

Single Schmitt-Trigger Inverter

MC74VHC1G14, MC74VHC1GT14

The MC74VHC1G14 / MC74VHC1GT14 is a single Schmitt-Trigger Inverter in tiny footprint packages. The MC74VHC1G14 has CMOS-level input thresholds while the MC74VHC1GT14 has TTL-level input thresholds.

The internal circuit is composed of three stages, including a buffered output which provides high noise immunity and stable output.

The input structures provide protection when voltages up to 5.5 V are applied, regardless of the supply voltage. This allows the device to be used to interface 5 V circuits to 3 V circuits. The output structures also provide protection when $V_{CC} = 0$ V and when the output voltage exceeds V_{CC} . These input and output structures help prevent device destruction caused by supply voltage – input/output voltage mismatch, battery backup, hot insertion, etc.

Features

- Designed for 2.0 V to 5.5 V V_{CC} Operation
- 4.0 ns t_{PD} at 5 V (typ)
- Inputs/Outputs Over-Voltage Tolerant up to 5.5 V
- I_{OFF} Supports Partial Power Down Protection
- Source/Sink 8 mA at 3.0 V
- Available in SC-88A, SC-74A, TSOP-5, SOT-553, SOT-953 and UDFN6 Packages
- Chip Complexity < 100 FETs
- NLV Prefix 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

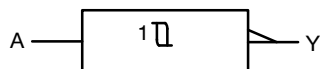


Figure 1. Logic Symbol



ON Semiconductor®

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MARKING DIAGRAMS		
	SC-88A DF SUFFIX CASE 419A	
	SC-74A DBV SUFFIX CASE 318BQ	
	TSOP-5 DT SUFFIX CASE 483	
	SOT-553 XV5 SUFFIX CASE 463B	
	SOT-953 P5 SUFFIX CASE 527AE	
	UDFN6 1.45 x 1.0 CASE 517AQ	
	UDFN6 1.2 x 1.0 CASE 517AA	
	UDFN6 1.0 x 1.0 CASE 517BX	
XX = Specific Device Code M = Date Code* ■ = Pb-Free Package		

(Note: Microdot may be in either location)

*Date Code orientation and/or position may vary depending upon manufacturing location.

ORDERING INFORMATION

See detailed ordering, marking and shipping information in the package dimensions section on page 7 of this data sheet.

MC74VHC1G14, MC74VHC1GT14

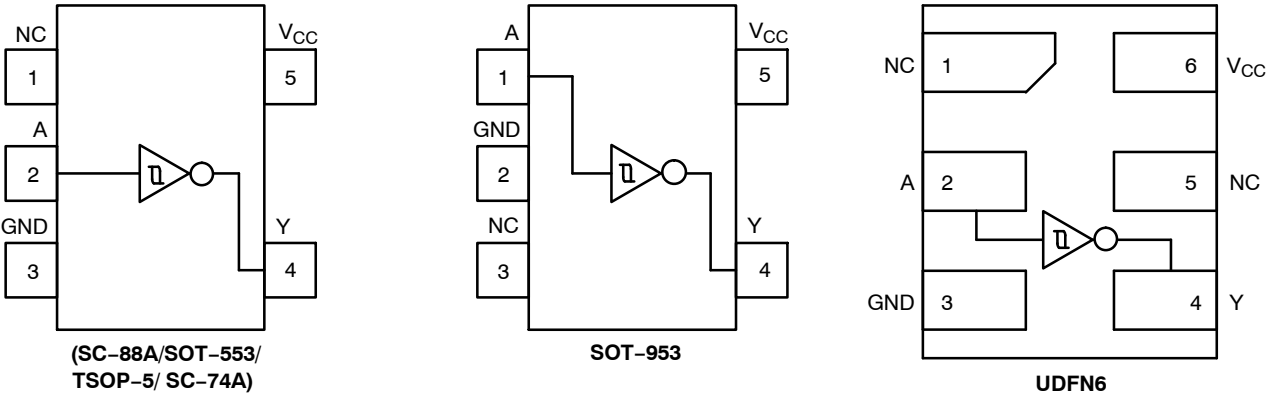


Figure 2. Pinout (Top View)

PIN ASSIGNMENT
(SC-88A/SOT-553/ TSOP-5/SC-74A)

Pin	Function
1	NC
2	A
3	GND
4	Y
5	V _{CC}

PIN ASSIGNMENT (SOT-953)

Pin	Function
1	A
2	GND
3	NC
4	Y
5	V _{CC}

PIN ASSIGNMENT (UDFN)

