

# MC74AC253, MC74ACT253

## Dual 4-Input Multiplexer with 3-State Outputs

The MC74AC253/74ACT253 is a dual 4-input multiplexer with 3-state outputs. It can select two bits of data from four sources using common select inputs. The outputs may be individually switched to a high impedance state with a HIGH on the respective Output Enable ( $\overline{OE}$ ) inputs, allowing the outputs to interface directly with bus oriented systems.

- Multifunctional Capability
- Noninverting 3-State Outputs
- Outputs Source/Sink 24 mA
- 'ACT253 Has TTL Compatible Inputs
- These devices are available in Pb-free package(s). Specifications herein apply to both standard and Pb-free devices. Please see our website at [www.onsemi.com](http://www.onsemi.com) for specific Pb-free orderable part numbers, or contact your local ON Semiconductor sales office or representative.

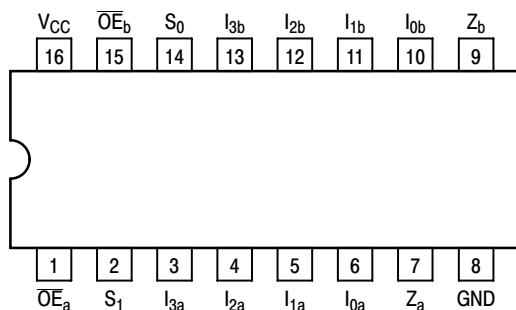


Figure 1. Pinout: 16-Lead Packages Conductors  
(Top View)

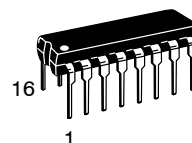
### PIN NAME

| PIN               | FUNCTION                   |
|-------------------|----------------------------|
| $I_{0a}-I_{3a}$   | Side A Data Inputs         |
| $I_{0b}-I_{3b}$   | Side B Data Inputs         |
| $S_0, S_1$        | Common Select Inputs       |
| $\overline{OE}_a$ | Side A Output Enable Input |
| $\overline{OE}_b$ | Side B Output Enable Input |
| $Z_a, Z_b$        | 3-State Outputs            |

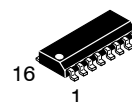


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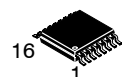
<http://onsemi.com>



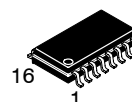
DIP-16  
N SUFFIX  
CASE 648



SO-16  
D SUFFIX  
CASE 751B



TSSOP-16  
DT SUFFIX  
CASE 948F



EIAJ-16  
M SUFFIX  
CASE 966

### ORDERING INFORMATION

| Device         | Package  | Shipping         |
|----------------|----------|------------------|
| MC74AC253N     | PDIP-16  | 25 Units/Rail    |
| MC74ACT253N    | PDIP-16  | 25 Units/Rail    |
| MC74AC253D     | SOIC-16  | 48 Units/Rail    |
| MC74ACT253D    | SOIC-16  | 48 Units/Rail    |
| MC74AC253DR2   | SOIC-16  | 2500 Tape & Reel |
| MC74ACT253DR2  | SOIC-16  | 2500 Tape & Reel |
| MC74AC253DT    | TSSOP-16 | 96 Units/Rail    |
| MC74ACT253DT   | TSSOP-16 | 96 Units/Rail    |
| MC74AC253DTR2  | TSSOP-16 | 2500 Tape & Reel |
| MC74ACT253DTR2 | TSSOP-16 | 2500 Tape & Reel |
| MC74AC253M     | EIAJ-16  | 50 Units/Rail    |
| MC74ACT253M    | EIAJ-16  | 50 Units/Rail    |
| MC74AC253MEL   | EIAJ-16  | 2000 Tape & Reel |
| MC74ACT253MEL  | EIAJ-16  | 2000 Tape & Reel |

### DEVICE MARKING INFORMATION

See general marking information in the device marking section on page 7 of this data sheet.

# MC74AC253, MC74ACT253

TRUTH TABLE

| Select Inputs  |                | Data Inputs    |                |                |                | Output Enable | Outputs |
|----------------|----------------|----------------|----------------|----------------|----------------|---------------|---------|
| S <sub>0</sub> | S <sub>1</sub> | I <sub>0</sub> | I <sub>1</sub> | I <sub>2</sub> | I <sub>3</sub> | OE            | Z       |
| X              | X              | X              | X              | X              | X              | H             | Z       |
| L              | L              | L              | X              | X              | X              | L             | L       |
| L              | L              | H              | X              | X              | X              | L             | H       |
| H              | L              | X              | L              | X              | X              | L             | L       |
| H              | L              | X              | H              | X              | X              | L             | H       |
| L              | H              | X              | X              | L              | X              | L             | L       |
| L              | H              | X              | X              | H              | X              | L             | H       |
| H              | H              | X              | X              | X              | L              | L             | L       |
| H              | H              | X              | X              | X              | H              | L             | H       |

Address inputs S<sub>0</sub> and S<sub>1</sub> are common to both sections.

