

Hex Schmitt-Trigger Inverter

High-Performance Silicon-Gate CMOS

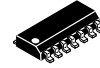
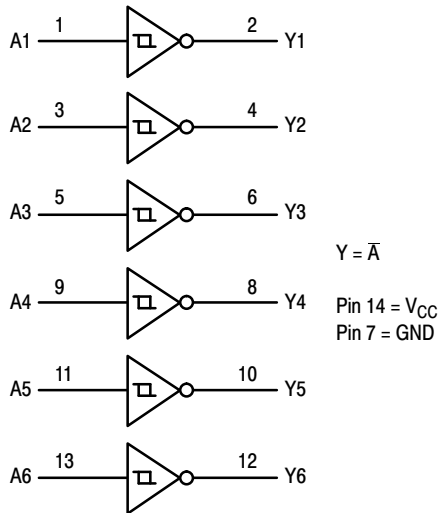
MC74HC14A, MC74HCT14A

The MC74HC14A/MC74HCT14A is useful to “square up” slow input rise and fall times. Due to hysteresis voltage of the Schmitt trigger, the device finds applications in noisy environments. The MC74HC14A has CMOS-level input thresholds while the MC74HCT14A has TTL-level input thresholds.

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: 1.0 μ A
- High Noise Immunity Characteristic of CMOS Devices
- In Compliance With the JEDEC Standard No. 7.0 A Requirements
- Chip Complexity: 72 FETs or 18 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

LOGIC DIAGRAM

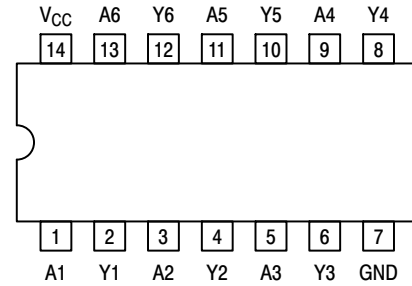


SOIC-14 NB
D SUFFIX
CASE 751A



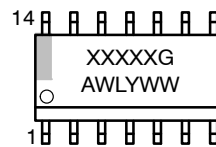
TSSOP-14
DT SUFFIX
CASE 948G

PIN ASSIGNMENT

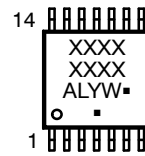


14-Lead (Top View)

MARKING DIAGRAMS



SOIC-14 NB



TSSOP-14

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

(Note: Microdot may be in either location)

FUNCTION TABLE

Inputs	Outputs
A	Y
L	H
H	L

ORDERING INFORMATION

See detailed ordering and shipping information on page 6 of this data sheet.

MC74HC14A, MC74HCT14A

MAXIMUM RATINGS

Symbol	Parameter	Value	Unit	
V_{CC}	DC Supply Voltage	-0.5 to +6.5	V	
V_{IN}	DC Input Voltage	-0.5 to $V_{CC} + 0.5$	V	
V_{OUT}	DC Output Voltage	-0.5 to $V_{CC} + 0.5$	V	
I_{IN}	DC Input Current, per Pin	± 20	mA	
I_{OUT}	DC Output Current, per Pin	± 25	mA	
I_{CC}	DC Supply Current, V_{CC} and GND Pins	± 50	mA	
I_{IK}	Input Clamp Current ($V_{IN} < 0$ or $V_{IN} > V_{CC}$)	± 20	mA	
I_{OK}	Output Clamp Current ($V_{OUT} < 0$ or $V_{OUT} > V_{CC}$)	± 20	mA	
T_{STG}	Storage Temperature	-65 to +150	$^{\circ}\text{C}$	
T_L	Lead Temperature, 1 mm from Case for 10 Seconds	260	$^{\circ}\text{C}$	
T_J	Junction Temperature Under Bias	± 150	$^{\circ}\text{C}$	
θ_{JA}	Thermal Resistance (Note 1)	SOIC-14 TSSOP-14	116 150	$^{\circ}\text{C}/\text{W}$
P_D	Power Dissipation in Still Air at 25 $^{\circ}\text{C}$	SOIC-14 TSSOP-14	1077 833	mW
MSL	Moisture Sensitivity		Level 1	-
F_R	Flammability Rating	Oxygen Index: 28 to 34	UL 94 V-0 @ 0.125 in	-
V_{ESD}	ESD Withstand Voltage (Note 2)	Human Body Model Charged Device Model	4000 1000	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 76mm-by-114mm, 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
--------	-----------	-----	-----	------

