

# 8-Input Data Selector/Multiplexer

## MC74HC151A

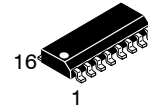
The MC74HC151A is identical in pinout to the LS151. The device inputs are compatible with standard CMOS outputs; with pullup resistors, they are compatible with LSTTL outputs.

This device selects one of the eight binary Data Inputs, as determined by the Address Inputs. The Strobe pin must be at a low level for the selected data to appear at the outputs. If Strobe is high, the Y output is forced to a low level and the  $\bar{Y}$  output is forced to a high level.

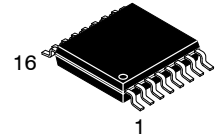
The HC151A is similar in function to the HC251 which has 3-state outputs.

### Features

- Output Drive Capability: 10 LSTTL Loads
- Outputs Directly Interface to CMOS, NMOS, and TTL
- Operating Voltage Range: 2.0 to 6.0 V
- Low Input Current: 1  $\mu$ A
- High Noise Immunity Characteristic of CMOS Devices
- In Compliance with the Requirements Defined by JEDEC Standard No. 7A
- Chip Complexity: 328 FETs or 82 Equivalent Gates
- -Q Suffix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements; AEC-Q100 Qualified and PPAP Capable
- These Devices are Pb-Free, Halogen Free/BFR Free and are RoHS Compliant



SOIC-16  
D SUFFIX  
CASE 751B

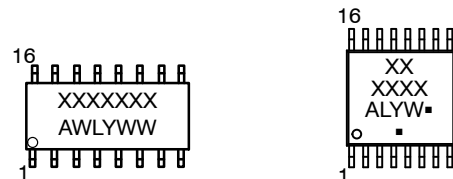


TSSOP-16  
DT SUFFIX  
CASE 948F



QFN16  
MN SUFFIX  
CASE 485AW

### MARKING DIAGRAMS



- |        |                     |
|--------|---------------------|
| A      | = Assembly Location |
| WL, L  | = Wafer Lot         |
| YY, Y  | = Year              |
| WW, W  | = Work Week         |
| G or ■ | = Pb-Free Package   |
- (Note: Microdot may be in either location)

### ORDERING INFORMATION

See detailed ordering and shipping information on page 8 of this data sheet.

MC74HC151A

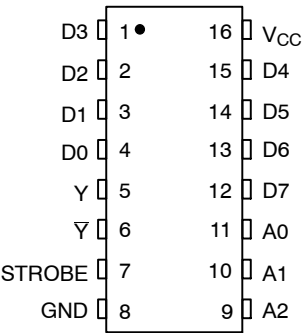


Figure 1. Pin Assignment

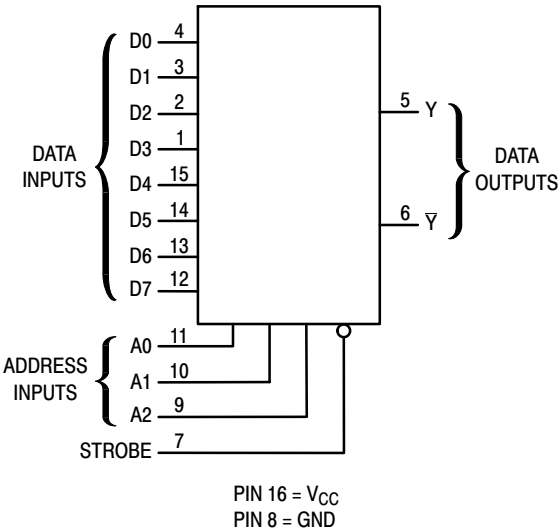


Figure 2. Logic Diagram

FUNCTION TABLE

| Inputs |    |    |        | Outputs |            |
|--------|----|----|--------|---------|------------|
| A2     | A1 | A0 | Strobe | Y       | $\bar{Y}$  |
| X      | X  | X  | H      | L       | H          |
| L      | L  | L  | L      | D0      | $\bar{D0}$ |
| L      | L  | H  | L      | D1      | $\bar{D1}$ |
| L      | H  | L  | L      | D2      | $\bar{D2}$ |
| L      | H  | H  | L      | D3      | $\bar{D3}$ |
| H      | L  | L  | L      | D4      | $\bar{D4}$ |
| H      | L  | H  | L      | D5      | $\bar{D5}$ |
| H      | H  | L  | L      | D6      | $\bar{D6}$ |
| H      | H  | H  | L      | D7      | $\bar{D7}$ |

D0, D1, ..., D7 = the level of the respective D input.