H = HIGH Voltage Level

L = LOW Voltage Level

X = Immaterial

Z = High Impedance

## FUNCTIONAL DESCRIPTION

The MC74AC253/74ACT253 contains two identical 4-input multiplexers with 3-state outputs. They select two bits from four sources selected by common Select inputs (S<sub>0</sub>, S<sub>1</sub>). The 4-input multiplexers have individual Output Enable ( $\overline{OE}_a$ ,  $\overline{OE}_b$ ) inputs which, when HIGH, force the outputs to a high impedance (High Z) state. This device is the logic implementation of a 2-pole, 4-position switch, where the position of the switch is determined by the logic levels

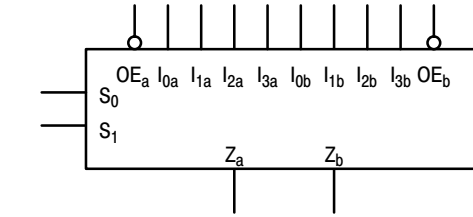


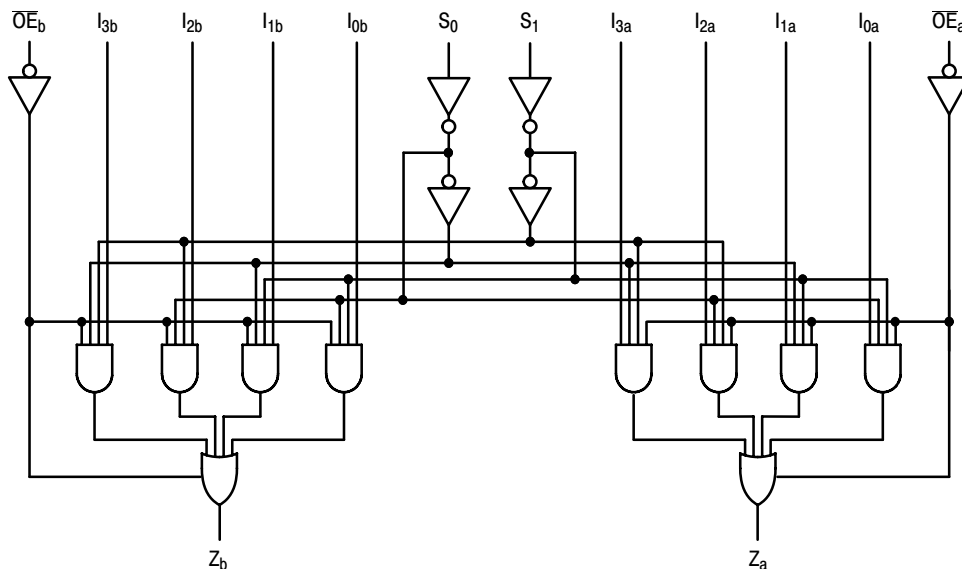
Figure 2. Logic Symbol

supplied to the two select inputs. The logic equations for the outputs are shown:

$$Z_a = \overline{OE}_a \cdot (I_{0a} \cdot \overline{S_1} \cdot \overline{S_0} + I_{1a} \cdot \overline{S_1} \cdot S_0 + I_{2a} \cdot S_1 \cdot \overline{S_0} + I_{3a} \cdot S_1 \cdot S_0)$$

$$Z_b = \overline{OE}_b \cdot (I_{0b} \cdot \overline{S_1} \cdot \overline{S_0} + I_{1b} \cdot \overline{S_1} \cdot S_0 + I_{2b} \cdot S_1 \cdot \overline{S_0} + I_{3b} \cdot S_1 \cdot S_0)$$

If the outputs of 3-state devices are tied together, all but one device must be in the high impedance state to avoid high currents that would exceed the maximum ratings. Designers should ensure that Output Enable signals to 3-state devices whose outputs are tied together are designed so that there is no overlap.



NOTE: This diagram is provided only for the understanding of logic operations and should not be used to estimate propagation delays.

Figure 3. Logic Diagram

# MC74AC253, MC74ACT253

## MAXIMUM RATINGS\*

| Symbol    | Parameter                                 | Value                 | Unit |
|-----------|-------------------------------------------|-----------------------|------|
| $V_{CC}$  | DC Supply Voltage (Referenced to GND)     | -0.5 to +7.0          | V    |
| $V_{IN}$  | DC Input Voltage (Referenced to GND)      | -0.5 to $V_{CC}$ +0.5 | V    |
| $V_{OUT}$ | DC Output Voltage (Referenced to GND)     | -0.5 to $V_{CC}$ +0.5 | V    |
| $I_{IN}$  | DC Input Current, per Pin                 | $\pm 20$              | mA   |
| $I_{OUT}$ | DC Output Sink/Source Current, per Pin    | $\pm 50$              | mA   |
| $I_{CC}$  | DC $V_{CC}$ or GND Current per Output Pin | $\pm 50$              | mA   |
| $T_{stg}$ | Storage Temperature                       | -65 to +150           | °C   |

\*Maximum Ratings are those values beyond which damage to the device may occur. Functional operation should be restricted to the Recommended Operating Conditions.

