

## CMOS 8-Bit Priority Encoder

### High-Voltage Types (20-Volt Rating)

■ CD4532B consists of combination logic that encodes the highest priority input (D7-D0) to a 3-bit binary code. The eight inputs, D7 through D0, each have an assigned priority; D7 is the highest priority and D0 is the lowest. The priority encoder is inhibited when the chip-enable input  $E_I$  is low. When  $E_I$  is high, the binary representation of the highest-priority input appears on output lines Q2-Q0, and the group select line GS is high to indicate that priority inputs are present. The enable-out ( $E_O$ ) is high when no priority inputs are present. If any one input is high,  $E_O$  is low and all cascaded lower-order stages are disabled.

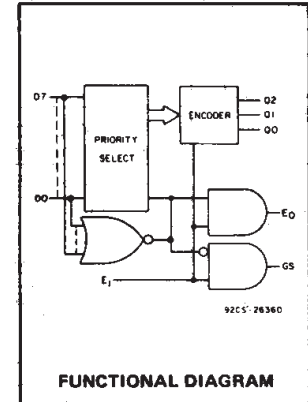
The CD4532B types are supplied in 16-lead hermetic dual-in-line ceramic packages (F3A suffix), 16-lead dual-in-line plastic packages (E suffix), 16-lead small-outline packages (M, M96, MT, and NSR suffixes), and 16-lead thin shrink small-outline packages (PW and PWR suffixes).

### Features:

- Converts from 1 of 8 to binary
- Provides cascading feature to handle any number of inputs
- Group select indicates one or more priority inputs
- Standardized, symmetrical output characteristics
- 100% tested for quiescent current at 20 V
- Maximum input current of 1  $\mu$ A at 18 V over full package temperature range; 100 nA at 18 V and 25°C
- Noise margin (full package-temperature range):
  - 0.5 V at  $V_{DD} = 5$  V
  - 1.5 V at  $V_{DD} = 10$  V
  - 1.5 V at  $V_{DD} = 15$  V
- 5-V, 10-V, and 15-V parametric ratings
- Meets all requirements of JEDEC Tentative Standard No. 13B, "Standard Specifications for Description of 'B' Series CMOS Devices"

### Applications:

- Priority encoder
- Binary or BCD encoder (keyboard encoding)
- Floating point arithmetic



### RECOMMENDED OPERATING CONDITIONS

For maximum reliability, nominal operating conditions should be selected so that operation is always within the following ranges.

| Characteristic  | Min. | Max. | Units |
|---|------|------|-------|
| Supply Voltage Range (for $T_A =$ Full Package Temp. Range) | 3    | 18   | V     |

### MAXIMUM RATINGS, Absolute-Maximum Values:

#### DC SUPPLY-VOLTAGE RANGE, ( $V_{DD}$ )

Voltages referenced to  $V_{SS}$  Terminal ..... -0.5V to +20V

INPUT VOLTAGE RANGE, ALL INPUTS ..... -0.5V to  $V_{DD} + 0.5$ V

DC INPUT CURRENT, ANY ONE INPUT .....  $\pm 10$ mA

#### POWER DISSIPATION PER PACKAGE ( $P_D$ ):

For  $T_A = -55^\circ\text{C}$  to  $+100^\circ\text{C}$  ..... 500mW

For  $T_A = +100^\circ\text{C}$  to  $+125^\circ\text{C}$  ..... Derate Linearity at 12mW/ $^\circ\text{C}$  to 200mW

#### DEVICE DISSIPATION PER OUTPUT TRANSISTOR

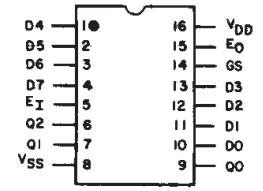
FOR  $T_A =$  FULL PACKAGE-TEMPERATURE RANGE (All Package Types) ..... 100mW

OPERATING-TEMPERATURE RANGE ( $T_A$ ) .....  $-55^\circ\text{C}$  to  $+125^\circ\text{C}$

STORAGE TEMPERATURE RANGE ( $T_{stg}$ ) .....  $-65^\circ\text{C}$  to  $+150^\circ\text{C}$

#### LEAD TEMPERATURE (DURING SOLDERING):

At distance 1/16  $\pm$  1/32 inch (1.59  $\pm$  0.79mm) from case for 10s max .....  $+265^\circ\text{C}$



### TERMINAL ASSIGNMENT

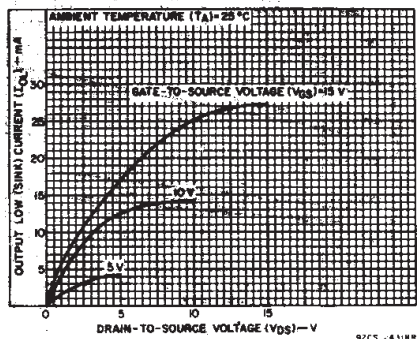


Fig. 1 – Typical output low (sink) current characteristics.

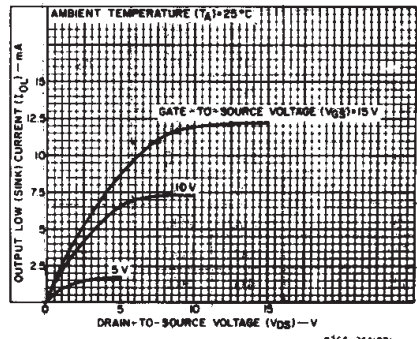


Fig. 2 – Minimum output low (sink) current characteristics.

