

# Quad 2-Input Multiplexer

## 74VHC157

The VHC157 is an advanced high speed CMOS Quad 2-Channel Multiplexer fabricated with silicon gate CMOS technology. It achieves the high speed operation similar to equivalent Bipolar Schottky TTL while maintaining the CMOS low power dissipation.

It consists of four 2-input digital multiplexers with common select and enable inputs. When the  $\overline{\text{ENABLE}}$  input is held "H" level, selection of data is inhibited and all the outputs become "L" level. The SELECT decoding determines whether the I 0x or I 1x inputs get routed to their corresponding outputs.

An Input protection circuit ensures that 0 V to 5.5 V can be applied to the input pins without regard to the supply voltage. This device can be used to interface 5 V to 3 V systems and on two supply systems such as battery back up. This circuit prevents device destruction due to mismatched supply and input voltages.

### Features

- High Speed:  $t_{PD} = 4.1 \text{ ns}$  (Typ.) at  $V_{CC} = 5 \text{ V}$
- Low Power Dissipation:  $I_{CC} = 4 \mu\text{A}$  (Max.) at  $T_A = 25^\circ\text{C}$
- High Noise Immunity:  $V_{NIH} = V_{NIL} = 28\% V_{CC}$  (Min.)
- Power Down Protection is Provided On All Inputs
- Low Noise:  $V_{OLP} = 0.8 \text{ V}$  (Max.)
- Pin and Function Compatible with 74HC157

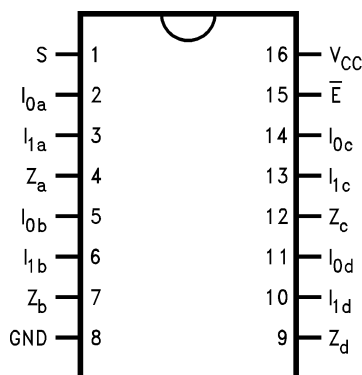


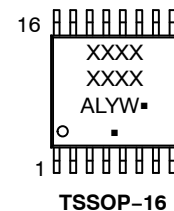
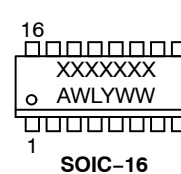
Figure 1. Connection Diagram

### PIN DESCRIPTION

| Pin Names             | Description          |
|-----------------------|----------------------|
| $I_{0a}-I_{0d}$       | Source 0 Data Inputs |
| $I_{1a}-I_{1d}$       | Source 1 Data Inputs |
| $\overline{\text{E}}$ | Enable Input         |
| S                     | Select Input         |
| $Z_a-Z_d$             | Outputs              |



### MARKING DIAGRAMS



- XXXXXXX = Specific Device Code
- A = Assembly Location
- WL, L = Wafer Lot
- YY, Y = Year
- WW, W = Work Week
- G, ■ = Pb-Free Package

(Note: Microdot may be in either location)

### ORDERING INFORMATION

See detailed ordering and shipping information in the package dimensions section on page 6 of this data sheet.

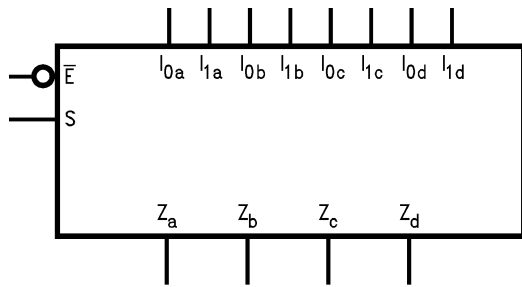
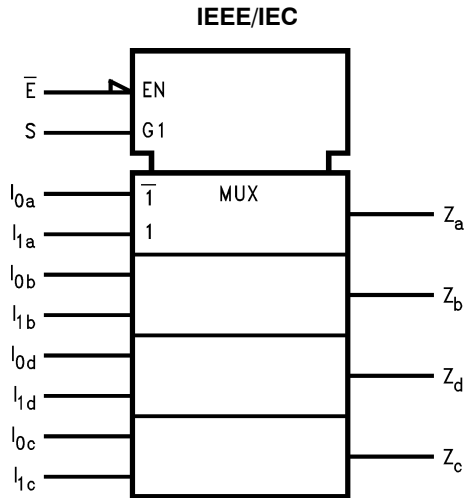


Figure 2. Logic Symbol



**FUNCTIONAL DESCRIPTION**

The VHC157 is a quad 2-input multiplexer. It selects four bits of data from two sources under the control of a common Select input (S). The Enable input ( $\bar{E}$ ) is active- LOW. When  $\bar{E}$  is HIGH, all of the outputs (Z) are forced LOW regardless of all other inputs. The VHC157 is the logic implementation of a 4-pole, 2-position switch where the position of the switch is determined by the logic levels supplied to the Select input. The logic equations for the outputs are shown below:

$$Z_a = \bar{E} \cdot (I_{1a} \cdot S + I_{0a} \cdot \bar{S})$$

$$Z_b = \bar{E} \cdot (I_{1b} \cdot S + I_{0b} \cdot \bar{S})$$

$$Z_c = \bar{E} \cdot (I_{1c} \cdot S + I_{0c} \cdot \bar{S})$$

$$Z_d = \bar{E} \cdot (I_{1d} \cdot S + I_{0d} \cdot \bar{S})$$

A common use of the VHC157 is the moving of data from two groups of registers to four common output busses. The particular register from which the data comes is determined by the state of the Select input. A less obvious use is as a function generator. The VHC157 can generate any four of the sixteen different functions of two variables with one variable common. This is useful for implementing gating functions.

