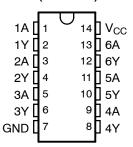
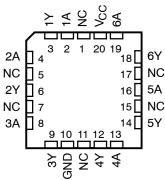
- Wide Operating Voltage Range of 2 V to 6 V
- Outputs Can Drive Up To 10 LSTTL Loads
- Low Power Consumption, 20-μA Max I_{CC}

SN54HC14 . . . J OR W PACKAGE SN74HC14 . . . D, DB, N, NS, OR PW PACKAGE (TOP VIEW)



- Typical t_{pd} = 11 ns
- ±4-mA Output Drive at 5 V
- Low Input Current of 1 μA Max





NC - No internal connection

description/ordering information

These Schmitt-trigger devices contain six independent inverters. They perform the Boolean function $Y = \overline{A}$ in positive logic.

ORDERING INFORMATION

| T _A | PACKA | GE [†] | ORDERABLE PART NUMBER | TOP-SIDE MARKING |
|----------------|------------|-----------------|--------------------------|---------------------|
| | PDIP – N | Tube of 25 | SN74HC14N | SN74HC14N |
| | | Tube of 50 | SN74HC14D | |
| | SOIC - D | Reel of 2500 | SN74HC14DRG3 | HC14 |
| | | Reel of 250 | SN74HC14DT | |
| -40°C to 85°C | SOP - NS | Reel of 2000 | SN74HC14NSR | HC14 |
| | SSOP - DB | Reel of 2000 | SN74HC14DBR | HC14 |
| | | Tube of 90 | SN74HC14PW | |
| | TSSOP - PW | Reel of 2000 | SN74HC14PWR | HC14 |
| | | Reel of 250 | SN74HC14PWT | |
| | CDIP – J | Tube | SNJ54HC14J | SNJ54HC14J |
| -55°C to 125°C | CFP – W | Tube | SNJ54HC14W | SNJ54HC14W |
| | LCCC - FK | Tube | SNJ54HC14FK | SNJ54HC14FK |

[†] Package drawings, standard packing quantities, thermal data, symbolization, and PCB design guidelines are available at www.ti.com/sc/package.



Please be aware that an important notice concerning availability, standard warranty, and use in critical applications of Texas Instruments semiconductor products and disclaimers thereto appears at the end of this data sheet.



FUNCTION TABLE (each inverter)

| INPUT A | OUTPUT Y |
|------------|-------------|
| Н | L |
| L | Н |

logic diagram (positive logic)



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

| Supply voltage range, V _{CC} | | |
|---|----------------|----------------|
| Input clamp current, I_{IK} ($V_I < 0$ or $V_I > V_{CC}$) (se | , | |
| Output clamp current, I_{OK} ($V_O < 0$ or $V_O > V_{CC}$) |) (see Note 1) | ±20 mA |
| Continuous output current, I_O ($V_O = 0$ to V_{CC}) | | ±25 mA |
| Continuous current through V _{CC} or GND | | ±50 mA |
| Package thermal impedance, θ_{JA} (see Note 2): | D package | 86°C/W |
| | DB package | 96°C/W |
| | N package | 80°C/W |
| | NS package | 76°C/W |
| | PW package | 113°C/W |
| Storage temperature range, T _{stq} | | –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.

NOTES: 1. The input and output voltage ratings may be exceeded if the input and output current ratings are observed.

2. The package thermal impedance is calculated in accordance with JESD 51-7.

recommended operating conditions (see Note 3)

| | | S | SN54HC14 SN74HC14 | | | | | |
|-----------------|--------------------------------|-----|-------------------|----------|-----|-----|----------|------|
| | | MIN | NOM | MAX | MIN | NOM | MAX | UNIT |
| V _{CC} | Supply voltage | 2 | 5 | 6 | 2 | 5 | 6 | ٧ |
| VI | Input voltage | 0 | | V_{CC} | 0 | | V_{CC} | ٧ |
| Vo | Output voltage | 0 | | V_{CC} | 0 | | V_{CC} | ٧ |
| T _A | Operating free-air temperature | -55 | | 125 | -40 | | 85 | °C |

NOTE 3: All unused inputs of the device must be held at V_{CC} or GND to ensure proper device operation. Refer to the TI application report, Implications of Slow or Floating CMOS Inputs, literature number SCBA004.