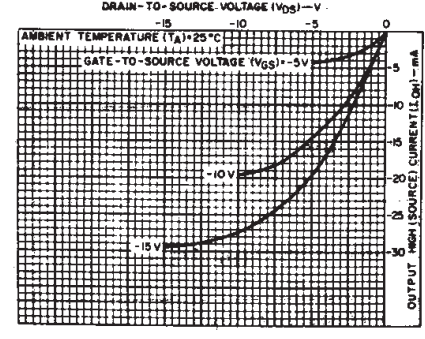


Fig. 3 – Typical output high (source) current characteristics.

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# CD4532B Types

## STATIC ELECTRICAL CHARACTERISTICS

| CHARACTERISTIC                                     | CONDITIONS         |                     |                     | LIMITS AT INDICATED TEMPERATURES (°C) |       |       |       |       |                   |      | UNITS |
|--|--------------------|---------------------|---------------------|---------------------------------------|-------|-------|-------|-------|-------------------|------|-------|
|  | V <sub>O</sub> (V) | V <sub>IN</sub> (V) | V <sub>DD</sub> (V) | -55                                   | -40   | +85   | +125  | +25   |                   |      |       |
|  |                    |                     |                     |                                       |       |       |       | Min.  | Typ.              | Max. |       |
| Quiescent Device Current, I <sub>DD</sub> Max.     | —                  | 0,5                 | 5                   | 5                                     | 5     | 150   | 150   | —     | 0,04              | 5    | μA    |
|  | —                  | 0,10                | 10                  | 10                                    | 10    | 300   | 300   | —     | 0,04              | 10   |       |
|  | —                  | 0,15                | 15                  | 20                                    | 20    | 600   | 600   | —     | 0,04              | 20   |       |
|  | —                  | 0,20                | 20                  | 100                                   | 100   | 3000  | 3000  | —     | 0,08              | 100  |       |
| Output Low (Sink) Current I <sub>OL</sub> Min.     | 0,4                | 0,5                 | 5                   | 0,64                                  | 0,61  | 0,42  | 0,36  | 0,51  | 1                 | —    | mA    |
|  | 0,5                | 0,10                | 10                  | 1,6                                   | 1,5   | 1,1   | 0,9   | 1,3   | 2,6               | —    |       |
|  | 1,5                | 0,15                | 15                  | 4,2                                   | 4     | 2,8   | 2,4   | 3,4   | 6,8               | —    |       |
|  | —                  | —                   | —                   | —                                     | —     | —     | —     | —     | —                 | —    |       |
| Output High (Source) Current, I <sub>OH</sub> Min. | 4,6                | 0,5                 | 5                   | -0,64                                 | -0,61 | -0,42 | -0,36 | -0,51 | -1                | —    | mA    |
|  | 2,5                | 0,5                 | 5                   | -2                                    | -1,8  | -1,3  | -1,15 | -1,6  | -3,2              | —    |       |
|  | 9,5                | 0,10                | 10                  | -1,6                                  | -1,5  | -1,1  | -0,9  | -1,3  | -2,6              | —    |       |
|  | 13,5               | 0,15                | 15                  | -4,2                                  | -4    | -2,8  | -2,4  | -3,4  | -6,8              | —    |       |
| Output Voltage: Low-Level, V <sub>OL</sub> Max.    | —                  | 0,5                 | 5                   | 0,05                                  |       |       | —     | 0     | 0,05              | —    | V     |
|  | —                  | 0,10                | 10                  | 0,05                                  |       |       | —     | 0     | 0,05              | —    |       |
|  | —                  | 0,15                | 15                  | 0,05                                  |       |       | —     | 0     | 0,05              | —    |       |
| Output Voltage: High-Level, V <sub>OH</sub> Min.   | —                  | 0,5                 | 5                   | 4,95                                  |       |       | 4,95  | 5     | —                 | —    | V     |
|  | —                  | 0,10                | 10                  | 9,95                                  |       |       | 9,95  | 10    | —                 | —    |       |
|  | —                  | 0,15                | 15                  | 14,95                                 |       |       | 14,95 | 15    | —                 | —    |       |
| Input Low Voltage, V <sub>IL</sub> Max.*           | 0,5, 4,5           | —                   | 5                   | 1                                     |       |       | —     | —     | 1,5               | —    | V     |
|  | 1,9                | —                   | 10                  | 2,5                                   |       |       | —     | —     | 3                 | —    |       |
|  | 1,5, 13,5          | —                   | 15                  | 3                                     |       |       | —     | —     | 4                 | —    |       |
| Input High Voltage, V <sub>IH</sub> Min.*          | 0,5, 4,5           | —                   | 5                   | 4                                     |       |       | 3,5   | —     | —                 | —    | V     |
|  | 1,9                | —                   | 10                  | 7,5                                   |       |       | 7     | —     | —                 | —    |       |
|  | 1,5, 13,5          | —                   | 15                  | 12                                    |       |       | 11    | —     | —                 | —    |       |
| Input Current I <sub>IN</sub> Max.                 |                    | 0,18                | 18                  | ±0,1                                  | ±0,1  | ±1    | ±1    | —     | ±10 <sup>-5</sup> | ±0,1 | μA    |

\*One input is tested at a time; other inputs should be at V<sub>DD</sub> or V<sub>SS</sub>. For testing all inputs at V<sub>IL</sub> and V<sub>IH</sub> levels, use 20%/80% V<sub>DD</sub>.

