## 捷多邦,专业PCB打样工厂**SN54円の138** 3-LINE TO 8-LINE DECODERS/DEMULTIPLEXERS

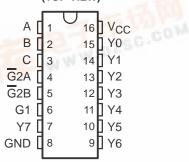
SCLS107E - DECEMBER 1982 - REVISED SEPTEMBER 2003

- Targeted Specifically for High-Speed
  Memory Decoders and Data-Transmission
  Systems
- Wide Operating Voltage Range of 2 V to 6 V
- Outputs Can Drive Up To 10 LSTTL Loads
- Low Power Consumption, 80-μA Max I<sub>CC</sub>
- Typical t<sub>pd</sub> = 15 ns
- ±4-mA Output Drive at 5 V
- Low Input Current of 1 μA Max
- Incorporate Three Enable Inputs to Simplify Cascading and/or Data Reception

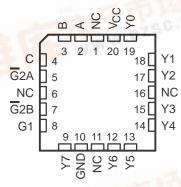
#### description/ordering information

The 'HC138 devices are designed to be used in high-performance memory-decoding or datarouting applications requiring very short propagation delay times. In high-performance memory systems, these decoders can be used to minimize the effects of system decoding. When employed with high-speed memories utilizing a fast enable circuit, the delay times of these decoders and the enable time of the memory are usually less than the typical access time of the memory. This means that the effective system delay introduced by the decoders is negligible.

SN54HC138 . . . J OR W PACKAGE SN74HC138 . . . D, DB, N, NS, OR PW PACKAGE (TOP VIEW)



SN54HC138 . . . FK PACKAGE (TOP VIEW)



NC – No internal connection

#### **ORDERING INFORMATION**

| TA             | PACKA      | GET          | ORDERABLE PART NUMBER | TOP-SIDE<br>MARKING |  |
|----------------|------------|--------------|-----------------------|---------------------|--|
| 100            | PDIP – N   | Tube of 25   | SN74HC138N            | SN74HC138N          |  |
|                | 756.0      | Tube of 40   | SN74HC138D            |                     |  |
| 415            | SOIC - D   | Reel of 2500 | SN74HC138DR           | HC138               |  |
| T 1-4- A       |            | Reel of 250  | SN74HC138DT           |                     |  |
| -40°C to 85°C  | SOP - NS   | Reel of 2000 | SN74HC138NSR          | HC138               |  |
|                | SSOP - DB  | Reel of 2000 | SN74HC138DBR          | HC138               |  |
|                |            | Tube of 90   | SN74HC138PW           | カナリアの               |  |
|                | TSSOP - PW | Reel of 2000 | SN74HC138PWR          | HC138               |  |
|                |            | Reel of 250  | SN74HC138PWT          | 40 40               |  |
|                | CDIP – J   | Tube of 25   | SNJ54HC138J           | SNJ54HC138J         |  |
| -55°C to 125°C | CFP – W    | Tube of 150  | SNJ54HC138W           | SNJ54HC138W         |  |
|                | LCCC - FK  | Tube of 55   | SNJ54HC138FK          | SNJ54HC138FK        |  |

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

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SCLS107E - DECEMBER 1982 - REVISED SEPTEMBER 2003

#### description/ordering information (continued)

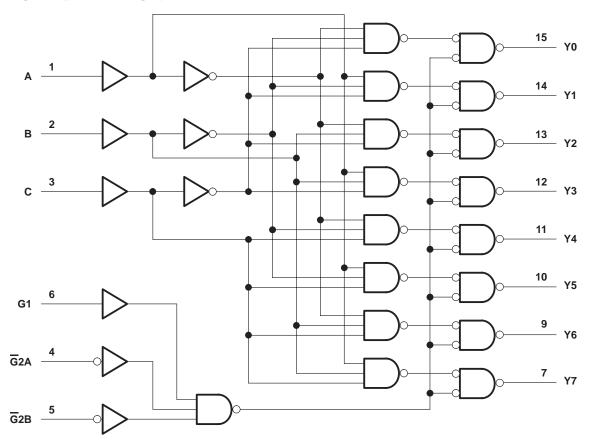
The conditions at the binary-select inputs at the three enable inputs select one of eight output lines. Two active-low and one active-high enable inputs reduce the need for external gates or inverters when expanding. A 24-line decoder can be implemented without external inverters, and a 32-line decoder requires only one inverter. An enable input can be used as a data input for demultiplexing applications.

