20 | μA |
| I_{OZL} | $V_{CC} = 5.5\text{ V}$, $V_O = 0.4\text{ V}$ | | | –20 | | | –20 | μA |
| I_I | $V_{CC} = 5.5\text{ V}$, $V_I = 7\text{ V}$ | | | 0.1 | | | 0.1 | mA |
| I_{IH} | $V_{CC} = 5.5\text{ V}$, $V_I = 2.7\text{ V}$ | | | 20 | | | 20 | μA |
| I_{IL} | $V_{CC} = 5.5\text{ V}$, $V_I = 0.4\text{ V}$ | | | –0.1 | | | –0.1 | mA |
| I_{O}^{\S} | $V_{CC} = 5.5\text{ V}$, $V_O = 2.25\text{ V}$ | –20 | | –112 | –30 | | –112 | mA |
| I_{CC} | $V_{CC} = 5.5\text{ V}$ | Outputs high | 6.5 | 12 | 6.5 | 12 | mA | |
| | | Outputs disabled | 7.5 | 14 | 7.5 | 14 | | |

‡ 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, I_{OS} .



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switching characteristics (see Figure 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 |
|------------------|-----------------|----------------|--|-----|------------|-----|------|
| | | | SN54ALS253 | | SN74ALS253 | | |
| | | | MIN | MAX | MIN | MAX | |
| t _{PLH} | A or B | Any Y | 5 | 30 | 5 | 21 | ns |
| t _{PHL} | | | 5 | 27 | 5 | 21 | |
| t _{PLH} | Data (any C) | Any Y | 2 | 15 | 2 | 10 | ns |
| t _{PHL} | | | 3 | 18 | 3 | 14 | |
| t _{PZH} | \overline{OE} | Any Y | 3 | 20 | 3 | 14 | ns |
| t _{PZL} | | | 2 | 19 | 4 | 16 | |
| t _{PHZ} | \overline{OE} | Any Y | 2 | 12 | 2 | 10 | ns |
| t _{PLZ} | | | 2 | 18 | 2 | 14 | |

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

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

| | |
|---|----------------|
| Supply voltage, V _{CC} | 7 V |
| Input voltage, V _I | 7 V |
| Operating free-air temperature range, T _A : SN74AS253A | 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.

recommended operating conditions

| | | SN74AS253A | | | UNIT |
|-----------------|--------------------------------|------------|-----|-----|------|
| | | MIN | NOM | MAX | |
| V _{CC} | Supply voltage | 4.5 | 5 | 5.5 | V |
| V _{IH} | High-level input voltage | 2 | | | V |
| V _{IL} | Low-level input voltage | | | 0.8 | V |
| I _{OH} | High-level output current | | | -15 | mA |
| I _{OL} | Low-level output current | | | 48 | mA |
| T _A | Operating free-air temperature | 0 | | 70 | °C |



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

| PARAMETER | TEST CONDITIONS | SN74AS253A | | UNIT | |
|-----------------|--|---|------|------|---------------|
| | | MIN | TYP† | | MAX |
| V_{IK} | $V_{CC} = 4.5\text{ V}$, $I_I = -18\text{ mA}$ | | | -1.2 | V |
| V_{OH} | $V_{CC} = 4.5\text{ V to }5.5\text{ V}$, $I_{OH} = -2\text{ mA}$ | $V_{CC} - 2$ | | | V |
| | $V_{CC} = 4.5\text{ V}$, $I_{OH} = -15\text{ mA}$ | 2.4 | 3.2 | | |
| V_{OL} | $V_{CC} = 4.5\text{ V}$, $I_{OL} = 48\text{ mA}$ | | 0.35 | 0.5 | V |
| I_{OZH} | $V_{CC} = 5.5\text{ V}$, $V_O = 2.7\text{ V}$ | | | 50 | μA |
| I_{OZL} | $V_{CC} = 5.5\text{ V}$, $V_O = 0.4\text{ V}$ | | | -50 | μA |
| I_I | A, B | $V_{CC} = 5.5\text{ V}$, $V_I = 7\text{ V}$ | | 0.2 | mA |
| | All others | | | 0.1 | |
| I_{IH} | A, B | $V_{CC} = 5.5\text{ V}$, $V_I = 2.7\text{ V}$ | | 40 | μA |
| | All others | | | 20 | |
| I_{IL} | A, B | $V_{CC} = 5.5\text{ V}$, $V_I = 0.4\text{ V}$ | | -1 | mA |
| | All others | | | -0.5 | |
| $I_{O\ddagger}$ | $V_{CC} = 5.5\text{ V}$, $V_O = 2.25\text{ V}$ | | -30 | -112 | mA |
| I_{CC} | $V_{CC} = 5.5\text{ V}$ | Outputs high | 18 | 29 | mA |
| | | Outputs low | 20 | 32 | |
| | | Outputs disabled | 21 | 33 | |

† 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, I_{OS} .

switching characteristics (see Figure 1)

| PARAMETER | FROM (INPUT) | TO (OUTPUT) | $V_{CC} = 4.5\text{ V to }5.5\text{ V}$, $C_L = 50\text{ pF}$, $R_1 = 500\ \Omega$, $R_2 = 500\ \Omega$, $T_A = \text{MIN to MAX}\S$ | | UNIT |
|-----------|-----------------|-------------|--|------|------|
| | | | SN74AS253A | | |
| | | | MIN | MAX | |
| t_{PLH} | A or B | Y | 3 | 13.5 | ns |
| t_{PHL} | | | 3 | 11.5 | |
| t_{PLH} | Data (any C) | Y | 2.5 | 7.5 | ns |
| t_{PHL} | | | 2.5 | 8 | |
| t_{PZH} | \overline{OE} | Any Y | 2 | 12.5 | ns |
| t_{PZL} | | | 2.5 | 11.5 | |
| t_{PHZ} | \overline{OE} | Any Y | 1 | 6 | ns |
| t_{PLZ} | | | 1 | 7 | |

