



**THE DATASHEET OF  
NLVVHC1G07DFT1G**



# Single Non-Inverting Buffer with Open Drain Output

## MC74VHC1G07, MC74VHC1GT07

The MC74VHC1G07 / MC74VHC1GT07 is a single non-inverting buffer with open drain output in tiny footprint packages. The MC74VHC1G07 has CMOS-level input thresholds while the MC74VHC1GT07 has TTL-level input thresholds.

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. Some 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
- 3.5 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
- -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

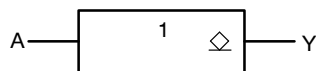

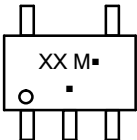

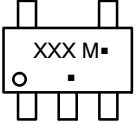

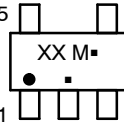
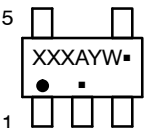



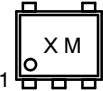








Figure 1. Logic Symbol

### 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)

### ORDERING INFORMATION

See detailed ordering, marking and shipping information on page 7 of this data sheet.

# MC74VHC1G07, MC74VHC1GT07

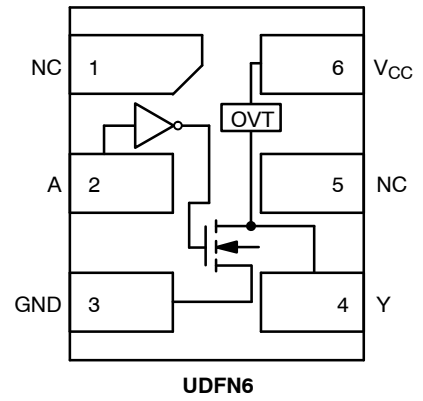
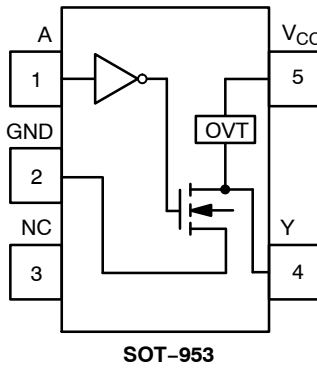
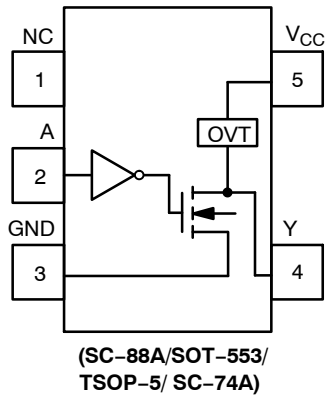


Figure 2. Pinout (Top View)