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

| 24244555 | | ONDITIONS. | | T | A = 25°C | ; | SN54l | HC14 | SN74I | HC14 | |
|-------------------|------------------------------|---|-----------------|------|----------|------|-------|-------|-------|-------|------|
| PARAMETER | TEST C | ONDITIONS | V _{CC} | MIN | TYP | MAX | MIN | MAX | MIN | MAX | UNIT |
| | | | 2 V | 0.7 | 1.2 | 1.5 | 0.7 | 1.5 | 0.7 | 1.5 | |
| V_{T+} | | | 4.5 V | 1.55 | 2.5 | 3.15 | 1.55 | 3.15 | 1.55 | 3.15 | V |
| | | 6 V | 2.1 | 3.3 | 4.2 | 2.1 | 4.2 | 2.1 | 4.2 | | |
| | | | 2 V | 0.3 | 0.6 | 1 | 0.3 | 1 | 0.3 | 1 | |
| V_{T-} | | | 4.5 V | 0.9 | 1.6 | 2.45 | 0.9 | 2.45 | 0.9 | 2.45 | V |
| | | | 6 V | 1.2 | 2 | 3.2 | 1.2 | 3.2 | 1.2 | 3.2 | |
| | | | 2 V | 0.2 | 0.6 | 1.2 | 0.2 | 1.2 | 0.2 | 1.2 | |
| $V_{T+} - V_{T-}$ | | | 4.5 V | 0.4 | 0.9 | 2.1 | 0.4 | 2.1 | 0.4 | 2.1 | V |
| | | 6 V | 0.5 | 1.3 | 2.5 | 0.5 | 2.5 | 0.5 | 2.5 | | |
| | | | 2 V | 1.9 | 1.998 | | 1.9 | | 1.9 | | |
| | $V_{I} = V_{IH}$ or V_{IL} | $I_{OH} = -20 \mu A$ $I_{OH} = -4 \text{ mA}$ | 4.5 V | 4.4 | 4.499 | | 4.4 | | 4.4 | | V |
| V _{OH} | | | 6 V | 5.9 | 5.999 | | 5.9 | | 5.9 | | |
| | | | 4.5 V | 3.98 | 4.3 | | 3.7 | | 3.84 | | |
| | | $I_{OH} = -5.2 \text{ mA}$ | 6 V | 5.48 | 5.8 | | 5.2 | | 5.34 | | |
| | | | 2 V | | 0.002 | 0.1 | | 0.1 | | 0.1 | |
| | | I _{OL} = 20 μA | 4.5 V | | 0.001 | 0.1 | | 0.1 | | 0.1 | |
| V_{OL} | $V_I = V_{IH}$ or V_{IL} | | 6 V | | 0.001 | 0.1 | | 0.1 | | 0.1 | V |
| | | I _{OL} = 4 mA | 4.5 V | | 0.17 | 0.26 | | 0.4 | | 0.33 | |
| | | I _{OL} = 5.2 mA | 6 V | | 0.15 | 0.26 | | 0.4 | | 0.33 | |
| l _l | $V_I = V_{CC}$ or 0 | | 6 V | | ±0.1 | ±100 | | ±1000 | | ±1000 | nA |
| I _{CC} | $V_I = V_{CC}$ or 0, | I _O = 0 | 6 V | | | 2 | | 40 | | 20 | μΑ |
| C _i | | | 2 V to 6 V | | 3 | 10 | | 10 | | 10 | pF |

switching characteristics over recommended operating free-air temperature range, C_L = 50 pF (unless otherwise noted) (see Figure 1)

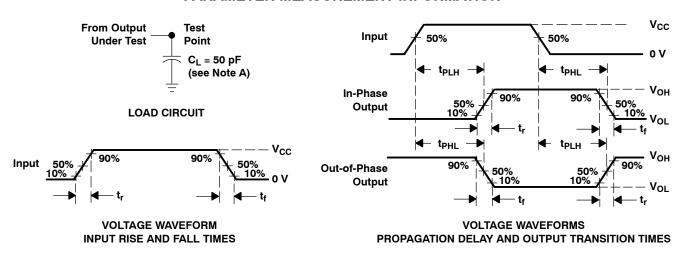
| DADAMETED | ARAMETER FROM TO | | ., | T, | գ = 25°C | ; | SN54l | HC14 | SN74H | HC14 | |
|-----------------|------------------|----------|-----------------|-----|----------|-----|-------|------|-------|------|------|
| PARAMETER | (INPUT) | (OUTPUT) | V _{CC} | MIN | TYP | MAX | MIN | MAX | MIN | MAX | UNIT |
| | | | 2 V | | 55 | 125 | | 190 | | 155 | |
| t _{pd} | Α | Y | 4.5 V | | 12 | 25 | | 38 | | 31 | ns |
| - | | | 6 V | | 11 | 21 | | 32 | | 26 | |
| | | | 2 V | | 38 | 75 | | 110 | | 95 | |
| t _t | | Υ | 4.5 V | | 8 | 15 | | 22 | | 19 | ns |
| | | | 6 V | | 6 | 13 | | 19 | | 16 | |