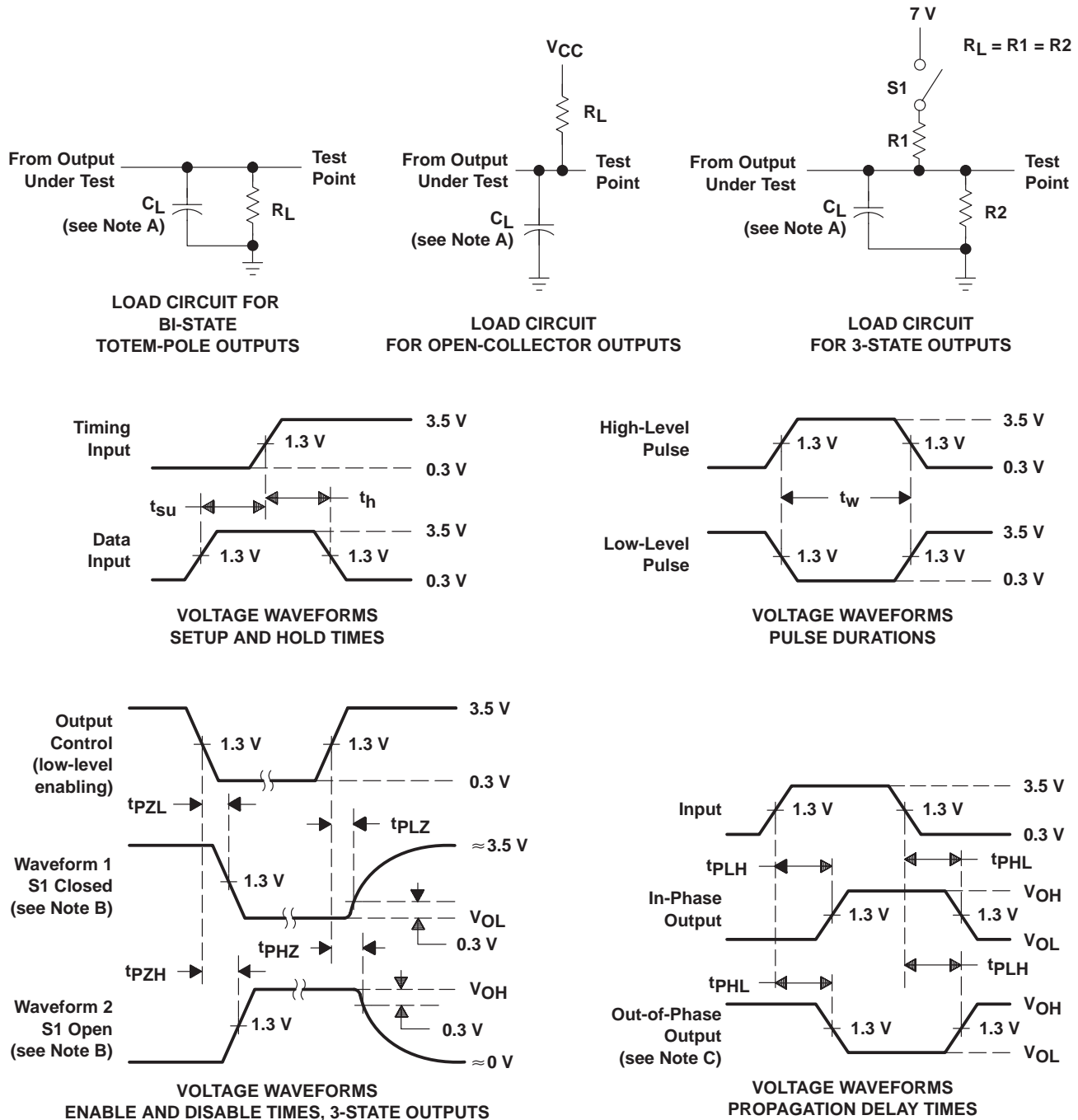
§ For conditions shown as MIN or MAX, use the appropriate value specified under recommended operating conditions.



SN54ALS253, SN74ALS253, SN74AS253A DUAL 1-OF-4 DATA SELECTORS/MULTIPLEXERS WITH 3-STATE OUTPUTS

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PARAMETER MEASUREMENT INFORMATION SERIES 54ALS/74ALS AND 54AS/74AS DEVICES



- NOTES: A. C_L 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, $t_r = t_f = 2$ 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