Pin	Function
1	NC
2	A
3	GND
4	Y
5	NC
6	V _{CC}

FUNCTION TABLE

A Input	Y Output
L	H
H	L

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MAXIMUM RATINGS

Symbol	Characteristics	Value	Unit
V_{CC}	DC Supply Voltage TSOP-5, SC-88A (NLV) SC-74A, SC-88A, UDFN6, SOT-553, SOT-953	-0.5 to +7.0 -0.5 to +6.5	V
V_{IN}	DC Input Voltage TSOP-5, SC-88A (NLV) SC-74A, SC-88A, UDFN6, SOT-553, SOT-953	-0.5 to +7.0 -0.5 to +6.5	V
V_{OUT}	DC Output Voltage TSOP-5, SC-88A (NLV) Active-Mode (High or Low State) Tri-State Mode (Note 1) Power-Down Mode ($V_{CC} = 0$ V)	-0.5 to $V_{CC} + 0.5$ -0.5 to +7.0 -0.5 to +7.0	V
	DC Output Voltage SC-74A, SC-88A, UDFN6, SOT-553, SOT-953 Active-Mode (High or Low State) Tri-State Mode (Note 1) Power-Down Mode ($V_{CC} = 0$ V)	-0.5 to $V_{CC} + 0.5$ -0.5 to +6.5 -0.5 to +6.5	V
I_{IK}	DC Input Diode Current $V_{IN} < GND$	-20	mA
I_{OK}	DC Output Diode Current $V_{OUT} < GND$	-20	mA
I_{OUT}	DC Output Source/Sink Current	± 25	mA
I_{CC} or I_{GND}	DC Supply Current per Supply Pin or Ground Pin	± 50	mA
T_{STG}	Storage Temperature Range	-65 to +150	°C
T_L	Lead Temperature, 1 mm from Case for 10 secs	260	°C
T_J	Junction Temperature Under Bias	+150	°C
θ_{JA}	Thermal Resistance (Note 2) SC-88A SC-74A TSOP-5 SOT-553 SOT-953 UDFN6	659 555 555 562 560 382	°C/W
P_D	Power Dissipation in Still Air SC-88A SC-74A TSOP-5 SOT-553 SOT-953 UDFN6	190 225 225 222 223 327	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 3) Human Body Model Charged Device Model	2000 1000	V
$I_{Latchup}$	Latchup Performance (Note 4)	± 100	mA

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. Applicable to devices with outputs that may be tri-stated.
2. Measured with minimum pad spacing on an FR4 board, using 10mm-by-1inch, 2 ounce copper trace no air flow.
3. HBM tested to ANSI/ESDA/JEDEC JS-001-2017. CDM tested to EIA/JESD22-C101-F. JEDEC recommends that ESD qualification to EIA/JESD22-A115-A (Machine Model) be discontinued per JEDEC/JEP172A.
4. Tested to EIA/JESD78 Class II.

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RECOMMENDED OPERATING CONDITIONS

Symbol	Characteristics	Min	Max	Unit
V_{CC}	Positive DC Supply Voltage	2.0	5.5	V
V_{IN}	DC Input Voltage	0	5.5	V
V_{OUT}	DC Output Voltage TSOP-5, SC-88A (NLV)	0	V_{CC}	V
	DC Output Voltage SC-74A, SC-88A, UDFN6, SOT-553, SOT-953	0	V_{CC}	
	Active-Mode (High or Low State)	0	5.5	
	Tri-State Mode (Note 1)	0	5.5	
	Power-Down Mode ($V_{CC} = 0$ V)	0	5.5	
T_A	Operating Temperature Range	-55	+125	°C
t_r, t_f	Input Rise and Fall Time TSOP-5, SC-88A (NLV)	$V_{CC} = 3.0$ V to 3.6 V	No Limit	ns/V
		$V_{CC} = 4.5$ V to 5.5 V	No Limit	
	Input Rise and Fall Time SC-74A, SC-88A, UDFN6, SOT-553, SOT-953	$V_{CC} = 2.0$ V	No Limit	
		$V_{CC} = 2.3$ V to 2.7 V	No Limit	
		$V_{CC} = 3.0$ V to 3.6 V	No Limit	
		$V_{CC} = 4.5$ V to 5.5 V	No Limit	

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 (MC74VHC1G14)

Symbol	Parameter	Test Conditions	V_{CC} (V)	$T_A = 25^\circ\text{C}$			$-40^\circ\text{C} \leq T_A \leq 85^\circ\text{C}$		$-55^\circ\text{C} \leq T_A \leq 125^\circ\text{C}$		Unit
				Min	Typ	Max	Min	Max	Min	Max	
V_{T+}	Positive Threshold Voltage		3.0	–	2.0	2.20	–	2.20	–	2.20	V
			4.5	–	3.0	3.15	–	3.15	–	3.15	
			5.5	–	3.6	3.85	–	3.85	–	3.85	
V_{T-}	Negative Threshold Voltage		3.0	0.9	1.5	–	0.9	–	0.9	–	V
			4.5	1.35	2.3	–	1.35	–	1.35	–	
			5.5	1.65	2.9	–	1.65	–	1.65	–	
V_H	Hysteresis Voltage		3.0	0.30	0.57	1.20	0.30	1.20	0.30	1.20	V
			4.5	0.40	0.67	1.40	0.40	1.40	0.40	1.40	
			5.5	0.50	0.74	1.60	0.50	1.60	0.50	1.60	
V_{OH}	High-Level Output Voltage	$V_{IN} = V_{IH}$ or V_{IL}									V
		$I_{OH} = -50$ μA	2.0	1.9	2.0	–	1.9	–	1.9	–	
		$I_{OH} = -50$ μA	3.0	2.9	3.0	–	2.9	–	2.9	–	
		$I_{OH} = -50$ μA	4.5	4.4	4.5	–	4.4	–	4.4	–	
		$I_{OH} = -4$ mA	3.0	2.58	–	–	2.48	–	2.34	–	
		$I_{OH} = -8$ mA	4.5	3.94	–	–	3.80	–	3.66	–	
V_{OL}	Low-Level Output Voltage	$V_{IN} = V_{IH}$ or V_{IL}									V
		$I_{OL} = 50$ μA	2.0	–	0.0	0.1	–	0.1	–	0.1	
		$I_{OL} = 50$ μA	3.0	–	0.0	0.1	–	0.1	–	0.1	
		$I_{OL} = 50$ μA	4.5	–	0.0	0.1	–	0.1	–	0.1	
		$I_{OL} = 4$ mA	3.0	–	–	0.36	–	0.44	–	0.52	
		$I_{OL} = 8$ mA	4.5	–	–	0.36	–	0.44	–	0.52	
I_{IN}	Input Leakage Current	$V_{IN} = 5.5$ V or GND	1.65 to 5.5	–	–	± 0.1	–	± 1.0	–	± 1.0	μA
I_{OFF}	Power Off Leakage Current	$V_{IN} = 5.5$ V or $V_{OUT} = 5.5$ V	0	–	–	1.0	–	10	–	10	μA
I_{CC}	Quiescent Supply Current	$V_{IN} = V_{CC}$ or GND	5.5	–	–	1.0	–	20	–	40	μA