## PIN ASSIGNMENT

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

Pin	Function
1	NC
2	A
3	GND
4	Y
5	V <sub>CC</sub>

## PIN ASSIGNMENT (SOT-953)

Pin	Function
1	A
2	GND
3	NC
4	Y
5	V <sub>CC</sub>

## PIN ASSIGNMENT (UDFN)

Pin	Function
1	NC
2	A
3	GND
4	Y
5	NC
6	V <sub>CC</sub>

## FUNCTION TABLE

A Input	Y Output
L	L
H	Z

# MC74VHC1G07, MC74VHC1GT07

## MAXIMUM RATINGS

Symbol	Characteristics	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 +6.5	V	
V <sub>OUT</sub>	DC Output Voltage Active-Mode (High or Low State) Tri-State Mode (Note 1) Power-Down Mode (V <sub>CC</sub> = 0 V)	-0.5 to V <sub>CC</sub> + 0.5 -0.5 to +6.5 -0.5 to +6.5	V	
I <sub>IK</sub>	DC Input Diode Current V <sub>IN</sub> < GND	-20	mA	
I <sub>OK</sub>	DC Output Diode Current V <sub>OUT</sub> < GND	-20	mA	
I <sub>OUT</sub>	DC Output Source/Sink Current	±25	mA	
I <sub>CC</sub> or I <sub>GND</sub>	DC Supply Current per Supply Pin or Ground Pin	±50	mA	
T <sub>STG</sub>	Storage Temperature Range	-65 to +150	°C	
T <sub>L</sub>	Lead Temperature, 1 mm from Case for 10 secs	260	°C	
T <sub>J</sub>	Junction Temperature Under Bias	+150	°C	
θ <sub>JA</sub>	Thermal Resistance (Note 2)	SC-88A SC-74A SOT-553 SOT-953 UDFN6	377 320 324 254 154	°C/W
P <sub>D</sub>	Power Dissipation in Still Air	SC-88A SC-74A SOT-553 SOT-953 UDFN6	332 390 386 491 812	mW
MSL	Moisture Sensitivity	Level 1	-	
F <sub>R</sub>	Flammability Rating	Oxygen Index: 28 to 34 UL 94 V-0 @ 0.125 in	-	
V <sub>ESD</sub>	ESD Withstand Voltage (Note 3)	Human Body Model Charged Device Model	2000 1000	V
I <sub>Latchup</sub>	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 per JESD51-7.
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.

# MC74VHC1G07, MC74VHC1GT07

## 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	0	$V_{CC}$	V
	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			ns/V
	$V_{CC} = 2.0$ V	0	20	
	$V_{CC} = 2.3$ V to 2.7 V	0	20	
	$V_{CC} = 3.0$ V to 3.6 V	0	10	
	$V_{CC} = 4.5$ V to 5.5 V	0	5	

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 (MC74VHC1G07)

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	
$V_{IH}$	High-Level Input Voltage		2.0	1.5	-	-	1.5	-	1.5	-	V
			3.0	2.1	-	-	2.1	-	2.1	-	
			4.5	3.15	-	-	3.15	-	3.15	-	
			5.5	3.85	-	-	3.85	-	3.85	-	
$V_{IL}$	Low-Level Input Voltage		2.0	-	-	0.5	-	0.5	-	0.5	V
			3.0	-	-	0.9	-	0.9	-	0.9	
			4.5	-	-	1.35	-	1.35	-	1.35	
			5.5	-	-	1.65	-	1.65	-	1.65	
$V_{OL}$	Low-Level Output Voltage	$V_{IN} = V_{IH}$ or $V_{IL}$ $I_{OL} = 50 \mu\text{A}$ $I_{OL} = 50 \mu\text{A}$ $I_{OL} = 50 \mu\text{A}$ $I_{OL} = 4 \text{ mA}$ $I_{OL} = 8 \text{ mA}$	2.0	-	0.0	0.1	-	0.1	-	0.1	V
			3.0	-	0.0	0.1	-	0.1	-	0.1	
			4.5	-	0.0	0.1	-	0.1	-	0.1	
			3.0	-	-	0.36	-	0.44	-	0.52	
			4.5	-	-	0.36	-	0.44	-	0.52	
$I_{IN}$	Input Leakage Current	$V_{IN} = 5.5$ V or GND	2.0 to 5.5	-	-	$\pm 0.1$	-	$\pm 1.0$	-	$\pm 1.0$	$\mu\text{A}$
$I_{OZ}$	3-State Output Leakage Current	$V_{OUT} = 0$ V to 5.5 V	5.5	-	-	$\pm 0.25$	-	$\pm 2.5$	-	$\pm 2.5$	$\mu\text{A}$
$I_{OFF}$	Power Off Leakage Current	$V_{IN} = 5.5$ V or $V_{OUT} = 5.5$ V	0.0	-	-	1.0	-	10	-	10	$\mu\text{A}$
$I_{CC}$	Quiescent Supply Current	$V_{IN} = V_{CC}$ or GND	5.5	-	-	1.0	-	20	-	40	$\mu\text{A}$