# MC74HC151A

## 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 V <sub>CC</sub> + 0.5            | 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 (V <sub>IN</sub> < 0 or V <sub>IN</sub> > V <sub>CC</sub> )    | ±20                                      | mA                      |      |
| I <sub>OK</sub>  | Output Clamp Current (V <sub>OUT</sub> < 0 or V <sub>OUT</sub> > V <sub>CC</sub> ) | ±20                                      | mA                      |      |
| T <sub>STG</sub> | Storage Temperature                                                                | −65 to +150                              | °C                      |      |
| T <sub>L</sub>   | Lead Temperature, 1 mm from Case for 10 Seconds                                    | 260                                      | °C                      |      |
| T <sub>J</sub>   | Junction Temperature Under Bias                                                    | ±150                                     | °C                      |      |
| θ <sub>JA</sub>  | Thermal Resistance (Note 1)                                                        | 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 @<br>0.125 in | –    |
| V <sub>ESD</sub> | ESD Withstand Voltage (Note 2)                                                     | 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. Measured with minimum pad spacing on an FR4 board, using 76 mm-by-114 mm, 2-ounce copper trace no air flow per JESD51-7.
2. 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                                                                           | 6.0             | V                  |    |
| V <sub>IN</sub> , V <sub>OUT</sub> | DC Input Voltage, Output Voltage (Note 3) | 0                                                                             | V <sub>CC</sub> | V                  |    |
| T <sub>A</sub>                     | Operating Free-Air Temperature            | −55                                                                           | +125            | °C                 |    |
| t <sub>r</sub> , t <sub>f</sub>    | Input Rise or Fall Time                   | V <sub>CC</sub> = 2.0 V<br>V <sub>CC</sub> = 4.5 V<br>V <sub>CC</sub> = 6.0 V | 0<br>0<br>0     | 1000<br>500<br>400 | ns |

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.

3. Unused inputs must always be tied to an appropriate logic voltage level (e.g., either GND or  $V_{CC}$ ). Unused outputs must be left open.