**TRUTH TABLE**

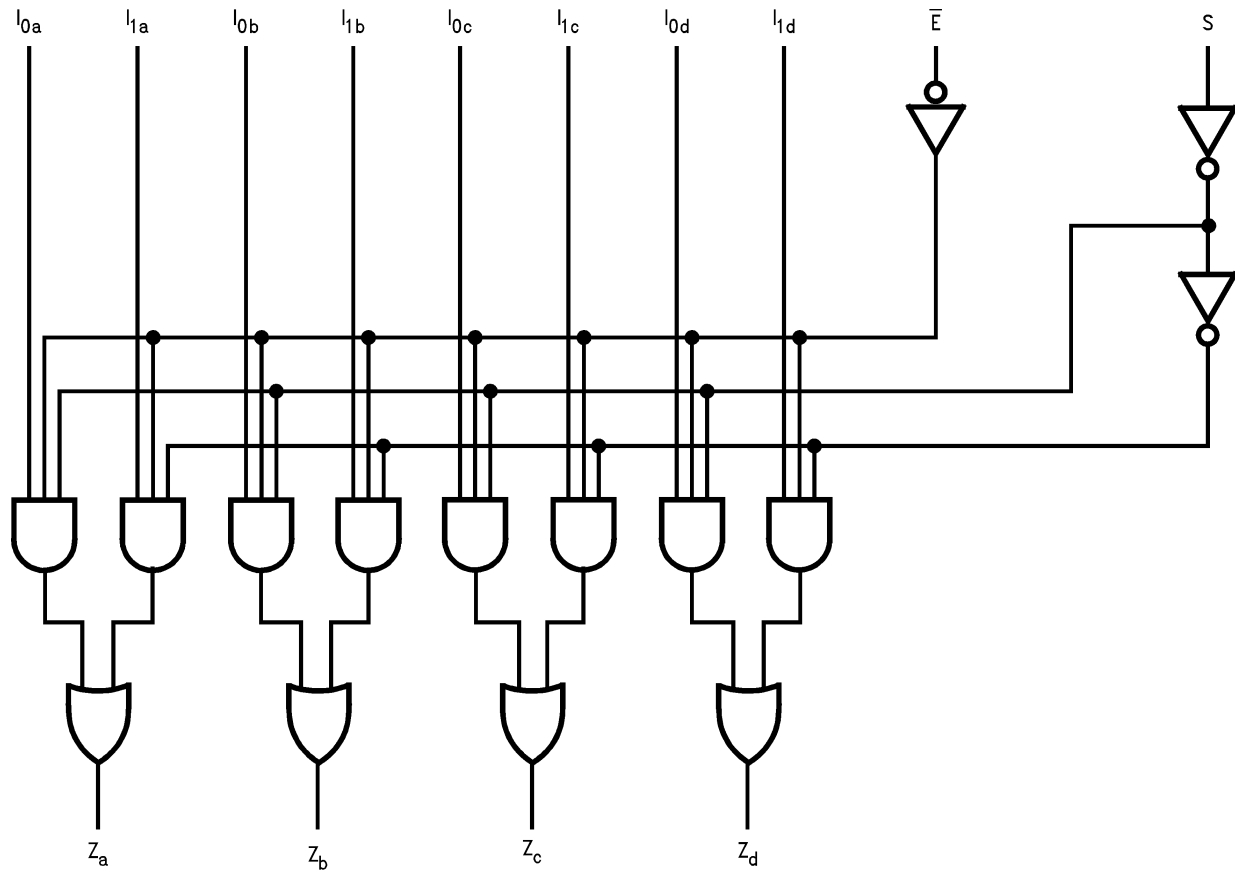
| Inputs    |   |       |       | Outputs |
|-----------|---|-------|-------|---------|
| $\bar{E}$ | S | $I_0$ | $I_1$ | Z       |
| H         | X | X     | X     | L       |
| L         | H | X     | L     | L       |
| L         | H | X     | H     | H       |
| L         | L | L     | X     | L       |
| L         | L | H     | X     | H       |

H = HIGH Voltage Level

L = LOW Voltage Level

X = Immaterial

## Logic Diagram



Please note that this diagram is provided only for the understanding of logic operations and should not be used to estimate propagation delays.

# 74VHC157

## MAXIMUM RATINGS

| Symbol           | Parameter                                       | Value                                    | Unit                 |      |
|------------------|---|--|----------------------|------|
| V <sub>CC</sub>  | DC Supply Voltage                               | -0.5 to +6.5                             | V                    |      |
| V <sub>IN</sub>  | DC Input Voltage                                | -0.5 to +6.5                             | V                    |      |
| V <sub>OUT</sub> | DC Output Voltage                               | -0.5 to V <sub>CC</sub> +0.5             | V                    |      |
| I <sub>IN</sub>  | DC Input Current, per Pin                       | ±20                                      | mA                   |      |
| I <sub>OUT</sub> | DC Output Current, per Pin                      | ±25                                      | mA                   |      |
| I <sub>CC</sub>  | DC Supply Current, V <sub>CC</sub> and GND Pins | ±50                                      | mA                   |      |
| I <sub>IK</sub>  | Input Clamp Current                             | -20                                      | mA                   |      |
| I <sub>OK</sub>  | Output Clamp Current                            | ±20                                      | mA                   |      |
| T <sub>STG</sub> | Storage Temperature Range                       | -65 to +150                              | °C                   |      |
| T <sub>L</sub>   | Lead Temperature, 1 mm from Case for 10 secs    | 260                                      | °C                   |      |
| T <sub>J</sub>   | Junction Temperature Under Bias                 | +150                                     | °C                   |      |
| θ <sub>JA</sub>  | Thermal Resistance (Note 2)                     | SOIC-16<br>QFN16<br>TSSOP-16             | 126<br>118<br>159    | °C/W |
| P <sub>D</sub>   | Power Dissipation in Still Air at 25°C          | SOIC-16<br>QFN16<br>TSSOP-16             | 995<br>1062<br>787   | mW   |
| MSL              | Moisture Sensitivity                            | Level 1                                  | -                    |      |
| F <sub>R</sub>   | Flammability Rating                             | Oxygen Index: 28 to 34                   | UL 94 V-0 @ 0.139 in | -    |
| V <sub>ESD</sub> | ESD Withstand Voltage (Note 3)                  | Human Body Model<br>Charged Device Model | 2000<br>N/A          | V    |