## DYNAMIC ELECTRICAL CHARACTERISTICS at T<sub>A</sub>=25°C; C<sub>L</sub>=50 pF, Input t<sub>r</sub>, t<sub>f</sub>= 20 ns, R<sub>L</sub>=200 kΩ

| CHARACTERISTIC  | TEST CONDITIONS V <sub>DD</sub> VOLTS | LIMITS |      | UNITS |
|---|---------------------------------------|--------|------|-------|
|   |                                       | TYP.   | MAX. |       |
| Propagation Delay Time t <sub>PHL</sub> , t <sub>PLH</sub><br>E <sub>I</sub> to E <sub>O</sub> , E <sub>I</sub> to G <sub>S</sub> | 5                                     | 110    | 220  | ns    |
|   | 10                                    | 55     | 110  |       |
|   | 15                                    | 45     | 85   |       |
| E <sub>I</sub> to Q <sub>M</sub> , D <sub>n</sub> to G <sub>S</sub>   | 5                                     | 170    | 340  | ns    |
|   | 10                                    | 85     | 170  |       |
|   | 15                                    | 65     | 125  |       |
| D <sub>n</sub> to Q <sub>M</sub>  | 5                                     | 220    | 440  | ns    |
|   | 10                                    | 110    | 220  |       |
|   | 15                                    | 85     | 160  |       |
| Transition Time t <sub>THL</sub> , t <sub>TLH</sub>   | 5                                     | 100    | 200  | ns    |
|   | 10                                    | 50     | 100  |       |
|   | 15                                    | 40     | 80   |       |
| Input Capacitance C <sub>IN</sub>   | Any Input                             | 5      | 7,5  | pF    |

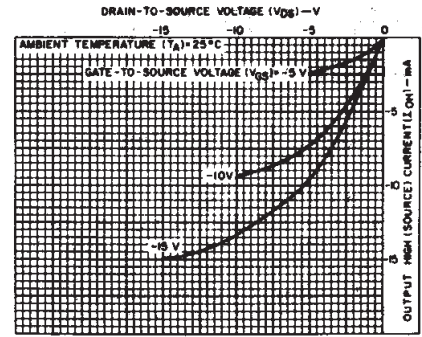


Fig. 4 — Minimum output high (source) current characteristics.

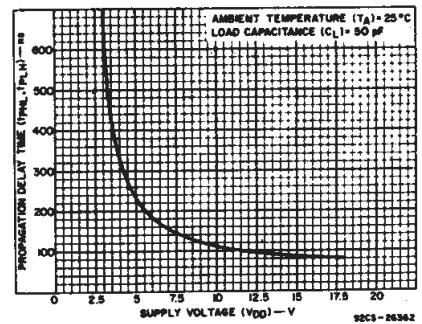


Fig. 5 — Typical propagation delay (D<sub>n</sub> to Q<sub>m</sub>) vs. supply voltage.

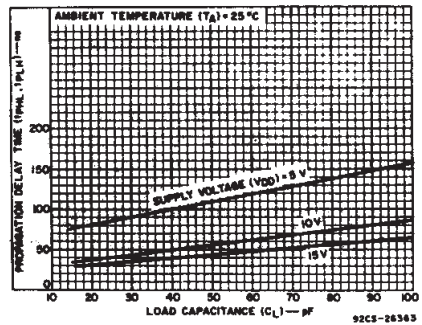


Fig. 6 — Typical propagation delay (E<sub>I</sub> to G<sub>S</sub>, E<sub>I</sub> to E<sub>O</sub>) vs. load capacitance.

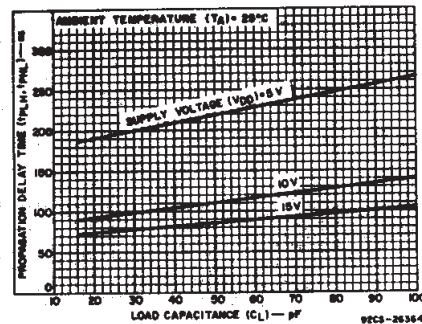
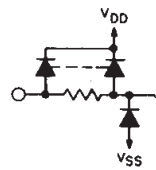
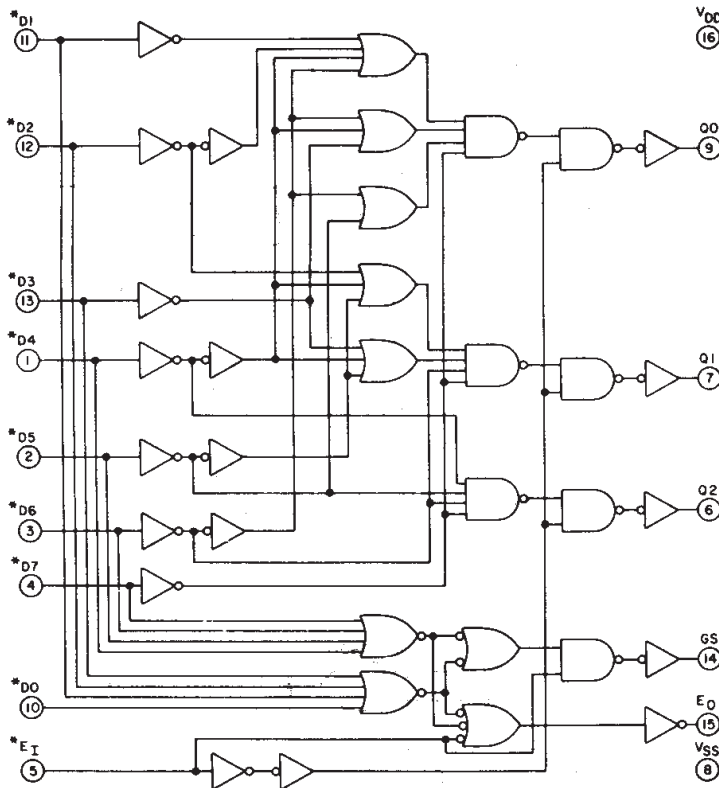