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DC ELECTRICAL CHARACTERISTICS (MC74VHC1GT14)

Symbol	Parameter	Test Conditions	V _{CC} (V)	T _A = 25°C			-40°C ≤ T _A ≤ 85°C		-55°C ≤ T _A ≤ 125°C		Unit
				Min	Typ	Max	Min	Max	Min	Max	
V _{T+}	Positive Threshold Voltage		3.0 4.5 5.5	– – –	1.40 1.74 1.94	1.60 2.00 2.10	– – –	1.6 2.0 2.1	– – –	1.6 2.0 2.1	V
V _{T–}	Negative Threshold Voltage		3.0 4.5 5.5	0.35 0.5 0.6	0.76 1.01 1.13	– – –	0.35 0.5 0.6	– – –	0.35 0.5 0.6	– – –	V
V _H	Hysteresis Voltage		3.0 4.5 5.5	0.30 0.40 0.50	0.64 0.73 0.81	1.20 1.40 1.60	0.30 0.40 0.50	1.20 1.40 1.60	0.30 0.40 0.50	1.20 1.40 1.60	V
V _{OH}	High-Level Output Voltage	V _{IN} = V _{IH} or V _{IL} I _{OH} = –50 μA I _{OH} = –50 μA I _{OH} = –50 μA I _{OH} = –4 mA I _{OH} = –8 mA	2.0 3.0 4.5 3.0 4.5	1.9 2.9 4.4 2.58 3.94	2.0 3.0 4.5 – –	– – – – –	1.9 2.9 4.4 2.48 3.80	– – – – –	1.9 2.9 4.4 2.34 3.66	– – – – –	V
V _{OL}	Low-Level Output Voltage	V _{IN} = V _{IH} or V _{IL} I _{OL} = 50 μA I _{OL} = 50 μA I _{OL} = 50 μA I _{OL} = 4 mA I _{OL} = 8 mA	2.0 3.0 4.5 3.0 4.5	– – – – –	0.0 0.0 0.0 – –	0.1 0.1 0.1 0.36 0.36	– – – – –	0.1 0.1 0.1 0.44 0.44	– – – – –	0.1 0.1 0.1 0.52 0.52	V
I _{IN}	Input Leakage Current	V _{IN} = 5.5 V or GND	1.65 to 5.5	–	–	±0.1	–	±1.0	–	±1.0	μA
I _{OFF}	Power Off Leakage Current	V _{IN} = 5.5 V or V _{OUT} = 5.5 V	0	–	–	1.0	–	10	–	10	μA
I _{CC}	Quiescent Supply Current	V _{IN} = V _{CC} or GND	5.5	–	–	1.0	–	20	–	40	μA
I _{CC} T	Increase in Quiescent Supply Current per Input Pin	One Input: V _{IN} = 3.4 V; Other Input at V _{CC} or GND	5.5	–	–	1.35	–	1.5	–	1.65	mA

AC ELECTRICAL CHARACTERISTICS (Input t_r = t_f = 3.0 ns)

Symbol	Parameter	Conditions	V _{CC} (V)	T _A = 25°C			-40°C ≤ T _A ≤ 85°C		-55°C ≤ T _A ≤ 125°C		Unit
				Min	Typ	Max	Min	Max	Min	Max	
t _{PLH} , t _{PHL}	Propagation Delay, A to Y (Figures 3 and 4)	C _L = 15 pF	3.0 to 3.6	–	7.0	12.8	–	15.0	–	17.0	ns
		C _L = 50 pF		–	8.5	16.3	–	18.5	–	20.5	
		C _L = 15 pF	4.5 to 5.5	–	4.0	8.6	–	10.0	–	11.5	
		C _L = 50 pF		–	5.5	10.6	–	12.0	–	13.5	
C _{IN}	Input Capacitance			–	4.0	10	–	10	–	10	pF
C _{OUT}	Output Capacitance	Output in High Impedance State		–	6.0	–	–	–	–	–	pF

C _{PD}	Power Dissipation Capacitance (Note 5)	Typical @ 25°C, V _{CC} = 5.0 V	pF
		8.0	

5. C_{PD} is defined as the value of the internal equivalent capacitance which is calculated from the operating current consumption without load. Average operating current can be obtained by the equation: I_{CC(OPR)} = C_{PD} • V_{CC} • f_{in} + I_{CC}. C_{PD} is used to determine the no-load dynamic power consumption; P_D = C_{PD} • V_{CC}² • f_{in} + I_{CC} • V_{CC}.

