

MC74AC157, MC74ACT157

Quad 2-Input Multiplexer

The MC74AC157/74ACT157 is a high-speed quad 2-input multiplexer. Four bits of data from two sources can be selected using the common Select and Enable inputs. The four outputs present the selected data in the true (noninverted) form.

The MC74AC157/74ACT157 can also be used as a function generator.

Features

- Outputs Source/Sink 24 mA
- 'ACT157 Has TTL Compatible Inputs
- Pb-Free Packages are Available*

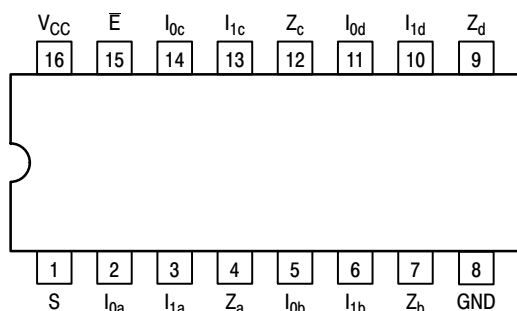


Figure 1. Pinout: 16-Lead Packages Conductors (Top View)

TRUTH TABLE

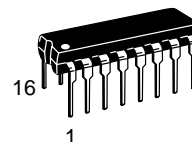
| Inputs | | | | Outputs |
|-----------|---|----------------|----------------|---------|
| \bar{E} | S | I ₀ | I ₁ | Z |
| H | X | X | X | L |
| L | H | X | L | L |
| L | H | X | H | H |
| L | L | L | X | L |
| L | L | H | X | H |

H = HIGH Voltage Level
L = LOW Voltage Level
X = Immaterial

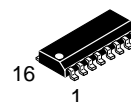


ON Semiconductor®

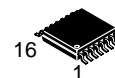
<http://onsemi.com>



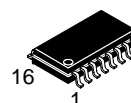
PDIP-16
N SUFFIX
CASE 648



SOIC-16
D SUFFIX
CASE 751B



TSSOP-16
DT SUFFIX
CASE 948F



EIAJ-16
M SUFFIX
CASE 966

PIN NAMES

| PIN | FUNCTION |
|----------------------------------|----------------------|
| I _{0a} -I _{0d} | Source 0 Data Inputs |
| I _{1a} -I _{1d} | Source 0 Data Inputs |
| \bar{E} | Enable Input |
| S | Select Input |
| Z _a -Z _d | Outputs |

DEVICE MARKING INFORMATION

See general marking information in the device marking section on page 3 of this data sheet.

ORDERING INFORMATION

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

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

MC74AC157, MC74ACT157

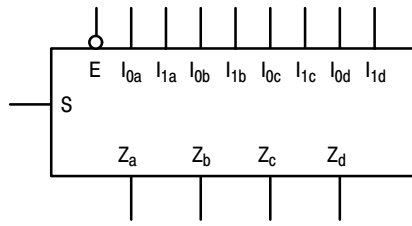


Figure 2. Logic Symbol

FUNCTIONAL DESCRIPTION

The MC74AC157/74ACT157 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 MC74AC157/74ACT157 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:

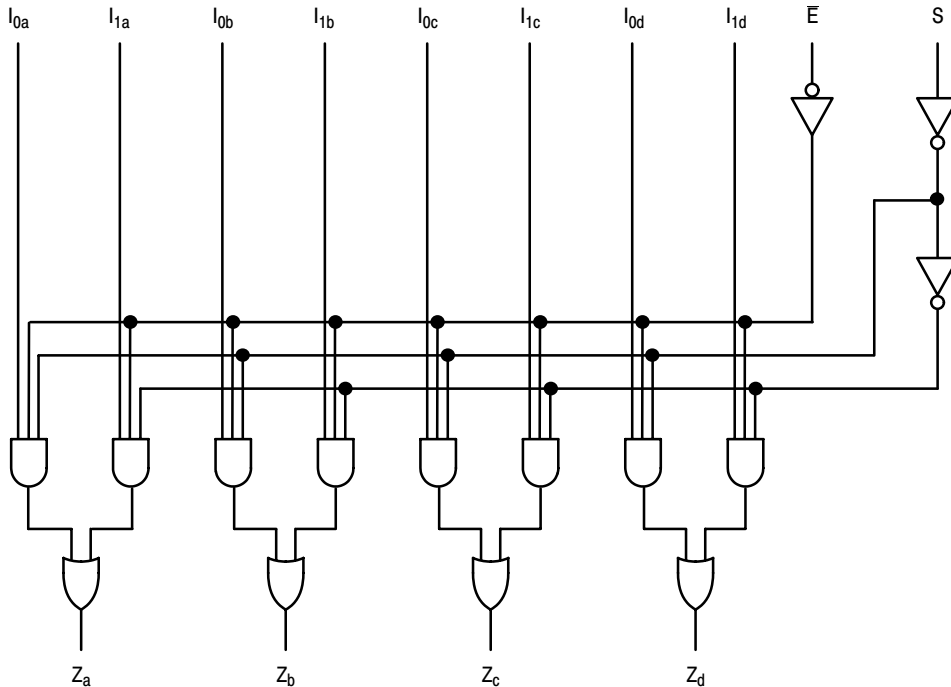
$$Z_a = \bar{E} \cdot (I_{1a} \cdot S + I_{0a} \cdot \bar{S})$$