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) |
|------------------|---------------|--------------|-----------------|------|-------------|-------------------------|------------------|----------------------|-----------------------------|
| 85096012A | ACTIVE | LCCC | FK | 20 | 1 | TBD | Call TI | Call TI | |
| 8509601EA | ACTIVE | CDIP | J | 16 | 1 | TBD | Call TI | Call TI | |
| 8509601FA | ACTIVE | CFP | W | 16 | 1 | TBD | Call TI | Call TI | |
| SN74ALS253D | ACTIVE | SOIC | D | 16 | 40 | Green (RoHS & no Sb/Br) | CU NIPDAU | Level-1-260C-UNLIM | |
| SN74ALS253DE4 | ACTIVE | SOIC | D | 16 | 40 | Green (RoHS & no Sb/Br) | CU NIPDAU | Level-1-260C-UNLIM | |
| SN74ALS253DG4 | ACTIVE | SOIC | D | 16 | 40 | Green (RoHS & no Sb/Br) | CU NIPDAU | Level-1-260C-UNLIM | |
| SN74ALS253DR | ACTIVE | SOIC | D | 16 | 2500 | Green (RoHS & no Sb/Br) | CU NIPDAU | Level-1-260C-UNLIM | |
| SN74ALS253DRE4 | ACTIVE | SOIC | D | 16 | 2500 | Green (RoHS & no Sb/Br) | CU NIPDAU | Level-1-260C-UNLIM | |
| SN74ALS253DRG4 | ACTIVE | SOIC | D | 16 | 2500 | Green (RoHS & no Sb/Br) | CU NIPDAU | Level-1-260C-UNLIM | |
| SN74ALS253N | ACTIVE | PDIP | N | 16 | 25 | Pb-Free (RoHS) | CU NIPDAU | N / A for Pkg Type | |
| SN74ALS253NE4 | ACTIVE | PDIP | N | 16 | 25 | Pb-Free (RoHS) | CU NIPDAU | N / A for Pkg Type | |
| SN74ALS253NSRE4 | OBSOLETE | SO | NS | 16 | | TBD | Call TI | Call TI | |
| SN74ALS253NSRG4 | OBSOLETE | SO | NS | 16 | | TBD | Call TI | Call TI | |
| SN74AS253AD | ACTIVE | SOIC | D | 16 | 40 | Green (RoHS & no Sb/Br) | CU NIPDAU | Level-1-260C-UNLIM | |
| SN74AS253ADE4 | ACTIVE | SOIC | D | 16 | 40 | Green (RoHS & no Sb/Br) | CU NIPDAU | Level-1-260C-UNLIM | |
| SN74AS253ADG4 | ACTIVE | SOIC | D | 16 | 40 | Green (RoHS & no Sb/Br) | CU NIPDAU | Level-1-260C-UNLIM | |
| SN74AS253ANE4 | ACTIVE | PDIP | N | 16 | | TBD | Call TI | Call TI | |
| SNJ54ALS253FK | ACTIVE | LCCC | FK | 20 | 1 | TBD | POST-PLATE | N / A for Pkg Type | |
| SNJ54ALS253J | ACTIVE | CDIP | J | 16 | 1 | TBD | A42 | N / A for Pkg Type | |
| SNJ54ALS253W | ACTIVE | CFP | W | 16 | 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.

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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In no event shall TI's liability arising out of such information exceed the total purchase price of the TI part(s) at issue in this document sold by TI to Customer on an annual basis.

OTHER QUALIFIED VERSIONS OF SN54ALS253, SN74ALS253 :

● Catalog: [SN74ALS253](#)

● Military: [SN54ALS253](#)

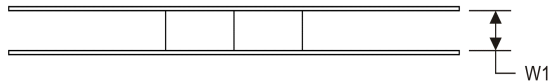
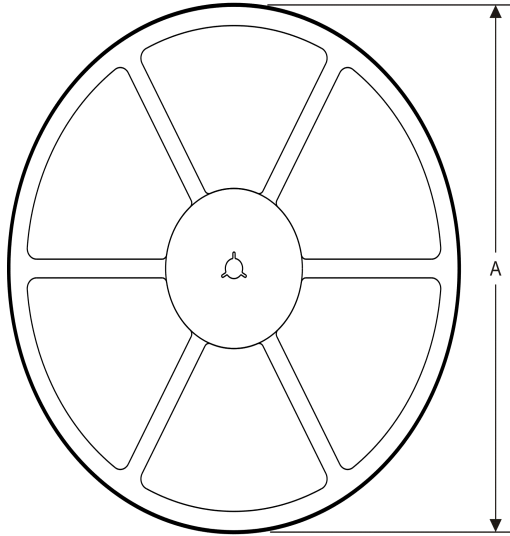
NOTE: Qualified Version Definitions:

● Catalog - TI's standard catalog product

● Military - QML certified for Military and Defense Applications

TAPE AND REEL INFORMATION

REEL DIMENSIONS



TAPE DIMENSIONS



| | |
|----|---|
| A0 | Dimension designed to accommodate the component width |
| B0 | Dimension designed to accommodate the component length |
| K0 | Dimension designed to accommodate the component thickness |
| W | Overall width of the carrier tape |
| P1 | Pitch between successive cavity centers |

TAPE AND REEL INFORMATION

*All dimensions are nominal

| Device | Package Type | Package Drawing | Pins | SPQ | Reel Diameter (mm) | Reel Width W1 (mm) | A0 (mm) | B0 (mm) | K0 (mm) | P1 (mm) | W (mm) | Pin1 Quadrant |
|--------------|--------------|-----------------|------|------|--------------------|--------------------|---------|---------|---------|---------|--------|---------------|
| SN74ALS253DR | SOIC | D | 16 | 2500 | 330.0 | 16.4 | 6.5 | 10.3 | 2.1 | 8.0 | 16.0 | Q1 |

TAPE AND REEL BOX DIMENSIONS



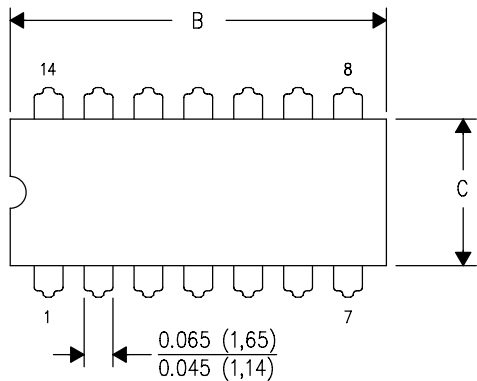
*All dimensions are nominal

| Device | Package Type | Package Drawing | Pins | SPQ | Length (mm) | Width (mm) | Height (mm) |
|--------------|--------------|-----------------|------|------|-------------|------------|-------------|
| SN74ALS253DR | SOIC | D | 16 | 2500 | 333.2 | 345.9 | 28.6 |

