

MC74LCX08

Low-Voltage CMOS Quad 2-Input AND Gate

With 5 V-Tolerant Inputs

The MC74LCX08 is a high performance, quad 2-input AND gate operating from a 2.3 to 3.6 V supply. High impedance TTL compatible inputs significantly reduce current loading to input drivers while TTL compatible outputs offer improved switching noise performance. A V_I specification of 5.5 V allows MC74LCX08 inputs to be safely driven from 5.0 V devices.

Current drive capability is 24 mA at the outputs.

Features

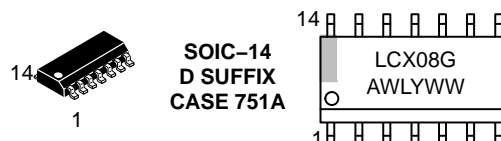
- Designed for 2.3 V to 3.6 V V_{CC} Operation
- 5.0 V Tolerant Inputs – Interface Capability With 5.0 V TTL Logic
- LVTTTL Compatible
- LVCMOS Compatible
- 24 mA Balanced Output Sink and Source Capability
- Near Zero Static Supply Current (10 μ A) Substantially Reduces System Power Requirements
- Latchup Performance Exceeds 500 mA
- ESD Performance: Human Body Model >2000 V
Machine Model >200 V
- NLV Prefix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements; AEC-Q101 Qualified and PPAP Capable
- These Devices are Pb-Free, Halogen Free/BFR Free and are RoHS Compliant



ON Semiconductor®

<http://onsemi.com>

MARKING DIAGRAMS



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

ORDERING INFORMATION

See detailed ordering and shipping information in the package dimensions section on page 4 of this data sheet.

MC74LCX08

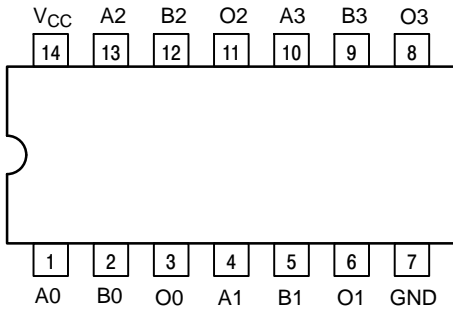


Figure 1. Pinout: 14-Lead (Top View)

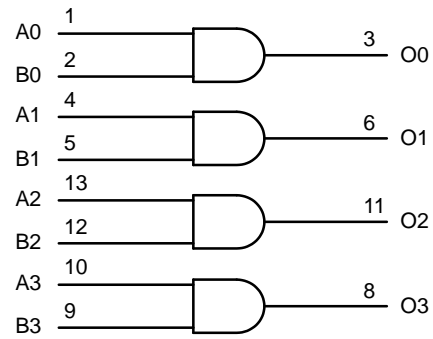


Figure 2. Logic Diagram

PIN NAMES

| Pins | Function |
|--------|-------------|
| An, Bn | Data Inputs |
| On | Outputs |

TRUTH TABLE

| Inputs | | Outputs |
|--------|----|---------|
| An | Bn | On |
| L | L | L |
| L | H | L |
| H | L | L |
| H | H | H |

H = High Voltage Level
L = Low Voltage Level

For I_{CC} reasons, DO NOT FLOAT Inputs

MAXIMUM RATINGS

| Symbol | Parameter | Value | Condition | Unit |
|-----------|----------------------------------|-----------------------------------|--------------------------------------|-------------|
| V_{CC} | DC Supply Voltage | -0.5 to +7.0 | | V |
| V_I | DC Input Voltage | $-0.5 \leq V_I \leq +7.0$ | | V |
| V_O | DC Output Voltage | $-0.5 \leq V_O \leq V_{CC} + 0.5$ | Output in HIGH or LOW State (Note 1) | V |
| I_{IK} | DC Input Diode Current | -50 | $V_I < GND$ | mA |
| I_{OK} | DC Output Diode Current | -50 | $V_O < GND$ | mA |
| | | +50 | $V_O > V_{CC}$ | mA |
| I_O | DC Output Source/Sink Current | ± 50 | | mA |
| I_{CC} | DC Supply Current Per Supply Pin | ± 100 | | mA |
| I_{GND} | DC Ground Current Per Ground Pin | ± 100 | | mA |
| T_{STG} | Storage Temperature Range | -65 to +150 | | $^{\circ}C$ |
| MSL | Moisture Sensitivity | | Level 1 | |

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. I_O absolute maximum rating must be observed.