## RECOMMENDED OPERATING CONDITIONS

| Symbol            | Parameter                                                               | Min              | Typ | Max      | Unit |
|-------------------|-------------------------------------------------------------------------|------------------|-----|----------|------|
| $V_{CC}$          | Supply Voltage                                                          | 'AC              | 2.0 | 5.0      | V    |
|                   |                                                                         | 'ACT             | 4.5 | 5.0      |      |
| $V_{IN}, V_{OUT}$ | DC Input Voltage, Output Voltage (Ref. to GND)                          | 0                | -   | $V_{CC}$ | V    |
| $t_r, t_f$        | Input Rise and Fall Time (Note 1)<br>'AC Devices except Schmitt Inputs  | $V_{CC}$ @ 3.0 V | -   | 150      | ns/V |
|                   |                                                                         | $V_{CC}$ @ 4.5 V | -   | 40       |      |
|                   |                                                                         | $V_{CC}$ @ 5.5 V | -   | 25       |      |
| $t_r, t_f$        | Input Rise and Fall Time (Note 2)<br>'ACT Devices except Schmitt Inputs | $V_{CC}$ @ 4.5 V | -   | 10       | ns/V |
|                   |                                                                         | $V_{CC}$ @ 5.5 V | -   | 8.0      |      |
| $T_J$             | Junction Temperature (PDIP)                                             | -                | -   | 140      | °C   |
| $T_A$             | Operating Ambient Temperature Range                                     | -40              | 25  | 85       | °C   |
| $I_{OH}$          | Output Current – High                                                   | -                | -   | -24      | mA   |
| $I_{OL}$          | Output Current – Low                                                    | -                | -   | 24       | mA   |

1.  $V_{IN}$  from 30% to 70%  $V_{CC}$ ; see individual Data Sheets for devices that differ from the typical input rise and fall times.
2.  $V_{IN}$  from 0.8 V to 2.0 V; see individual Data Sheets for devices that differ from the typical input rise and fall times.

# MC74AC253, MC74ACT253

## DC CHARACTERISTICS

| Symbol           | Parameter                            | V <sub>CC</sub><br>(V) | 74AC                   |                   | 74AC                                  | Unit | Conditions                                                                                                                                  |
|------------------|--------------------------------------|------------------------|------------------------|-------------------|---------------------------------------|------|---------------------------------------------------------------------------------------------------------------------------------------------|
|                  |                                      |                        | T <sub>A</sub> = +25°C |                   | T <sub>A</sub> =<br>–40°C to<br>+85°C |      |                                                                                                                                             |
|                  |                                      |                        | Typ                    | Guaranteed Limits |                                       |      |                                                                                                                                             |
| V <sub>IH</sub>  | Minimum High Level<br>Input Voltage  | 3.0                    | 1.5                    | 2.1               | 2.1                                   | V    | V <sub>OUT</sub> = 0.1 V<br>or V <sub>CC</sub> – 0.1 V                                                                                      |
|                  |                                      | 4.5                    | 2.25                   | 3.15              | 3.15                                  |      |                                                                                                                                             |
|                  |                                      | 5.5                    | 2.75                   | 3.85              | 3.85                                  |      |                                                                                                                                             |
| V <sub>IL</sub>  | Maximum Low Level<br>Input Voltage   | 3.0                    | 1.5                    | 0.9               | 0.9                                   | V    | V <sub>OUT</sub> = 0.1 V<br>or V <sub>CC</sub> – 0.1 V                                                                                      |
|                  |                                      | 4.5                    | 2.25                   | 1.35              | 1.35                                  |      |                                                                                                                                             |
|                  |                                      | 5.5                    | 2.75                   | 1.65              | 1.65                                  |      |                                                                                                                                             |
| V <sub>OH</sub>  | Minimum High Level<br>Output Voltage | 3.0                    | 2.99                   | 2.9               | 2.9                                   | V    | I <sub>OUT</sub> = –50 μA                                                                                                                   |
|                  |                                      | 4.5                    | 4.49                   | 4.4               | 4.4                                   |      |                                                                                                                                             |
|                  |                                      | 5.5                    | 5.49                   | 5.4               | 5.4                                   |      |                                                                                                                                             |
|                  |                                      | 3.0                    | –                      | 2.56              | 2.46                                  | V    | *V <sub>IN</sub> = V <sub>IL</sub> or V <sub>IH</sub><br>–12 mA<br>I <sub>OH</sub> –24 mA<br>–24 mA                                         |
|                  |                                      | 4.5                    | –                      | 3.86              | 3.76                                  |      |                                                                                                                                             |
|                  |                                      | 5.5                    | –                      | 4.86              | 4.76                                  |      |                                                                                                                                             |
| V <sub>OL</sub>  | Maximum Low Level<br>Output Voltage  | 3.0                    | 0.002                  | 0.1               | 0.1                                   | V    | I <sub>OUT</sub> = 50 μA                                                                                                                    |
|                  |                                      | 4.5                    | 0.001                  | 0.1               | 0.1                                   |      |                                                                                                                                             |
|                  |                                      | 5.5                    | 0.001                  | 0.1               | 0.1                                   |      |                                                                                                                                             |
|                  |                                      | 3.0                    | –                      | 0.36              | 0.44                                  | V    | *V <sub>IN</sub> = V <sub>IL</sub> or V <sub>IH</sub><br>12 mA<br>I <sub>OL</sub> 24 mA<br>24 mA                                            |
|                  |                                      | 4.5                    | –                      | 0.36              | 0.44                                  |      |                                                                                                                                             |
|                  |                                      | 5.5                    | –                      | 0.36              | 0.44                                  |      |                                                                                                                                             |
| I <sub>IN</sub>  | Maximum Input<br>Leakage Current     | 5.5                    | –                      | ±0.1              | ±1.0                                  | μA   | V <sub>I</sub> = V <sub>CC</sub> , GND                                                                                                      |
| I <sub>OZ</sub>  | Maximum<br>3–State<br>Current        | 5.5                    | –                      | ±0.5              | ±5.0                                  | μA   | V <sub>I</sub> (OE) = V <sub>IL</sub> , V <sub>IH</sub><br>V <sub>I</sub> = V <sub>CC</sub> , GND<br>V <sub>O</sub> = V <sub>CC</sub> , GND |
| I <sub>OLD</sub> | †Minimum Dynamic<br>Output Current   | 5.5                    | –                      | –                 | 75                                    | mA   | V <sub>OLD</sub> = 1.65 V Max                                                                                                               |
| I <sub>OHD</sub> |                                      | 5.5                    | –                      | –                 | –75                                   | mA   | V <sub>OHD</sub> = 3.85 V Min                                                                                                               |
| I <sub>CC</sub>  | Maximum Quiescent<br>Supply Current  | 5.5                    | –                      | 8.0               | 80                                    | μA   | V <sub>IN</sub> = V <sub>CC</sub> or GND                                                                                                    |