Fig. 7 — Typical propagation delay (D<sub>n</sub> to Q<sub>m</sub>) vs. load capacitance.

# CD4532B Types



\*ALL INPUTS PROTECTED BY CMOS PROTECTION NETWORK

Fig. 8 - CD4532 logic diagram.

### TRUTH TABLE

| Input          |                |                |                |                |                |                |                |                | Output |                |                |                |                |
|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|--------|----------------|----------------|----------------|----------------|
| E <sub>I</sub> | D <sub>7</sub> | D <sub>6</sub> | D <sub>5</sub> | D <sub>4</sub> | D <sub>3</sub> | D <sub>2</sub> | D <sub>1</sub> | D <sub>0</sub> | GS     | Q <sub>2</sub> | Q <sub>1</sub> | Q <sub>0</sub> | E <sub>O</sub> |
| 0              | X              | X              | X              | X              | X              | X              | X              | X              | 0      | 0              | 0              | 0              | 0              |
| 1              | 0              | 0              | 0              | 0              | 0              | 0              | 0              | 0              | 0      | 0              | 0              | 0              | 1              |
| 1              | 1              | X              | X              | X              | X              | X              | X              | X              | 1      | 1              | 1              | 1              | 0              |
| 1              | 0              | 1              | X              | X              | X              | X              | X              | X              | 1      | 1              | 1              | 0              | 0              |
| 1              | 0              | 0              | 1              | X              | X              | X              | X              | X              | 1      | 1              | 0              | 1              | 0              |
| 1              | 0              | 0              | 0              | 1              | X              | X              | X              | X              | 1      | 1              | 0              | 0              | 0              |
| 1              | 0              | 0              | 0              | 0              | 1              | X              | X              | X              | 1      | 0              | 1              | 1              | 0              |
| 1              | 0              | 0              | 0              | 0              | 0              | 1              | X              | X              | 1      | 0              | 1              | 0              | 0              |
| 1              | 0              | 0              | 0              | 0              | 0              | 0              | 1              | X              | 1      | 0              | 0              | 1              | 0              |
| 1              | 0              | 0              | 0              | 0              | 0              | 0              | 0              | 1              | 1      | 0              | 0              | 0              | 0              |

X = Don't Care

Logic 1 ≡ High

Logic 0 ≡ Low

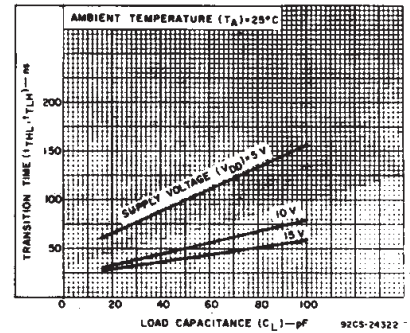


Fig. 9 - Typical transition time vs. load capacitance.

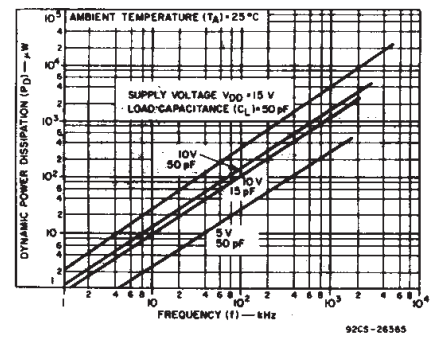


Fig. 10 - Typical dynamic power dissipation vs. frequency.

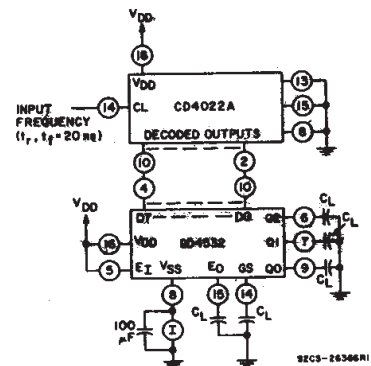


Fig. 11 - Dynamic power dissipation test circuit.

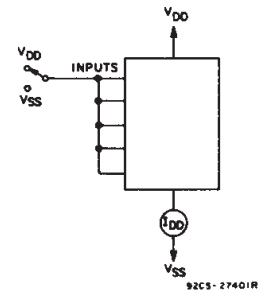


Fig. 12 - Quiescent device current test circuit.

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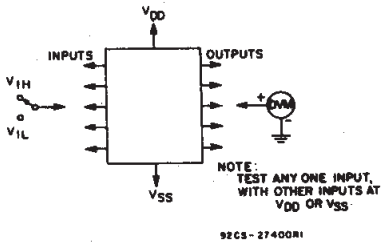


Fig. 13 - Input voltage test circuit.