# MC74HC151A

## DC ELECTRICAL CHARACTERISTICS

| Symbol          | Parameter                                      | Test Conditions                                                                             | V <sub>CC</sub><br>V     | Guaranteed Limit          |                           |                           | Unit |
|-----------------|------------------------------------------------|---------------------------------------------------------------------------------------------|--------------------------|---------------------------|---------------------------|---------------------------|------|
|                 |                                                |                                                                                             |                          | -55 to<br>25°C            | ≤ 85°C                    | ≤ 125°C                   |      |
| V <sub>IH</sub> | Minimum High-Level Input Voltage               | V <sub>OUT</sub> = 0.1 V or V <sub>CC</sub> - 0.1 V<br> I <sub>OUT</sub>   ≤ 20 μA          | 2.0<br>3.0<br>4.5<br>6.0 | 1.5<br>2.1<br>3.15<br>4.2 | 1.5<br>2.1<br>3.15<br>4.2 | 1.5<br>2.1<br>3.15<br>4.2 | V    |
| V <sub>IL</sub> | Maximum Low-Level Input Voltage                | V <sub>OUT</sub> = 0.1 V or V <sub>CC</sub> - 0.1 V<br> I <sub>OUT</sub>   ≤ 20 μA          | 2.0<br>3.0<br>4.5<br>6.0 | 0.5<br>0.9<br>1.35<br>1.8 | 0.5<br>0.9<br>1.35<br>1.8 | 0.5<br>0.9<br>1.35<br>1.8 | V    |
| V <sub>OH</sub> | Minimum High-Level Output Voltage              | V <sub>IN</sub> = V <sub>IH</sub> or V <sub>IL</sub>                                        |                          |                           |                           |                           | V    |
|                 |                                                | I <sub>OUT</sub>   ≤ 20 μA                                                                  | 2.0<br>4.5<br>6.0        | 1.9<br>4.4<br>5.9         | 1.9<br>4.4<br>5.9         | 1.9<br>4.4<br>5.9         |      |
|                 |                                                | I <sub>OUT</sub>   ≤ 2.4 mA<br> I <sub>OUT</sub>   ≤ 4.0 mA<br> I <sub>OUT</sub>   ≤ 5.2 mA | 3.0<br>4.5<br>6.0        | 2.48<br>3.98<br>5.48      | 2.34<br>3.84<br>5.34      | 2.2<br>3.7<br>5.2         |      |
|                 |                                                |                                                                                             |                          |                           |                           |                           |      |
| V <sub>OL</sub> | Minimum Low-Level Output Voltage               | V <sub>IN</sub> = V <sub>IH</sub> or V <sub>IL</sub>                                        |                          |                           |                           |                           | V    |
|                 |                                                | I <sub>OUT</sub>   ≤ 20 μA                                                                  | 2.0<br>4.5<br>6.0        | 0.1<br>0.1<br>0.1         | 0.1<br>0.1<br>0.1         | 0.1<br>0.1<br>0.1         |      |
|                 |                                                | I <sub>OUT</sub>   ≤ 2.4 mA<br> I <sub>OUT</sub>   ≤ 4.0 mA<br> I <sub>OUT</sub>   ≤ 5.2 mA | 3.0<br>4.5<br>6.0        | 0.26<br>0.26<br>0.26      | 0.33<br>0.33<br>0.33      | 0.4<br>0.4<br>0.4         |      |
|                 |                                                |                                                                                             |                          |                           |                           |                           |      |
| I <sub>IN</sub> | Maximum Input Leakage Current                  | V <sub>IN</sub> = V <sub>CC</sub> or GND                                                    | 6.0                      | ±0.1                      | ±1.0                      | ±1.0                      | μA   |
| I <sub>CC</sub> | Maximum Quiescent Supply Current (per Package) | V <sub>IN</sub> = V <sub>CC</sub> or GND                                                    | 6.0                      | 8.0                       | 80                        | 160                       | μA   |

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

# MC74HC151A

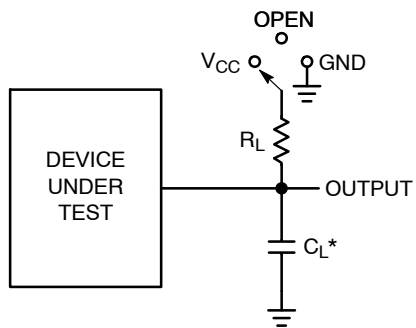
## AC ELECTRICAL CHARACTERISTICS

| Symbol                                 | Parameter                                                                | V <sub>CC</sub><br>V | Guaranteed Limit |        |         | Unit |
|----------------------------------------|--------------------------------------------------------------------------|----------------------|------------------|--------|---------|------|