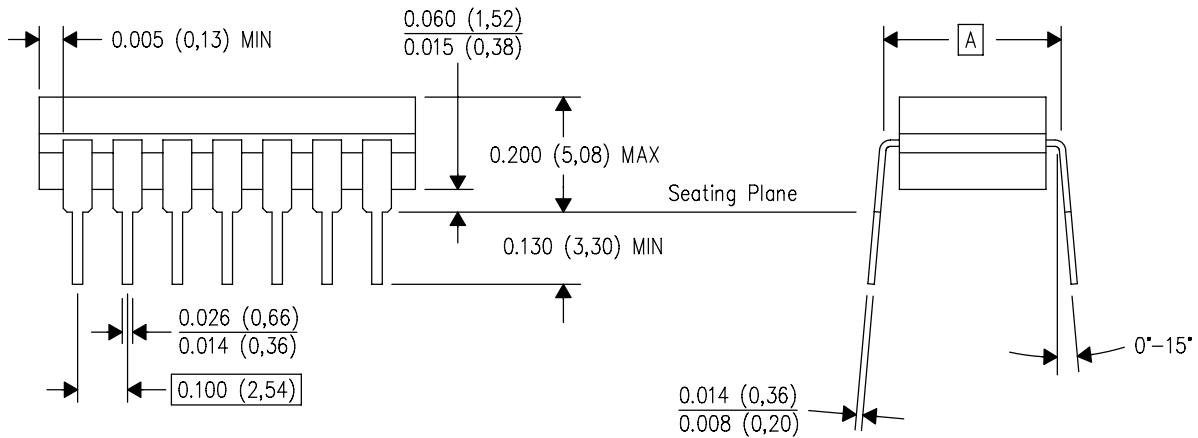
J (R-GDIP-T**)

14 LEADS SHOWN

CERAMIC DUAL IN-LINE PACKAGE



| DIM \ PINS ** | 14 | 16 | 18 | 20 |
|---------------|------------------------|------------------------|------------------------|------------------------|
| A | 0.300 (7,62) BSC | 0.300 (7,62) BSC | 0.300 (7,62) BSC | 0.300 (7,62) BSC |
| B MAX | 0.785 (19,94) | .840 (21,34) | 0.960 (24,38) | 1.060 (26,92) |
| B MIN | — | — | — | — |
| C MAX | 0.300 (7,62) | 0.300 (7,62) | 0.310 (7,87) | 0.300 (7,62) |
| C MIN | 0.245 (6,22) | 0.245 (6,22) | 0.220 (5,59) | 0.245 (6,22) |