# MC74VHC1G07, MC74VHC1GT07

## DC ELECTRICAL CHARACTERISTICS (MC74VHC1GT07)

Symbol	Parameter	Test Conditions	V <sub>CC</sub> (V)	T <sub>A</sub> = 25°C			-40°C ≤ T <sub>A</sub> ≤ 85°C		-55°C ≤ T <sub>A</sub> ≤ 125°C		Unit	
				Min	Typ	Max	Min	Max	Min	Max		
V <sub>IH</sub>	High-Level Input Voltage		2.0	1.0	-		1.0	-	1.0	-	V	
			3.0	1.4	-		1.4	-	1.4	-		
			4.5	2.0	-		2.0	-	2.0	-		
			5.5	2.0	-		2.0	-	2.0	-		
V <sub>IL</sub>	Low-Level Input Voltage		2.0	-	-	0.28	-	0.28	-	0.28	V	
			3.0	-	-	0.45	-	0.45	-	0.45		
			4.5	-	-	0.8	-	0.8	-	0.8		
			5.5	-	-	0.8	-	0.8	-	0.8		
V <sub>OL</sub>	Low-Level Output Voltage	V <sub>IN</sub> = V <sub>IH</sub> or V <sub>IL</sub> I <sub>OL</sub> = 50 μA	2.0	-	0.0	0.1	-	0.1	-	0.1	V	
			3.0	-	0.0	0.1	-	0.1	-	0.1		
			4.5	-	0.0	0.1	-	0.1	-	0.1		
			I <sub>OL</sub> = 50 μA	3.0	-	-	0.36	-	0.44	-		0.52
			I <sub>OL</sub> = 4 mA	4.5	-	-	0.36	-	0.44	-		0.52
I <sub>IN</sub>	Input Leakage Current	V <sub>IN</sub> = 5.5 V or GND	2.0 to 5.5	-	-	±0.1	-	±1.0	-	±1.0	μA	
			5.5	-	-	±0.25	-	±2.5	-	±2.5		
I <sub>OZ</sub>	3-State Output Leakage Current	V <sub>OUT</sub> = 0 V to 5.5 V	5.5	-	-	±0.25	-	±2.5	-	±2.5	μA	
I <sub>OFF</sub>	Power Off Leakage Current	V <sub>IN</sub> = 5.5 V or V <sub>OUT</sub> = 5.5 V	0	-	-	1.0	-	10	-	10	μA	
I <sub>CC</sub>	Quiescent Supply Current	V <sub>IN</sub> = V <sub>CC</sub> or GND	5.5	-	-	1.0	-	20	-	40	μA	
I <sub>CC(T)</sub>	Increase in Quiescent Supply Current per Input Pin	One Input: V <sub>IN</sub> = 3.4 V; Other Input at V <sub>CC</sub> or GND	5.5	-	-	1.35	-	1.5	-	1.65	mA	

## AC ELECTRICAL CHARACTERISTICS

Symbol	Parameter	Conditions	V <sub>CC</sub> (V)	T <sub>A</sub> = 25°C			-40°C ≤ T <sub>A</sub> ≤ 85°C		-55°C ≤ T <sub>A</sub> ≤ 125°C		Unit
				Min	Typ	Max	Min	Max	Min	Max	
t <sub>PZL</sub>	Propagation Delay, A to Y (Figures 3 and 4)	C <sub>L</sub> = 15 pF	3.0 to 3.6	-	5.0	7.1	-	8.5	-	10.0	ns
		C <sub>L</sub> = 50 pF		-	7.5	10.6	-	12.0	-	14.5	
		C <sub>L</sub> = 15 pF	4.5 to 5.5	-	3.8	5.5	-	6.5	-	8.0	
		C <sub>L</sub> = 50 pF		-	5.3	7.5	-	8.5	-	10.0	
t <sub>PLZ</sub>	Propagation Delay, A to Y (Figures 3 and 4)	C <sub>L</sub> = 15 pF	3.0 to 3.6	-	6.5	9.7	-	11.5	-	12.5	ns
		C <sub>L</sub> = 50 pF		-	7.5	10.6	-	12.0	-	14.5	
		C <sub>L</sub> = 15 pF	4.5 to 5.5	-	4.8	6.8	-	8.0	-	9.0	
		C <sub>L</sub> = 50 pF		-	5.3	7.5	-	10.0	-	12.0	
C <sub>IN</sub>	Input Capacitance			-	4.0	10	-	10	-	10	pF
C <sub>OUT</sub>	Output Capacitance	Output in High Impedance State		-	6.0	-	-	-	-	-	pF