\*All outputs loaded; thresholds on input associated with output under test.

†Maximum test duration 2.0 ms, one output loaded at a time.

NOTE: I<sub>IN</sub> and I<sub>CC</sub> @ 3.0 V are guaranteed to be less than or equal to the respective limit @ 5.5 V V<sub>CC</sub>.

# MC74AC253, MC74ACT253

**AC CHARACTERISTICS** (For Figures and Waveforms – See Section 3 of the ON Semiconductor FACT Data Book, DL138/D)

| Symbol           | Parameter                                             | V <sub>CC</sub> *<br>(V) | 74AC                                             |        |              | 74AC                                                         |              | Unit | Fig. No. |
|------------------|-------------------------------------------------------|--------------------------|--------------------------------------------------|--------|--------------|--------------------------------------------------------------|--------------|------|----------|
|                  |                                                       |                          | T <sub>A</sub> = +25°C<br>C <sub>L</sub> = 50 pF |        |              | T <sub>A</sub> = –40°C<br>to +85°C<br>C <sub>L</sub> = 50 pF |              |      |          |
|                  |                                                       |                          | Min                                              | Typ    | Max          | Min                                                          | Max          |      |          |
| t <sub>PLH</sub> | Propagation Delay<br>S <sub>n</sub> to Z <sub>n</sub> | 3.3<br>5.0               | 2.0<br>2.0                                       | –<br>– | 15.5<br>11.0 | 2.0<br>1.5                                                   | 17.5<br>12.5 | ns   | 3–6      |
| t <sub>PHL</sub> | Propagation Delay<br>S <sub>n</sub> to Z <sub>n</sub> | 3.3<br>5.0               | 2.5<br>2.0                                       | –<br>– | 16.0<br>11.5 | 2.0<br>1.5                                                   | 18.0<br>13.0 | ns   | 3–6      |
| t <sub>PLH</sub> | Propagation Delay<br>I <sub>n</sub> to Z <sub>n</sub> | 3.3<br>5.0               | 1.5<br>1.5                                       | –<br>– | 14.5<br>10.0 | 1.5<br>1.5                                                   | 17.0<br>11.5 | ns   | 3–5      |
| t <sub>PHL</sub> | Propagation Delay<br>I <sub>n</sub> to Z <sub>n</sub> | 3.3<br>5.0               | 2.0<br>1.5                                       | –<br>– | 13.0<br>9.5  | 1.5<br>1.5                                                   | 15.0<br>11.0 | ns   | 3–5      |
| t <sub>PZH</sub> | Output Enable Time                                    | 3.3<br>5.0               | 1.5<br>1.5                                       | –<br>– | 8.0<br>6.0   | 1.0<br>1.0                                                   | 8.5<br>6.5   | ns   | 3–7      |
| t <sub>PZL</sub> | Output Enable Time                                    | 3.3<br>5.0               | 1.5<br>1.5                                       | –<br>– | 8.0<br>6.0   | 1.0<br>1.0                                                   | 9.0<br>7.0   | ns   | 3–8      |
| t <sub>PHZ</sub> | Output Disable Time                                   | 3.3<br>5.0               | 2.0<br>2.0                                       | –<br>– | 9.5<br>8.0   | 1.5<br>1.5                                                   | 10.0<br>8.5  | ns   | 3–7      |
| t <sub>PLZ</sub> | Output Disable Time                                   | 3.3<br>5.0               | 1.5<br>1.5                                       | –<br>– | 8.0<br>7.0   | 1.0<br>1.0                                                   | 9.0<br>7.5   | ns   | 3–8      |

\*Voltage Range 3.3 V is 3.3 V ±0.3 V.

\*Voltage Range 5.0 V is 5.0 V ±0.5 V.