operating characteristics, $T_A = 25^{\circ}C$

| | PARAMETER | TEST CONDITIONS | TYP | UNIT |
|-----------------|--|-----------------|-----|------|
| C _{pd} | Power dissipation capacitance per inverter | No load | 20 | pF |



PARAMETER MEASUREMENT INFORMATION



NOTES: A. C_L includes probe and test-fixture capacitance.

- B. Phase relationships between waveforms were chosen arbitrarily. All input pulses are supplied by generators having the following characteristics: PRR \leq 1 MHz, Z_{Ω} = 50 Ω , t_r = 6 ns, t_f = 6 ns.
- C. The outputs are measured one at a time, with one input transition per measurement.
- D. t_{PLH} and t_{PHL} are the same as t_{pd} .

Figure 1. Load Circuit 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) |
|------------------|-----------------------|--------------|--------------------|------|-------------|----------------------------|----------------------|------------------------------|--|
| 5962-8409101VCA | ACTIVE | CDIP | J | 14 | 1 | TBD | A42 | N / A for Pkg Type | Purchase Samples |
| 5962-8409101VDA | ACTIVE | CFP | W | 14 | 1 | TBD | A42 | N / A for Pkg Type | Purchase Samples |
| 84091012A | ACTIVE | LCCC | FK | 20 | 1 | TBD | POST-PLATE | N / A for Pkg Type | Purchase Samples |
| 8409101CA | ACTIVE | CDIP | J | 14 | 1 | TBD | A42 | N / A for Pkg Type | Purchase Samples |
| 8409101DA | ACTIVE | CFP | W | 14 | 1 | TBD | A42 | N / A for Pkg Type | Purchase Samples |
| JM38510/65702BCA | ACTIVE | CDIP | J | 14 | 1 | TBD | A42 | N / A for Pkg Type | Contact TI Distributo or Sales Office |
| JM38510/65702BDA | ACTIVE | CFP | W | 14 | 1 | TBD | A42 | N / A for Pkg Type | Contact TI Distributo or Sales Office |
| SN54HC14J | ACTIVE | CDIP | J | 14 | 1 | TBD | A42 | N / A for Pkg Type | Contact TI Distributo or Sales Office |
| SN74HC14D | ACTIVE | SOIC | D | 14 | 50 | Green (RoHS & no Sb/Br) | CU NIPDAU | Level-1-260C-UNLIM | Purchase Samples |
| SN74HC14DBR | ACTIVE | SSOP | DB | 14 | 2000 | Green (RoHS & no Sb/Br) | CU NIPDAU | Level-1-260C-UNLIM | Purchase Samples |
| SN74HC14DBRE4 | ACTIVE | SSOP | DB | 14 | 2000 | Green (RoHS & no Sb/Br) | CU NIPDAU | Level-1-260C-UNLIM | Purchase Samples |
| SN74HC14DBRG4 | ACTIVE | SSOP | DB | 14 | 2000 | Green (RoHS & no Sb/Br) | CU NIPDAU | Level-1-260C-UNLIM | Purchase Samples |
| SN74HC14DE4 | ACTIVE | SOIC | D | 14 | 50 | Green (RoHS & no Sb/Br) | CU NIPDAU | Level-1-260C-UNLIM | Purchase Samples |
| SN74HC14DG4 | ACTIVE | SOIC | D | 14 | 50 | Green (RoHS & no Sb/Br) | CU NIPDAU | Level-1-260C-UNLIM | Purchase Samples |
| SN74HC14DR | ACTIVE | SOIC | D | 14 | 2500 | Green (RoHS & no Sb/Br) | CU NIPDAU | Level-1-260C-UNLIM | Contact TI Distributo or Sales Office |
| SN74HC14DRE4 | ACTIVE | SOIC | D | 14 | 2500 | Green (RoHS & no Sb/Br) | CU NIPDAU | Level-1-260C-UNLIM | Contact TI Distribute or Sales Office |
| SN74HC14DRG3 | ACTIVE | SOIC | D | 14 | 2500 | Green (RoHS & no Sb/Br) | CU SN | Level-1-260C-UNLIM | Purchase Samples |
| SN74HC14DRG4 | ACTIVE | SOIC | D | 14 | 2500 | Green (RoHS & no Sb/Br) | CU NIPDAU | Level-1-260C-UNLIM | Contact TI Distribute or Sales Office |
| SN74HC14DT | ACTIVE | SOIC | D | 14 | 250 | Green (RoHS & no Sb/Br) | CU NIPDAU | Level-1-260C-UNLIM | Purchase Samples |