MC74LCX08

RECOMMENDED OPERATING CONDITIONS

| Symbol | Parameter | Min | Type | Max | Unit |
|-----------------|--|---------------------------------|----------|------------------|------|
| V _{CC} | Supply Voltage | Operating | 2.5, 3.3 | 3.6 | V |
| | | Data Retention Only | 2.5, 3.3 | 3.6 | |
| V _I | Input Voltage | 0 | | 5.5 | V |
| V _O | Output Voltage (HIGH or LOW State) (3-State) | 0 | | V _{CC} | V |
| I _{OH} | HIGH Level Output Current | | | -24 -12 -8 | mA |
| I _{OL} | LOW Level Output Current | V _{CC} = 3.0 V – 3.6 V | | +24 | mA |
| | | V _{CC} = 2.7 V – 3.0 V | | +12 | |
| | | V _{CC} = 2.3 V – 2.7 V | | +8 | |
| T _A | Operating Free-Air Temperature | -40 | | +85 | °C |
| Δt/ΔV | Input Transition Rise or Fall Rate, V _{IN} from 0.8 V to 2.0 V, V _{CC} = 3.0 V | 0 | | 10 | ns/V |

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

DC ELECTRICAL CHARACTERISTICS

| Symbol | Characteristic | Condition | T _A = -40°C to +85°C | | Unit |
|------------------|---------------------------------------|--|---------------------------------|------|------|
| | | | Min | Max | |
| V _{IH} | HIGH Level Input Voltage (Note 2) | 2.3 V ≤ V _{CC} ≤ 2.7 V | 1.7 | | V |
| | | 2.7 V ≤ V _{CC} ≤ 3.6 V | 2.0 | | |
| V _{IL} | LOW Level Input Voltage (Note 2) | 2.3 V ≤ V _{CC} ≤ 2.7 V | | 0.7 | V |
| | | 2.7 V ≤ V _{CC} ≤ 3.6 V | | 0.8 | |
| V _{OH} | HIGH Level Output Voltage | 2.3 V ≤ V _{CC} ≤ 3.6 V; I _{OH} = -100 μA | V _{CC} - 0.2 | | V |
| | | V _{CC} = 2.3 V; I _{OH} = -8 mA | 1.8 | | |
| | | V _{CC} = 2.7 V; I _{OH} = -12 mA | 2.2 | | |
| | | V _{CC} = 3.0 V; I _{OH} = -18 mA | 2.4 | | |
| | | V _{CC} = 3.0 V; I _{OH} = -24 mA | 2.2 | | |
| V _{OL} | LOW Level Output Voltage | 2.3 V ≤ V _{CC} ≤ 3.6 V; I _{OL} = 100 μA | | 0.2 | V |
| | | V _{CC} = 2.3 V; I _{OL} = 8 mA | | 0.6 | |
| | | V _{CC} = 2.7 V; I _{OL} = 12 mA | | 0.4 | |
| | | V _{CC} = 3.0 V; I _{OL} = 16 mA | | 0.4 | |
| | | V _{CC} = 3.0 V; I _{OL} = 24 mA | | 0.55 | |
| I _{OFF} | Power Off Leakage Current | V _{CC} = 0, V _{IN} = 5.5 V or V _{OUT} = 5.5 V | | 10 | μA |
| I _{IN} | Input Leakage Current | V _{CC} = 3.6 V, V _{IN} = 5.5 V or GND | | ±5 | μA |
| I _{CC} | Quiescent Supply Current | V _{CC} = 3.6 V, V _{IN} = 5.5 V or GND | | 10 | μA |
| ΔI _{CC} | Increase in I _{CC} per Input | 2.3 ≤ V _{CC} ≤ 3.6 V; V _{IH} = V _{CC} - 0.6 V | | 500 | 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.