# MC74AC253, MC74ACT253

## DC CHARACTERISTICS

| Symbol            | Parameter                              | V <sub>CC</sub><br>(V) | 74ACT                  |                   | 74ACT                                 |    | Unit                                                                                                                                        | Conditions |
|-------------------|----------------------------------------|------------------------|------------------------|-------------------|---------------------------------------|----|---------------------------------------------------------------------------------------------------------------------------------------------|------------|
|                   |                                        |                        | T <sub>A</sub> = +25°C |                   | T <sub>A</sub> =<br>–40°C to<br>+85°C |    |                                                                                                                                             |            |
|                   |                                        |                        | Typ                    | Guaranteed Limits |                                       |    |                                                                                                                                             |            |
| V <sub>IH</sub>   | Minimum High Level<br>Input Voltage    | 4.5<br>5.5             | 1.5<br>1.5             | 2.0<br>2.0        | 2.0<br>2.0                            | V  | V <sub>OUT</sub> = 0.1 V<br>or V <sub>CC</sub> – 0.1 V                                                                                      |            |
| V <sub>IL</sub>   | Maximum Low Level<br>Input Voltage     | 4.5<br>5.5             | 1.5<br>1.5             | 0.8<br>0.8        | 0.8<br>0.8                            | V  | V <sub>OUT</sub> = 0.1 V<br>or V <sub>CC</sub> – 0.1 V                                                                                      |            |
| V <sub>OH</sub>   | Minimum High Level<br>Output Voltage   | 4.5<br>5.5             | 4.49<br>5.49           | 4.4<br>5.4        | 4.4<br>5.4                            | V  | I <sub>OUT</sub> = –50 µA                                                                                                                   |            |
|                   |                                        | 4.5<br>5.5             | –<br>–                 | 3.86<br>4.86      | 3.76<br>4.76                          | V  | *V <sub>IN</sub> = V <sub>IL</sub> or V <sub>IH</sub><br>–24 mA<br>I <sub>OH</sub> –24 mA                                                   |            |
| V <sub>OL</sub>   | Maximum Low Level<br>Output Voltage    | 4.5<br>5.5             | 0.001<br>0.001         | 0.1<br>0.1        | 0.1<br>0.1                            | V  | I <sub>OUT</sub> = 50 µA                                                                                                                    |            |
|                   |                                        | 4.5<br>5.5             | –<br>–                 | 0.36<br>0.36      | 0.44<br>0.44                          | V  | *V <sub>IN</sub> = V <sub>IL</sub> or V <sub>IH</sub><br>24 mA<br>I <sub>OL</sub> 24 mA                                                     |            |
| I <sub>IN</sub>   | Maximum Input<br>Leakage Current       | 5.5                    | –                      | ±0.1              | ±1.0                                  | µA | V <sub>I</sub> = V <sub>CC</sub> , GND                                                                                                      |            |
| ΔI <sub>CCT</sub> | Additional Max. I <sub>CC</sub> /Input | 5.5                    | 0.6                    | –                 | 1.5                                   | mA | V <sub>I</sub> = V <sub>CC</sub> – 2.1 V                                                                                                    |            |
| I <sub>OZ</sub>   | Maximum<br>3–State<br>Current          | 5.5                    | –                      | ±0.5              | ±5.0                                  | µA | V <sub>I</sub> (OE) = V <sub>IL</sub> , V <sub>IH</sub><br>V <sub>I</sub> = V <sub>CC</sub> , GND<br>V <sub>O</sub> = V <sub>CC</sub> , GND |            |
| I <sub>OLD</sub>  | †Minimum Dynamic<br>Output Current     | 5.5                    | –                      | –                 | 75                                    | mA | V <sub>OLD</sub> = 1.65 V Max                                                                                                               |            |
| I <sub>OHD</sub>  |                                        | 5.5                    | –                      | –                 | –75                                   | mA | V <sub>OHD</sub> = 3.85 V Min                                                                                                               |            |
| I <sub>CC</sub>   | Maximum Quiescent<br>Supply Current    | 5.5                    | –                      | 8.0               | 80                                    | µA | V <sub>IN</sub> = V <sub>CC</sub> or GND                                                                                                    |            |

\*All outputs loaded; thresholds on input associated with output under test.

†Maximum test duration 2.0 ms, one output loaded at a time.