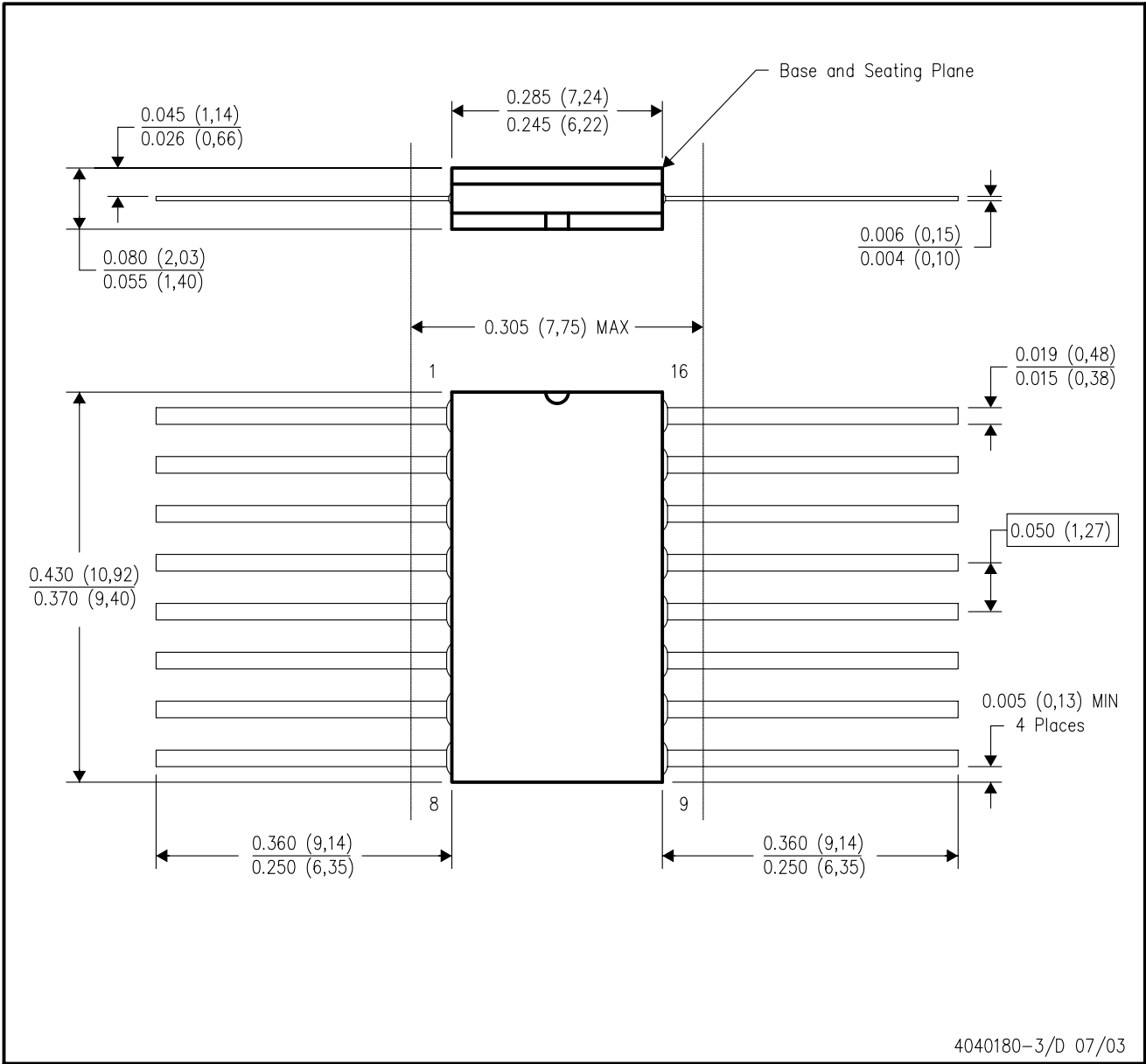


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- NOTES:
- A. All linear dimensions are in inches (millimeters).
 - B. This drawing is subject to change without notice.
 - C. This package is hermetically sealed with a ceramic lid using glass frit.
 - D. Index point is provided on cap for terminal identification only on press ceramic glass frit seal only.
 - E. Falls within MIL STD 1835 GDIP1-T14, GDIP1-T16, GDIP1-T18 and GDIP1-T20.

W (R-GDFP-F16)

CERAMIC DUAL FLATPACK

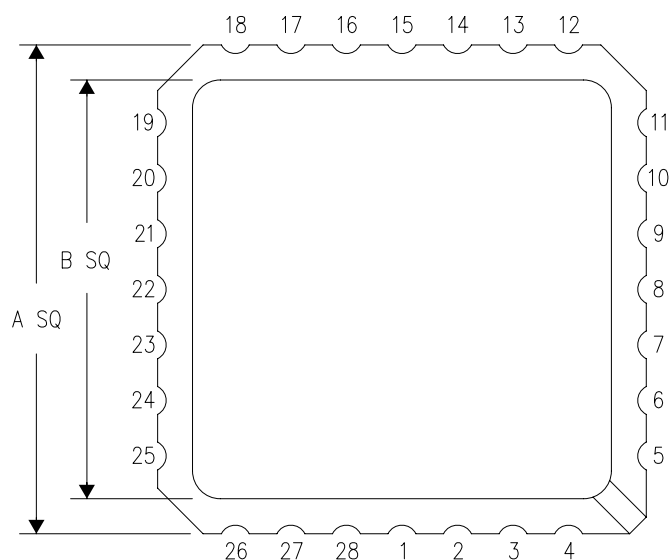


- NOTES:
- A. All linear dimensions are in inches (millimeters).
 - B. This drawing is subject to change without notice.
 - C. This package can be hermetically sealed with a ceramic lid using glass frit.
 - D. Index point is provided on cap for terminal identification only.
 - E. Falls within MIL STD 1835 GDFP1-F16 and JEDEC MO-092AC

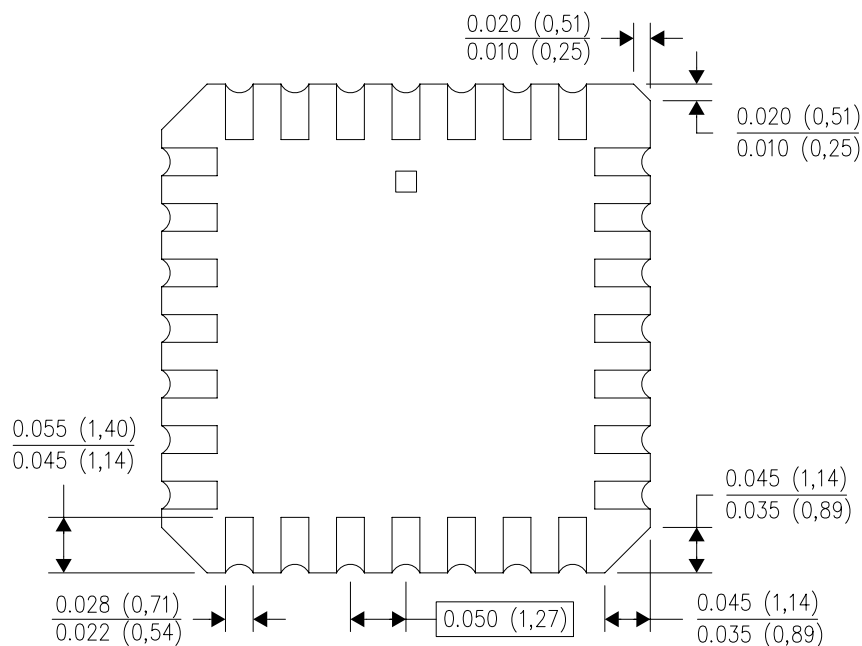
FK (S-CQCC-N**)

LEADLESS CERAMIC CHIP CARRIER

28 TERMINAL SHOWN



| NO. OF TERMINALS ** | A | | B | |
|---------------------|------------------|------------------|------------------|------------------|
| | MIN | MAX | MIN | MAX |
| 20 | 0.342 (8,69) | 0.358 (9,09) | 0.307 (7,80) | 0.358 (9,09) |
| 28 | 0.442 (11,23) | 0.458 (11,63) | 0.406 (10,31) | 0.458 (11,63) |
| 44 | 0.640 (16,26) | 0.660 (16,76) | 0.495 (12,58) | 0.560 (14,22) |
| 52 | 0.740 (18,78) | 0.761 (19,32) | 0.495 (12,58) | 0.560 (14,22) |
| 68 | 0.938 (23,83) | 0.962 (24,43) | 0.850 (21,6) | 0.858 (21,8) |
| 84 | 1.141 (28,99) | 1.165 (29,59) | 1.047 (26,6) | 1.063 (27,0) |