C <sub>PD</sub>	Power Dissipation Capacitance (Note 5)	<b>Typical @ 25°C, V<sub>CC</sub> = 5.0 V</b>	pF
		8.0	

5. C<sub>PD</sub> 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<sub>CC(OPR)</sub> = C<sub>PD</sub> • V<sub>CC</sub> • f<sub>in</sub> + I<sub>CC</sub>. C<sub>PD</sub> is used to determine the no-load dynamic power consumption; P<sub>D</sub> = C<sub>PD</sub> • V<sub>CC</sub><sup>2</sup> • f<sub>in</sub> + I<sub>CC</sub> • V<sub>CC</sub>.



# MC74VHC1G07, MC74VHC1GT07

## ORDERING INFORMATION

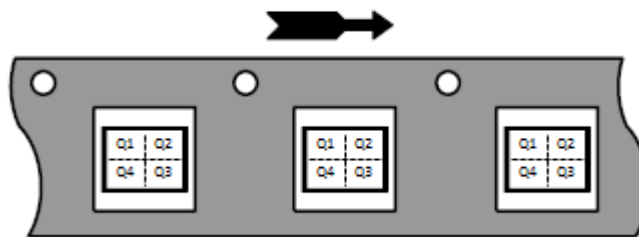
Device	Packages	Specific Device Code	Pin 1 Orientation (See below)	Shipping <sup>†</sup>
MC74VHC1G07DFT1G	SC-88A	V7	Q2	3000 / Tape & Reel
MC74VHC1G07DFT2G	SC-88A	V7	Q4	3000 / Tape & Reel
MC74VHC1G07DFT1G-Q* (Contact <b>onsemi</b> )	SC-88A	V7	Q2	3000 / Tape & Reel
MC74VHC1G07DFT2G-Q* (Contact <b>onsemi</b> )	SC-88A	V7	Q4	3000 / Tape & Reel
MC74VHC1GT07DFT1G (Contact <b>onsemi</b> )	SC-88A	TBD	Q4	3000 / Tape & Reel
MC74VHC1GT07DFT2G (Contact <b>onsemi</b> )	SC-88A	TBD	Q2	3000 / Tape & Reel
MC74VHC1G07DBVT1G	SC-74A	V7	Q4	3000 / Tape & Reel
MC74VHC1GT07DBVT1G (Contact <b>onsemi</b> )	SC-74A	TBD	Q4	3000 / Tape & Reel
MC74VHC1GT07DTT1G (Contact <b>onsemi</b> )	TSOP-5	TBD	Q4	3000 / Tape & Reel
MC74VHC1G07DTT1G-Q* (Contact <b>onsemi</b> )	TSOP-5	V7	Q4	3000 / Tape & Reel
MC74VHC1G07XV5T2G (Contact <b>onsemi</b> )	SOT-553	TBD	Q4	4000 / Tape & Reel
MC74VHC1GT07XV5T2G (Contact <b>onsemi</b> )	SOT-553	TBD	Q4	4000 / Tape & Reel
MC74VHC1G07P5T5G (Contact <b>onsemi</b> )	SOT-953	TBD	Q2	8000 / Tape & Reel
MC74VHC1GT07P5T5G (Contact <b>onsemi</b> )	SOT-953	TBD	Q2	8000 / Tape & Reel
MC74VHC1G07MU1TCG (Contact <b>onsemi</b> )	UDFN6, 1.45 x 1.0, 0.5P	TBD	Q4	3000 / Tape & Reel
MC74VHC1GT07MU1TCG (Contact <b>onsemi</b> )	UDFN6, 1.45 x 1.0, 0.5P	TBD	Q4	3000 / Tape & Reel
MC74VHC1G07MU2TCG (Contact <b>onsemi</b> )	UDFN6, 1.2 x 1.0, 0.4P	J	Q4	3000 / Tape & Reel
MC74VHC1G07MU3TCG (Contact <b>onsemi</b> )	UDFN6, 1.0 x 1.0, 0.35P	TBD	Q4	3000 / Tape & Reel
MC74VHC1GT07MU3TCG (Contact <b>onsemi</b> )	UDFN6, 1.0 x 1.0, 0.35P	TBD	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.