# MC74AC253, MC74ACT253

**AC CHARACTERISTICS** (For Figures and Waveforms – See Section 3 of the ON Semiconductor FACT Data Book, DL138/D)

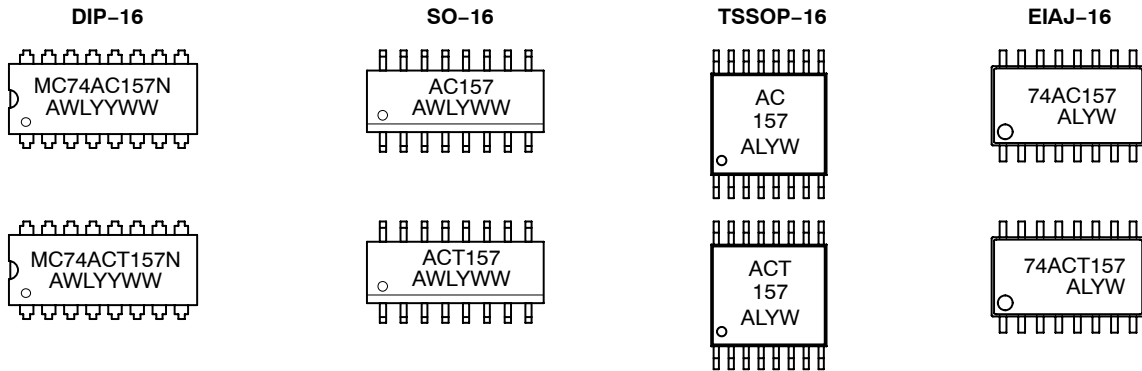
| Symbol           | Parameter                                             | V <sub>CC</sub> *<br>(V) | 74ACT                                            |     |      | 74ACT                                                        |      | Unit | Fig. No. |
|------------------|-------------------------------------------------------|--------------------------|--------------------------------------------------|-----|------|--------------------------------------------------------------|------|------|----------|
|                  |                                                       |                          | T <sub>A</sub> = +25°C<br>C <sub>L</sub> = 50 pF |     |      | T <sub>A</sub> = –40°C<br>to +85°C<br>C <sub>L</sub> = 50 pF |      |      |          |
|                  |                                                       |                          | Min                                              | Typ | Max  | Min                                                          | Max  |      |          |
| t <sub>PLH</sub> | Propagation Delay<br>S <sub>n</sub> to Z <sub>n</sub> | 5.0                      | 2.0                                              | –   | 11.5 | 2.0                                                          | 13.0 | ns   | 3–6      |
| t <sub>PHL</sub> | Propagation Delay<br>S <sub>n</sub> to Z <sub>n</sub> | 5.0                      | 3.0                                              | –   | 13.0 | 2.5                                                          | 14.5 | ns   | 3–6      |
| t <sub>PLH</sub> | Propagation Delay<br>I <sub>n</sub> to Z <sub>n</sub> | 5.0                      | 2.5                                              | –   | 10.0 | 2.0                                                          | 11.0 | ns   | 3–5      |
| t <sub>PHL</sub> | Propagation Delay<br>I <sub>n</sub> to Z <sub>n</sub> | 5.0                      | 3.5                                              | –   | 11.0 | 3.0                                                          | 12.5 | ns   | 3–5      |
| t <sub>PZH</sub> | Output Enable Time                                    | 5.0                      | 2.0                                              | –   | 7.5  | 1.5                                                          | 8.5  | ns   | 3–7      |
| t <sub>PZL</sub> | Output Enable Time                                    | 5.0                      | 2.0                                              | –   | 8.0  | 1.5                                                          | 9.0  | ns   | 3–8      |
| t <sub>PHZ</sub> | Output Disable Time                                   | 5.0                      | 3.0                                              | –   | 9.5  | 2.5                                                          | 10.0 | ns   | 3–7      |
| t <sub>PLZ</sub> | Output Disable Time                                   | 5.0                      | 2.5                                              | –   | 7.5  | 2.0                                                          | 8.5  | ns   | 3–8      |

\* Voltage Range 5.0 V is 5.0 V ±0.5 V.

## CAPACITANCE

| Symbol          | Parameter                     | Value<br>Typ | Unit | Test Conditions         |
|-----------------|-------------------------------|--------------|------|-------------------------|
| C <sub>IN</sub> | Input Capacitance             | 4.5          | pF   | V <sub>CC</sub> = 5.0 V |
| C <sub>PD</sub> | Power Dissipation Capacitance | 50           | pF   | V <sub>CC</sub> = 5.0 V |