2. These values of V_I are used to test DC electrical characteristics only.

MC74LCX08

AC CHARACTERISTICS ($t_R = t_F = 2.5 \text{ ns}$; $R_L = 500 \Omega$)

| Symbol | Parameter | Waveform | Limits | | | | | | Unit |
|------------|------------------------|----------|---|-----|--------------------------|-----|--|-----|------|
| | | | $T_A = -40^\circ\text{C to } +85^\circ\text{C}$ | | | | | | |
| | | | $V_{CC} = 3.3 \text{ V} \pm 0.3 \text{ V}$ | | $V_{CC} = 2.7 \text{ V}$ | | $V_{CC} = 2.5 \text{ V} \pm 0.2 \text{ V}$ | | |
| | | | $C_L = 50 \text{ pF}$ | | $C_L = 50 \text{ pF}$ | | $C_L = 30 \text{ pF}$ | | |
| | | | Min | Max | Min | Max | Min | Max | |
| t_{PLH} | Propagation Delay Time | 1 | 1.5 | 5.5 | 1.5 | 6.2 | 1.5 | 6.6 | ns |
| t_{PHL} | Input to Output | | 1.5 | 5.5 | 1.5 | 6.2 | 1.5 | 6.6 | |
| t_{OSHL} | Output-to-Output Skew | | | 1.0 | | | | | ns |
| t_{OSLH} | (Note 3) | | | 1.0 | | | | | |

3. Skew is defined as the absolute value of the difference between the actual propagation delay for any two separate outputs of the same device. The specification applies to any outputs switching in the same direction, either HIGH-to-LOW (t_{OSHL}) or LOW-to-HIGH (t_{OSLH}); parameter guaranteed by design.

DYNAMIC SWITCHING CHARACTERISTICS

| Symbol | Characteristic | Condition | $T_A = +25^\circ\text{C}$ | | | Unit |
|-----------|--|--|---------------------------|------|-----|------|
| | | | Min | Typ | Max | |
| V_{OLP} | Dynamic LOW Peak Voltage (Note 4) | $V_{CC} = 3.3 \text{ V}$, $C_L = 50 \text{ pF}$, $V_{IH} = 3.3 \text{ V}$, $V_{IL} = 0 \text{ V}$ $V_{CC} = 2.5 \text{ V}$, $C_L = 30 \text{ pF}$, $V_{IH} = 2.5 \text{ V}$, $V_{IL} = 0 \text{ V}$ | | 0.8 | | V |
| V_{OLV} | Dynamic LOW Valley Voltage (Note 4) | $V_{CC} = 3.3 \text{ V}$, $C_L = 50 \text{ pF}$, $V_{IH} = 3.3 \text{ V}$, $V_{IL} = 0 \text{ V}$ $V_{CC} = 2.5 \text{ V}$, $C_L = 30 \text{ pF}$, $V_{IH} = 2.5 \text{ V}$, $V_{IL} = 0 \text{ V}$ | | -0.8 | | V |
| | | | | -0.6 | | V |

4. Number of outputs defined as "n". Measured with "n-1" outputs switching from HIGH-to-LOW or LOW-to-HIGH. The remaining output is measured in the LOW state.

CAPACITIVE CHARACTERISTICS

| Symbol | Parameter | Condition | Typical | Unit |
|-----------|-------------------------------|--|---------|------|
| C_{IN} | Input Capacitance | $V_{CC} = 3.3 \text{ V}$, $V_I = 0 \text{ V}$ or V_{CC} | 7 | pF |
| C_{OUT} | Output Capacitance | $V_{CC} = 3.3 \text{ V}$, $V_I = 0 \text{ V}$ or V_{CC} | 8 | pF |
| C_{PD} | Power Dissipation Capacitance | 10 MHz, $V_{CC} = 3.3 \text{ V}$, $V_I = 0 \text{ V}$ or V_{CC} | 25 | pF |