#### **FUNCTION TABLE**

|    |               | INP              | JTS |   |   |         |    |    | OUT | DUTO |    |    |    |
|----|---------------|------------------|-----|---|---|---------|----|----|-----|------|----|----|----|
|    | ENABLE SELECT |                  |     |   | • | OUTPUTS |    |    |     |      |    |    |    |
| G1 | G2A           | G <sub>2</sub> B | С   | В | Α | Y0      | Y1 | Y2 | Y3  | Y4   | Y5 | Y6 | Y7 |
| Х  | Н             | Х                | Χ   | Χ | Χ | Н       | Н  | Н  | Н   | Н    | Н  | Н  | Н  |
| Х  | X             | Н                | Χ   | Χ | Χ | Н       | Н  | Н  | Н   | Н    | Н  | Н  | Н  |
| L  | X             | X                | Χ   | Χ | Χ | Н       | Н  | Н  | Н   | Н    | Н  | Н  | Н  |
| Н  | L             | L                | L   | L | L | L       | Н  | Н  | Н   | Н    | Н  | Н  | Н  |
| Н  | L             | L                | L   | L | Н | Н       | L  | Н  | Н   | Н    | Н  | Н  | Н  |
| Н  | L             | L                | L   | Н | L | Н       | Н  | L  | Н   | Н    | Н  | Н  | Н  |
| Н  | L             | L                | L   | Н | Н | Н       | Н  | Н  | L   | Н    | Н  | Н  | Н  |
| Н  | L             | L                | Н   | L | L | Н       | Н  | Н  | Н   | L    | Н  | Н  | Н  |
| Н  | L             | L                | Н   | L | Н | Н       | Н  | Н  | Н   | Н    | L  | Н  | Н  |
| Н  | L             | L                | Н   | Н | L | Н       | Н  | Н  | Н   | Н    | Н  | L  | Н  |
| Н  | L             | L                | Н   | Н | Н | Н       | Н  | Н  | Н   | Н    | Н  | Н  | L  |

SCLS107E - DECEMBER 1982 - REVISED SEPTEMBER 2003

#### logic diagram (positive logic)



Pin numbers shown are for the D, DB, J, N, NS, PW, and W packages.

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

| Supply voltage range, V <sub>CC</sub>  | –0.5 V t             | to 7 V             |
|--|----------------------|--------------------|
| Input clamp current, $I_{IK}$ ( $V_I < 0$ or $V_I > V_{CC}$ ) (see N                               | Note 1) ±2           | 20 mA              |
| Output clamp current, I <sub>OK</sub> (V <sub>O</sub> < 0 or V <sub>O</sub> > V <sub>CC</sub> ) (s | see Note 1) ±2       | 20 mA              |
| Continuous output current, $I_O(V_O = 0 \text{ to } V_{CC}) \dots$                                 | ±2                   | 25 mA              |
| Continuous current through V <sub>CC</sub> or GND  | ±5                   | 50 mA              |
| Package thermal impedance, $\theta_{JA}$ (see Note 2): D   | package 73           | 3°C/W              |
| DE   | B package       82   | 2°C/W              |
| N  | package 67           | 7°C/W              |
| NS   | S package            | t <sub>o</sub> C/M |
| PV   | <i>N</i> package 108 | 3°C/W              |
| Storage temperature range, T <sub>sta</sub>  |                      | 150°C              |

<sup>†</sup> 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.