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

1. Applicable to devices with outputs that may be tri-stated.
2. Measured with minimum pad spacing on an FR4 board, using 76mm-by-114mm, 2-ounce copper trace no air flow per JESD51-7.
3. HBM tested to EIA / JESD22-A114-A. CDM tested to JESD22-C101-A. JEDEC recommends that ESD qualification to EIA/JESD22-A115A (Machine Model) be discontinued.

## RECOMMENDED OPERATING CONDITIONS

| Symbol                          | Parameter                  | Min   | Max             | Unit |
|---------------------------------|----------------------------|---|-----------------|------|
| V <sub>CC</sub>                 | DC Supply Voltage          | 2.0   | 5.5             | V    |
| V <sub>IN</sub>                 | DC Input Voltage (Note 4)  | 0   | 5.5             | V    |
| V <sub>OUT</sub>                | DC Output Voltage (Note 4) | 0   | V <sub>CC</sub> | V    |
| T <sub>A</sub>                  | Operating Temperature      | -40   | +85             | °C   |
| t <sub>r</sub> , t <sub>f</sub> | Input Rise or Fall Rate    | V <sub>CC</sub> = 3.0 V to 3.6 V<br>V <sub>CC</sub> = 4.5 V to 55 V | 0<br>100<br>20  | ns/V |

Functional operation above the stresses listed in the Recommended Operating Ranges is not implied. Extended exposure to stresses beyond the Recommended Operating Ranges limits may affect device reliability.

4. Unused inputs must always be tied to an appropriate logic voltage level (e.g., either GND or V<sub>CC</sub>). Unused outputs must be left open.

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## DC ELECTRICAL CHARACTERISTICS

| Symbol          | Parameter                 | Conditions   | V <sub>CC</sub> (V)                                | T <sub>A</sub> = 25°C         |      |                               | T <sub>A</sub> = -40°C to +85°C |                               | Unit |
|-----------------|---------------------------|--|--|-------------------------------|------|-------------------------------|---------------------------------|-------------------------------|------|
|                 |                           |  |  | Min                           | Typ  | Max                           | Min                             | Max                           |      |
| V <sub>IH</sub> | HIGH Level Input Voltage  |  | 2.0<br>3.0 – 5.5                                   | 1.50<br>0.7 x V <sub>CC</sub> |      |                               | 1.50<br>0.7 x V <sub>CC</sub>   |                               | V    |
| V <sub>IL</sub> | LOW Level Input Voltage   |  | 2.0<br>3.0 – 5.5                                   |                               |      | 0.50<br>0.3 x V <sub>CC</sub> |                                 | 0.50<br>0.3 x V <sub>CC</sub> | V    |
| V <sub>OH</sub> | HIGH Level Output Voltage | V <sub>IN</sub> = V <sub>IH</sub> or V <sub>IL</sub> | I <sub>OH</sub> = -50 μA                           | 2.0                           | 1.9  | 2.0                           |                                 | 1.9                           | V    |
|                 |                           |  |  | 3.0                           | 2.9  | 3.0                           |                                 | 2.9                           |      |
|                 |                           |  | I <sub>OH</sub> = -4 mA<br>I <sub>OH</sub> = -8 mA | 4.5                           | 4.4  | 4.5                           |                                 | 4.4                           |      |
|                 |                           |  |  | 3.0                           | 2.58 |                               |                                 | 2.48                          |      |
| V <sub>OL</sub> | LOW Level Output Voltage  | V <sub>IN</sub> = V <sub>IH</sub> or V <sub>IL</sub> | I <sub>OL</sub> = 50 μA                            | 2.0                           |      | 0.0                           |                                 | 0.1                           | V    |
|                 |                           |  |  | 3.0                           |      | 0.0                           |                                 | 0.1                           |      |
|                 |                           |  | I <sub>OH</sub> = 4 mA<br>I <sub>OH</sub> = 8 mA   | 4.5                           |      | 0.0                           |                                 | 0.1                           |      |
|                 |                           |  |  | 3.0                           |      | 0.36                          |                                 | 0.44                          |      |
|                 |                           |  |  | 4.5                           |      | 0.36                          |                                 | 0.44                          |      |
|                 |                           |  |  |                               |      | 0.36                          |                                 | 0.44                          |      |
| I <sub>IN</sub> | Input Leakage Current     | V <sub>IN</sub> = 5.5 V or GND                       | 0 – 5.5  |                               |      |                               | ±0.1                            |                               | μA   |
| I <sub>CC</sub> | Quiescent Supply Current  | V <sub>IN</sub> = V <sub>CC</sub> or GND             | 5.5  |                               |      |                               | 4.0                             | 40.0                          | μA   |