MC74HC

V_{CC}	DC Supply Voltage (Referenced to GND)	2.0	6.0	V	
V_{IN}, V_{OUT}	DC Input Voltage, Output Voltage (Referenced to GND) (Note 4)	0	V_{CC}	V	
T_A	Operating Free-Air Temperature	-55	+125	$^{\circ}\text{C}$	
t_r, t_f	Input Rise or Fall Time (Note 3)	$V_{CC} = 2.0\text{ V}$ $V_{CC} = 4.5\text{ V}$ $V_{CC} = 6.0\text{ V}$	0 0 0	No Limit No Limit No Limit	ns

MC74HCT

V_{CC}	DC Supply Voltage (Referenced to GND)	4.5	5.5	V
V_{IN}, V_{OUT}	DC Input Voltage, DC Output Voltage (Referenced to GND) (Note 4)	0	V_{CC}	V
T_A	Operating Free-Air Temperature	-55	+125	$^{\circ}\text{C}$
t_r, t_f	Input Rise or Fall Time (Note 3)	0	No Limit	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. No Limit when $V_{IN} \sim 50\% \times V_{CC}$, $I_{CC} > 1\text{ mA}$.
4. 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.

MC74HC14A, MC74HCT14A

DC CHARACTERISTICS (MC74HC14A)

Symbol	Parameter	Condition	V _{CC} V	Guaranteed Limit			Unit
				-55 to 25°C	≤85°C	≤125°C	
V _{T+} max	Maximum Positive-Going Input Threshold Voltage (Figure 3)	V _{out} = 0.1V I _{out} ≤ 20μA	2.0	1.50	1.50	1.50	V
			3.0	2.15	2.15	2.15	
			4.5	3.15	3.15	3.15	
			6.0	4.20	4.20	4.20	
V _{T+} min	Minimum Positive-Going Input Threshold Voltage (Figure 3)	V _{out} = 0.1V I _{out} ≤ 20μA	2.0	1.0	0.95	0.95	V
			3.0	1.5	1.45	1.45	
			4.5	2.3	2.25	2.25	
			6.0	3.0	2.95	2.95	
V _{T-} max	Maximum Negative-Going Input Threshold Voltage (Figure 3)	V _{out} = V _{CC} - 0.1V I _{out} ≤ 20μA	2.0	0.9	0.95	0.95	V
			3.0	1.4	1.45	1.45	
			4.5	2.0	2.05	2.05	
			6.0	2.6	2.65	2.65	
V _{T-} min	Minimum Negative-Going Input Threshold Voltage (Figure 3)	V _{out} = V _{CC} - 0.1V I _{out} ≤ 20μA	2.0	0.3	0.3	0.3	V
			3.0	0.5	0.5	0.5	
			4.5	0.9	0.9	0.9	
			6.0	1.2	1.2	1.2	
V _H max (Note 5)	Maximum Hysteresis Voltage (Figure 3)	V _{out} = 0.1V or V _{CC} - 0.1V I _{out} ≤ 20μA	2.0	1.20	1.20	1.20	V
			3.0	1.65	1.65	1.65	
			4.5	2.25	2.25	2.25	
			6.0	3.00	3.00	3.00	
V _H min (Note 5)	Minimum Hysteresis Voltage (Figure 3)	V _{out} = 0.1V or V _{CC} - 0.1V I _{out} ≤ 20μA	2.0	0.20	0.20	0.20	V
			3.0	0.25	0.25	0.25	
			4.5	0.40	0.40	0.40	
			6.0	0.50	0.50	0.50	
V _{OH}	Minimum High-Level Output Voltage	V _{in} ≤ V _{T-} min I _{out} ≤ 20μA	2.0	1.9	1.9	1.9	V
			4.5	4.4	4.4	4.4	
			6.0	5.9	5.9	5.9	
			V _{in} ≤ V _{T-} min	I _{out} ≤ 2.4mA	3.0	2.48	
	I _{out} ≤ 4.0mA	4.5	3.98	3.84	3.70		
	I _{out} ≤ 5.2mA	6.0	5.48	5.34	5.20		
V _{OL}	Maximum Low-Level Output Voltage	V _{in} ≥ V _{T+} max I _{out} ≤ 20μA	2.0	0.1	0.1	0.1	V
			4.5	0.1	0.1	0.1	
			6.0	0.1	0.1	0.1	
			V _{in} ≥ V _{T+} max	I _{out} ≤ 2.4mA	3.0	0.26	
	I _{out} ≤ 4.0mA	4.5	0.26	0.33	0.40		
	I _{out} ≤ 5.2mA	6.0	0.26	0.33	0.40		
I _{in}	Maximum Input Leakage Current	V _{in} = V _{CC} or GND	6.0	±0.1	±1.0	±1.0	μA
I _{CC}	Maximum Quiescent Supply Current (per Package)	V _{in} = V _{CC} or GND I _{out} = 0μA	6.0	1.0	10	40	μA