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

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

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

A common use of the MC74AC157/74ACT157 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 MC74AC157/74ACT157 can generate any four of the sixteen different functions of two variables with one variable common. This is useful for implementing gating functions.

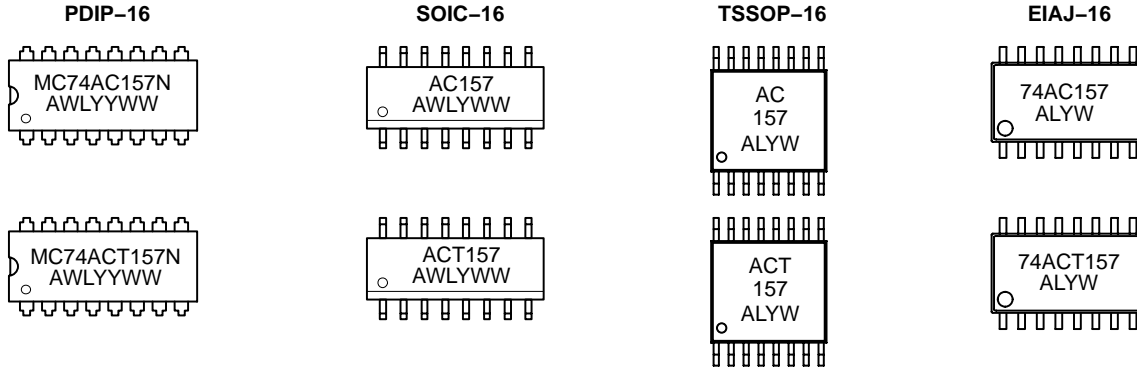


NOTE: This diagram is provided only for the understanding of logic operations and should not be used to estimate propagation delays.

Figure 3. Logic Diagram

MC74AC157, MC74ACT157

MARKING DIAGRAMS



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

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 | ± 20 | mA |
| I_{OUT} | DC Output Sink/Source Current, per Pin | ± 50 | mA |
| I_{CC} | DC V_{CC} or GND Current per Output Pin | ± 50 | mA |
| T_{stg} | Storage Temperature | -65 to +150 | $^{\circ}C$ |

Maximum ratings are those values beyond which device damage can occur. Maximum ratings applied to the device are individual stress limit values (not normal operating conditions) and are not valid simultaneously. If these limits are exceeded, device functional operation is not implied, damage may occur and reliability may be affected.

RECOMMENDED OPERATING CONDITIONS

| Symbol | Parameter | Min | Typ | Max | Unit | |
|-------------------|---|------------------|-----|----------|-------------|------|
| V_{CC} | Supply Voltage | 'AC | 2.0 | 5.0 | 6.0 | V |
| | | 'ACT | 4.5 | 5.0 | 5.5 | |
| 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) '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) '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 | $^{\circ}C$ | |
| T_A | Operating Ambient Temperature Range | -40 | 25 | 85 | $^{\circ}C$ | |
| I_{OH} | Output Current – High | - | - | -24 | mA | |
| I_{OL} | Output Current – Low | - | - | 24 | mA | |

- V_{IN} from 30% to 70% V_{CC} ; see individual Data Sheets for devices that differ from the typical input rise and fall times.
- 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.