## NOISE CHARACTERISTICS

| Symbol           | Parameter   | Conditions | V <sub>CC</sub> (V) | T <sub>A</sub> = 25°C |        | Unit |
|------------------|---|------------|---------------------|-----------------------|--------|------|
|                  |   |            |                     | Typ                   | Limits |      |
| V <sub>OLP</sub> | Quiet Output Maximum Dynamic V <sub>OL</sub> (Note 3) | CL = 50 pF | 5.0                 | 0.3                   | 0.8    | V    |
| V <sub>OLV</sub> | Quiet Output Minimum Dynamic V <sub>OL</sub> (Note 3) | CL = 50 pF | 5.0                 | -0.3                  | -0.8   | V    |
| V <sub>IHD</sub> | Minimum HIGH Level Dynamic Input Voltage (Note 3)     | CL = 50 pF | 5.0                 |                       | 3.5    | V    |
| V <sub>ILD</sub> | Maximum LOW Level Dynamic Input Voltage (Note 3)      | CL = 50 pF | 5.0                 |                       | 1.5    | V    |

5. Parameter guaranteed by design.

## AC ELECTRICAL CHARACTERISTICS

| Symbol                                 | Parameter   | Conditions                                     | V <sub>CC</sub> (V) | T <sub>A</sub> = 25°C |             |              | T <sub>A</sub> = -40°C to +85°C |              | Unit |
|--|---|--|---------------------|-----------------------|-------------|--------------|---------------------------------|--------------|------|
|  |   |  |                     | Min                   | Typ         | Max          | Min                             | Max          |      |
| t <sub>PLH</sub> ,<br>t <sub>PHL</sub> | Propagation Delay, I <sub>n</sub> to Z <sub>n</sub> | C <sub>L</sub> = 15pF<br>C <sub>L</sub> = 50pF | 3.3 ± 0.3           |                       | 6.2<br>8.7  | 9.7<br>13.2  | 1.0<br>1.0                      | 11.5<br>15.0 | ns   |
|  |   |  |                     |                       | 4.1<br>5.6  | 6.4<br>8.4   | 1.0<br>1.0                      | 7.5<br>9.5   |      |
| t <sub>PLH</sub> ,<br>t <sub>PHL</sub> | Propagation Delay, S to Z <sub>n</sub>              | C <sub>L</sub> = 15pF<br>C <sub>L</sub> = 50pF | 3.3 ± 0.3           |                       | 8.4<br>10.9 | 13.2<br>16.7 | 1.0<br>1.0                      | 15.5<br>19.0 | ns   |
|  |   |  |                     |                       | 5.3<br>6.8  | 8.1<br>10.1  | 1.0<br>1.0                      | 9.5<br>11.5  |      |
| t <sub>PLH</sub> ,<br>t <sub>PHL</sub> | Propagation Delay, E to Z <sub>n</sub>              | C <sub>L</sub> = 15pF<br>C <sub>L</sub> = 50pF | 3.3 ± 0.3           |                       | 8.7<br>11.2 | 13.6<br>17.1 | 1.0<br>1.0                      | 16.0<br>19.5 | ns   |
|  |   |  |                     |                       | 5.6<br>7.1  | 8.6<br>10.6  | 1.0<br>1.0                      | 10.0<br>12.0 |      |

# 74VHC157

## AC ELECTRICAL CHARACTERISTICS (continued)

| Symbol          | Parameter                     | Conditions             | V <sub>CC</sub> (V) | T <sub>A</sub> = 25°C |     |     | T <sub>A</sub> = -40°C to +85°C |     | Unit |
|-----------------|-------------------------------|------------------------|---------------------|-----------------------|-----|-----|---------------------------------|-----|------|
|                 |                               |                        |                     | Min                   | Typ | Max | Min                             | Max |      |
| C <sub>IN</sub> | Input Capacitance             | V <sub>CC</sub> = Open |                     |                       | 4   | 10  | –                               | 10  | pF   |
| C <sub>PD</sub> | Power Dissipation Capacitance | (Note 3)               |                     |                       | 20  | –   | –                               | –   | pF   |

6. C<sub>PD</sub> is defined as the value of the internal equivalent capacitance which is calculated from the operating current consumption without load. Average operating current can be obtained by the equation: I<sub>CC(OPR)</sub> = C<sub>PD</sub> • V<sub>CC</sub> • f<sub>in</sub> + I<sub>CC</sub>.

## ORDERING INFORMATION

| Device       | Marking    | Package  | Shipping <sup>†</sup> |
|--------------|------------|----------|-----------------------|
| 74VHC157MX   | VHC157     | SOIC-16  | 2500 / Tape & Reel    |
| 74VHC157MTCX | VHC<br>157 | TSSOP-16 | 2500 / Tape & Reel    |

<sup>†</sup>For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, [BRD8011/D](#).