|                                        |                                                                          |                      | -55 to<br>25°C   | ≤ 85°C | ≤ 125°C |      |
| t <sub>PLH</sub> ,<br>t <sub>PHL</sub> | Maximum Propagation Delay, D to Y<br>(Figures 3 and 4)                   | 2.0                  | 170              | 215    | 255     | ns   |
|                                        |                                                                          | 3.0                  | TBD              | TBD    | TBD     |      |
|                                        |                                                                          | 4.5                  | 34               | 43     | 51      |      |
|                                        |                                                                          | 6.0                  | 29               | 37     | 43      |      |
| t <sub>PLH</sub> ,<br>t <sub>PHL</sub> | Maximum Propagation Delay, D to $\bar{Y}$<br>(Figures 3 and 4)           | 2.0                  | 185              | 230    | 280     | ns   |
|                                        |                                                                          | 3.0                  | TBD              | TBD    | TBD     |      |
|                                        |                                                                          | 4.5                  | 37               | 46     | 56      |      |
|                                        |                                                                          | 6.0                  | 31               | 39     | 48      |      |
| t <sub>PLH</sub> ,<br>t <sub>PHL</sub> | Maximum Propagation Delay, A to Y<br>(Figures 3 and 4)                   | 2.0                  | 185              | 230    | 280     | ns   |
|                                        |                                                                          | 3.0                  | TBD              | TBD    | TBD     |      |
|                                        |                                                                          | 4.5                  | 37               | 46     | 56      |      |
|                                        |                                                                          | 6.0                  | 31               | 39     | 48      |      |
| t <sub>PLH</sub> ,<br>t <sub>PHL</sub> | Maximum Propagation Delay, A to $\bar{Y}$<br>(Figures 3 and 4)           | 2.0                  | 205              | 255    | 310     | ns   |
|                                        |                                                                          | 3.0                  | TBD              | TBD    | TBD     |      |
|                                        |                                                                          | 4.5                  | 41               | 51     | 62      |      |
|                                        |                                                                          | 6.0                  | 35               | 43     | 53      |      |
| t <sub>PLH</sub> ,<br>t <sub>PHL</sub> | Maximum Propagation Delay, STROBE to Y or $\bar{Y}$<br>(Figures 3 and 4) | 2.0                  | 125              | 155    | 190     | ns   |
|                                        |                                                                          | 3.0                  | TBD              | TBD    | TBD     |      |
|                                        |                                                                          | 4.5                  | 25               | 31     | 38      |      |
|                                        |                                                                          | 6.0                  | 21               | 26     | 32      |      |
| t <sub>TLH</sub> ,<br>t <sub>THL</sub> | Maximum Output Transition Time, Any Output<br>(Figures 3 and 4)          | 2.0                  | 75               | 95     | 110     | ns   |
|                                        |                                                                          | 3.0                  | 30               | 40     | 55      |      |
|                                        |                                                                          | 4.5                  | 15               | 19     | 22      |      |
|                                        |                                                                          | 6.0                  | 13               | 16     | 19      |      |
| C <sub>IN</sub>                        | Maximum Input Capacitance                                                | –                    | 10               | 10     | 10      | pF   |