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DC CHARACTERISTICS

| Symbol | Parameter | V _{CC} (V) | 74AC | | 74AC | | Unit | Conditions | | |
|------------------|-----------------------------------|------------------------|------------------------|-------------------|---------------------------------|---|------|---|-------------------------------|--|
| | | | T _A = +25°C | | T _A = -40°C to +85°C | | | | | |
| | | | Typ | Guaranteed Limits | | | | | | |
| V _{IH} | Minimum High Level Input Voltage | 3.0 | 1.5 | 2.1 | 2.1 | | V | V _{OUT} = 0.1 V or V _{CC} - 0.1 V | | |
| | | 4.5 | 2.25 | 3.15 | 3.15 | | | | | |
| | | 5.5 | 2.75 | 3.85 | 3.85 | | | | | |
| V _{IL} | Maximum Low Level Input Voltage | 3.0 | 1.5 | 0.9 | 0.9 | | V | V _{OUT} = 0.1 V or V _{CC} - 0.1 V | | |
| | | 4.5 | 2.25 | 1.35 | 1.35 | | | | | |
| | | 5.5 | 2.75 | 1.65 | 1.65 | | | | | |
| V _{OH} | Minimum High Level Output Voltage | 3.0 | 2.99 | 2.9 | 2.9 | | V | I _{OUT} = -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 _{IN} = V _{IL} or V _{IH} -12 mA | | | | |
| | | | | | | | 4.5 | - | 3.86 | 3.76 |
| | | | | | | | | | | |
| I _{OH} | -24 mA | | | | | | | | | |
| | | -24 mA | | | | | | | | |
| | | | -24 mA | | | | | | | |
| V _{OL} | Maximum Low Level Output Voltage | | | 3.0 | 0.002 | 0.1 | 0.1 | | V | I _{OUT} = 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 _{IN} = V _{IL} or V _{IH} 12 mA | | | | |
| | | | | | | | 4.5 | - | 0.36 | 0.44 |
| | | | | | | | | | | |
| I _{OL} | 24 mA | | | | | | | | | |
| | | 24 mA | | | | | | | | |
| | | | 24 mA | | | | | | | |
| I _{IN} | Maximum Input Leakage Current | | | 5.5 | - | ±0.1 | ±1.0 | | μA | V _I = V _{CC} , GND |
| I _{OLD} | †Minimum Dynamic Output Current | 5.5 | | - | - | 75 | | mA | V _{OLD} = 1.65 V Max | |
| I _{OHD} | | 5.5 | - | - | -75 | | mA | V _{OHD} = 3.85 V Min | | |
| I _{CC} | Maximum Quiescent Supply Current | 5.5 | - | 8.0 | 80 | | μA | V _{IN} = V _{CC} 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_{IN} and I_{CC} @ 3.0 V are guaranteed to be less than or equal to the respective limit @ 5.5 V V_{CC}.

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

| Symbol | Parameter | V _{CC} * (V) | 74AC | | | 74AC | | Unit | Fig. No. |
|------------------|--|--------------------------|--|-----|------|---|------|------|----------|
| | | | T _A = +25°C C _L = 50 pF | | | T _A = -40°C to +85°C C _L = 50 pF | | | |
| | | | Min | Typ | Max | Min | Max | | |
| t _{PLH} | Propagation Delay S to Z _n | 3.3 | 1.5 | 7.0 | 11.5 | 1.5 | 13.0 | ns | 3-6 |
| | | 5.0 | 1.5 | 5.5 | 9.0 | 1.5 | 10.0 | | |
| t _{PHL} | Propagation Delay S to Z _n | 3.3 | 1.5 | 6.5 | 11.0 | 1.5 | 12.0 | ns | 3-6 |
| | | 5.0 | 1.5 | 5.0 | 8.5 | 1.0 | 9.5 | | |
| t _{PLH} | Propagation Delay \bar{E} to Z _n | 3.3 | 1.5 | 7.0 | 11.5 | 1.5 | 13.0 | ns | 3-6 |
| | | 5.0 | 1.5 | 5.5 | 9.0 | 1.5 | 10.0 | | |
| t _{PHL} | Propagation Delay \bar{E}_n to Z _n | 3.3 | 1.5 | 6.5 | 11.0 | 1.5 | 12 | ns | 3-6 |
| | | 5.0 | 1.5 | 5.5 | 9.0 | 1.0 | 9.5 | | |
| t _{PLH} | Propagation Delay I _n to Z _n | 3.3 | 1.5 | 5.0 | 8.5 | 1.0 | 9.0 | ns | 3-5 |
| | | 5.0 | 1.5 | 4.0 | 6.5 | 1.0 | 7.0 | | |
| t _{PHL} | Propagation Delay I _n to Z _n | 3.3 | 1.5 | 5.0 | 8.0 | 1.0 | 9.0 | ns | 3-5 |
| | | 5.0 | 1.5 | 4.0 | 6.5 | 1.0 | 7.0 | | |