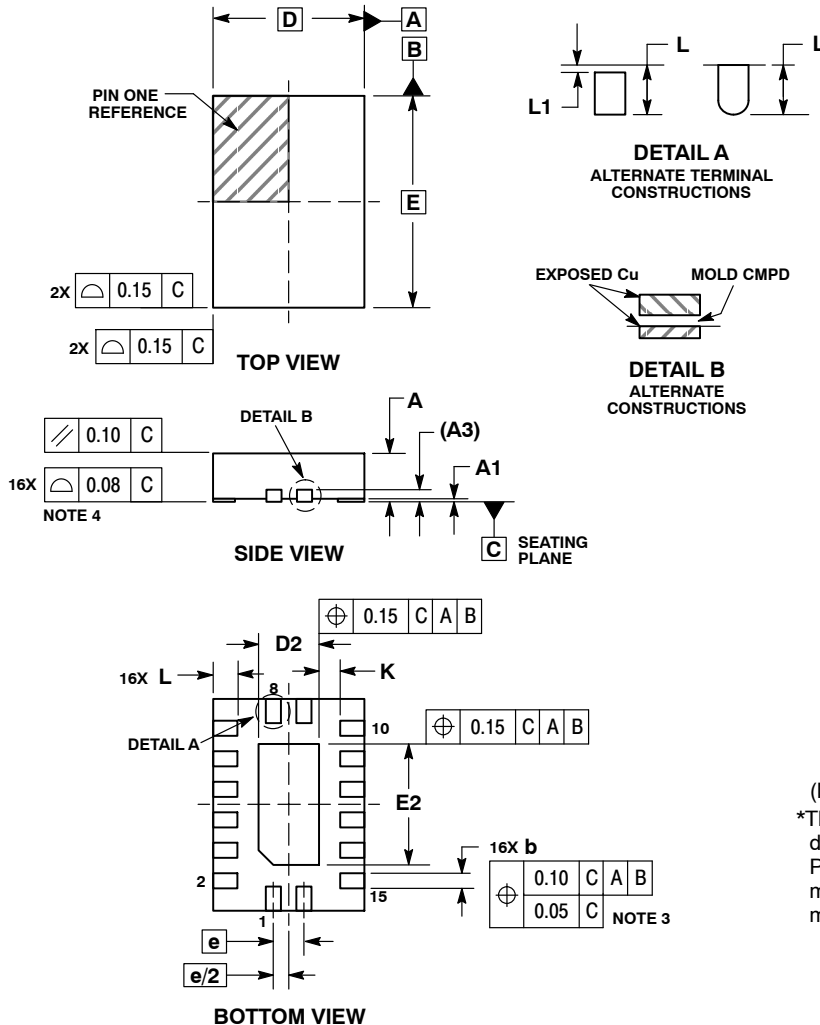
# MECHANICAL CASE OUTLINE PACKAGE DIMENSIONS



SCALE 2:1

**QFN16, 2.5x3.5, 0.5P**  
CASE 485AW  
ISSUE O

DATE 11 DEC 2008

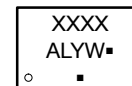


**NOTES:**

1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994.
2. CONTROLLING DIMENSION: MILLIMETERS.
3. DIMENSIONS b APPLIES TO PLATED TERMINAL AND IS MEASURED BETWEEN 0.15 AND 0.30 MM FROM TERMINAL.
4. COPLANARITY APPLIES TO THE EXPOSED PAD AS WELL AS THE TERMINALS.

| DIM | MILLIMETERS |      |
|-----|-------------|------|
|     | MIN         | MAX  |
| A   | 0.80        | 1.00 |
| A1  | 0.00        | 0.05 |
| A3  | 0.20 REF    |      |
| b   | 0.20        | 0.30 |
| D   | 2.50 BSC    |      |
| D2  | 0.85        | 1.15 |
| E   | 3.50 BSC    |      |
| E2  | 1.85        | 2.15 |
| e   | 0.50 BSC    |      |
| K   | 0.20        | ---  |
| L   | 0.35        | 0.45 |
| L1  | ---         | 0.15 |

**GENERIC MARKING  
DIAGRAM\***

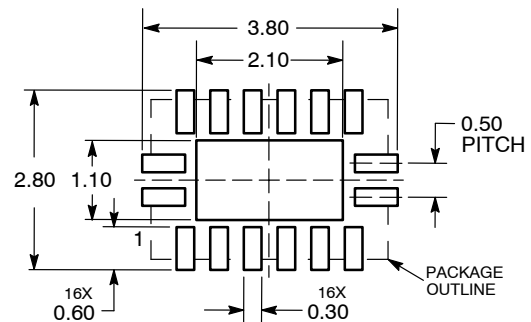


- XXXX = Specific Device Code
- A = Assembly Location
- L = Wafer Lot
- Y = Year
- W = Work Week
- = Pb-Free Package

(Note: Microdot may be in either location)

\*This information is generic. Please refer to device data sheet for actual part marking. Pb-Free indicator, "G" or microdot "▪", may or may not be present. Some products may not follow the Generic Marking.

**RECOMMENDED  
SOLDERING FOOTPRINT\***

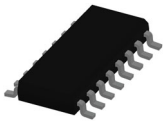


DIMENSIONS: MILLIMETERS

\*For additional information on our Pb-Free strategy and soldering details, please download the **onsemi** Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

|                         |                             |  |
|-------------------------|-----------------------------|--|
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| <b>DESCRIPTION:</b>     | <b>QFN16, 2.5X3.5, 0.5P</b> | <b>PAGE 1 OF 1</b>   |