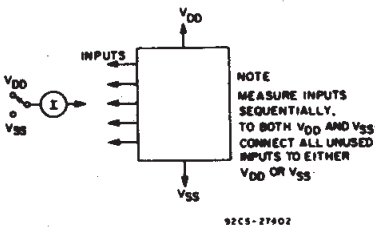
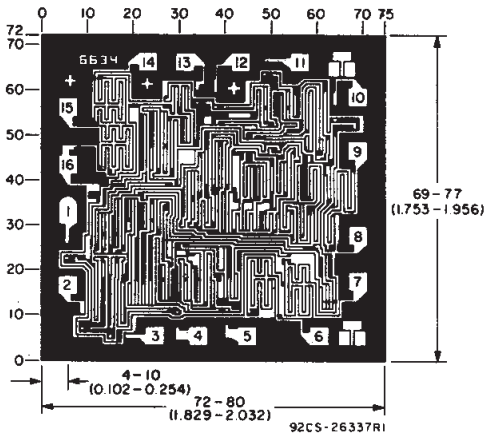


Fig. 14 - Input current test circuit.



Dimensions in parentheses are in millimeters and are derived from the basic inch dimensions as indicated. Grid graduations are in mils ( $10^{-3}$  inch).

Dimensions and pad layout for CD4532BH.

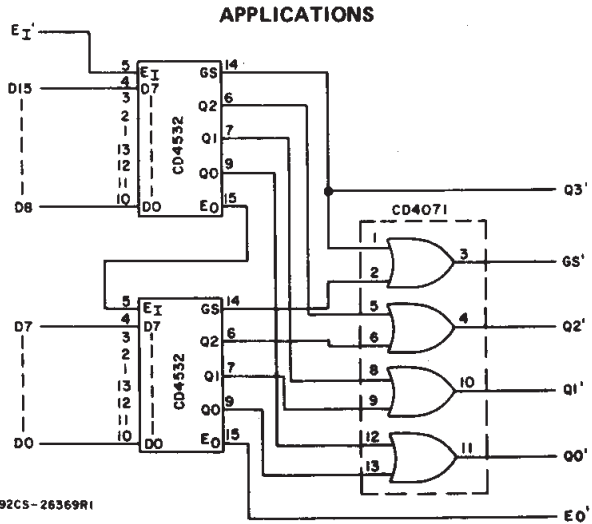
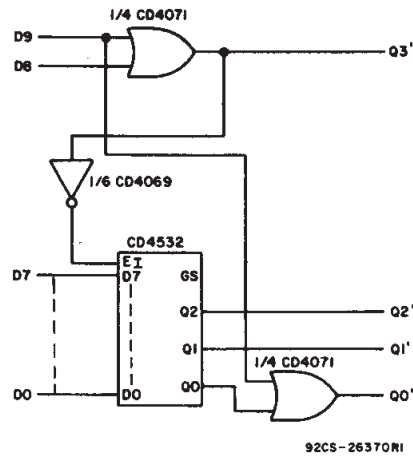


Fig. 15 - 16-level priority encoder.



## TRUTH TABLE

| Input |    |    |    |    |    |    |    |    |    | Output |     |     |     |     |
|-------|----|----|----|----|----|----|----|----|----|--------|-----|-----|-----|-----|
| D9    | D8 | D7 | D6 | D5 | D4 | D3 | D2 | D1 | D0 | GS     | Q3' | Q2' | Q1' | Q0' |
| 1     | X  | X  | X  | X  | X  | X  | X  | X  | X  | 0      | 1   | 0   | 0   | 1   |
| 0     | 1  | X  | X  | X  | X  | X  | X  | X  | X  | 0      | 1   | 0   | 0   | 0   |
| 0     | 0  | 1  | X  | X  | X  | X  | X  | X  | X  | 1      | 0   | 1   | 1   | 1   |
| 0     | 0  | 0  | 1  | X  | X  | X  | X  | X  | X  | 1      | 0   | 1   | 1   | 0   |
| 0     | 0  | 0  | 0  | 1  | X  | X  | X  | X  | X  | 1      | 0   | 1   | 0   | 1   |
| 0     | 0  | 0  | 0  | 0  | 1  | X  | X  | X  | X  | 1      | 0   | 1   | 0   | 0   |
| 0     | 0  | 0  | 0  | 0  | 0  | 1  | X  | X  | X  | 1      | 0   | 0   | 1   | 1   |
| 0     | 0  | 0  | 0  | 0  | 0  | 0  | 1  | X  | X  | 1      | 0   | 0   | 1   | 0   |
| 0     | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | X  | 1      | 0   | 0   | 0   | 1   |
| 0     | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 1      | 0   | 0   | 0   | 0   |

X = Don't Care

Logic 1  $\equiv$  High

Logic 0  $\equiv$  Low

Fig. 16 - 0-to-9 keyboard encoder.