| C <sub>PD</sub> | Power Dissipation Capacitance (Per Enabled Output) (Note 4) | 5.0 | Typical @ 25°C | pF |
|-----------------|-------------------------------------------------------------|-----|----------------|----|
|                 |                                                             |     | 36             |    |

4. Used to determine the no-load dynamic power consumption:  $P_D = C_{PD} \times V_{CC}^2 \times f + I_{CC} \times V_{CC}$ .

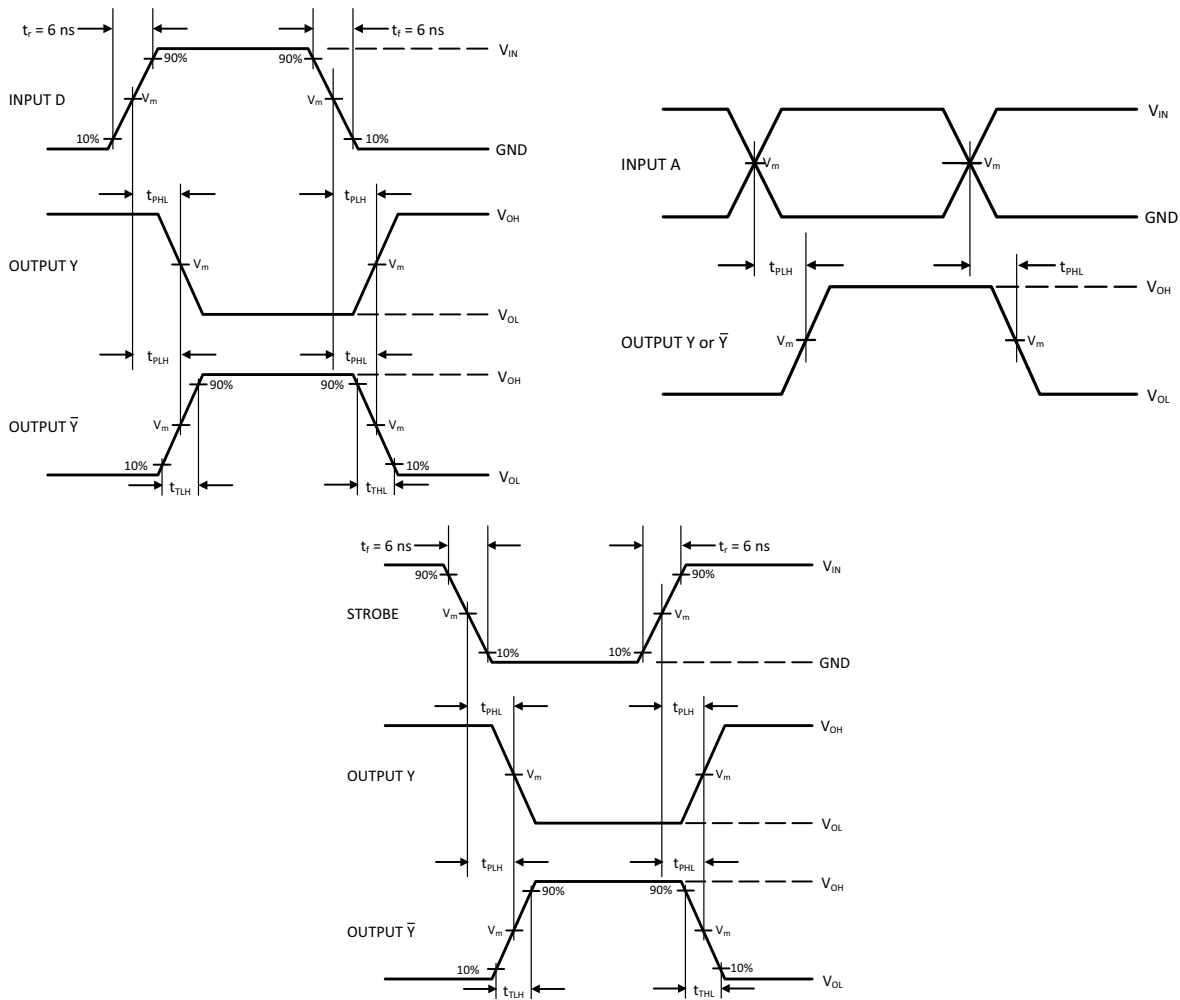
# MC74HC151A



\*C<sub>L</sub> Includes probe and jig capacitance

| Test                                | Switch Position | C <sub>L</sub> | R <sub>L</sub> |
|-------------------------------------|-----------------|----------------|----------------|
| t <sub>PLH</sub> / t <sub>PHL</sub> | Open            | 50 pF          | 1 kΩ           |
| t <sub>PLZ</sub> / t <sub>PZL</sub> | V <sub>CC</sub> |                |                |
| t <sub>PHZ</sub> / t <sub>PZH</sub> | GND             |                |                |

Figure 3. Test Circuit



| Device     | V <sub>IN</sub> , V | V <sub>m</sub> , V    |
|------------|---------------------|-----------------------|
| MC74HC151A | V <sub>CC</sub>     | 50% x V <sub>CC</sub> |