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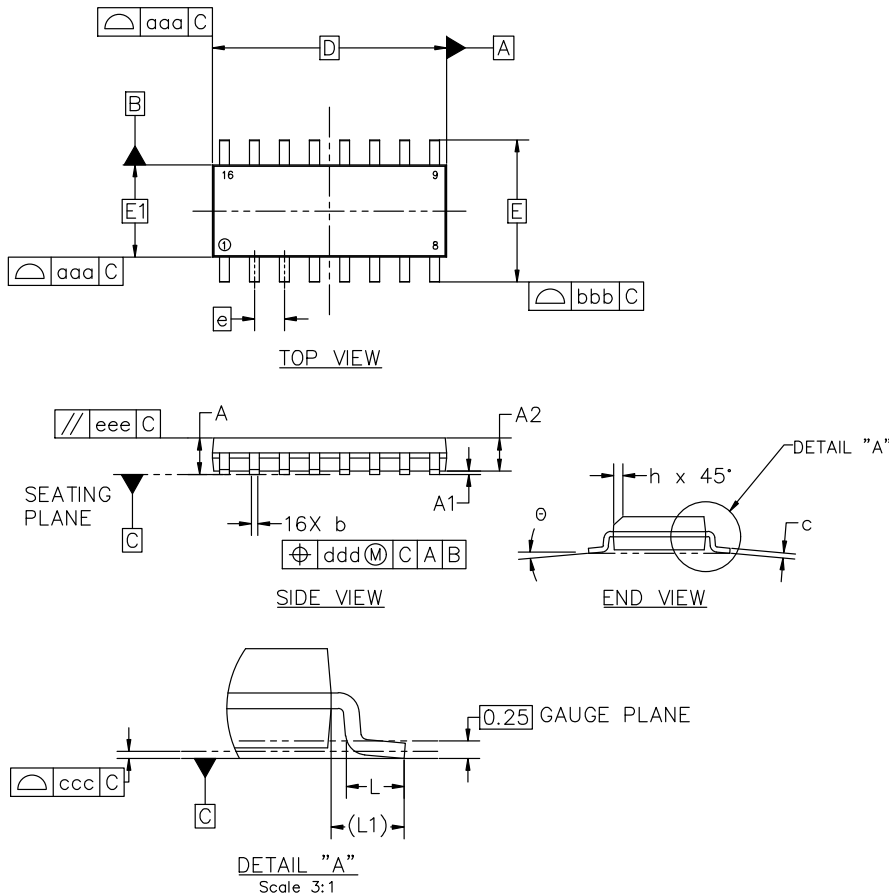


SOIC-16 9.90x3.90x1.37 1.27P  
CASE 751B  
ISSUE M

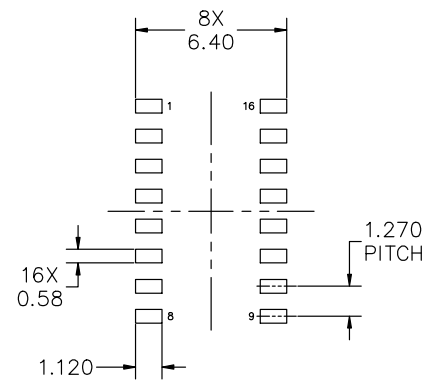
DATE 18 OCT 2024

NOTES:

1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 2018.
2. DIMENSION IN MILLIMETERS. ANGLE IN DEGREES.
3. DIMENSIONS D AND E1 DO NOT INCLUDE MOLD PROTRUSION.
4. MAXIMUM MOLD PROTRUSION 0.15mm PER SIDE.
5. DIMENSION b DOES NOT INCLUDE DAMBAR PROTRUSION. ALLOWABLE DAMBAR PROTRUSION SHALL BE 0.127mm TOTAL IN EXCESS OF THE b DIMENSION AT MAXIMUM MATERIAL CONDITION.



| MILLIMETERS                    |          |      |      |
|--------------------------------|----------|------|------|
| DIM                            | MIN      | NOM  | MAX  |
| A                              | 1.35     | 1.55 | 1.75 |
| A1                             | 0.10     | 0.18 | 0.25 |
| A2                             | 1.25     | 1.37 | 1.50 |
| b                              | 0.35     | 0.42 | 0.49 |
| c                              | 0.19     | 0.22 | 0.25 |
| D                              | 9.90 BSC |      |      |
| E                              | 6.00 BSC |      |      |
| E1                             | 3.90 BSC |      |      |
| e                              | 1.27 BSC |      |      |
| h                              | 0.25     | ---  | 0.50 |
| L                              | 0.40     | 0.83 | 1.25 |
| L1                             | 1.05 REF |      |      |
| θ                              | 0°       | ---  | 7°   |
| TOLERANCE OF FORM AND POSITION |          |      |      |
| aaa                            | 0.10     |      |      |
| bbb                            | 0.20     |      |      |
| ccc                            | 0.10     |      |      |
| ddd                            | 0.25     |      |      |
| eee                            | 0.10     |      |      |



RECOMMENDED MOUNTING FOOTPRINT

\*FOR ADDITIONAL INFORMATION ON OUR PB-FREE STRATEGY AND SOLDERING DETAILS, PLEASE DOWNLOAD THE onsemi SOLDERING AND MOUNTING TECHNIQUES REFERENCE MANUAL, SOLDERRM/D

|                         |                                     |  |
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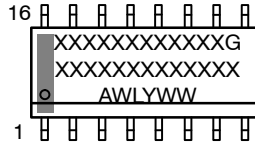
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SOIC-16 9.90x3.90x1.37 1.27P  
CASE 751B  
ISSUE M

DATE 18 OCT 2024

GENERIC  
MARKING DIAGRAM\*



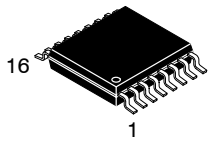
XXXXX = Specific Device Code  
A = Assembly Location  
WL = Wafer Lot  
Y = Year  
WW = Work Week  
G = Pb-Free Package