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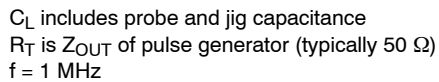


Figure 3. Test Circuit

X = Don't Care



V _{CC} , V	V _{mi} , V	V _{mo} , V		V _Y , V
		t _{PLH} , t _{PHL}	t _{PZL} , t _{PLZ} , t _{PZH} , t _{PHZ}	
3.0 to 3.6	V _{CC} /2	(V _{OH} - V _{OL})/2	V _{CC} /2	0.3
4.5 to 5.5	V _{CC} /2	(V _{OH} - V _{OL})/2	V _{CC} /2	0.3

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ORDERING INFORMATION

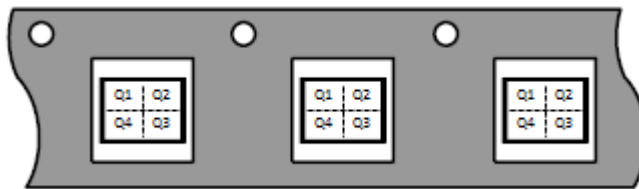
Device	Packages	Specific Device Code	Pin 1 Orientation (See below)	Shipping [†]
MC74VHC1G14DFT1G	SC-88A	VA	Q2	3000 / Tape & Reel
MC74VHC1G14DFT2G	SC-88A	VA	Q4	3000 / Tape & Reel
NLVVHC1G14DFT1G*	SC-88A	VA	Q2	3000 / Tape & Reel
NLVVHC1G14DFT2G*	SC-88A	VA	Q4	3000 / Tape & Reel
M74VHC1GT14DFT1G	SC-88A	VC	Q2	3000 / Tape & Reel
M74VHC1GT14DFT2G	SC-88A	VC	Q4	3000 / Tape & Reel
NLVVHC1GT14DFT1G*	SC-88A	VC	Q2	3000 / Tape & Reel
NLVVHC1GT14DFT2G*	SC-88A	VC	Q4	3000 / Tape & Reel
MC74VHC1G14DBVT1G	SC-74A	VA	Q4	3000 / Tape & Reel
MC74VHC1GT14DBVT1G	SC-74A	VC	Q4	3000 / Tape & Reel
MC74VHC1G14DTT1G	TSOP-5	VA	Q4	3000 / Tape & Reel
NLVVHC1G14DTT1G*	TSOP-5	VAR	Q4	3000 / Tape & Reel
M74VHC1GT14DTT1G	TSOP-5	VC	Q4	3000 / Tape & Reel
MC74VHC1G14XV5T2G (In Development)	SOT-553	TBD	Q4	3000 / Tape & Reel
MC74VHC1GT14XV5T2G (In Development)	SOT-553	TBD	Q4	3000 / Tape & Reel
MC74VHC1G14P5T5G	SOT-953	R	Q2	4000 / Tape & Reel
MC74VHC1GT14P5T5G (In Development)	SOT-953	TBD	Q2	4000 / Tape & Reel
MC74VHC1G14MU1TCG (In Development)	UDFN6, 1.45 x 1.0, 0.5P	TBD	Q4	3000 / Tape & Reel
MC74VHC1GT14MU1TCG	UDFN6, 1.45 x 1.0, 0.5P	Q	Q4	3000 / Tape & Reel
MC74VHC1G14MU2TCG (In Development)	UDFN6, 1.2 x 1.0, 0.4P	P	Q4	3000 / Tape & Reel
MC74VHC1GT14MU2TCG	UDFN6, 1.2 x 1.0, 0.4P	M	Q4	3000 / Tape & Reel
MC74VHC1G14MU3TCG (In Development)	UDFN6, 1.0 x 1.0, 0.35	TBD	Q4	3000 / Tape & Reel
MC74VHC1GT14MU3TCG	UDFN6, 1.0 x 1.0, 0.35	M	Q4	3000 / 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-Q100 Qualified and PPAP Capable.

Pin 1 Orientation in Tape and Reel

Direction of Feed



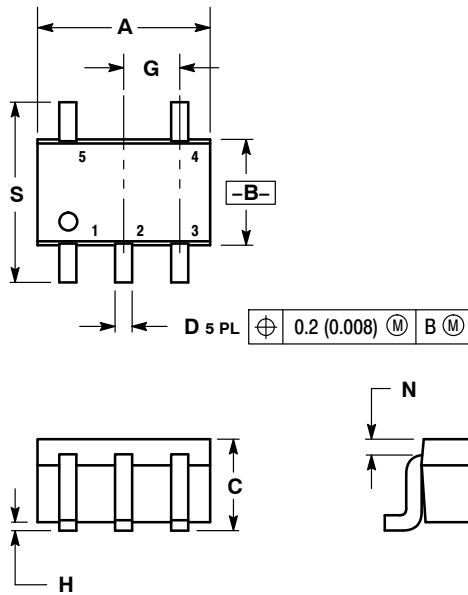
MC74VHC1G14, MC74VHC1GT14

PACKAGE DIMENSIONS

SC-88A (SC-70-5/SOT-353)