Figure 4. Switching Waveforms

# MC74HC151A

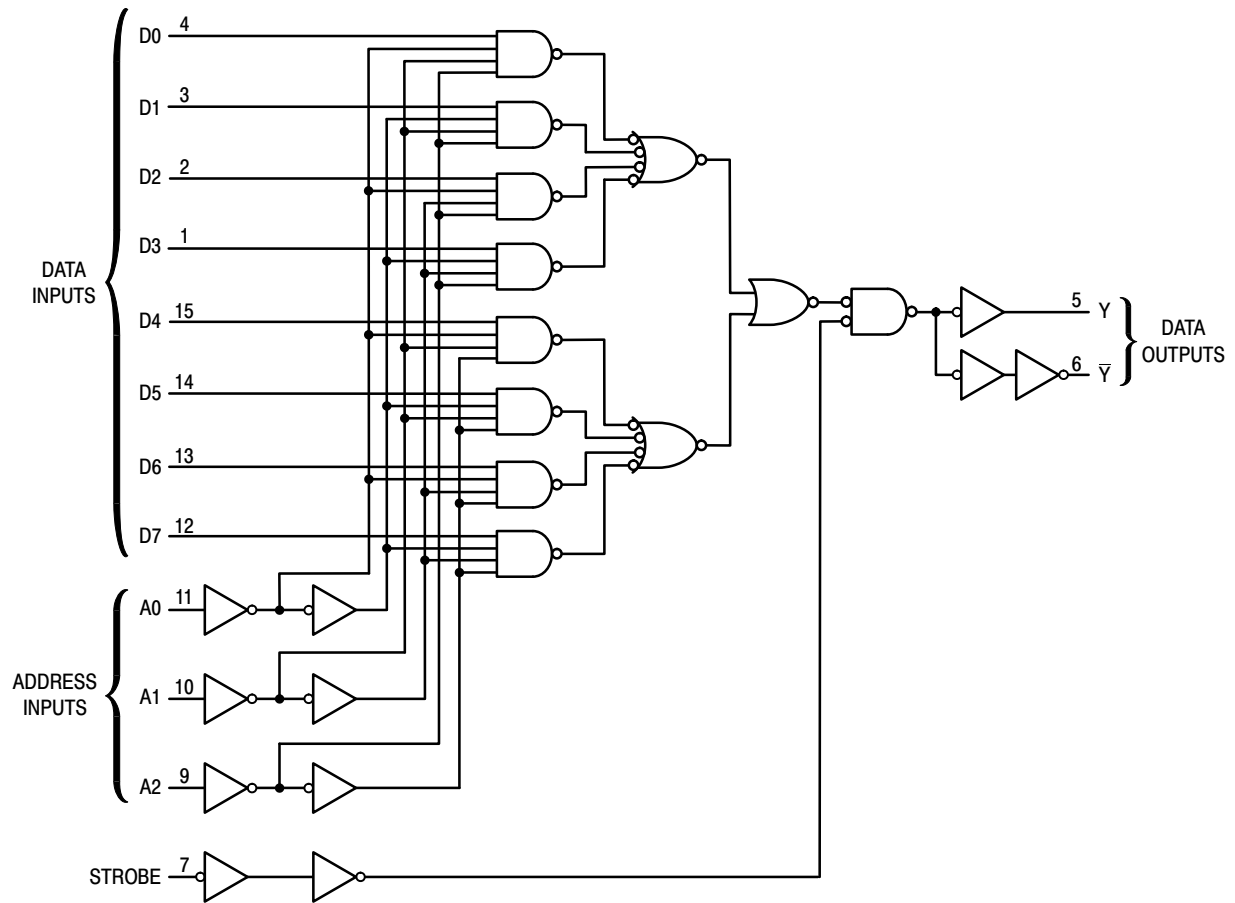


Figure 5. Expanded Logic Diagram

## PIN DESCRIPTIONS

### INPUTS

#### D0, D1, ... , D7 (Pins 4, 3, 2, 1, 15, 14, 13, 12)

Data inputs. Data on any one of these eight binary inputs may be selected to appear on the output.

### CONTROL INPUTS

#### A0, A1, A2 (Pins 11, 10, 9)

Address inputs. The data on these pins are the binary address of the selected input (see the Function Table).

#### Strobe (Pin 7)

Strobe. This input pin must be at a low level for the selected data to appear at the outputs. If the Strobe pin is high, the Y output is forced to a low level and the  $\bar{Y}$  output is forced to a high level.

### OUTPUTS

#### Y, $\bar{Y}$ (Pins 5, 6)

Data outputs. The selected data is presented at these pins in both true (Y output) and complemented ( $\bar{Y}$  output) forms.

## MC74HC151A

### ORDERING INFORMATION

| Device             | Package  | Marking    | Shipping†          |
|--------------------|----------|------------|--------------------|
| MC74HC151ADR2G     | SOIC-16  | HC151AG    | 1000 / Tape & Reel |
| MC74HC151ADR2G-Q*  | SOIC-16  | HC151AG    | 1000 / Tape & Reel |
| MC74HC151ADTG      | TSSOP-16 | HC<br>151A | 75 Units / Rail    |
| MC74HC151ADTR2G    | TSSOP-16 | HC<br>151A | 2500 / Tape & Reel |
| MC74HC151ADTR2G-Q* | TSSOP-16 | HC<br>151A | 2500 / 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.

\*-Q Suffix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements; AEC-Q100 Qualified and PPAP Capable.