\*This information is generic. Please refer to device data sheet for actual part marking. Pb-Free indicator, "G" or microdot "•", may or may not be present. Some products may not follow the Generic Marking.

|  |  |  |  |
|--|--|--|--|
| <p>STYLE 1:</p> <p>PIN 1. COLLECTOR</p> <p>2. BASE</p> <p>3. EMITTER</p> <p>4. NO CONNECTION</p> <p>5. EMITTER</p> <p>6. BASE</p> <p>7. COLLECTOR</p> <p>8. COLLECTOR</p> <p>9. BASE</p> <p>10. EMITTER</p> <p>11. NO CONNECTION</p> <p>12. EMITTER</p> <p>13. BASE</p> <p>14. COLLECTOR</p> <p>15. EMITTER</p> <p>16. COLLECTOR</p>                           | <p>STYLE 2:</p> <p>PIN 1. CATHODE</p> <p>2. ANODE</p> <p>3. NO CONNECTION</p> <p>4. CATHODE</p> <p>5. CATHODE</p> <p>6. NO CONNECTION</p> <p>7. ANODE</p> <p>8. CATHODE</p> <p>9. CATHODE</p> <p>10. ANODE</p> <p>11. NO CONNECTION</p> <p>12. CATHODE</p> <p>13. CATHODE</p> <p>14. NO CONNECTION</p> <p>15. ANODE</p> <p>16. CATHODE</p> | <p>STYLE 3:</p> <p>PIN 1. COLLECTOR, DYE #1</p> <p>2. BASE, #1</p> <p>3. EMITTER, #1</p> <p>4. COLLECTOR, #1</p> <p>5. COLLECTOR, #2</p> <p>6. BASE, #2</p> <p>7. EMITTER, #2</p> <p>8. COLLECTOR, #2</p> <p>9. COLLECTOR, #3</p> <p>10. BASE, #3</p> <p>11. EMITTER, #3</p> <p>12. COLLECTOR, #3</p> <p>13. COLLECTOR, #4</p> <p>14. BASE, #4</p> <p>15. EMITTER, #4</p> <p>16. COLLECTOR, #4</p>   | <p>STYLE 4:</p> <p>PIN 1. COLLECTOR, DYE #1</p> <p>2. COLLECTOR, #1</p> <p>3. COLLECTOR, #2</p> <p>4. COLLECTOR, #2</p> <p>5. COLLECTOR, #3</p> <p>6. COLLECTOR, #3</p> <p>7. COLLECTOR, #4</p> <p>8. COLLECTOR, #4</p> <p>9. BASE, #4</p> <p>10. EMITTER, #4</p> <p>11. BASE, #3</p> <p>12. EMITTER, #3</p> <p>13. BASE, #2</p> <p>14. EMITTER, #2</p> <p>15. BASE, #1</p> <p>16. EMITTER, #1</p> |
| <p>STYLE 5:</p> <p>PIN 1. DRAIN, DYE #1</p> <p>2. DRAIN, #1</p> <p>3. DRAIN, #2</p> <p>4. DRAIN, #2</p> <p>5. DRAIN, #3</p> <p>6. DRAIN, #3</p> <p>7. DRAIN, #4</p> <p>8. DRAIN, #4</p> <p>9. GATE, #4</p> <p>10. SOURCE, #4</p> <p>11. GATE, #3</p> <p>12. SOURCE, #3</p> <p>13. GATE, #2</p> <p>14. SOURCE, #2</p> <p>15. GATE, #1</p> <p>16. SOURCE, #1</p> | <p>STYLE 6:</p> <p>PIN 1. CATHODE</p> <p>2. CATHODE</p> <p>3. CATHODE</p> <p>4. CATHODE</p> <p>5. CATHODE</p> <p>6. CATHODE</p> <p>7. CATHODE</p> <p>8. CATHODE</p> <p>9. ANODE</p> <p>10. ANODE</p> <p>11. ANODE</p> <p>12. ANODE</p> <p>13. ANODE</p> <p>14. ANODE</p> <p>15. ANODE</p> <p>16. ANODE</p>                                 | <p>STYLE 7:</p> <p>PIN 1. SOURCE N-CH</p> <p>2. COMMON DRAIN (OUTPUT)</p> <p>3. COMMON DRAIN (OUTPUT)</p> <p>4. GATE P-CH</p> <p>5. COMMON DRAIN (OUTPUT)</p> <p>6. COMMON DRAIN (OUTPUT)</p> <p>7. COMMON DRAIN (OUTPUT)</p> <p>8. SOURCE P-CH</p> <p>9. SOURCE P-CH</p> <p>10. COMMON DRAIN (OUTPUT)</p> <p>11. COMMON DRAIN (OUTPUT)</p> <p>12. COMMON DRAIN (OUTPUT)</p> <p>13. GATE N-CH</p> <p>14. COMMON DRAIN (OUTPUT)</p> <p>15. COMMON DRAIN (OUTPUT)</p> <p>16. SOURCE N-CH</p> |  |