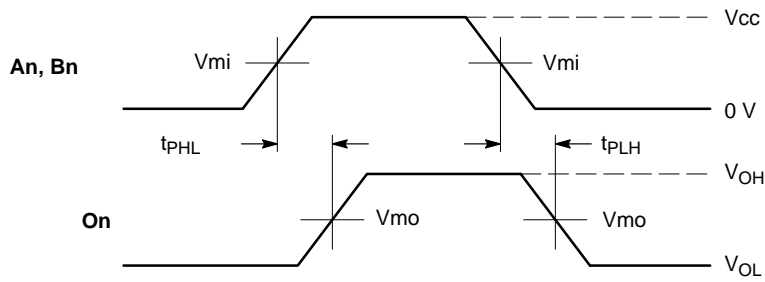
ORDERING INFORMATION

| Device | Package | Shipping† |
|----------------|-----------------------|------------------|
| MC74LCX08DG | SOIC-14 (Pb-Free) | 55 Units / Rail |
| MC74LCX08DR2G | SOIC-14 (Pb-Free) | 2500 Tape & Reel |
| MC74LCX08DTG | TSSOP-14 (Pb-Free) | 96 Units / Rail |
| MC74LCX08DTR2G | TSSOP-14 (Pb-Free) | 2500 Tape & Reel |
| NLVLCX08DTR2G* | TSSOP-14 (Pb-Free) | 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.

*NLV Prefix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements; AEC-Q101 Qualified and PPAP Capable.

MC74LCX08

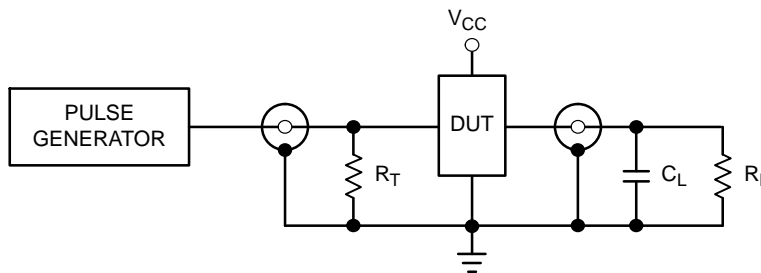


WAVEFORM 1 - PROPAGATION DELAYS

$t_R = t_F = 2.5 \text{ ns}$, 10% to 90%; $f = 1 \text{ MHz}$; $t_W = 500 \text{ ns}$

| Symbol | Vcc | | |
|--------|---------------|-------|---------------|
| | 3.3 V ± 0.3 V | 2.7 V | 2.5 V ± 0.2 V |
| Vmi | 1.5 V | 1.5 V | Vcc/2 |
| Vmo | 1.5 V | 1.5 V | Vcc/2 |

Figure 3. AC Waveforms



$C_L = 50 \text{ pF}$ at $V_{CC} = 3.3 \pm 0.3 \text{ V}$ or equivalent (includes jig and probe capacitance)
 $C_L = 30 \text{ pF}$ at $V_{CC} = 2.5 \pm 0.2 \text{ V}$ or equivalent (includes jig and probe capacitance)
 $R_L = R_1 = 500 \Omega$ or equivalent
 $R_T = Z_{OUT}$ of pulse generator (typically 50Ω)

Figure 4. Test Circuit

MECHANICAL CASE OUTLINE PACKAGE DIMENSIONS

ON Semiconductor®



SCALE 1:1

SOIC-14 NB
CASE 751A-03
ISSUE L

DATE 03 FEB 2016



NOTES:

1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994.
2. CONTROLLING DIMENSION: MILLIMETERS.
3. DIMENSION b DOES NOT INCLUDE DAMBAR PROTRUSION. ALLOWABLE PROTRUSION SHALL BE 0.13 TOTAL IN EXCESS OF AT MAXIMUM MATERIAL CONDITION.
4. DIMENSIONS D AND E DO NOT INCLUDE MOLD PROTRUSIONS.
5. MAXIMUM MOLD PROTRUSION 0.15 PER SIDE.

| DIM | MILLIMETERS | | INCHES | |
|-----|-------------|------|-----------|-------|
| | MIN | MAX | MIN | MAX |
| A | 1.35 | 1.75 | 0.054 | 0.068 |
| A1 | 0.10 | 0.25 | 0.004 | 0.010 |
| A3 | 0.19 | 0.25 | 0.008 | 0.010 |
| b | 0.35 | 0.49 | 0.014 | 0.019 |
| D | 8.55 | 8.75 | 0.337 | 0.344 |
| E | 3.80 | 4.00 | 0.150 | 0.157 |
| e | 1.27 BSC | | 0.050 BSC | |
| H | 5.80 | 6.20 | 0.228 | 0.244 |
| h | 0.25 | 0.50 | 0.010 | 0.019 |
| L | 0.40 | 1.25 | 0.016 | 0.049 |
| M | 0° | 7° | 0° | 7° |

SOLDERING FOOTPRINT*



DIMENSIONS: MILLIMETERS

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

GENERIC MARKING DIAGRAM*



- XXXXXX = 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.