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| Orderable Device | Status (1) | Package Type | Package Drawing | Pins | Package Qty | Eco Plan ⁽²⁾ | Lead/ Ball Finish | MSL Peak Temp ⁽³⁾ | Samples (Requires Login) |
|------------------|------------|--------------|--------------------|------|-------------|----------------------------|----------------------|------------------------------|--|
| SN74HC14DTE4 | ACTIVE | SOIC | D | 14 | 250 | Green (RoHS & no Sb/Br) | CU NIPDAU | Level-1-260C-UNLIM | Purchase Samples |
| SN74HC14DTG4 | ACTIVE | SOIC | D | 14 | 250 | Green (RoHS & no Sb/Br) | CU NIPDAU | Level-1-260C-UNLIM | Purchase Samples |
| SN74HC14N | ACTIVE | PDIP | N | 14 | 25 | Pb-Free (RoHS) | CU NIPDAU | N / A for Pkg Type | Contact TI Distributor or Sales Office |
| SN74HC14N3 | OBSOLETE | PDIP | N | 14 | | TBD | Call TI | Call TI | Samples Not Available |
| SN74HC14NE4 | ACTIVE | PDIP | N | 14 | 25 | Pb-Free (RoHS) | CU NIPDAU | N / A for Pkg Type | Contact TI Distributor or Sales Office |
| SN74HC14NSLE | OBSOLETE | SO | NS | 14 | | TBD | Call TI | Call TI | Replaced by SN74HC14NSR |
| SN74HC14NSR | ACTIVE | SO | NS | 14 | 2000 | Green (RoHS & no Sb/Br) | CU NIPDAU | Level-1-260C-UNLIM | Contact TI Distributor or Sales Office |
| SN74HC14NSRE4 | ACTIVE | SO | NS | 14 | 2000 | Green (RoHS & no Sb/Br) | CU NIPDAU | Level-1-260C-UNLIM | Contact TI Distributor or Sales Office |
| SN74HC14NSRG4 | ACTIVE | SO | NS | 14 | 2000 | Green (RoHS & no Sb/Br) | CU NIPDAU | Level-1-260C-UNLIM | Contact TI Distributor or Sales Office |
| SN74HC14PW | ACTIVE | TSSOP | PW | 14 | 90 | Green (RoHS & no Sb/Br) | CU NIPDAU | Level-1-260C-UNLIM | Purchase Samples |
| SN74HC14PWE4 | ACTIVE | TSSOP | PW | 14 | 90 | Green (RoHS & no Sb/Br) | CU NIPDAU | Level-1-260C-UNLIM | Purchase Samples |
| SN74HC14PWG4 | ACTIVE | TSSOP | PW | 14 | 90 | Green (RoHS & no Sb/Br) | CU NIPDAU | Level-1-260C-UNLIM | Purchase Samples |
| SN74HC14PWLE | OBSOLETE | TSSOP | PW | 14 | | TBD | Call TI | Call TI | Replaced by SN74HC14PWR |
| SN74HC14PWR | ACTIVE | TSSOP | PW | 14 | 2000 | Green (RoHS & no Sb/Br) | CU NIPDAU | Level-1-260C-UNLIM | Contact TI Distributor or Sales Office |
| SN74HC14PWRE4 | ACTIVE | TSSOP | PW | 14 | 2000 | Green (RoHS & no Sb/Br) | CU NIPDAU | Level-1-260C-UNLIM | Contact TI Distributor or Sales Office |
| SN74HC14PWRG4 | ACTIVE | TSSOP | PW | 14 | 2000 | Green (RoHS & no Sb/Br) | CU NIPDAU | Level-1-260C-UNLIM | Contact TI Distributor or Sales Office |
| SN74HC14PWT | ACTIVE | TSSOP | PW | 14 | 250 | Green (RoHS & no Sb/Br) | CU NIPDAU | Level-1-260C-UNLIM | Purchase Samples |
| SN74HC14PWTE4 | ACTIVE | TSSOP | PW | 14 | 250 | Green (RoHS & no Sb/Br) | CU NIPDAU | Level-1-260C-UNLIM | Purchase Samples |
| SN74HC14PWTG4 | ACTIVE | TSSOP | PW | 14 | 250 | Green (RoHS & no Sb/Br) | CU NIPDAU | Level-1-260C-UNLIM | Purchase Samples |