**PACKAGING INFORMATION**

| Orderable Device | Status<br>(1) | Package Type | Package<br>Drawing | Pins | Package<br>Qty | Eco Plan<br>(2)            | Lead/Ball Finish | MSL Peak Temp<br>(3) | Op Temp (°C) | Top-Side Markings<br>(4) | Samples                 |
|------------------|---------------|--------------|--------------------|------|----------------|----------------------------|------------------|----------------------|--------------|--------------------------|-------------------------|
| CD4532BE         | ACTIVE        | PDIP         | N                  | 16   | 25             | Pb-Free<br>(RoHS)          | CU NIPDAU        | N / A for Pkg Type   | -55 to 125   | CD4532BE                 | <a href="#">Samples</a> |
| CD4532BEE4       | ACTIVE        | PDIP         | N                  | 16   | 25             | Pb-Free<br>(RoHS)          | CU NIPDAU        | N / A for Pkg Type   | -55 to 125   | CD4532BE                 | <a href="#">Samples</a> |
| CD4532BF3A       | ACTIVE        | CDIP         | J                  | 16   | 1              | TBD                        | A42              | N / A for Pkg Type   | -55 to 125   | CD4532BF3A               | <a href="#">Samples</a> |
| CD4532BM         | ACTIVE        | SOIC         | D                  | 16   | 40             | Green (RoHS<br>& no Sb/Br) | CU NIPDAU        | Level-1-260C-UNLIM   | -55 to 125   | CD4532BM                 | <a href="#">Samples</a> |
| CD4532BM96       | ACTIVE        | SOIC         | D                  | 16   | 2500           | Green (RoHS<br>& no Sb/Br) | CU NIPDAU        | Level-1-260C-UNLIM   | -55 to 125   | CD4532BM                 | <a href="#">Samples</a> |
| CD4532BM96E4     | ACTIVE        | SOIC         | D                  | 16   | 2500           | Green (RoHS<br>& no Sb/Br) | CU NIPDAU        | Level-1-260C-UNLIM   | -55 to 125   | CD4532BM                 | <a href="#">Samples</a> |
| CD4532BM96G4     | ACTIVE        | SOIC         | D                  | 16   | 2500           | Green (RoHS<br>& no Sb/Br) | CU NIPDAU        | Level-1-260C-UNLIM   | -55 to 125   | CD4532BM                 | <a href="#">Samples</a> |
| CD4532BME4       | ACTIVE        | SOIC         | D                  | 16   | 40             | Green (RoHS<br>& no Sb/Br) | CU NIPDAU        | Level-1-260C-UNLIM   | -55 to 125   | CD4532BM                 | <a href="#">Samples</a> |
| CD4532BMG4       | ACTIVE        | SOIC         | D                  | 16   | 40             | Green (RoHS<br>& no Sb/Br) | CU NIPDAU        | Level-1-260C-UNLIM   | -55 to 125   | CD4532BM                 | <a href="#">Samples</a> |
| CD4532BMT        | ACTIVE        | SOIC         | D                  | 16   | 250            | Green (RoHS<br>& no Sb/Br) | CU NIPDAU        | Level-1-260C-UNLIM   | -55 to 125   | CD4532BM                 | <a href="#">Samples</a> |
| CD4532BMTE4      | ACTIVE        | SOIC         | D                  | 16   | 250            | Green (RoHS<br>& no Sb/Br) | CU NIPDAU        | Level-1-260C-UNLIM   | -55 to 125   | CD4532BM                 | <a href="#">Samples</a> |
| CD4532BMTG4      | ACTIVE        | SOIC         | D                  | 16   | 250            | Green (RoHS<br>& no Sb/Br) | CU NIPDAU        | Level-1-260C-UNLIM   | -55 to 125   | CD4532BM                 | <a href="#">Samples</a> |
| CD4532BNSR       | ACTIVE        | SO           | NS                 | 16   | 2000           | Green (RoHS<br>& no Sb/Br) | CU NIPDAU        | Level-1-260C-UNLIM   | -55 to 125   | CD4532B                  | <a href="#">Samples</a> |
| CD4532BNSRE4     | ACTIVE        | SO           | NS                 | 16   | 2000           | Green (RoHS<br>& no Sb/Br) | CU NIPDAU        | Level-1-260C-UNLIM   | -55 to 125   | CD4532B                  | <a href="#">Samples</a> |
| CD4532BNSRG4     | ACTIVE        | SO           | NS                 | 16   | 2000           | Green (RoHS<br>& no Sb/Br) | CU NIPDAU        | Level-1-260C-UNLIM   | -55 to 125   | CD4532B                  | <a href="#">Samples</a> |
| CD4532BPWR       | ACTIVE        | TSSOP        | PW                 | 16   | 2000           | Green (RoHS<br>& no Sb/Br) | CU NIPDAU        | Level-1-260C-UNLIM   | -55 to 125   | CM532B                   | <a href="#">Samples</a> |
| CD4532BPWRE4     | ACTIVE        | TSSOP        | PW                 | 16   | 2000           | Green (RoHS<br>& no Sb/Br) | CU NIPDAU        | Level-1-260C-UNLIM   | -55 to 125   | CM532B                   | <a href="#">Samples</a> |

| Orderable Device | Status<br>(1) | Package Type | Package<br>Drawing | Pins | Package<br>Qty | Eco Plan<br>(2)            | Lead/Ball Finish | MSL Peak Temp<br>(3) | Op Temp (°C) | Top-Side Markings<br>(4) | Samples                 |
|------------------|---------------|--------------|--------------------|------|----------------|----------------------------|------------------|----------------------|--------------|--------------------------|-------------------------|
| CD4532BPWRG4     | ACTIVE        | TSSOP        | PW                 | 16   | 2000           | Green (RoHS<br>& no Sb/Br) | CU NIPDAU        | Level-1-260C-UNLIM   | -55 to 125   | CM532B                   | <a href="#">Samples</a> |

(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.