CASE 419A-02

ISSUE L

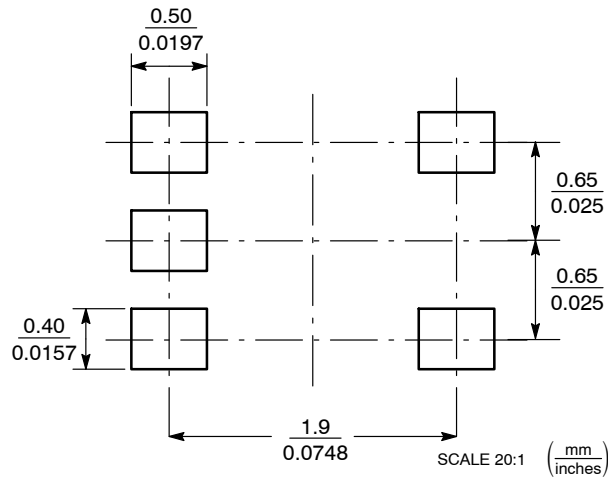


NOTES:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. 419A-01 OBSOLETE. NEW STANDARD 419A-02.
4. DIMENSIONS A AND B DO NOT INCLUDE MOLD FLASH, PROTRUSIONS, OR GATE BURRS.

DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.071	0.087	1.80	2.20
B	0.045	0.053	1.15	1.35
C	0.031	0.043	0.80	1.10
D	0.004	0.012	0.10	0.30
G	0.026 BSC		0.65 BSC	
H	---	0.004	---	0.10
J	0.004	0.010	0.10	0.25
K	0.004	0.012	0.10	0.30
N	0.008 REF		0.20 REF	
S	0.079	0.087	2.00	2.20

SOLDER FOOTPRINT*

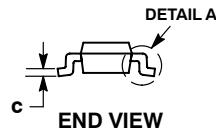
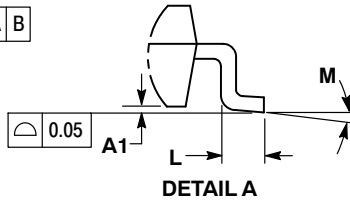
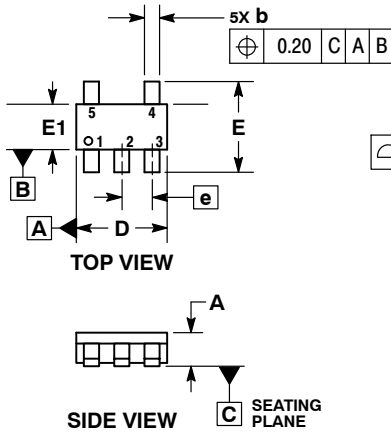


*For additional information on our Pb-Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

MC74VHC1G14, MC74VHC1GT14

PACKAGE DIMENSIONS

SC-74A CASE 318BQ ISSUE B

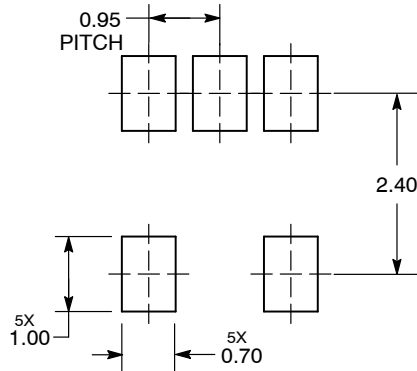


NOTES:

1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994.
2. CONTROLLING DIMENSION: MILLIMETERS.
3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH THICKNESS. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF BASE MATERIAL.
4. DIMENSIONS A AND B DO NOT INCLUDE MOLD FLASH, PROTRUSIONS, OR GATE BURRS. MOLD FLASH, PROTRUSIONS, OR GATE BURRS SHALL NOT EXCEED 0.15 PER SIDE.

DIM	MILLIMETERS	
	MIN	MAX
A	0.90	1.10
A1	0.01	0.10
b	0.25	0.50
c	0.10	0.26
D	2.85	3.15
E	2.50	3.00
E1	1.35	1.65
e	0.95 BSC	
L	0.20	0.60
M	0°	10°

RECOMMENDED SOLDERING FOOTPRINT*



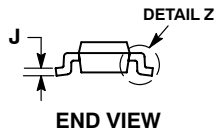
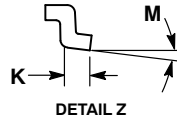
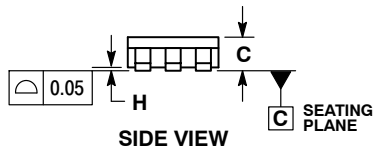
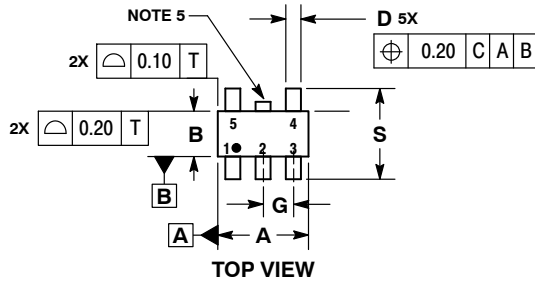
DIMENSIONS: MILLIMETERS