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| Orderable Device | Status (1) | Package Type | Package Drawing | Pins | Package Qty | Eco Plan ⁽²⁾ | Lead/ Ball Finish | MSL Peak Temp ⁽³⁾ | Samples (Requires Login) |
|------------------|------------|--------------|--------------------|------|-------------|-------------------------|----------------------|------------------------------|---|
| SNJ54HC14FK | ACTIVE | LCCC | FK | 20 | 1 | TBD | POST-PLATE | N / A for Pkg Type | Contact TI Distributor or Sales Office |
| SNJ54HC14J | ACTIVE | CDIP | J | 14 | 1 | TBD | A42 | N / A for Pkg Type | Contact TI Distributor or Sales Office |
| SNJ54HC14W | ACTIVE | CFP | W | 14 | 1 | TBD | A42 | N / A for Pkg Type | Contact TI Distributor or Sales Office |

(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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OTHER QUALIFIED VERSIONS OF SN54HC14, SN54HC14-SP, SN74HC14:

Catalog: SN74HC14, SN54HC14

Automotive: SN74HC14-Q1, SN74HC14-Q1



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Military: SN54HC14

• Space: SN54HC14-SP

NOTE: Qualified Version Definitions:

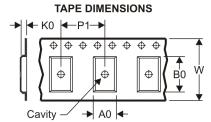
- Catalog TI's standard catalog product
- Automotive Q100 devices qualified for high-reliability automotive applications targeting zero defects
- Military QML certified for Military and Defense Applications
- Space Radiation tolerant, ceramic packaging and qualified for use in Space-based application

PACKAGE MATERIALS INFORMATION

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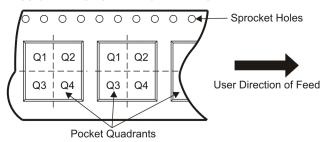
TAPE AND REEL INFORMATION





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

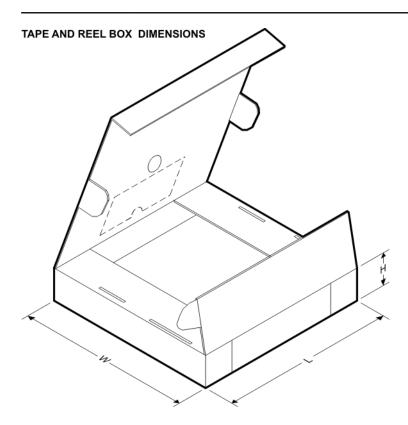
QUADRANT ASSIGNMENTS FOR PIN 1 ORIENTATION IN TAPE



*All dimensions are nominal

| Device | Package Type | Package Drawing | | SPQ | Reel Diameter (mm) | Reel Width W1 (mm) | A0 (mm) | B0 (mm) | K0 (mm) | P1 (mm) | W (mm) | Pin1 Quadrant |
|-------------|-----------------|--------------------|----|------|--------------------------|--------------------------|------------|------------|------------|------------|-----------|------------------|
| SN74HC14DBR | SSOP | DB | 14 | 2000 | 330.0 | 16.4 | 8.2 | 6.6 | 2.5 | 12.0 | 16.0 | Q1 |
| SN74HC14DR | SOIC | D | 14 | 2500 | 330.0 | 16.4 | 6.5 | 9.0 | 2.1 | 8.0 | 16.0 | Q1 |
| SN74HC14DT | SOIC | D | 14 | 250 | 330.0 | 16.4 | 6.5 | 9.0 | 2.1 | 8.0 | 16.0 | Q1 |
| SN74HC14NSR | SO | NS | 14 | 2000 | 330.0 | 16.4 | 8.2 | 10.5 | 2.5 | 12.0 | 16.0 | Q1 |
| SN74HC14PWR | TSSOP | PW | 14 | 2000 | 330.0 | 12.4 | 6.9 | 5.6 | 1.6 | 8.0 | 12.0 | Q1 |
| SN74HC14PWT | TSSOP | PW | 14 | 250 | 330.0 | 12.4 | 6.9 | 5.6 | 1.6 | 8.0 | 12.0 | Q1 |