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



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

SCLS107E - DECEMBER 1982 - REVISED SEPTEMBER 2003

#### recommended operating conditions (see Note 3)

|  |                                 |                         | SN   | N54HC13 | 8    | SN   | 174HC13 | 8    |      |  |
|--|---------------------------------|-------------------------|------|---------|------|------|---------|------|------|--|
|  |                                 |                         | MIN  | NOM     | MAX  | MIN  | NOM     | MAX  | UNIT |  |
| Vcc                                      | Supply voltage                  |                         | 2    | 5       | 6    | 2    | 5       | 6    | V    |  |
|  |                                 | V <sub>CC</sub> = 2 V   | 1.5  |         |      | 1.5  |         |      |      |  |
| V <sub>IH</sub> High-level input voltage | High-level input voltage        | V <sub>CC</sub> = 4.5 V | 3.15 |         |      | 3.15 |         |      | V    |  |
|  |                                 | V <sub>CC</sub> = 6 V   | 4.2  |         |      | 4.2  |         |      |      |  |
|  |                                 | V <sub>CC</sub> = 2 V   |      |         | 0.5  |      |         | 0.5  | V    |  |
| ٧ <sub>IL</sub>                          | Low-level input voltage         | V <sub>CC</sub> = 4.5 V |      |         | 1.35 |      |         | 1.35 |      |  |
|  |                                 | V <sub>CC</sub> = 6 V   |      |         | 1.8  |      |         | 1.8  |      |  |
| ٧ <sub>I</sub>                           | Input voltage                   |                         | 0    |         | VCC  | 0    |         | VCC  | V    |  |
| VO                                       | Output voltage                  |                         | 0    |         | VCC  | 0    |         | VCC  | V    |  |
|  |                                 | V <sub>CC</sub> = 2 V   |      |         | 1000 |      |         | 1000 |      |  |
| Δt/Δν                                    | Input transition rise/fall time | V <sub>CC</sub> = 4.5 V |      |         | 500  |      |         | 500  | ns   |  |
|  |                                 | V <sub>CC</sub> = 6 V   |      |         | 400  |      |         | 400  |      |  |
| TA                                       | Operating free-air temperature  | _                       | -55  |         | 125  | -40  |         | 85   | °C   |  |

NOTE 3: All unused inputs of the device must be held at V<sub>CC</sub> 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)

| DADAMETER | TEOT 0.0             | TEGT CONDITIONS            |                   | Т    | A = 25°C | ;    | SN54H | C138  | SN74HC138 |       |      |
|-----------|----------------------|----------------------------|-------------------|------|----------|------|-------|-------|-----------|-------|------|
| PARAMETER | TEST CONDITIONS      |                            | s v <sub>cc</sub> |      | TYP      | MAX  | MIN   | MAX   | MIN       | MAX   | UNIT |
|           |                      |                            | 2 V               | 1.9  | 1.998    |      | 1.9   |       | 1.9       |       |      |
|           |                      | $I_{OH} = -20  \mu A$      | 4.5 V             | 4.4  | 4.499    |      | 4.4   |       | 4.4       |       |      |
| Voн       | VI = VIH or VIL      |                            | 6 V               | 5.9  | 5.999    |      | 5.9   |       | 5.9       |       | V    |
|           |                      | $I_{OH} = -4 \text{ mA}$   | 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      |       |      |
|           | VI = VIH or VIL      | I <sub>OL</sub> = 20 μA    | 2 V               |      | 0.002    | 0.1  |       | 0.1   |           | 0.1   | V    |
|           |                      |                            | 4.5 V             |      | 0.001    | 0.1  |       | 0.1   |           | 0.1   |      |
| VOL       |                      |                            | 6 V               |      | 0.001    | 0.1  |       | 0.1   |           | 0.1   |      |
|           |                      | $I_{OL} = 4 \text{ mA}$    | 4.5 V             |      | 0.17     | 0.26 |       | 0.4   |           | 0.33  |      |
|           |                      | $I_{OL} = 5.2 \text{ mA}$  | 6 V               |      | 0.15     | 0.26 |       | 0.4   |           | 0.33  |      |
| lį        | $V_I = V_{CC}$ or 0  |                            | 6 V               |      | ±0.1     | ±100 |       | ±1000 |           | ±1000 | nA   |
| ICC       | $V_I = V_{CC}$ or 0, | IO = 0                     | 6 V               |      |          | 8    |       | 160   |           | 80    | μΑ   |
| Ci        |                      |                            | 2 V to 6 V        |      | 3        | 10   |       | 10    |           | 10    | pF   |