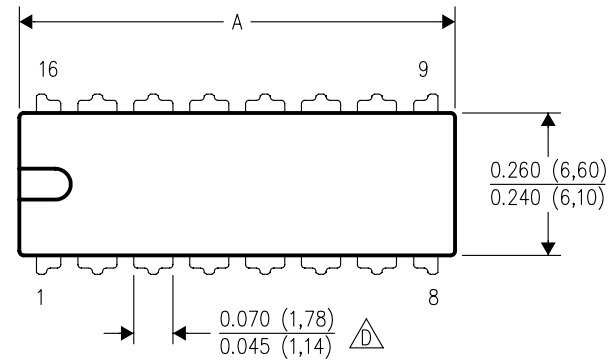
4040140/D 01/11

- NOTES:
- All linear dimensions are in inches (millimeters).
 - This drawing is subject to change without notice.
 - This package can be hermetically sealed with a metal lid.
 - Falls within JEDEC MS-004

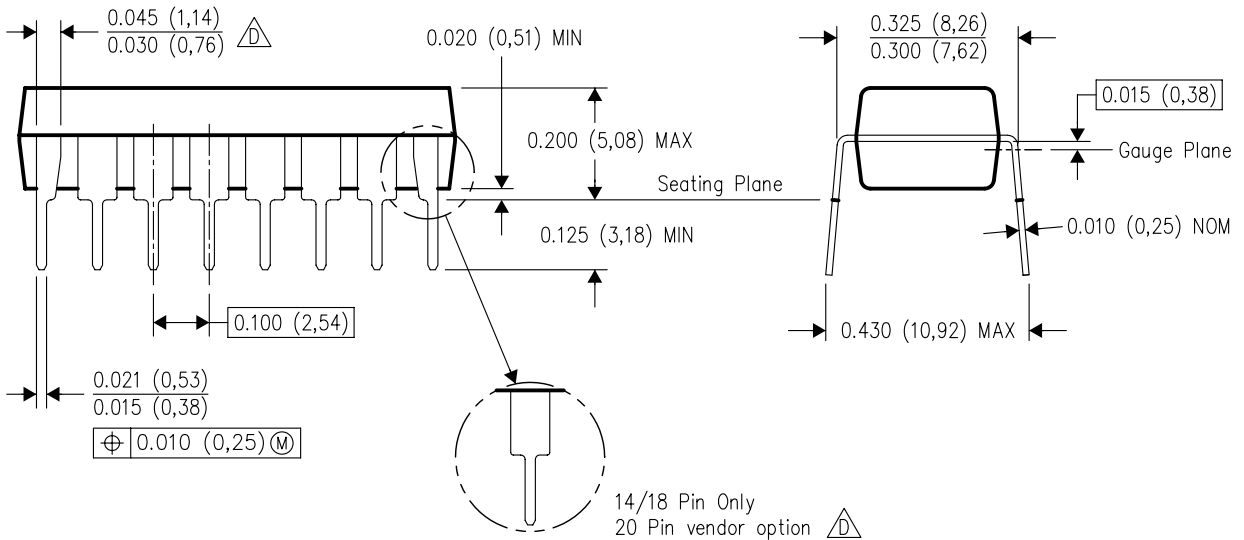
N (R-PDIP-T**)

PLASTIC DUAL-IN-LINE PACKAGE

16 PINS SHOWN



| DIM | PINS ** | | | |
|------------------|------------------|------------------|------------------|------------------|
| | 14 | 16 | 18 | 20 |
| A MAX | 0.775 (19,69) | 0.775 (19,69) | 0.920 (23,37) | 1.060 (26,92) |
| A MIN | 0.745 (18,92) | 0.745 (18,92) | 0.850 (21,59) | 0.940 (23,88) |
| MS-001 VARIATION | AA | BB | AC | AD |