## MARKING DIAGRAMS

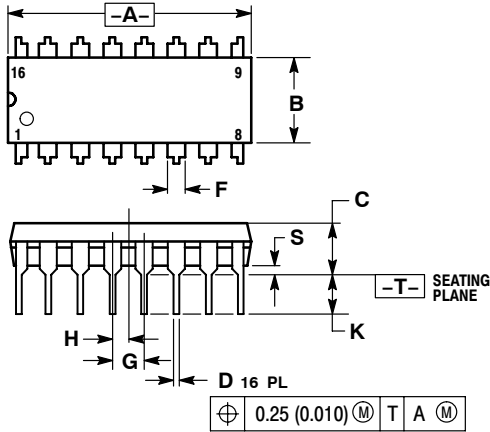


A = Assembly Location  
 WL, L = Wafer Lot  
 YY, Y = Year  
 WW, W = Work Week

# MC74AC253, MC74ACT253

## PACKAGE DIMENSIONS

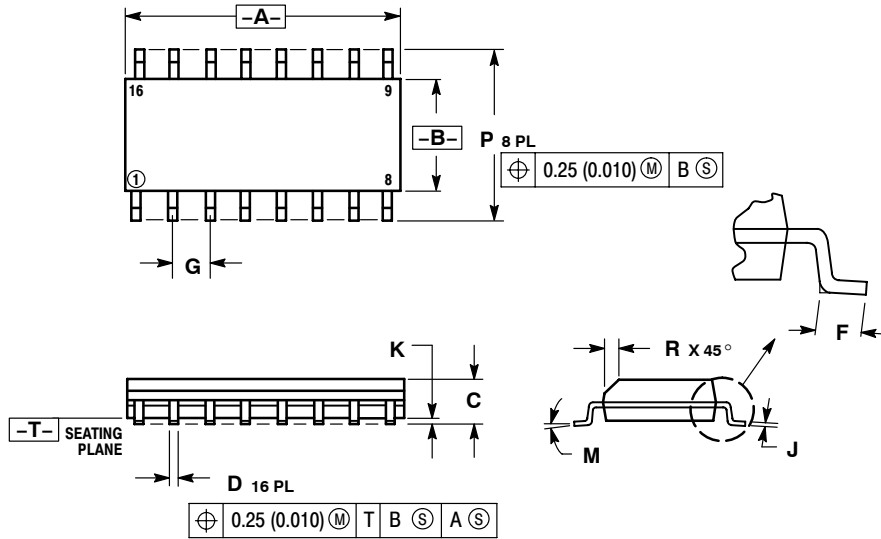
### PDIP-16 N SUFFIX 16 PIN PLASTIC DIP PACKAGE CASE 648-08 ISSUE R



- NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
  2. CONTROLLING DIMENSION: INCH.
  3. DIMENSION L TO CENTER OF LEADS WHEN FORMED PARALLEL.
  4. DIMENSION B DOES NOT INCLUDE MOLD FLASH.
  5. ROUNDED CORNERS OPTIONAL.

| DIM | INCHES    |       | MILLIMETERS |       |
|-----|-----------|-------|-------------|-------|
|     | MIN       | MAX   | MIN         | MAX   |
| A   | 0.740     | 0.770 | 18.80       | 19.55 |
| B   | 0.250     | 0.270 | 6.35        | 6.85  |
| C   | 0.145     | 0.175 | 3.69        | 4.44  |
| D   | 0.015     | 0.021 | 0.39        | 0.53  |
| F   | 0.040     | 0.70  | 1.02        | 1.77  |
| G   | 0.100 BSC |       | 2.54 BSC    |       |
| H   | 0.050 BSC |       | 1.27 BSC    |       |
| J   | 0.008     | 0.015 | 0.21        | 0.38  |
| K   | 0.110     | 0.130 | 2.80        | 3.30  |
| L   | 0.295     | 0.305 | 7.50        | 7.74  |
| M   | 0°        | 10°   | 0°          | 10°   |
| S   | 0.020     | 0.040 | 0.51        | 1.01  |

### SO-16 D SUFFIX 16 PIN PLASTIC SOIC PACKAGE CASE 751B-05 ISSUE J



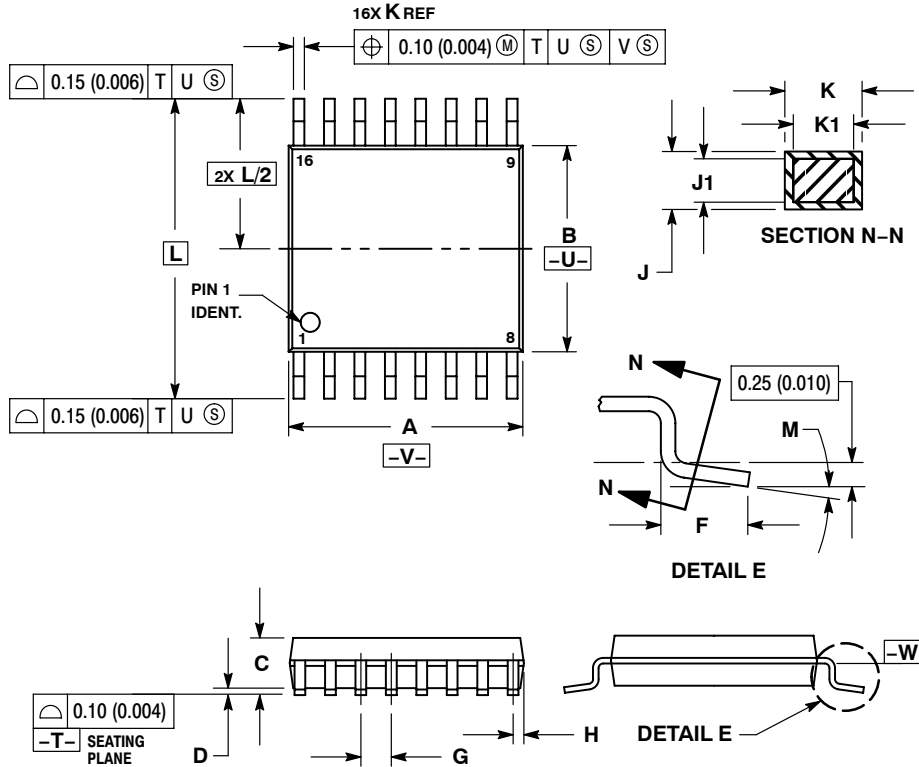
- NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
  2. CONTROLLING DIMENSION: MILLIMETER.
  3. DIMENSIONS A AND B DO NOT INCLUDE MOLD PROTRUSION.
  4. MAXIMUM MOLD PROTRUSION 0.15 (0.006) PER SIDE.
  5. DIMENSION D DOES NOT INCLUDE DAMBAR PROTRUSION. ALLOWABLE DAMBAR PROTRUSION SHALL BE 0.127 (0.005) TOTAL IN EXCESS OF THE D DIMENSION AT MAXIMUM MATERIAL CONDITION.