STYLES ON PAGE 2

| | | |
|------------------|-------------|--|
| DOCUMENT NUMBER: | 98ASB42565B | Electronic versions are uncontrolled except when accessed directly from the Document Repository. Printed versions are uncontrolled except when stamped "CONTROLLED COPY" in red. |
| DESCRIPTION: | SOIC-14 NB | PAGE 1 OF 2 |

ON Semiconductor and ON are trademarks of Semiconductor Components Industries, LLC dba ON Semiconductor or its subsidiaries in the United States and/or other countries. ON Semiconductor reserves the right to make changes without further notice to any products herein. ON Semiconductor makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does ON Semiconductor assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation special, consequential or incidental damages. ON Semiconductor does not convey any license under its patent rights nor the rights of others.

SOIC-14
CASE 751A-03
ISSUE L

DATE 03 FEB 2016

STYLE 1:
 PIN 1. COMMON CATHODE
 2. ANODE/CATHODE
 3. ANODE/CATHODE
 4. NO CONNECTION
 5. ANODE/CATHODE
 6. NO CONNECTION
 7. ANODE/CATHODE
 8. ANODE/CATHODE
 9. ANODE/CATHODE
 10. NO CONNECTION
 11. ANODE/CATHODE
 12. ANODE/CATHODE
 13. NO CONNECTION
 14. COMMON ANODE

STYLE 2:
 CANCELLED

STYLE 3:
 PIN 1. NO CONNECTION
 2. ANODE
 3. ANODE
 4. NO CONNECTION
 5. ANODE
 6. NO CONNECTION
 7. ANODE
 8. ANODE
 9. ANODE
 10. NO CONNECTION
 11. ANODE
 12. ANODE
 13. NO CONNECTION
 14. COMMON CATHODE

STYLE 4:
 PIN 1. NO CONNECTION
 2. CATHODE
 3. CATHODE
 4. NO CONNECTION
 5. CATHODE
 6. NO CONNECTION
 7. CATHODE
 8. CATHODE
 9. CATHODE
 10. NO CONNECTION
 11. CATHODE
 12. CATHODE
 13. NO CONNECTION
 14. COMMON ANODE

STYLE 5:
 PIN 1. COMMON CATHODE
 2. ANODE/CATHODE
 3. ANODE/CATHODE
 4. ANODE/CATHODE
 5. ANODE/CATHODE
 6. NO CONNECTION
 7. COMMON ANODE
 8. COMMON CATHODE
 9. ANODE/CATHODE
 10. ANODE/CATHODE
 11. ANODE/CATHODE
 12. ANODE/CATHODE
 13. NO CONNECTION
 14. COMMON ANODE

STYLE 6:
 PIN 1. CATHODE
 2. CATHODE
 3. CATHODE
 4. CATHODE
 5. CATHODE
 6. CATHODE
 7. CATHODE
 8. ANODE
 9. ANODE
 10. ANODE
 11. ANODE
 12. ANODE
 13. ANODE
 14. ANODE

STYLE 7:
 PIN 1. ANODE/CATHODE
 2. COMMON ANODE
 3. COMMON CATHODE
 4. ANODE/CATHODE
 5. ANODE/CATHODE
 6. ANODE/CATHODE
 7. ANODE/CATHODE
 8. ANODE/CATHODE
 9. ANODE/CATHODE
 10. ANODE/CATHODE
 11. COMMON CATHODE
 12. COMMON ANODE
 13. ANODE/CATHODE
 14. ANODE/CATHODE

STYLE 8:
 PIN 1. COMMON CATHODE
 2. ANODE/CATHODE
 3. ANODE/CATHODE
 4. NO CONNECTION
 5. ANODE/CATHODE
 6. ANODE/CATHODE
 7. COMMON ANODE
 8. COMMON ANODE
 9. ANODE/CATHODE
 10. ANODE/CATHODE
 11. NO CONNECTION
 12. ANODE/CATHODE
 13. ANODE/CATHODE
 14. COMMON CATHODE

| | | |
|-------------------------|--------------------|---|
| DOCUMENT NUMBER: | 98ASB42565B | Electronic versions are uncontrolled except when accessed directly from the Document Repository. Printed versions are uncontrolled except when stamped "CONTROLLED COPY" in red. |
| DESCRIPTION: | SOIC-14 NB | PAGE 2 OF 2 |

ON Semiconductor and  are trademarks of Semiconductor Components Industries, LLC dba ON Semiconductor or its subsidiaries in the United States and/or other countries. ON Semiconductor reserves the right to make changes without further notice to any products herein. ON Semiconductor makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does ON Semiconductor assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation special, consequential or incidental damages. ON Semiconductor does not convey any license under its patent rights nor the rights of others.