5. V_Hmin > (V_{T+} min) - (V_{T-} max); V_Hmax = (V_{T+} max) - (V_{T-} min).

AC CHARACTERISTICS (MC74HC14A)

Symbol	Parameter	V _{CC} V	Guaranteed Limit			Unit
			-55 to 25°C	≤85°C	≤125°C	
t _{PLH} , t _{PHL}	Maximum Propagation Delay, Input A or B to Output Y (Figures 1 and 2)	2.0	75	95	110	ns
		3.0	30	40	55	
		4.5	15	19	22	
		6.0	13	16	19	
t _{TLH} , t _{THL}	Maximum Output Transition Time, Any Output (Figures 1 and 2)	2.0	75	95	110	ns
		3.0	27	32	36	
		4.5	15	19	22	
		6.0	13	16	19	
C _{in}	Maximum Input Capacitance		10	10	10	pF
C _{PD}	Power Dissipation Capacitance (Per Inverter) (Note 6)	Typical @ 25°C, V _{CC} = 5.0 V			pF	
		22				

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

MC74HC14A, MC74HCT14A

DC ELECTRICAL CHARACTERISTICS (MC74HCT14A)

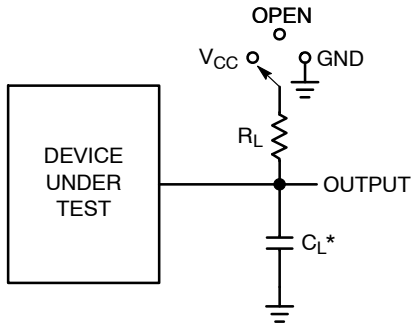
Symbol	Parameter	Test Conditions	V _{CC} Volts	Temperature Limit						Unit
				-55°C to 25°C		≤ 85°C		≤ 125°C		
				Min	Max	Min	Max	Min	Max	
V _{T+} max	Maximum Positive-Going Input Threshold Voltage	V _O = 0.1 V or V _{CC} - 0.1 V I _{out} ≤ 20 μA	4.5 5.5		1.9 2.1		1.9 2.1		1.9 2.1	V
V _{T+} min	Minimum Positive-Going Input Threshold Voltage	V _O = 0.1 V or V _{CC} - 0.1 V I _{out} ≤ 20 μA	4.5 5.5	1.2 1.4		1.2 1.4		1.2 1.4		V
V _{T-} max	Maximum Negative-Going Input Threshold Voltage	V _O = 0.1 V or V _{CC} - 0.1 V I _{out} ≤ 20 μA	4.5 5.5		1.2 1.4		1.2 1.4		1.2 1.4	
V _{T-} min	Minimum Negative-Going Input Threshold Voltage	V _O = 0.1 V or V _{CC} - 0.1 V I _{out} ≤ 20 μA	4.5 5.5	0.5 0.6		0.5 0.6		0.5 0.6		