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

MC74VHC1G14, MC74VHC1GT14

PACKAGE DIMENSIONS

TSOP-5 CASE 483-02 ISSUE M

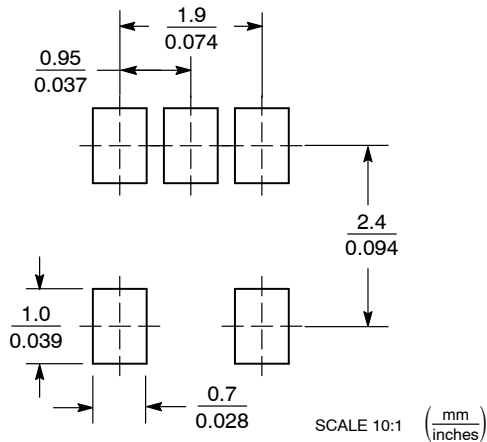


NOTES:

1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994.
2. CONTROLLING DIMENSION: MILLIMETERS.
3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH THICKNESS. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF BASE MATERIAL.
4. DIMENSIONS A AND B DO NOT INCLUDE MOLD FLASH, PROTRUSIONS, OR GATE BURRS. MOLD FLASH, PROTRUSIONS, OR GATE BURRS SHALL NOT EXCEED 0.15 PER SIDE. DIMENSION A.
5. OPTIONAL CONSTRUCTION: AN ADDITIONAL TRIMMED LEAD IS ALLOWED IN THIS LOCATION. TRIMMED LEAD NOT TO EXTEND MORE THAN 0.2 FROM BODY.

DIM	MILLIMETERS	
	MIN	MAX
A	2.85	3.15
B	1.35	1.65
C	0.90	1.10
D	0.25	0.50
G	0.95 BSC	
H	0.01	0.10
J	0.10	0.26
K	0.20	0.60
M	0°	10°
S	2.50	3.00

SOLDERING FOOTPRINT*

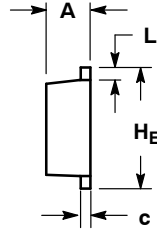
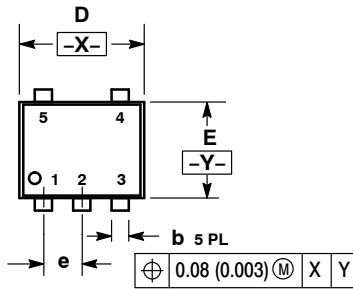


*For additional information on our Pb-Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

MC74VHC1G14, MC74VHC1GT14

PACKAGE DIMENSIONS

SOT-553, 5 LEAD CASE 463B ISSUE C

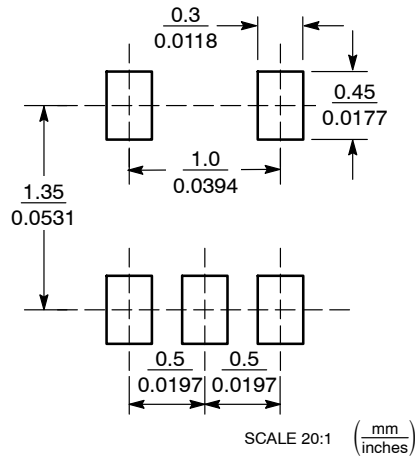


NOTES:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: MILLIMETERS
3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH THICKNESS. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF BASE MATERIAL.

DIM	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.50	0.55	0.60	0.020	0.022	0.024
b	0.17	0.22	0.27	0.007	0.009	0.011
c	0.08	0.13	0.18	0.003	0.005	0.007
D	1.55	1.60	1.65	0.061	0.063	0.065
E	1.15	1.20	1.25	0.045	0.047	0.049
e	0.50 BSC			0.020 BSC		
L	0.10	0.20	0.30	0.004	0.008	0.012
H_E	1.55	1.60	1.65	0.061	0.063	0.065

SOLDERING FOOTPRINT*

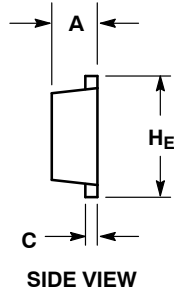
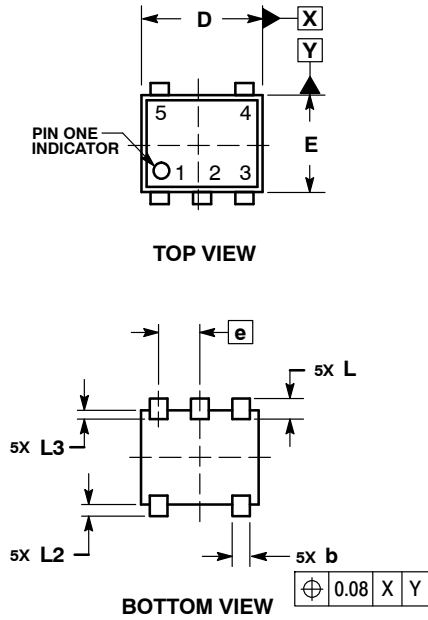