SCLS107E - DECEMBER 1982 - REVISED SEPTEMBER 2003

## switching characteristics over recommended operating free-air temperature range, $C_L = 50 \text{ pF}$ (unless otherwise noted) (see Figure 1)

| DADAMETED       | FROM       | то       | V     | T,  | 4 = 25°C | ;   | SN54HC138 |     | SN74HC138 |     | LINUT |
|-----------------|------------|----------|-------|-----|----------|-----|-----------|-----|-----------|-----|-------|
| PARAMETER       | (INPUT)    | (OUTPUT) | VCC   | MIN | TYP      | MAX | MIN       | MAX | MIN       | MAX | UNIT  |
|                 |            |          | 2 V   |     | 67       | 180 |           | 270 |           | 225 |       |
|                 | A, B, or C | Any Y    | 4.5 V |     | 18       | 36  |           | 54  |           | 45  |       |
| _               |            |          | 6 V   |     | 15       | 31  |           | 46  |           | 38  | ns    |
| <sup>t</sup> pd | Enable     | Any Y    | 2 V   |     | 66       | 155 |           | 235 |           | 195 |       |
|                 |            |          | 4.5 V |     | 18       | 31  |           | 47  |           | 39  |       |
|                 |            |          | 6 V   |     | 15       | 26  |           | 40  |           | 33  |       |
|                 |            | Any      | 2 V   |     | 38       | 75  |           | 110 |           | 95  |       |
| t <sub>t</sub>  |            |          | 4.5 V |     | 8        | 15  |           | 22  |           | 19  | ns    |
|                 |            |          | 6 V   |     | 6        | 13  |           | 19  |           | 16  |       |

#### operating characteristics, T<sub>A</sub> = 25°C

|                 | PARAMETER                     | TEST CONDITIONS | TYP | UNIT |
|-----------------|-------------------------------|-----------------|-----|------|
| C <sub>pd</sub> | Power dissipation capacitance | No load         | 85  | pF   |

#### PARAMETER MEASUREMENT INFORMATION From Output Test Input 50% 50% **Under Test Point** $C_L = 50 pF$ **tPHL** (see Note A) $v_{OH}$ In-Phase 90% Output LOAD CIRCUIT – tPHL 90% Out-of-Phase Output **VOLTAGE WAVEFORM VOLTAGE WAVEFORMS** INPUT RISE AND FALL TIMES PROPAGATION DELAY AND OUTPUT TRANSITION TIMES

- 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,  $Z_O = 50 \ \Omega$ ,  $t_f = 6 \ ns$ ,  $t_f = 6 \ ns$ .
  - C. The outputs are measured one at a time with one input transition per measurement.
  - D. tpLH and tpHL are the same as tpd.