V _H max	Maximum Hysteresis Voltage	V _O = 0.1 V or V _{CC} - 0.1 V I _{out} ≤ 20 μA	4.5 5.5		1.4 1.5		1.4 1.5		1.4 1.5	
V _H min	Minimum Hysteresis Voltage	V _O = 0.1 V or V _{CC} - 0.1 V I _{out} ≤ 20 μA	4.5 5.5	0.4 0.4		0.4 0.4		0.4 0.4		
V _{OH}	Minimum High-Level Output Voltage	V _I < V _{T-} min I _{out} ≤ 20 μA	4.5 5.5	4.4 5.4		4.4 5.4		4.4 5.4		V
		V _I < V _{T-} min I _{out} ≤ 4.0 mA	4.5	3.98		3.84		3.7		
V _{OL}	Maximum Low-Level Output Voltage	V _I ≥ V _{T+} max I _{out} ≤ 20 μA	4.5 5.5		0.1 0.1		0.1 0.1		0.1 0.1	V
		V _I ≥ V _{T+} max I _{out} ≤ 4.0 mA	4.5		0.26		0.33		0.4	
I _{IK}	Maximum Input Leakage Current	V _I = V _{CC} or GND	5.5		±0.1		±1.0		±1.0	μA
I _{CC}	Maximum Quiescent Supply Current (per package)	V _I = V _{CC} or GND I _{out} = 0 μA	5.5		1.0		10		40	μA
ΔI _{CC}	Additional Quiescent Supply Current	V _I = 2.4 V, Any One Input V _I = V _{CC} or GND, Other Inputs I _{out} = 0 μA	5.5	≥ -55°C		25°C to 125°C				mA
				2.9		2.4				

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.

AC CHARACTERISTICS (MC74HCT14A)

Symbol	Parameter	Test Conditions	Figures	Guaranteed Limit						Unit
				-55°C to 25°C		≤ 85°C		≤ 125°C		
				Min	Max	Min	Max	Min	Max	
t _{PLH} , t _{PHL}	Maximum Propagation Delay, Input A to Output Y (L to H)	V _{CC} = 5.0 V ±10% C _L = 50 pF, Input t _r = t _f = 6.0 ns	1 & 2		32		40		48	ns
t _{TLH} , t _{THL}	Maximum Output Transition Time, Any Output	V _{CC} = 5.0 V ±10% C _L = 50 pF, Input t _r = t _f = 6.0 ns	1 & 2		15		19		22	ns
C _{PD}	Power Dissipation Capacitance, per Inverter (Note 6)	Typical @ 25°C, V _{CC} = 5.0 V						pF		
		32								