*For additional information on our Pb-Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

MC74VHC1G14, MC74VHC1GT14

PACKAGE DIMENSIONS

SOT-953
CASE 527AE
ISSUE E

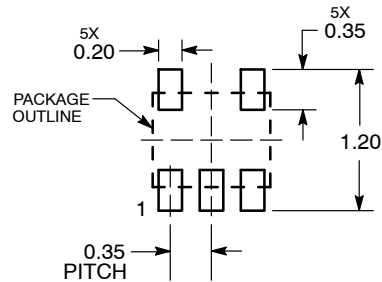


NOTES:

1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994.
2. CONTROLLING DIMENSION: MILLIMETERS
3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF THE BASE MATERIAL.
4. DIMENSIONS D AND E DO NOT INCLUDE MOLD FLASH, PROTRUSIONS, OR GATE BURRS.

MILLIMETERS			
DIM	MIN	NOM	MAX
A	0.34	0.37	0.40
b	0.10	0.15	0.20
C	0.07	0.12	0.17
D	0.95	1.00	1.05
E	0.75	0.80	0.85
e	0.35 BSC		
H _E	0.95	1.00	1.05
L	0.175 REF		
L2	0.05	0.10	0.15
L3	---	---	0.15

SOLDERING FOOTPRINT*



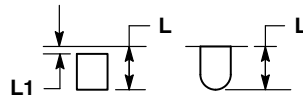
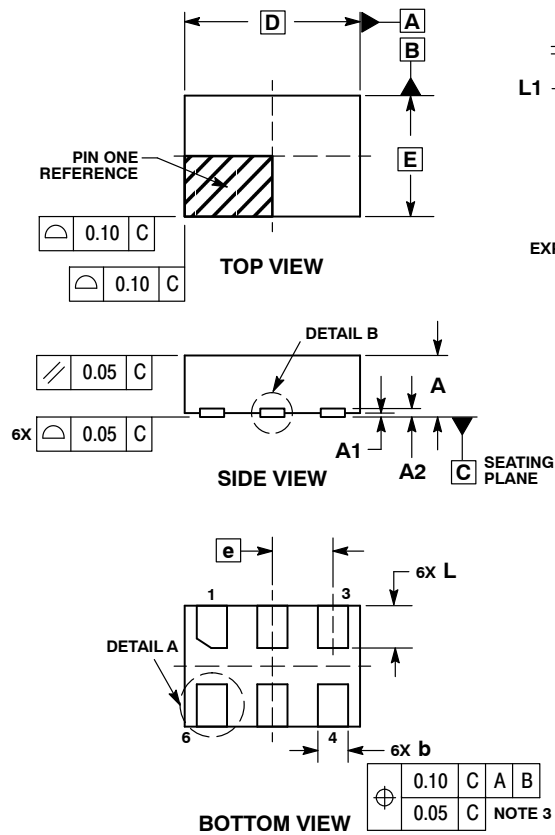
DIMENSIONS: MILLIMETERS

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

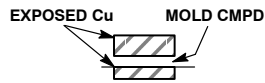
MC74VHC1G14, MC74VHC1GT14

PACKAGE DIMENSIONS

UDFN6, 1.45x1.0, 0.5P
CASE 517AQ
ISSUE O



DETAIL A
OPTIONAL
CONSTRUCTIONS



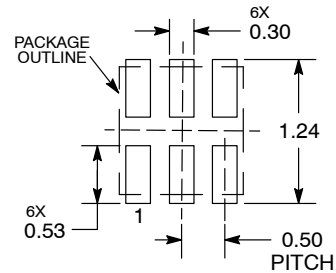
DETAIL B
OPTIONAL
CONSTRUCTIONS

NOTES:

1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994.
2. CONTROLLING DIMENSION: MILLIMETERS.
3. DIMENSION b APPLIES TO PLATED TERMINAL AND IS MEASURED BETWEEN 0.15 AND 0.30 mm FROM THE TERMINAL TIP.

MILLIMETERS		
DIM	MIN	MAX
A	0.45	0.55
A1	0.00	0.05
A2	0.07	REF
b	0.20	0.30
D	1.45	BSC
E	1.00	BSC
e	0.50	BSC
L	0.30	0.40
L1	---	0.15

MOUNTING FOOTPRINT



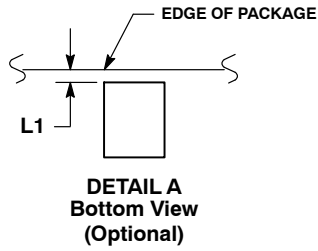
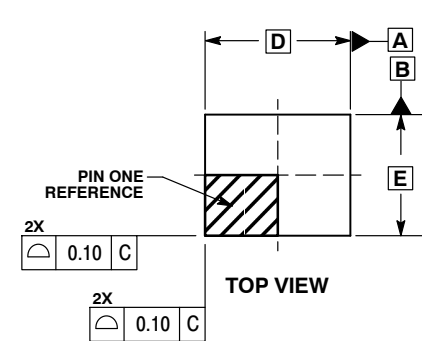
DIMENSIONS: MILLIMETERS