Figure 1. Load Circuit and Voltage Waveforms







26-Sep-2005

#### **PACKAGING INFORMATION**

| Orderable Device | Status <sup>(1)</sup> | Package<br>Type | Package<br>Drawing | Pins | Package<br>Qty | Eco Plan <sup>(2)</sup>    | Lead/Ball Finish | MSL Peak Temp (3)  |
|------------------|-----------------------|-----------------|--------------------|------|----------------|----------------------------|------------------|--------------------|
| 5962-8406201VEA  | ACTIVE                | CDIP            | J                  | 16   | 1              | TBD                        | Call TI          | Level-NC-NC-NC     |
| 5962-8406201VFA  | ACTIVE                | CFP             | W                  | 16   | 1              | TBD                        | Call TI          | Level-NC-NC-NC     |
| 84062012A        | ACTIVE                | LCCC            | FK                 | 20   | 1              | TBD                        | Call TI          | Level-NC-NC-NC     |
| 8406201EA        | ACTIVE                | CDIP            | J                  | 16   | 1              | TBD                        | Call TI          | Level-NC-NC-NC     |
| 8406201FA        | ACTIVE                | CFP             | W                  | 16   | 1              | TBD                        | Call TI          | Level-NC-NC-NC     |
| JM38510/65802B2A | ACTIVE                | LCCC            | FK                 | 20   | 1              | TBD                        | Call TI          | Level-NC-NC-NC     |
| JM38510/65802BEA | ACTIVE                | CDIP            | J                  | 16   | 1              | TBD                        | Call TI          | Level-NC-NC-NC     |
| JM38510/65802BFA | ACTIVE                | CFP             | W                  | 16   | 1              | TBD                        | Call TI          | Level-NC-NC-NC     |
| SN54HC138J       | ACTIVE                | CDIP            | J                  | 16   | 1              | TBD                        | Call TI          | Level-NC-NC-NC     |
| SN74HC138D       | ACTIVE                | SOIC            | D                  | 16   | 40             | Green (RoHS &<br>no Sb/Br) | CU NIPDAU        | Level-1-260C-UNLIM |
| SN74HC138DBR     | ACTIVE                | SSOP            | DB                 | 16   | 2000           | Green (RoHS &<br>no Sb/Br) | CU NIPDAU        | Level-1-260C-UNLIM |
| SN74HC138DBRE4   | ACTIVE                | SSOP            | DB                 | 16   | 2000           | Green (RoHS &<br>no Sb/Br) | CU NIPDAU        | Level-1-260C-UNLIM |
| SN74HC138DE4     | ACTIVE                | SOIC            | D                  | 16   | 40             | Green (RoHS &<br>no Sb/Br) | CU NIPDAU        | Level-1-260C-UNLIM |
| SN74HC138DR      | ACTIVE                | SOIC            | D                  | 16   | 2500           | Green (RoHS &<br>no Sb/Br) | CU NIPDAU        | Level-1-260C-UNLIM |
| SN74HC138DRE4    | ACTIVE                | SOIC            | D                  | 16   | 2500           | Green (RoHS &<br>no Sb/Br) | CU NIPDAU        | Level-1-260C-UNLIM |
| SN74HC138DT      | ACTIVE                | SOIC            | D                  | 16   | 250            | Green (RoHS &<br>no Sb/Br) | CU NIPDAU        | Level-1-260C-UNLIM |
| SN74HC138DTE4    | ACTIVE                | SOIC            | D                  | 16   | 250            | Green (RoHS & no Sb/Br)    | CU NIPDAU        | Level-1-260C-UNLIM |
| SN74HC138N       | ACTIVE                | PDIP            | N                  | 16   | 25             | Pb-Free<br>(RoHS)          | CU NIPDAU        | Level-NC-NC-NC     |
| SN74HC138N3      | OBSOLETE              | PDIP            | N                  | 16   |                | TBD                        | Call TI          | Call TI            |
| SN74HC138NE4     | ACTIVE                | PDIP            | N                  | 16   | 25             | Pb-Free<br>(RoHS)          | CU NIPDAU        | Level-NC-NC-NC     |
| SN74HC138NSR     | ACTIVE                | SO              | NS                 | 16   | 2000           | Green (RoHS & no Sb/Br)    | CU NIPDAU        | Level-1-260C-UNLIM |
| SN74HC138NSRG4   | ACTIVE                | SO              | NS                 | 16   | 2000           | Green (RoHS & no Sb/Br)    | CU NIPDAU        | Level-1-260C-UNLIM |
| SN74HC138PW      | ACTIVE                | TSSOP           | PW                 | 16   | 90             | Green (RoHS &<br>no Sb/Br) | CU NIPDAU        | Level-1-260C-UNLIM |
| SN74HC138PWG4    | ACTIVE                | TSSOP           | PW                 | 16   | 90             | Green (RoHS & no Sb/Br)    | CU NIPDAU        | Level-1-260C-UNLIM |
| SN74HC138PWLE    | OBSOLETE              | TSSOP           | PW                 | 16   |                | TBD                        | Call TI          | Call TI            |
| SN74HC138PWR     | ACTIVE                | TSSOP           | PW                 | 16   | 2000           | Green (RoHS &<br>no Sb/Br) | CU NIPDAU        | Level-1-260C-UNLIM |
| SN74HC138PWRG4   | ACTIVE                | TSSOP           | PW                 | 16   | 2000           | Green (RoHS & no Sb/Br)    | CU NIPDAU        | Level-1-260C-UNLIM |
| SN74HC138PWT     | ACTIVE                | TSSOP           | PW                 | 16   | 250            | Green (RoHS & no Sb/Br)    | CU NIPDAU        | Level-1-260C-UNLIM |
| SN74HC138PWTG4   | ACTIVE                | TSSOP           | PW                 | 16   | 250            | Green (RoHS & no Sb/Br)    | CU NIPDAU        | Level-1-260C-UNLIM |