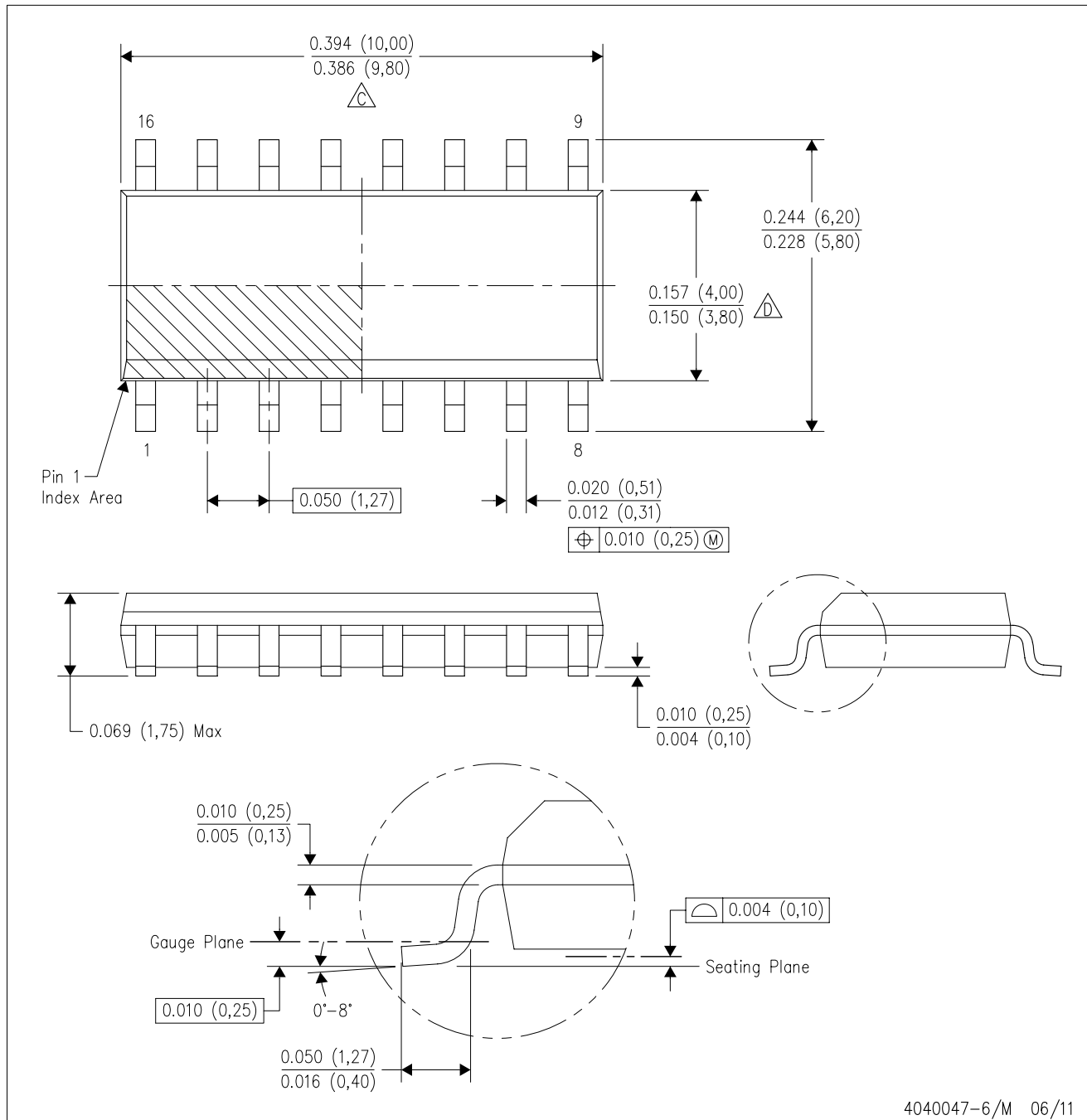


4040049/E 12/2002

- 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).
 - The 20 pin end lead shoulder width is a vendor option, either half or full width.

D (R-PDSO-G16)