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*All dimensions are nominal

| Device | Package Type | Package Drawing | Pins | SPQ | Length (mm) | Width (mm) | Height (mm) |
|-------------|--------------|-----------------|------|------|-------------|------------|-------------|
| SN74HC14DBR | SSOP | DB | 14 | 2000 | 346.0 | 346.0 | 33.0 |
| SN74HC14DR | SOIC | D | 14 | 2500 | 346.0 | 346.0 | 33.0 |
| SN74HC14DT | SOIC | D | 14 | 250 | 346.0 | 346.0 | 33.0 |
| SN74HC14NSR | SO | NS | 14 | 2000 | 346.0 | 346.0 | 33.0 |
| SN74HC14PWR | TSSOP | PW | 14 | 2000 | 346.0 | 346.0 | 29.0 |
| SN74HC14PWT | TSSOP | PW | 14 | 250 | 346.0 | 346.0 | 29.0 |

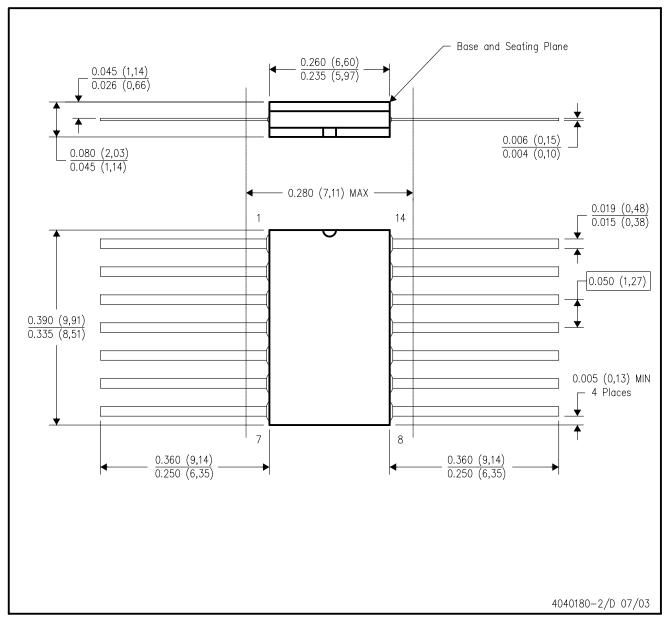
14 LEADS SHOWN



- 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-F14)

CERAMIC DUAL FLATPACK



- 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-F14 and JEDEC MO-092AB



N (R-PDIP-T**)

PLASTIC DUAL-IN-LINE PACKAGE

16 PINS SHOWN

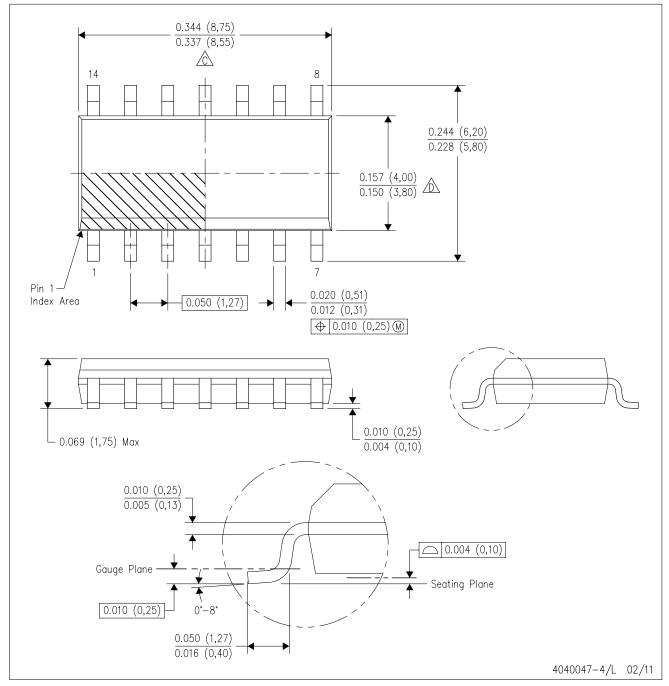


- A. All linear dimensions are in inches (millimeters).
- B. This drawing is subject to change without notice.
- Falls within JEDEC MS-001, except 18 and 20 pin minimum body length (Dim A).
- The 20 pin end lead shoulder width is a vendor option, either half or full width.