# MC74HC151A

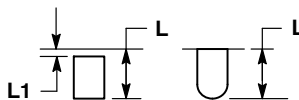
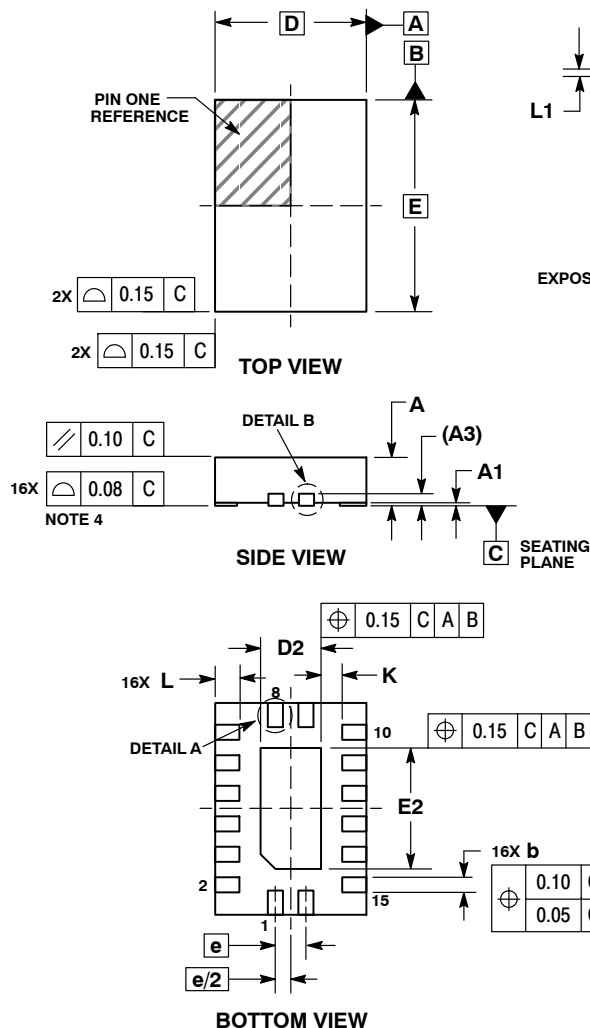
## PACKAGE DIMENSIONS



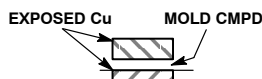
SCALE 2:1

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

DATE 11 DEC 2008



**DETAIL A**  
ALTERNATE TERMINAL  
CONSTRUCTIONS



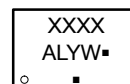
**DETAIL B**  
ALTERNATE  
CONSTRUCTIONS

### 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.

| MILLIMETERS |      |      |
|-------------|------|------|
| DIM         | 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\*

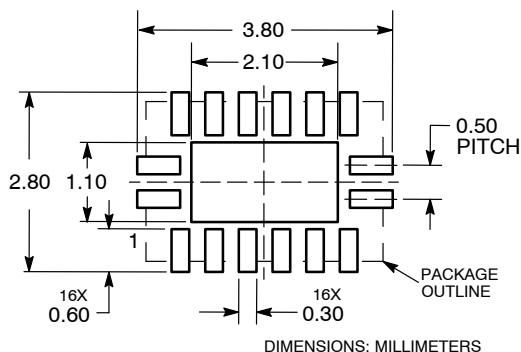


- XXXX = Specific Device Code  
A = Assembly Location  
L = Wafer Lot  
Y = Year  
W = Work Week  
▪ = Pb-Free Package

(Note: Microdot may be in either location)

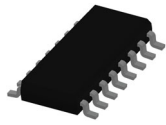
\*This information is generic. Please refer to device data sheet for actual part marking. Pb-Free indicator, "G" or microdot "▪", may or may not be present. Some products may not follow the Generic Marking.