#### PACKAGE OPTION ADDENDUM

26-Sep-2005

| Orderable Device | Status <sup>(1)</sup> | Package<br>Type | Package<br>Drawing | Pins I | Package<br>Qty | Eco Plan <sup>(2)</sup> | Lead/Ball Finish | MSL Peak Temp <sup>(3)</sup> |
|------------------|-----------------------|-----------------|--------------------|--------|----------------|-------------------------|------------------|------------------------------|
| SNJ54HC138FK     | ACTIVE                | LCCC            | FK                 | 20     | 1              | TBD                     | Call TI          | Level-NC-NC-NC               |
| SNJ54HC138J      | ACTIVE                | CDIP            | J                  | 16     | 1              | TBD                     | Call TI          | Level-NC-NC-NC               |
| SNJ54HC138W      | ACTIVE                | CFP             | W                  | 16     | 1              | TBD                     | Call TI          | Level-NC-NC-NC               |

(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) 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.

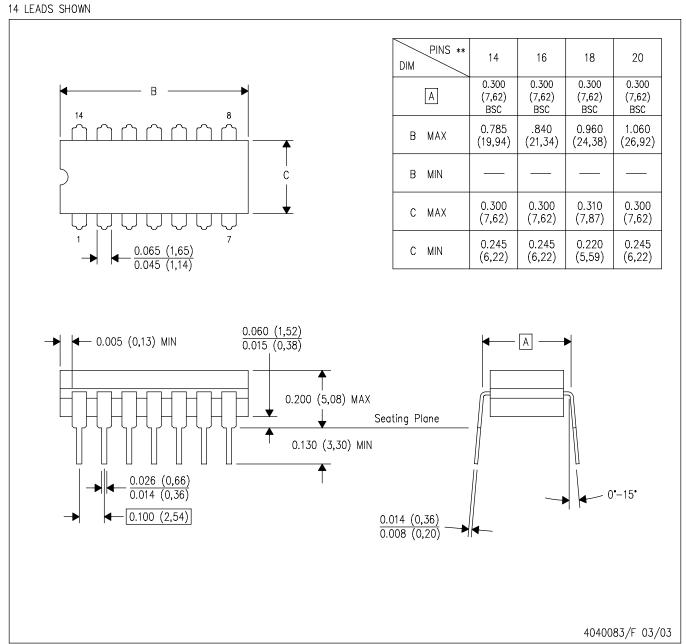
**Pb-Free** (RoHS): TI's terms "Lead-Free" or "Pb-Free" mean semiconductor products that are compatible with the current RoHS requirements for all 6 substances, including the requirement that lead not exceed 0.1% by weight in homogeneous materials. Where designed to be soldered at high temperatures,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