(4) Multiple Top-Side Markings will be inside parentheses. Only one Top-Side Marking contained in parentheses and separated by a "~" will appear on a device. If a line is indented then it is a continuation of the previous line and the two combined represent the entire Top-Side Marking for that device.

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#### OTHER QUALIFIED VERSIONS OF CD4532B, CD4532B-MIL :

● Catalog: [CD4532B](#)

● Military: [CD4532B-MIL](#)

NOTE: Qualified Version Definitions:

- Catalog - TI's standard catalog product
- Military - QML certified for Military and Defense Applications

**TAPE AND REEL INFORMATION**

**QUADRANT ASSIGNMENTS FOR PIN 1 ORIENTATION IN TAPE**


\*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 |
|------------|--------------|-----------------|------|------|--------------------|--------------------|---------|---------|---------|---------|--------|---------------|
| CD4532BM96 | SOIC         | D               | 16   | 2500 | 330.0              | 16.4               | 6.5     | 10.3    | 2.1     | 8.0     | 16.0   | Q1            |
| CD4532BNSR | SO           | NS              | 16   | 2000 | 330.0              | 16.4               | 8.2     | 10.5    | 2.5     | 12.0    | 16.0   | Q1            |
| CD4532BPWR | TSSOP        | PW              | 16   | 2000 | 330.0              | 12.4               | 6.9     | 5.6     | 1.6     | 8.0     | 12.0   | Q1            |



**TAPE AND REEL BOX DIMENSIONS**


\*All dimensions are nominal

| Device     | Package Type | Package Drawing | Pins | SPQ  | Length (mm) | Width (mm) | Height (mm) |
|------------|--------------|-----------------|------|------|-------------|------------|-------------|
| CD4532BM96 | SOIC         | D               | 16   | 2500 | 333.2       | 345.9      | 28.6        |
| CD4532BNSR | SO           | NS              | 16   | 2000 | 367.0       | 367.0      | 38.0        |
| CD4532BPWR | TSSOP        | PW              | 16   | 2000 | 367.0       | 367.0      | 35.0        |

J (R-GDIP-T\*\*)

14 LEADS SHOWN

CERAMIC DUAL IN-LINE PACKAGE



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



4040083/F 03/03

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

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).
  - 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)