| DIM | MILLIMETERS |       | INCHES    |       |
|-----|-------------|-------|-----------|-------|
|     | MIN         | MAX   | MIN       | MAX   |
| A   | 9.80        | 10.00 | 0.386     | 0.393 |
| B   | 3.80        | 4.00  | 0.150     | 0.157 |
| C   | 1.35        | 1.75  | 0.054     | 0.068 |
| D   | 0.35        | 0.49  | 0.014     | 0.019 |
| F   | 0.40        | 1.25  | 0.016     | 0.049 |
| G   | 1.27 BSC    |       | 0.050 BSC |       |
| J   | 0.19        | 0.25  | 0.008     | 0.009 |
| K   | 0.10        | 0.25  | 0.004     | 0.009 |
| M   | 0°          | 7°    | 0°        | 7°    |
| P   | 5.80        | 6.20  | 0.229     | 0.244 |
| R   | 0.25        | 0.50  | 0.010     | 0.019 |

# MC74AC253, MC74ACT253

## PACKAGE DIMENSIONS

**TSSOP-16**  
**DT SUFFIX**  
 16 PIN PLASTIC TSSOP PACKAGE  
 CASE948F-01  
 ISSUE O

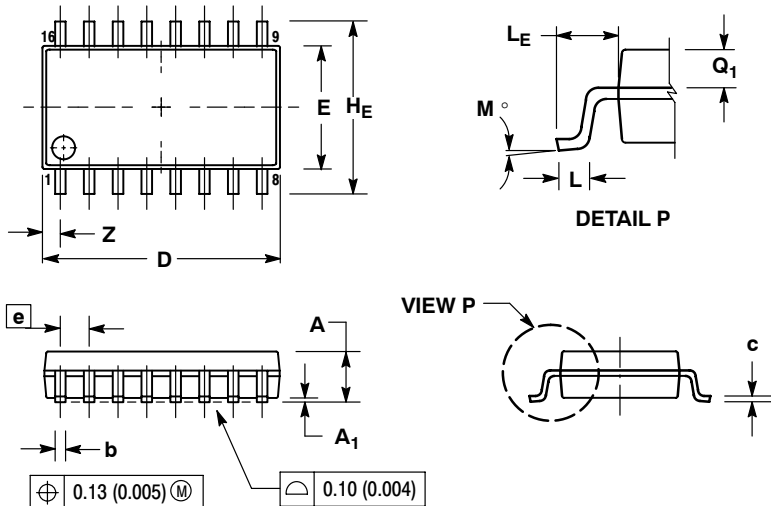


### NOTES:

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°    |

**EIAJ-16**  
**M SUFFIX**  
 16 PIN PLASTIC EIAJ PACKAGE  
 CASE966-01  
 ISSUE O



### NOTES:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: MILLIMETER.
3. DIMENSIONS D AND E DO NOT INCLUDE MOLD FLASH OR PROTRUSIONS AND ARE MEASURED AT THE PARTING LINE. MOLD FLASH OR PROTRUSIONS SHALL NOT EXCEED 0.15 (0.006) PER SIDE.
4. TERMINAL NUMBERS ARE SHOWN FOR REFERENCE ONLY.
5. THE LEAD WIDTH DIMENSION (b) DOES NOT INCLUDE DAMBAR PROTRUSION. ALLOWABLE DAMBAR PROTRUSION SHALL BE 0.08 (0.003) TOTAL IN EXCESS OF THE LEAD WIDTH DIMENSION AT MAXIMUM MATERIAL CONDITION. DAMBAR CANNOT BE LOCATED ON THE LOWER RADIUS OR THE FOOT. MINIMUM SPACE BETWEEN PROTRUSIONS AND ADJACENT LEAD TO BE 0.46 (0.018).

| DIM            | MILLIMETERS |       | INCHES    |       |
|----------------|-------------|-------|-----------|-------|
|                | MIN         | MAX   | MIN       | MAX   |
| A              | ---         | 2.05  | ---       | 0.081 |
| A <sub>1</sub> | 0.05        | 0.20  | 0.002     | 0.008 |
| b              | 0.35        | 0.50  | 0.014     | 0.020 |
| c              | 0.18        | 0.27  | 0.007     | 0.011 |
| D              | 9.90        | 10.50 | 0.390     | 0.413 |
| E              | 5.10        | 5.45  | 0.201     | 0.215 |
| e              | 1.27 BSC    |       | 0.050 BSC |       |
| H <sub>E</sub> | 7.40        | 8.20  | 0.291     | 0.323 |
| L              | 0.50        | 0.85  | 0.020     | 0.033 |
| L <sub>E</sub> | 1.10        | 1.50  | 0.043     | 0.059 |
| M              | 0°          | 10°   | 0°        | 10°   |
| Q <sub>1</sub> | 0.70        | 0.90  | 0.028     | 0.035 |
| Z              | ---         | 0.78  | ---       | 0.031 |

## **Notes**

## Notes

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**Телефон:** 8 (812) 309 58 32 (многоканальный)

**Факс:** 8 (812) 320-02-42

**Электронная почта:** [org@eplast1.ru](mailto:org@eplast1.ru)

**Адрес:** 198099, г. Санкт-Петербург, ул. Калинина, дом 2, корпус 4, литера А.