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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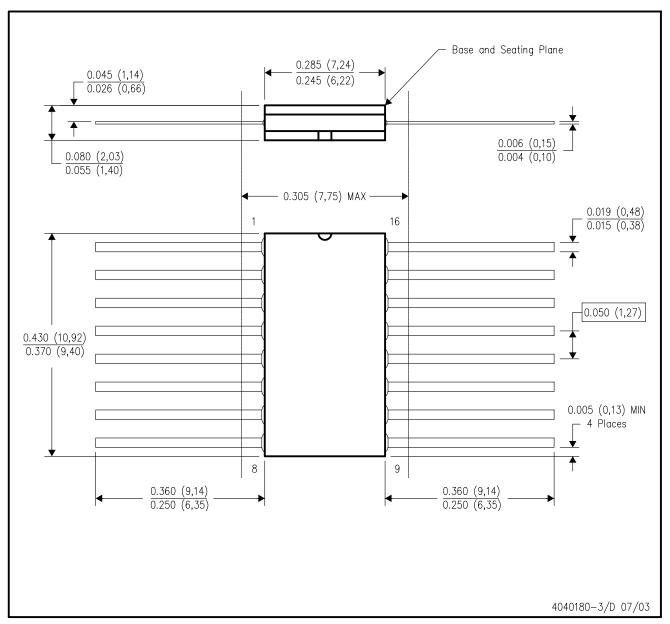
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- A. All linear dimensions are in inches (millimeters).
- B. This drawing is subject to change without notice.
- C. This package is hermetically sealed with a ceramic lid using glass frit.
- D. Index point is provided on cap for terminal identification 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



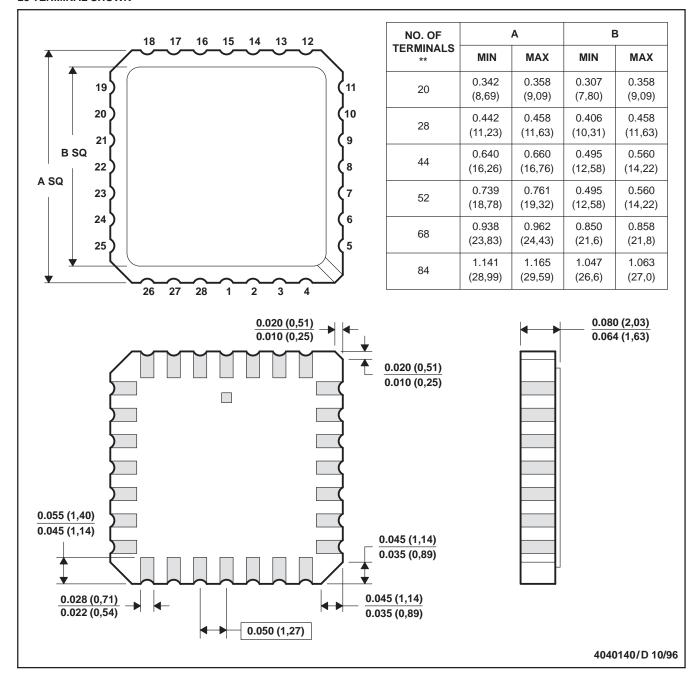
- A. All linear dimensions are in inches (millimeters).
- B. This drawing is subject to change without notice.
- C. This package can be hermetically sealed with a ceramic lid using glass frit.
- D. Index point is provided on cap for terminal identification only.
- E. Falls within MIL STD 1835 GDFP1-F16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



#### FK (S-CQCC-N\*\*)

#### **28 TERMINAL SHOWN**

#### LEADLESS CERAMIC CHIP CARRIER



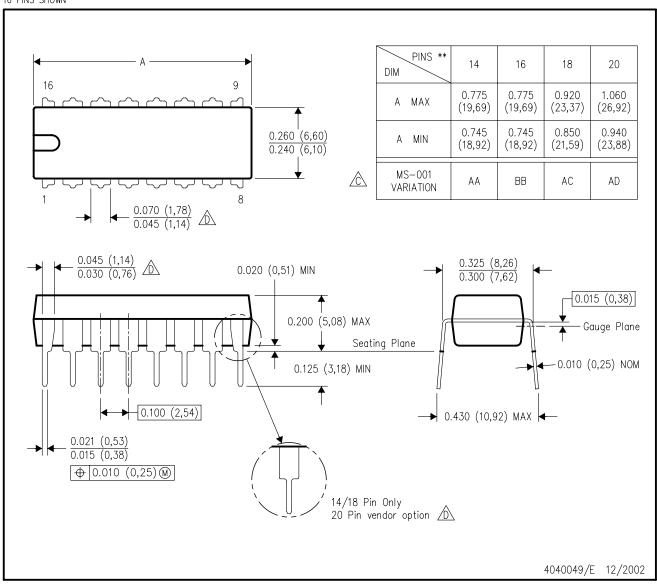
- NOTES: A. All linear dimensions are in inches (millimeters).
  - B. This drawing is subject to change without notice.
  - C. This package can be hermetically sealed with a metal lid.
  - D. The terminals are gold plated.
  - E. Falls within JEDEC MS-004