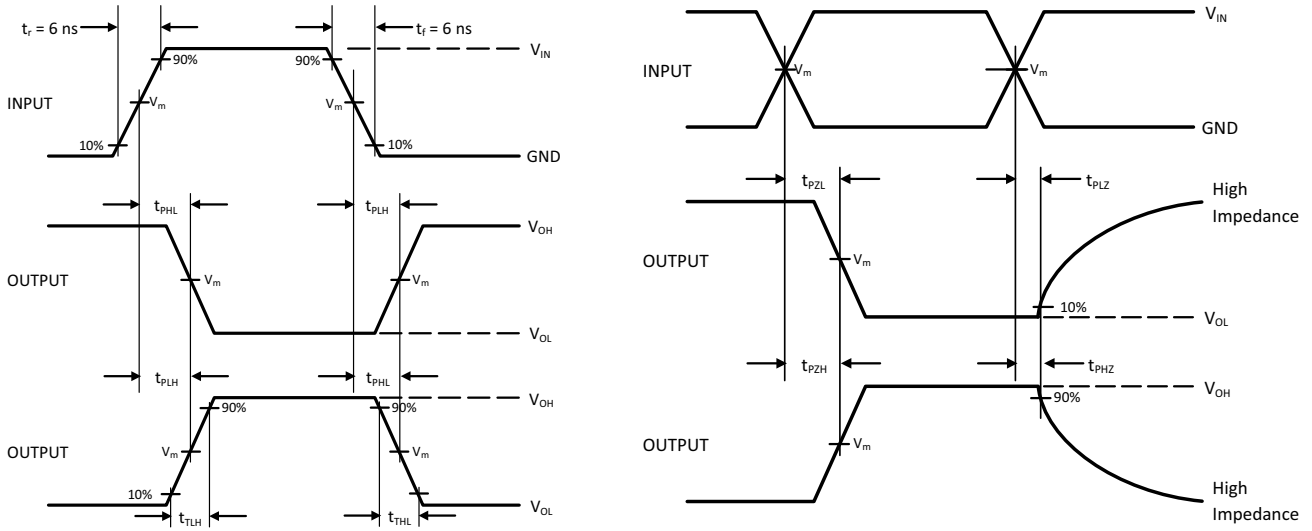
MC74HC14A, MC74HCT14A



* C_L Includes probe and jig capacitance

Test	Switch Position	C_L	R_L
t_{PLH} / t_{PHL}	Open	50 pF	1 k Ω
t_{PLZ} / t_{PZL}	V_{CC}		
t_{PHZ} / t_{PZH}	GND		

Figure 1. Test Circuit



Device	V_{IN}, V	V_m, V
MC74HC14A	V_{CC}	$50\% \times V_{CC}$
MC74HCT14A	3 V	1.3 V

Figure 2. Switching Waveforms

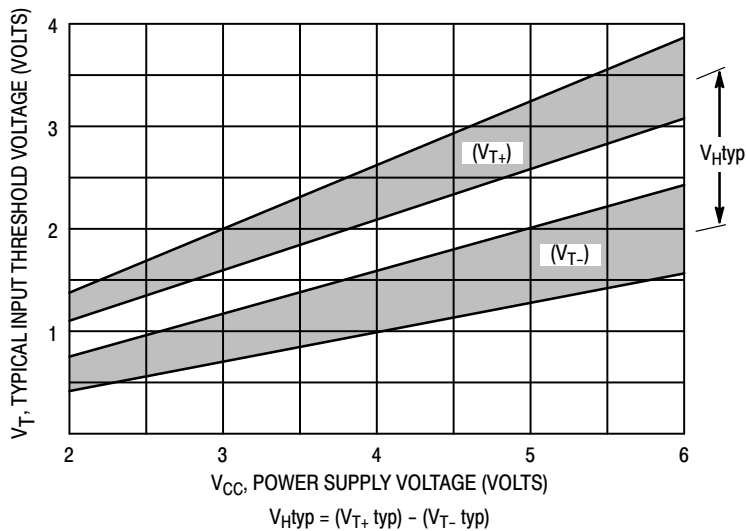
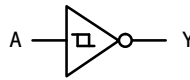
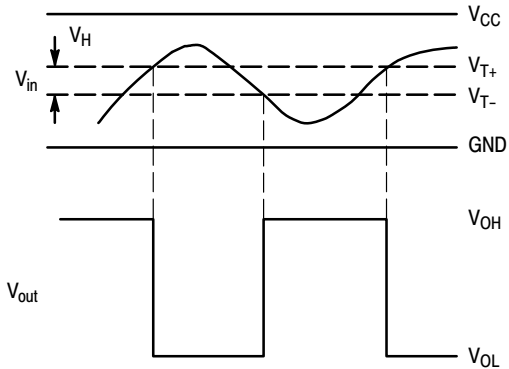