### RECOMMENDED SOLDERING FOOTPRINT\*



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

# MECHANICAL CASE OUTLINE PACKAGE DIMENSIONS

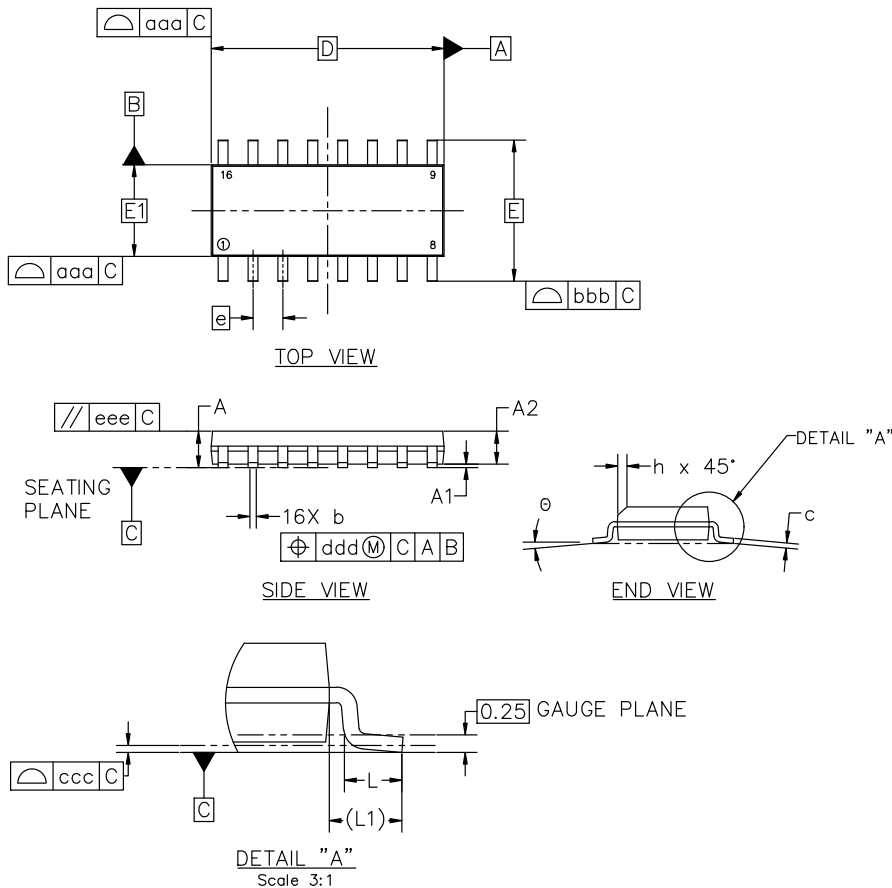


**SOIC-16 9.90x3.90x1.50 1.27P**  
**CASE 751B**  
**ISSUE L**

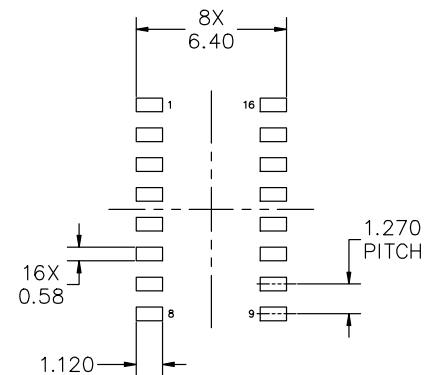
**DATE 29 MAY 2024**

## 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                             | 0.00     | 0.05 | 0.10 |
| A2                             | 1.35     | 1.50 | 1.65 |
| 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     |      |      |



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

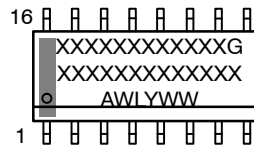
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| <b>DESCRIPTION:</b>     | <b>SOIC-16 9.90X3.90X1.50 1.27P</b> | <b>PAGE 1 OF 2</b>                                                                                                                                                               |

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SOIC-16 9.90x3.90x1.50 1.27P  
CASE 751B  
ISSUE L

DATE 29 MAY 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.

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

|                         |                                     |                                                                                                                                                                                     |
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| <b>DESCRIPTION:</b>     | <b>SOIC-16 9.90X3.90X1.50 1.27P</b> | <b>PAGE 2 OF 2</b>                                                                                                                                                                  |

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# MECHANICAL CASE OUTLINE PACKAGE DIMENSIONS



**TSSOP-16 WB**  
**CASE 948F**  
**ISSUE B**

DATE 19 OCT 2006



## NOTES:

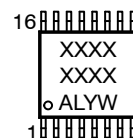
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: MILLIMETER.
3. DIMENSION A DOES NOT INCLUDE MOLD FLASH, PROTRUSIONS OR GATE BURRS. MOLD FLASH OR GATE BURRS SHALL NOT EXCEED 0.15 (0.006) PER SIDE.
4. DIMENSION B DOES NOT INCLUDE INTERLEAD FLASH OR PROTRUSION. INTERLEAD 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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| <b>DESCRIPTION:</b>     | <b>TSSOP-16</b>    | <b>PAGE 1 OF 1</b>                                                                                                                                                               |

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