*Voltage Range 3.3 V is 3.3 V ±0.3 V.

*Voltage Range 5.0 V is 5.0 V ±0.5 V.

MC74AC157, MC74ACT157

DC CHARACTERISTICS

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

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

| Symbol | Parameter | V _{CC} * (V) | 74ACT | | | 74ACT | | Unit | Fig. No. |
|------------------|--|--------------------------|--|-----|-----|---|------|------|----------|
| | | | T _A = +25°C C _L = 50 pF | | | T _A = -40°C to +85°C C _L = 50 pF | | | |
| | | | Min | Typ | Max | Min | Max | | |
| t _{PLH} | Propagation Delay S to Z _n | 5.0 | 2.0 | - | 9.0 | 1.5 | 10.0 | ns | 3-6 |
| t _{PHL} | Propagation Delay S to Z _n | 5.0 | 2.0 | - | 9.5 | 2.0 | 10.5 | ns | 3-6 |
| t _{PLH} | Propagation Delay \bar{E}_n to Z _n | 5.0 | 1.5 | - | 10 | 1.5 | 11.5 | ns | 3-6 |
| t _{PHL} | Propagation Delay \bar{E}_n to Z _n | 5.0 | 1.5 | - | 8.5 | 1.0 | 9.0 | ns | 3-6 |
| t _{PLH} | Propagation Delay I _n to Z _n | 5.0 | 1.5 | - | 7.0 | 1.0 | 8.5 | ns | 3-5 |
| t _{PHL} | Propagation Delay I _n to Z _n | 5.0 | 1.5 | - | 7.5 | 1.0 | 8.5 | ns | 3-5 |

*Voltage Range 5.0 V is 5.0 V ±0.5 V.

MC74AC157, MC74ACT157

CAPACITANCE

| Symbol | Parameter | Value Typ | Unit | Test Conditions |
|-----------------|-------------------------------|-----------|------|-------------------------|
| C _{IN} | Input Capacitance | 4.5 | pF | V _{CC} = 5.0 V |
| C _{PD} | Power Dissipation Capacitance | 50 | pF | V _{CC} = 5.0 V |

ORDERING INFORMATION

| Device Order Number | Package | Shipping† |
|---------------------|----------------------|------------------|
| MC74AC157N | PDIP-16 | 25 Units / Rail |
| MC74AC157NG | PDIP-16 (Pb-Free) | 25 Units / Rail |
| MC74ACT157N | PDIP-16 | 25 Units / Rail |
| MC74AC157D | SOIC-16 | 48 Units / Rail |
| MC74ACT157D | SOIC-16 | 48 Units / Rail |
| MC74ACT157DG | SOIC-16 (Pb-Free) | 48 Units / Rail |
| MC74AC157DR2 | SOIC-16 | 2500 Tape & Reel |
| MC74AC157DR2G | SOIC-16 (Pb-Free) | 2500 Tape & Reel |
| MC74ACT157DR2 | SOIC-16 | 2500 Tape & Reel |
| MC74ACT157DR2G | SOIC-16 (Pb-Free) | 2500 Tape & Reel |
| MC74AC157DT | TSSOP-16* | 96 Units / Rail |
| MC74ACT157DT | TSSOP-16* | 96 Units / Rail |
| MC74AC157DTR2 | TSSOP-16* | 2500 Tape & Reel |
| MC74ACT157DTR2 | TSSOP-16* | 2500 Tape & Reel |
| MC74AC157M | EIAJ-16 | 50 Units / Rail |
| MC74ACT157M | EIAJ-16 | 50 Units / Rail |
| MC74AC157MEL | EIAJ-16 | 2000 Tape & Reel |
| MC74ACT157MEL | EIAJ-16 | 2000 Tape & Reel |