MECHANICAL CASE OUTLINE PACKAGE DIMENSIONS

ON Semiconductor®



TSSOP-14 WB
CASE 948G
ISSUE C

DATE 17 FEB 2016

SCALE 2:1



NOTES:

- DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
- CONTROLLING DIMENSION: MILLIMETER.
- 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.
- DIMENSION B DOES NOT INCLUDE INTERLEAD FLASH OR PROTRUSION. INTERLEAD FLASH OR PROTRUSION SHALL NOT EXCEED 0.25 (0.010) PER SIDE.
- 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.
- TERMINAL NUMBERS ARE SHOWN FOR REFERENCE ONLY.
- 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 | 0.50 | 0.60 | 0.020 | 0.024 |
| 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° |

GENERIC MARKING DIAGRAM*



- 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.

SOLDERING FOOTPRINT



| | | |
|-------------------------|--------------------|--|
| DOCUMENT NUMBER: | 98ASH70246A | Electronic versions are uncontrolled except when accessed directly from the Document Repository. Printed versions are uncontrolled except when stamped "CONTROLLED COPY" in red. |
| DESCRIPTION: | TSSOP-14 WB | PAGE 1 OF 1 |

ON Semiconductor and ON are trademarks of Semiconductor Components Industries, LLC dba ON Semiconductor or its subsidiaries in the United States and/or other countries. ON Semiconductor reserves the right to make changes without further notice to any products herein. ON Semiconductor makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does ON Semiconductor assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation special, consequential or incidental damages. ON Semiconductor does not convey any license under its patent rights nor the rights of others.

ON Semiconductor and  are trademarks of Semiconductor Components Industries, LLC dba ON Semiconductor or its subsidiaries in the United States and/or other countries. ON Semiconductor owns the rights to a number of patents, trademarks, copyrights, trade secrets, and other intellectual property. A listing of ON Semiconductor's product/patent coverage may be accessed at www.onsemi.com/site/pdf/Patent-Marking.pdf. ON Semiconductor reserves the right to make changes without further notice to any products herein. ON Semiconductor makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does ON Semiconductor assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation special, consequential or incidental damages. Buyer is responsible for its products and applications using ON Semiconductor products, including compliance with all laws, regulations and safety requirements or standards, regardless of any support or applications information provided by ON Semiconductor. "Typical" parameters which may be provided in ON Semiconductor data sheets and/or specifications can and do vary in different applications and actual performance may vary over time. All operating parameters, including "Typicals" must be validated for each customer application by customer's technical experts. ON Semiconductor does not convey any license under its patent rights nor the rights of others. ON Semiconductor products are not designed, intended, or authorized for use as a critical component in life support systems or any FDA Class 3 medical devices or medical devices with a same or similar classification in a foreign jurisdiction or any devices intended for implantation in the human body. Should Buyer purchase or use ON Semiconductor products for any such unintended or unauthorized application, Buyer shall indemnify and hold ON Semiconductor and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs, damages, and expenses, and reasonable attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized use, even if such claim alleges that ON Semiconductor was negligent regarding the design or manufacture of the part. ON Semiconductor is an Equal Opportunity/Affirmative Action Employer. This literature is subject to all applicable copyright laws and is not for resale in any manner.

PUBLICATION ORDERING INFORMATION

LITERATURE FULFILLMENT:

Email Requests to: orderlit@onsemi.com

ON Semiconductor Website: www.onsemi.com

TECHNICAL SUPPORT

North American Technical Support:
Voice Mail: 1 800-282-9855 Toll Free USA/Canada
Phone: 011 421 33 790 2910

Europe, Middle East and Africa Technical Support:

Phone: 00421 33 790 2910

For additional information, please contact your local Sales Representative