Figure 3. Typical Input Threshold, V_{T+} , V_{T-} versus Power Supply Voltage

MC74HC14A, MC74HCT14A



(a) A Schmitt-Trigger Squares Up Inputs With Slow Rise and Fall Times



(b) A Schmitt-Trigger Offers Maximum Noise Immunity

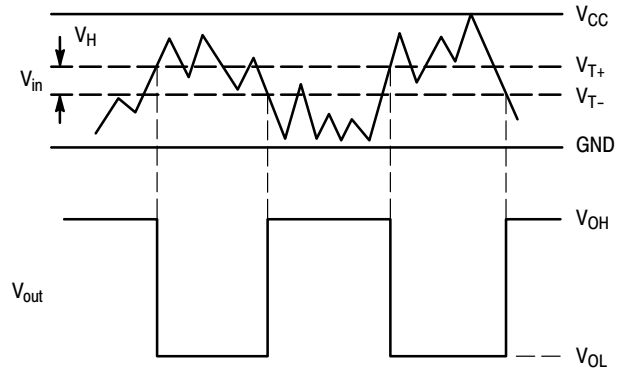


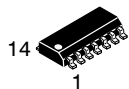
Figure 4. Typical Schmitt-Trigger Applications

ORDERING INFORMATION

Device	Marking†	Package	Shipping†
MC74HC14ADG	HC14AG	SOIC-14	55 Units / Rail
MC74HC14ADR2G	HC14AG	SOIC-14	2500 / Tape & Reel
MC74HC14ADR2G-Q*	HC14AG	SOIC-14	2500 / Tape & Reel
MC74HC14ADTG	HC 14A	TSSOP-14	96 Units / Rail
MC74HC14ADTR2G	HC 14A	TSSOP-14	2500 / Tape & Reel
MC74HC14ADTR2G-Q*	HC 14A	TSSOP-14	2500 / Tape & Reel
MC74HCT14ADG	HCT14AG	SOIC-14	55 Units / Rail
MC74HCT14ADR2G	HCT14AG	SOIC-14	2500 / Tape & Reel
MC74HCT14ADR2G-Q*	HCT14AG	SOIC-14	2500 / Tape & Reel
MC74HCT14ADTR2G	HCT 14A	TSSOP-14	2500 / Tape & Reel
MC74HCT14ADTR2G-Q*	HCT 14A	TSSOP-14	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.

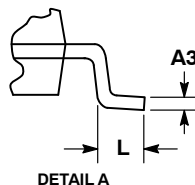
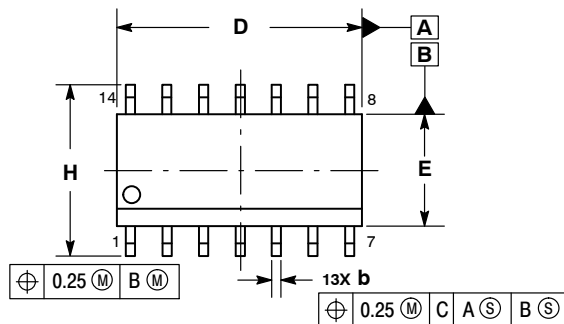
*-Q Suffix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements; AEC-Q100 Qualified and PPAP Capable



SCALE 1:1

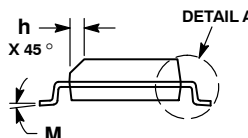
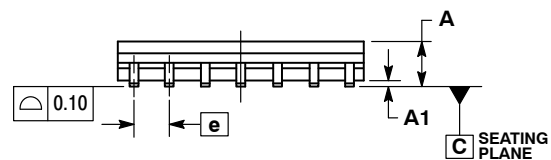
SOIC-14 NB
CASE 751A-03
ISSUE L