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

MC74VHC1G14, MC74VHC1GT14

PACKAGE DIMENSIONS

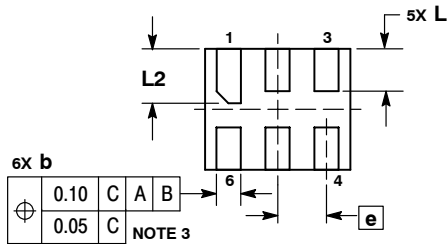
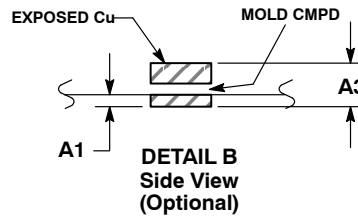
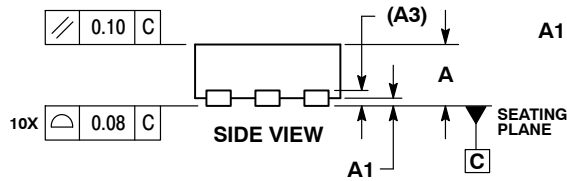
UDFN6, 1.2x1.0, 0.4P
CASE 517AA-01
ISSUE D



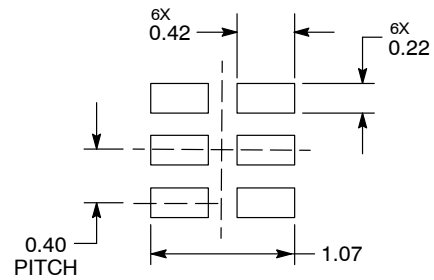
NOTES:

1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994.
2. CONTROLLING DIMENSION: MILLIMETERS.
3. DIMENSION b APPLIES TO PLATED TERMINAL AND IS MEASURED BETWEEN 0.25 AND 0.30 mm FROM TERMINAL.
4. COPLANARITY APPLIES TO THE EXPOSED PAD AS WELL AS THE TERMINALS.

MILLIMETERS		
DIM	MIN	MAX
A	0.45	0.55
A1	0.00	0.05
A3	0.127	REF
b	0.15	0.25
D	1.20	BSC
E	1.00	BSC
e	0.40	BSC
L	0.30	0.40
L1	0.00	0.15
L2	0.40	0.50



MOUNTING FOOTPRINT*



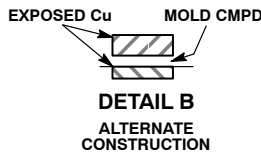
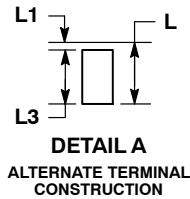
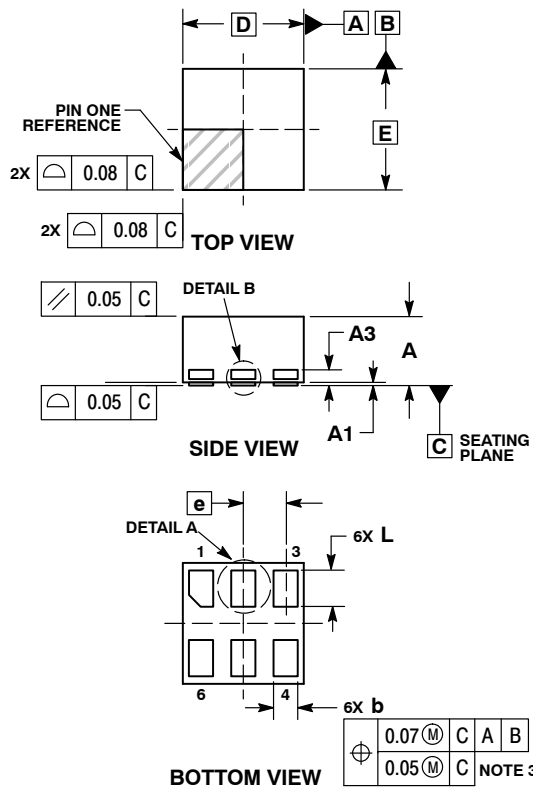
DIMENSIONS: MILLIMETERS

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

MC74VHC1G14, MC74VHC1GT14

PACKAGE DIMENSIONS

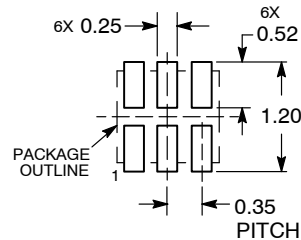
UDFN6, 1x1, 0.35P
CASE 517BX
ISSUE O



- NOTES:
1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994.
 2. CONTROLLING DIMENSION: MILLIMETERS.
 3. DIMENSION b APPLIES TO PLATED TERMINAL AND IS MEASURED BETWEEN 0.15 AND 0.20 MM FROM TERMINAL TIP.
 4. PACKAGE DIMENSIONS EXCLUSIVE OF BURRS AND MOLD FLASH.

DIM	MILLIMETERS	
	MIN	MAX
A	0.50	0.65
A1	0.00	0.05
A3	0.13	REF
b	0.17	0.23
D	1.00	BSC
E	1.00	BSC
e	0.35	
L	0.20	0.40
L1	---	0.15
L3	0.26	0.33

RECOMMENDED SOLDERING FOOTPRINT*



DIMENSION: MILLIMETERS

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