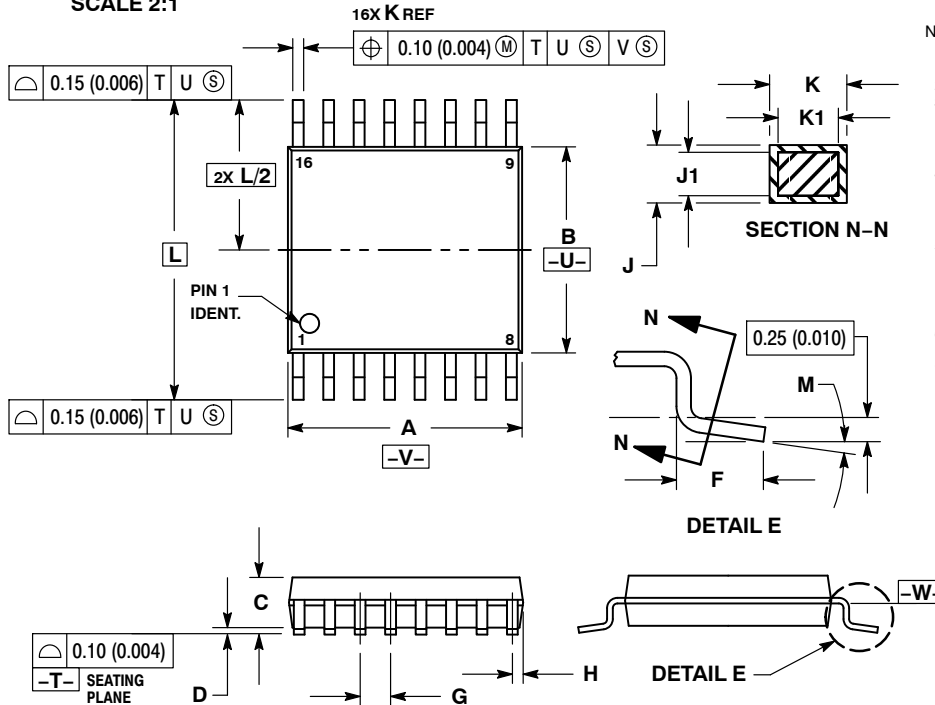
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TSSOP-16 WB  
CASE 948F  
ISSUE B

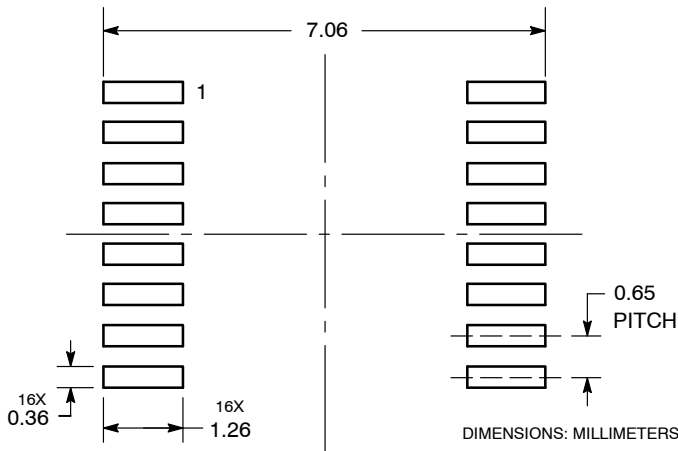
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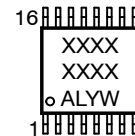
- NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
  2. CONTROLLING DIMENSION: MILLIMETER.
  3. DIMENSION A DOES NOT INCLUDE MOLD FLASH, PROTRUSIONS OR GATE BURRS. MOLD FLASH OR GATE BURRS SHALL NOT EXCEED 0.15 (0.006) PER SIDE.
  4. DIMENSION B DOES NOT INCLUDE INTERLEAD FLASH OR PROTRUSION. INTERLEAD FLASH OR PROTRUSION SHALL NOT EXCEED 0.25 (0.010) PER SIDE.
  5. DIMENSION K DOES NOT INCLUDE DAMBAR PROTRUSION. ALLOWABLE DAMBAR PROTRUSION SHALL BE 0.08 (0.003) TOTAL IN EXCESS OF THE K DIMENSION AT MAXIMUM MATERIAL CONDITION.
  6. TERMINAL NUMBERS ARE SHOWN FOR REFERENCE ONLY.
  7. DIMENSION A AND B ARE TO BE DETERMINED AT DATUM PLANE -W-.

| DIM | MILLIMETERS |      | INCHES    |       |
|-----|-------------|------|-----------|-------|
|     | MIN         | MAX  | MIN       | MAX   |
| A   | 4.90        | 5.10 | 0.193     | 0.200 |
| B   | 4.30        | 4.50 | 0.169     | 0.177 |
| C   | ---         | 1.20 | ---       | 0.047 |
| D   | 0.05        | 0.15 | 0.002     | 0.006 |
| F   | 0.50        | 0.75 | 0.020     | 0.030 |
| G   | 0.65 BSC    |      | 0.026 BSC |       |
| H   | 0.18        | 0.28 | 0.007     | 0.011 |
| J   | 0.09        | 0.20 | 0.004     | 0.008 |
| J1  | 0.09        | 0.16 | 0.004     | 0.006 |
| K   | 0.19        | 0.30 | 0.007     | 0.012 |
| K1  | 0.19        | 0.25 | 0.007     | 0.010 |
| L   | 6.40 BSC    |      | 0.252 BSC |       |
| M   | 0°          | 8°   | 0°        | 8°    |

RECOMMENDED  
SOLDERING FOOTPRINT\*



GENERIC  
MARKING DIAGRAM\*



- XXXX = Specific Device Code
- A = Assembly Location
- L = Wafer Lot
- Y = Year
- W = Work Week
- G or ■ = Pb-Free Package

\*This information is generic. Please refer to device data sheet for actual part marking. Pb-Free indicator, "G" or microdot "■", may or may not be present. Some products may not follow the Generic Marking.

\*For additional information on our Pb-Free strategy and soldering details, please download the onsemi Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

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