DATE 03 FEB 2016

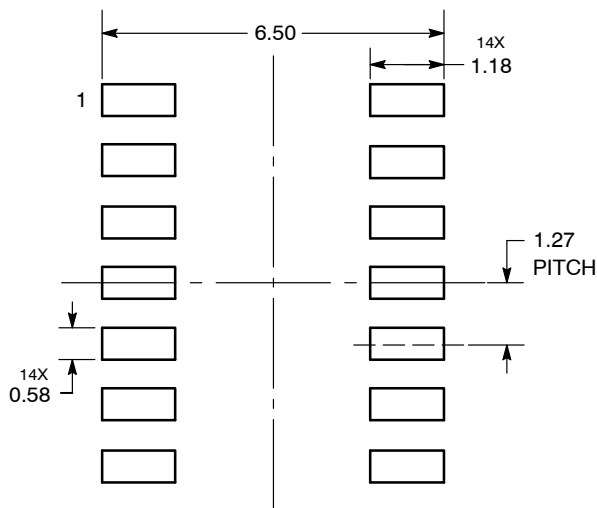


- NOTES:
1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994.
 2. CONTROLLING DIMENSION: MILLIMETERS.
 3. DIMENSION b DOES NOT INCLUDE DAMBAR PROTRUSION. ALLOWABLE PROTRUSION SHALL BE 0.13 TOTAL IN EXCESS OF AT MAXIMUM MATERIAL CONDITION.
 4. DIMENSIONS D AND E DO NOT INCLUDE MOLD PROTRUSIONS.
 5.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



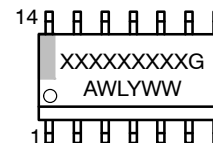
SOLDERING FOOTPRINT*



DIMENSIONS: MILLIMETERS

*For additional information on our Pb-Free strategy and soldering details, please download the onsemi 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. Some products may not follow the Generic Marking.

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

onsemi and onsemi are trademarks of Semiconductor Components Industries, LLC dba onsemi or its subsidiaries in the United States and/or other countries. onsemi reserves the right to make changes without further notice to any products herein. onsemi makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does onsemi 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. onsemi 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

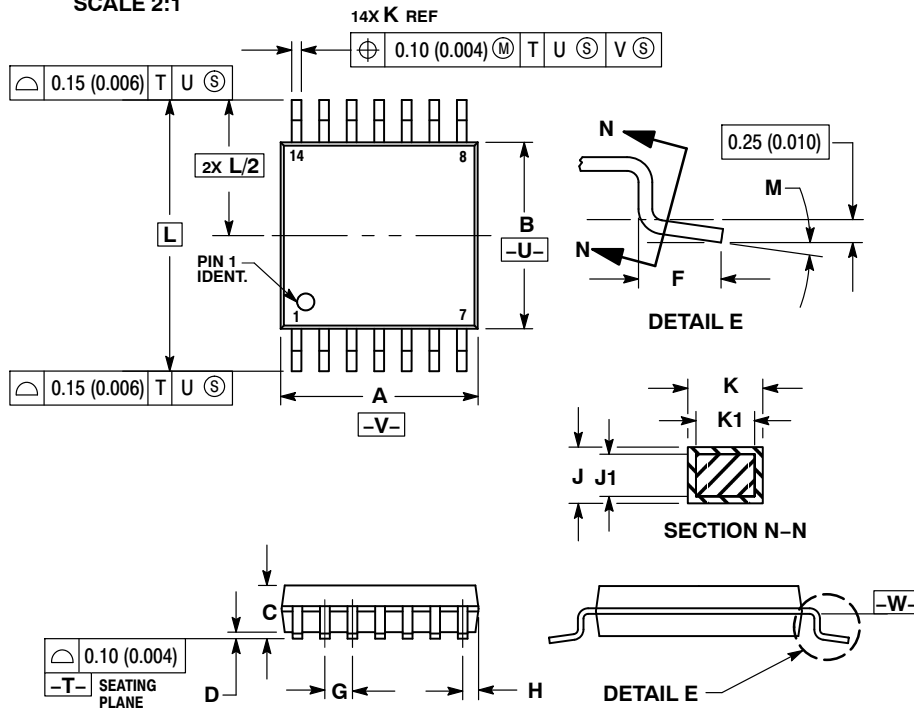
DOCUMENT NUMBER:	98ASB42565B	Electronic versions are uncontrolled except when accessed directly from the Document Repository. Printed versions are uncontrolled except when stamped "CONTROLLED COPY" in red.
DESCRIPTION:	SOIC-14 NB	PAGE 2 OF 2

onsemi and **ONSEMI** are trademarks of Semiconductor Components Industries, LLC dba **onsemi** or its subsidiaries in the United States and/or other countries. **onsemi** reserves the right to make changes without further notice to any products herein. **onsemi** makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does **onsemi** 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. **onsemi** does not convey any license under its patent rights nor the rights of others.