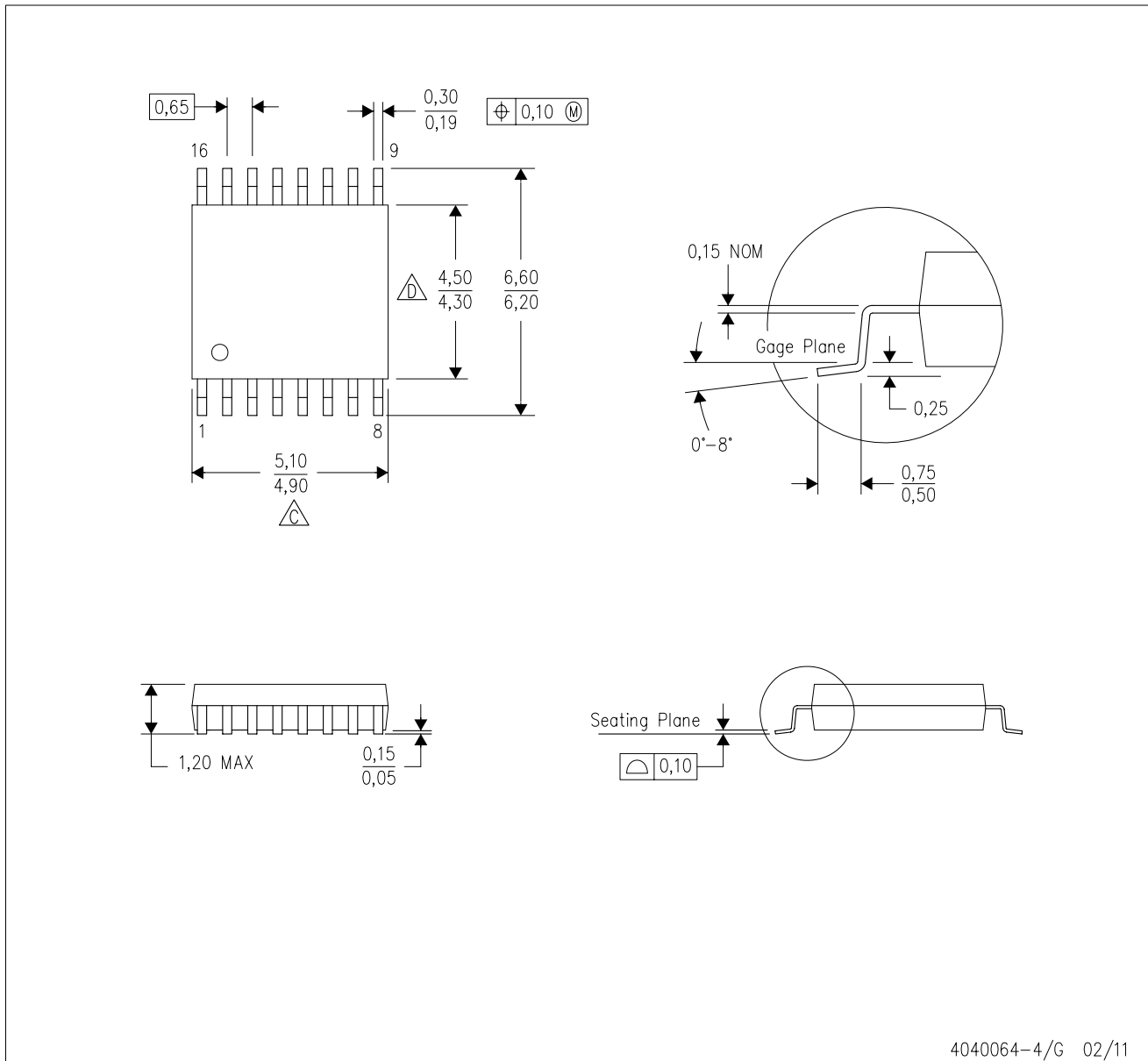
PLASTIC SMALL OUTLINE



- NOTES:
- All linear dimensions are in millimeters.
  - This drawing is subject to change without notice.
  - Publication IPC-7351 is recommended for alternate designs.
  - 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.
  - Customers should contact their board fabrication site for solder mask tolerances between and around signal pads.

PW (R-PDSO-G16)

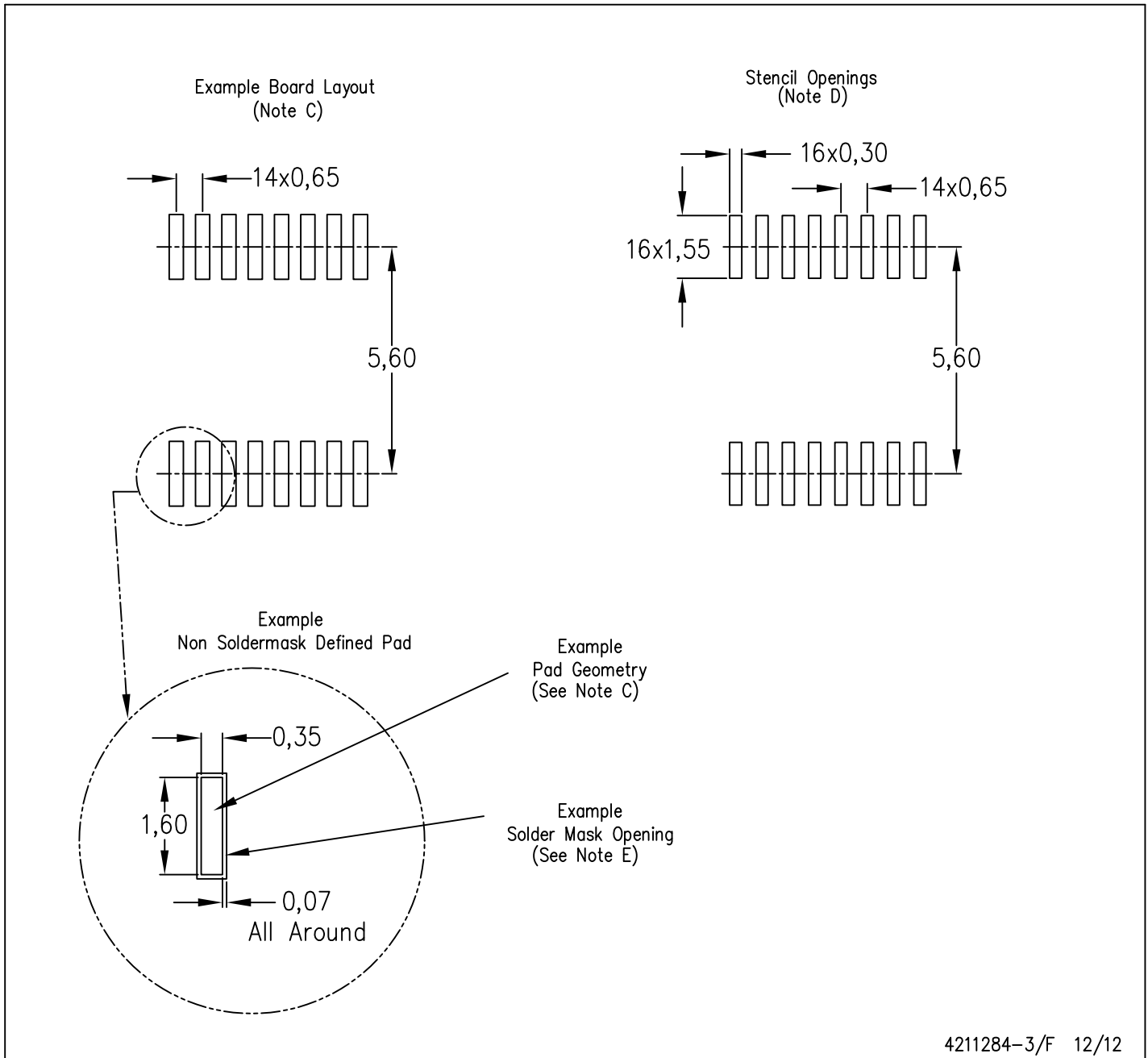
PLASTIC SMALL OUTLINE



- NOTES:
- A. All linear dimensions are in millimeters. Dimensioning and tolerancing per ASME Y14.5M-1994.
  - 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 0,15 each side.
  -  D. 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-G16)

PLASTIC SMALL OUTLINE



- NOTES:
- All linear dimensions are in millimeters.
  - This drawing is subject to change without notice.
  - Publication IPC-7351 is recommended for alternate designs.
  - 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.
  - 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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|                               |  |
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