## N (R-PDIP-T\*\*)

### PLASTIC DUAL-IN-LINE PACKAGE

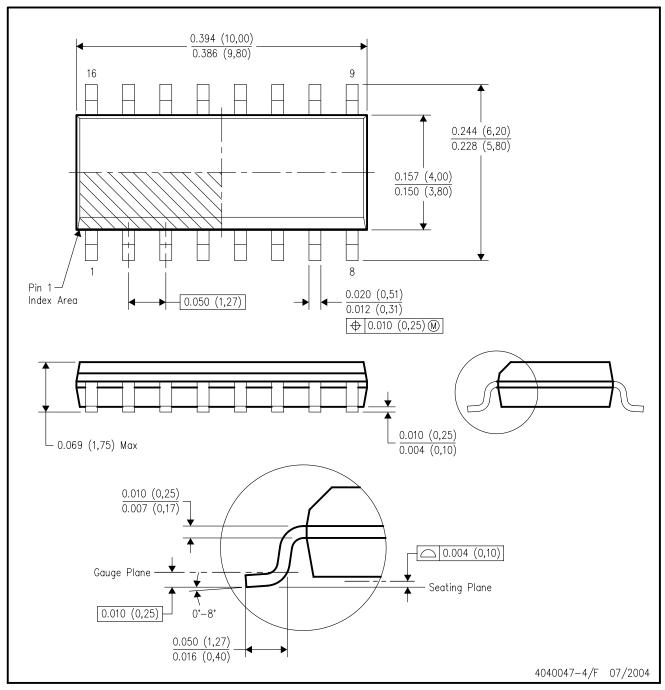
16 PINS SHOWN



- 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-G16)

## PLASTIC SMALL-OUTLINE PACKAGE



- A. All linear dimensions are in inches (millimeters).
- 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-012 variation AC.



#### **MECHANICAL DATA**

### NS (R-PDSO-G\*\*)

#### 14-PINS SHOWN

#### PLASTIC SMALL-OUTLINE PACKAGE



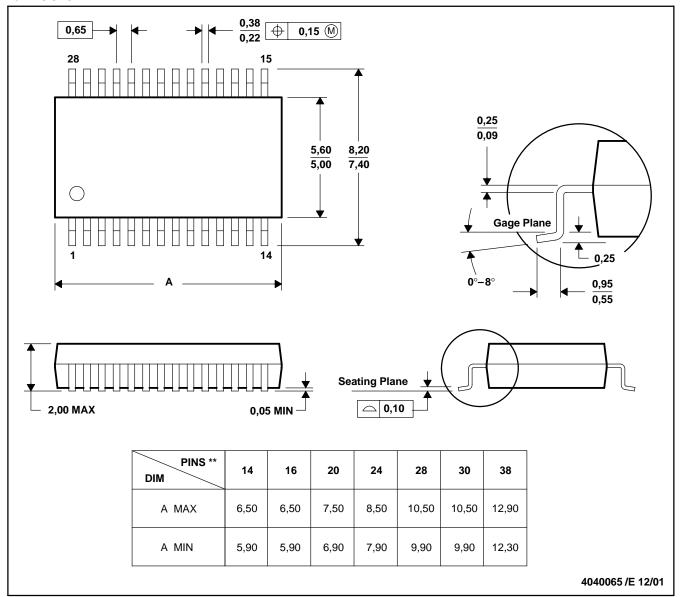
- . All linear dimensions are in millimeters.
- B. This drawing is subject to change without notice.
- C. Body dimensions do not include mold flash or protrusion, not to exceed 0,15.



#### 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



#### PW (R-PDSO-G\*\*)

#### 14 PINS SHOWN

#### PLASTIC SMALL-OUTLINE PACKAGE



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-153

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