TSSOP-14 WB
CASE 948G
ISSUE C

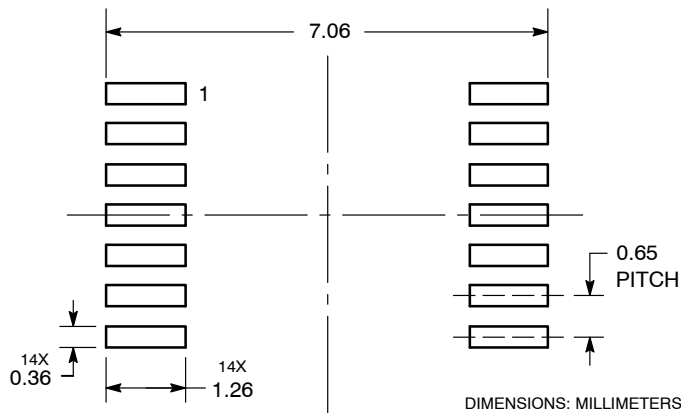
DATE 17 FEB 2016



- 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-.

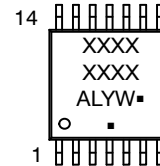
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	4.90	5.10	0.193	0.200
B	4.30	4.50	0.169	0.177
C	---	1.20	---	0.047
D	0.05	0.15	0.002	0.006
F	0.50	0.75	0.020	0.030
G	0.65 BSC		0.026 BSC	
H	0.50	0.60	0.020	0.024
J	0.09	0.20	0.004	0.008
J1	0.09	0.16	0.004	0.006
K	0.19	0.30	0.007	0.012
K1	0.19	0.25	0.007	0.010
L	6.40 BSC		0.252 BSC	
M	0°	8°	0°	8°

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.

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. Some products may not follow the Generic Marking.

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

onsemi and onsemi are trademarks of Semiconductor Components Industries, LLC dba onsemi or its subsidiaries in the United States and/or other countries. onsemi reserves the right to make changes without further notice to any products herein. onsemi makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does onsemi 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. onsemi does not convey any license under its patent rights nor the rights of others.

onsemi, **Onsemi**, and other names, marks, and brands are registered and/or common law trademarks of Semiconductor Components Industries, LLC dba "**onsemi**" or its affiliates and/or subsidiaries in the United States and/or other countries. **onsemi** owns the rights to a number of patents, trademarks, copyrights, trade secrets, and other intellectual property. A listing of **onsemi**'s product/patent coverage may be accessed at www.onsemi.com/site/pdf/Patent-Marking.pdf. **onsemi** reserves the right to make changes at any time to any products or information herein, without notice. The information herein is provided "as-is" and **onsemi** makes no warranty, representation or guarantee regarding the accuracy of the information, product features, availability, functionality, or suitability of its products for any particular purpose, nor does **onsemi** 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 **onsemi** products, including compliance with all laws, regulations and safety requirements or standards, regardless of any support or applications information provided by **onsemi**. "Typical" parameters which may be provided in **onsemi** 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. **onsemi** does not convey any license under any of its intellectual property rights nor the rights of others. **onsemi** 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 **onsemi** products for any such unintended or unauthorized application, Buyer shall indemnify and hold **onsemi** 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 **onsemi** was negligent regarding the design or manufacture of the part. **onsemi** is an Equal Opportunity/Affirmative Action Employer. This literature is subject to all applicable copyright laws and is not for resale in any manner.

ADDITIONAL INFORMATION

TECHNICAL PUBLICATIONS:

Technical Library: www.onsemi.com/design/resources/technical-documentation
onsemi Website: www.onsemi.com

ONLINE SUPPORT: www.onsemi.com/support

For additional information, please contact your local Sales Representative at www.onsemi.com/support/sales