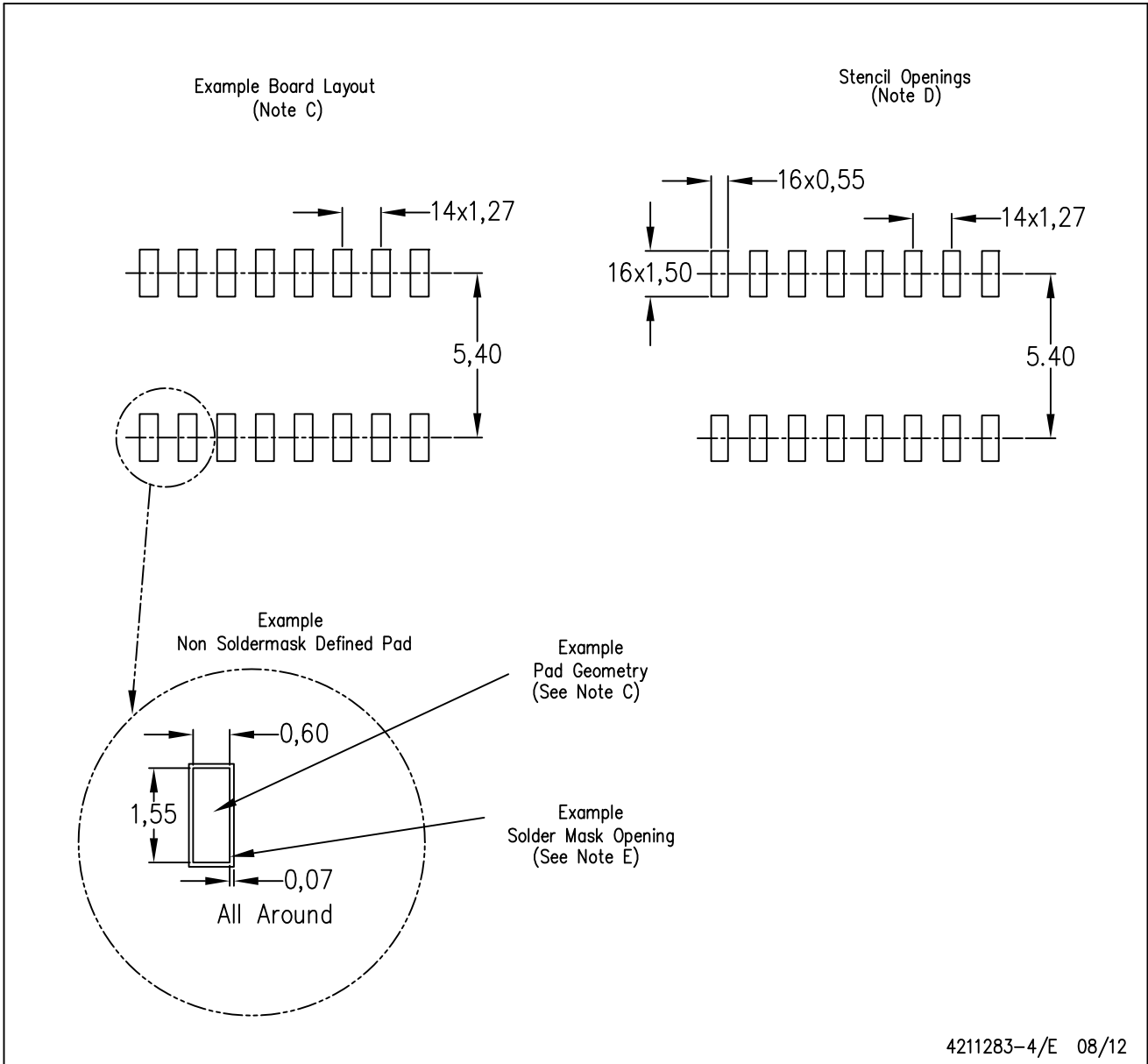
PLASTIC SMALL OUTLINE



- 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 0.006 (0,15) each side.
 - D. Body width does not include interlead flash. Interlead flash shall not exceed 0.017 (0,43) each side.
 - E. Reference JEDEC MS-012 variation AC.

D (R-PDSO-G16)

PLASTIC SMALL OUTLINE



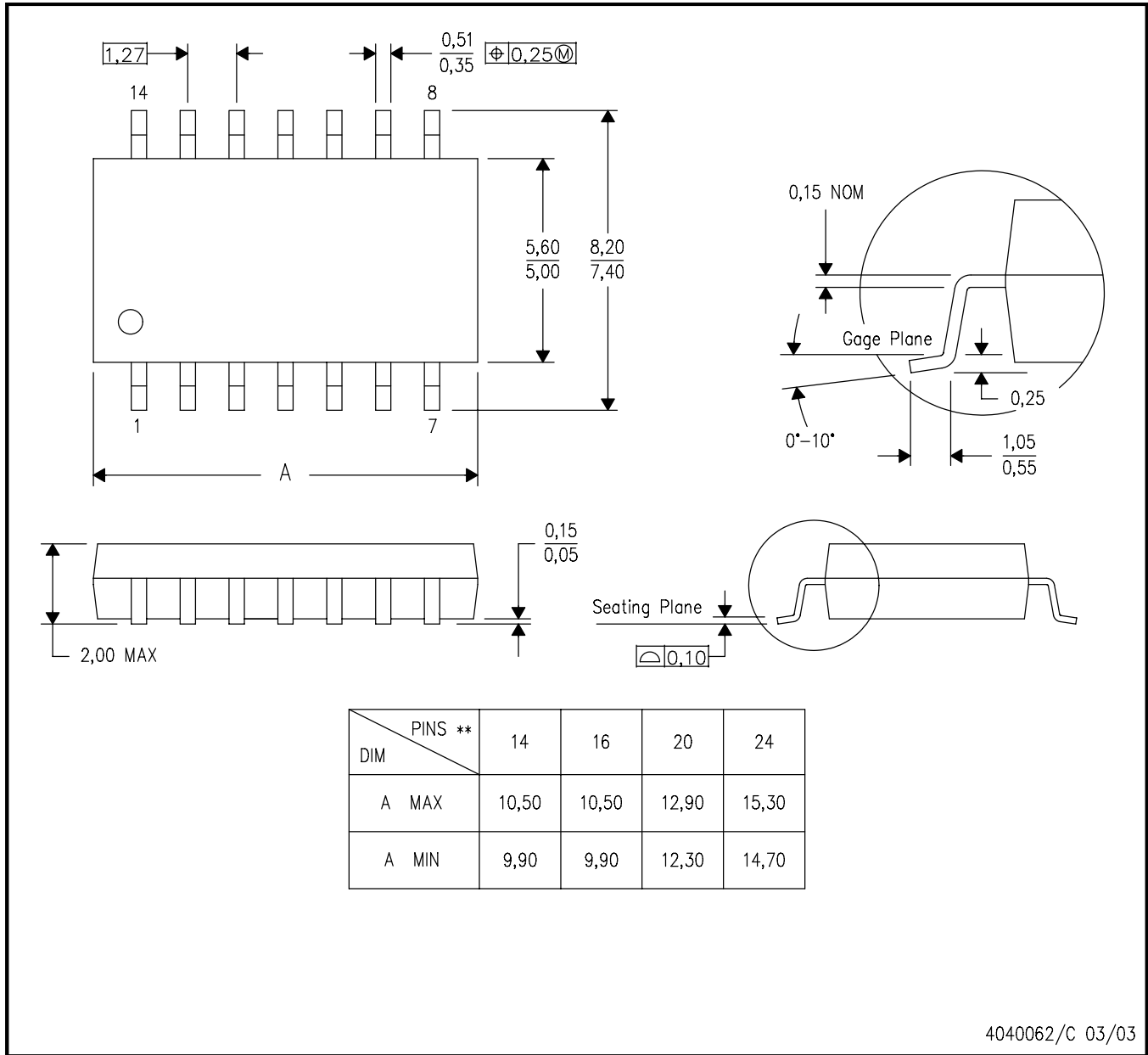
- NOTES:
- A. All linear dimensions are in millimeters.
 - B. This drawing is subject to change without notice.
 - C. Publication IPC-7351 is recommended for alternate designs.
 - D. Laser cutting apertures with trapezoidal walls and also rounding corners will offer better paste release. Customers should contact their board assembly site for stencil design recommendations. Refer to IPC-7525 for other stencil recommendations.
 - E. Customers should contact their board fabrication site for solder mask tolerances between and around signal pads.

MECHANICAL DATA

NS (R-PDSO-G**)

PLASTIC SMALL-OUTLINE PACKAGE

14-PINS SHOWN



- NOTES:
- A. All linear dimensions are in millimeters.
 - B. This drawing is subject to change without notice.
 - C. Body dimensions do not include mold flash or protrusion, not to exceed 0,15.

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