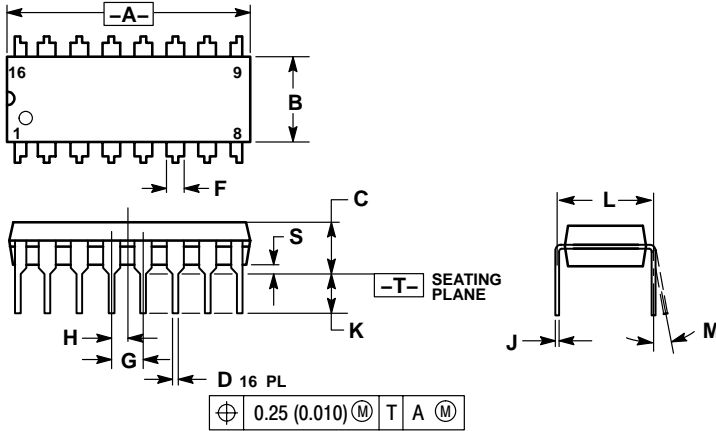
†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.

*This package is inherently Pb-Free.

MC74AC157, MC74ACT157

PACKAGE DIMENSIONS

PDIP-16
N SUFFIX
 CASE 648-08
 ISSUE T

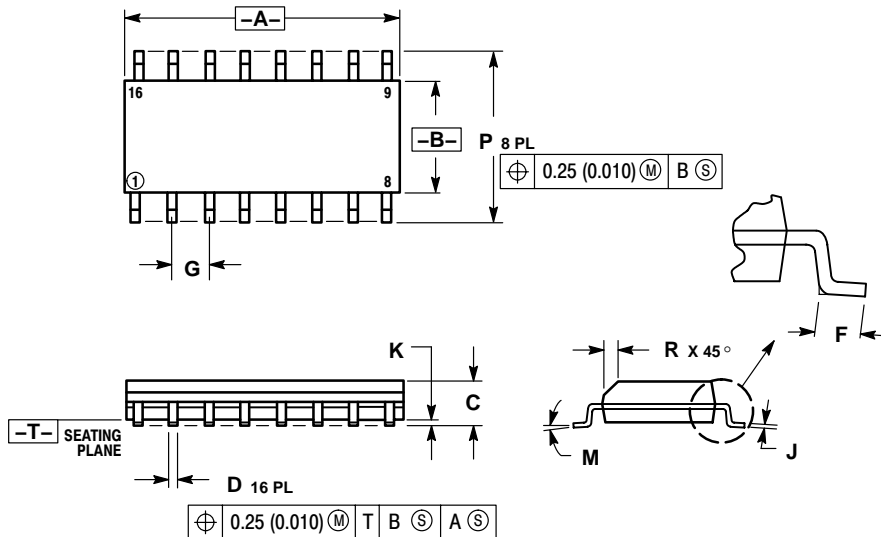


NOTES:

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 |

SOIC-16
D SUFFIX
 CASE 751B-05
 ISSUE J



NOTES:

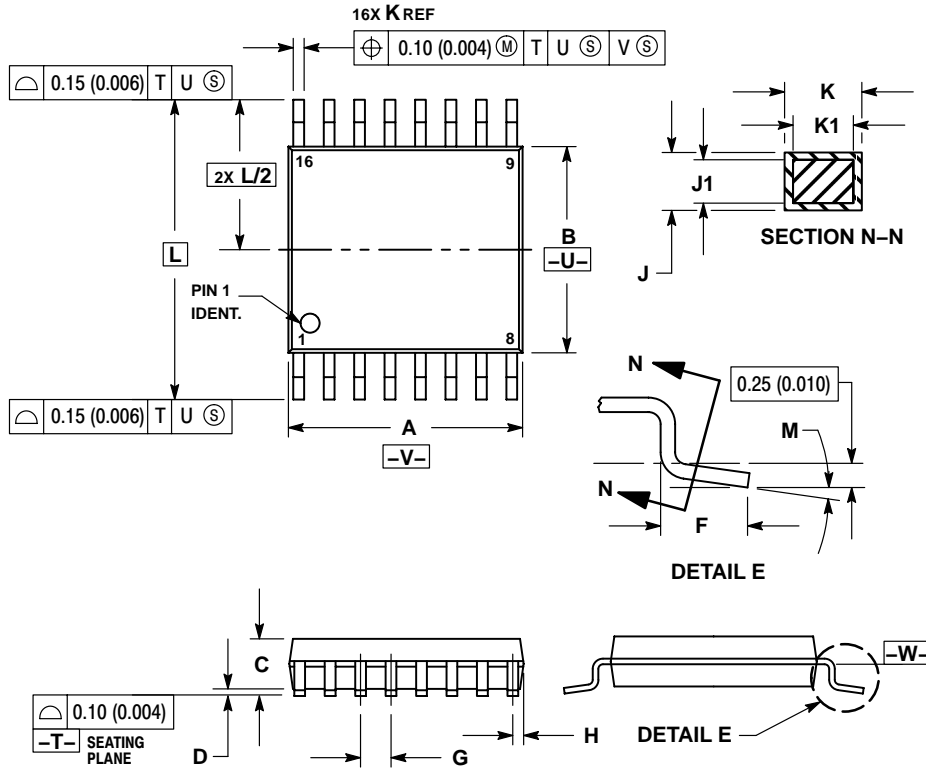
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: MILLIMETER.
3. DIMENSIONS A AND B DO NOT INCLUDE MOLD PROTRUSION.
4. MAXIMUM MOLD PROTRUSION 0.15 (0.006) PER SIDE.
5. DIMENSION D DOES NOT INCLUDE DAMBAR PROTRUSION. ALLOWABLE DAMBAR PROTRUSION SHALL BE 0.127 (0.005) TOTAL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

MC74AC157, MC74ACT157

PACKAGE DIMENSIONS

TSSOP-16
DT SUFFIX
CASE 948F-01
ISSUE O



NOTES:

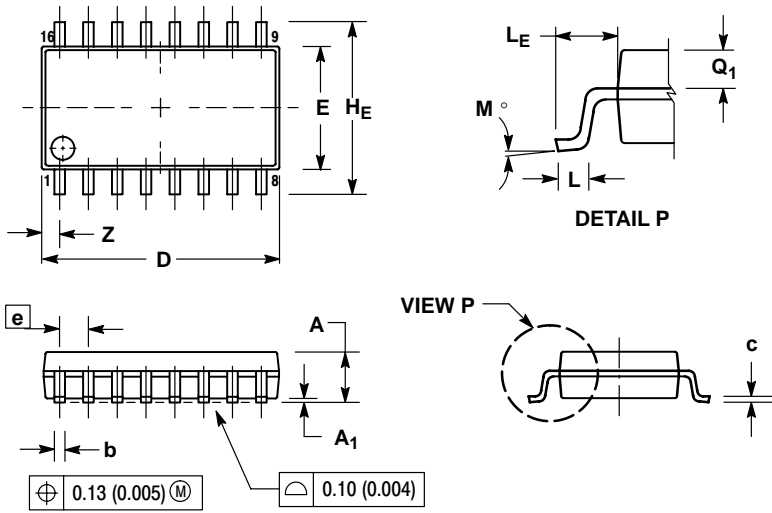
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: MILLIMETER.
3. DIMENSION A DOES NOT INCLUDE MOLD FLASH, PROTRUSIONS OR GATE BURRS. MOLD FLASH OR GATE BURRS SHALL NOT EXCEED 0.15 (0.006) PER SIDE.
4. DIMENSION B DOES NOT INCLUDE INTERLEAD FLASH OR PROTRUSION. INTERLEAD 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° |

MC74AC157, MC74ACT157

PACKAGE DIMENSIONS

EIAJ-16
M SUFFIX
CASE 966-01
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 ₁ | 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 _E | 7.40 | 8.20 | 0.291 | 0.323 |
| L | 0.50 | 0.85 | 0.020 | 0.033 |
| L _E | 1.10 | 1.50 | 0.043 | 0.059 |
| M | 0° | 10° | 0° | 10° |
| Q ₁ | 0.70 | 0.90 | 0.028 | 0.035 |
| Z | --- | 0.78 | --- | 0.031 |

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