D (R-PDSO-G14)

PLASTIC SMALL OUTLINE

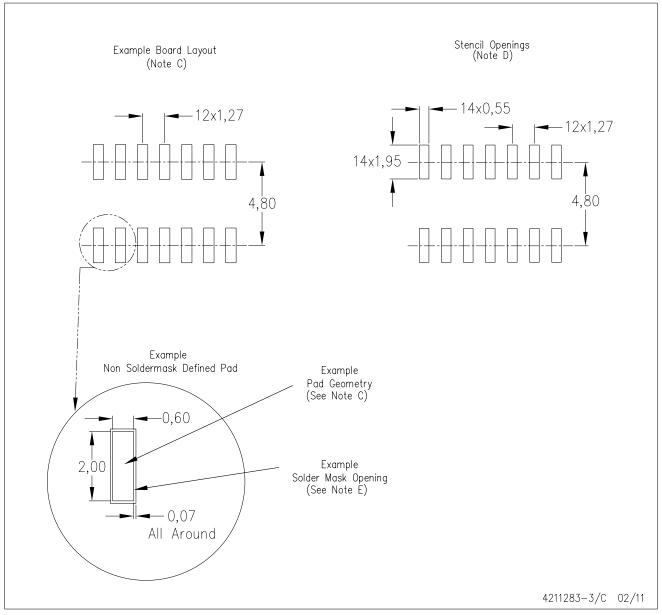


- A. All linear dimensions are in inches (millimeters).
- B. This drawing is subject to change without notice.
- Body length does not include mold flash, protrusions, or gate burrs. Mold flash, protrusions, or gate burrs shall not exceed 0.006 (0,15) each side.
- Body width does not include interlead flash. Interlead flash shall not exceed 0.017 (0,43) each side.
- E. Reference JEDEC MS-012 variation AB.



D (R-PDSO-G14)

PLASTIC SMALL OUTLINE



- 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.



PW (R-PDSO-G14)

PLASTIC SMALL OUTLINE

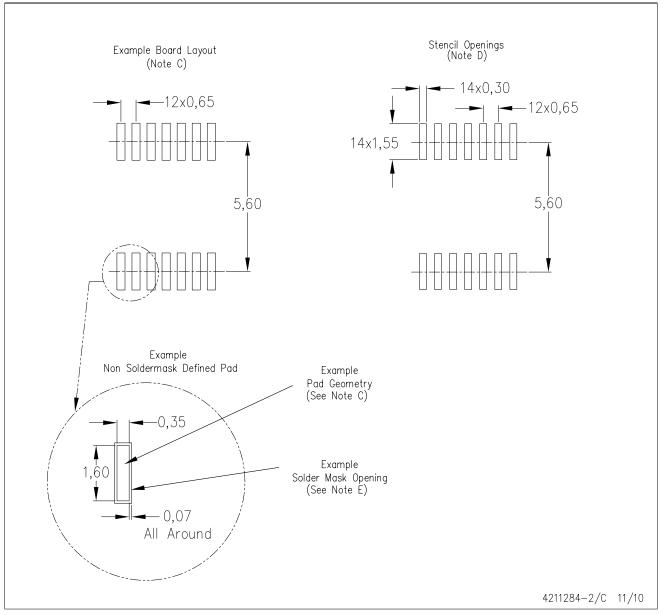


- A. All linear dimensions are in millimeters. Dimensioning and tolerancing per ASME Y14.5M—1994.
- B. This drawing is subject to change without notice.
- Body length does not include mold flash, protrusions, or gate burrs. Mold flash, protrusions, or gate burrs shall not exceed 0,15 each side.
- Body width does not include interlead flash. Interlead flash shall not exceed 0,25 each side.
- E. Falls within JEDEC MO-153



PW (R-PDSO-G14)

PLASTIC SMALL OUTLINE



- 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**)

14-PINS SHOWN

PLASTIC SMALL-OUTLINE PACKAGE



- 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.



DB (R-PDSO-G**)

PLASTIC SMALL-OUTLINE

28 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.

D. Falls within JEDEC MO-150

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