\*-Q Suffix 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



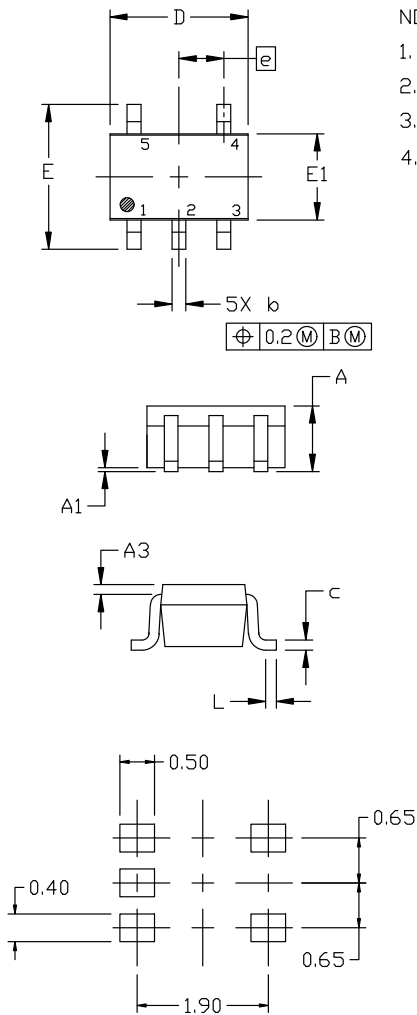
# MC74VHC1G07, MC74VHC1GT07

## PACKAGE DIMENSIONS

**SC-88A (SC-70-5/SOT-353)**  
**CASE 419A-02**  
**ISSUE M**

**NOTES:**

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: MILLIMETERS
3. 419A-01 OBSOLETE. NEW STANDARD 419A-02
4. DIMENSIONS D AND E1 DO NOT INCLUDE MOLD FLASH, PROTRUSIONS, OR GATE BURRS. MOLD FLASH, PROTRUSIONS, OR GATE BURRS SHALL NOT EXCEED 0.1016MM PER SIDE.



DIM	MILLIMETERS		
	MIN.	NOM.	MAX.
A	0.80	0.95	1.10
A1	---	---	0.10
A3	0.20 REF		
b	0.10	0.20	0.30
c	0.10	---	0.25
D	1.80	2.00	2.20
E	2.00	2.10	2.20
E1	1.15	1.25	1.35
e	0.65 BSC		
L	0.10	0.15	0.30

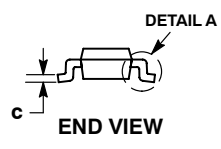
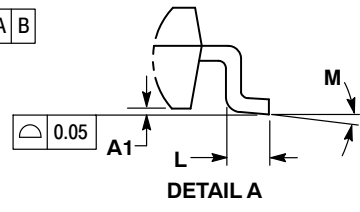
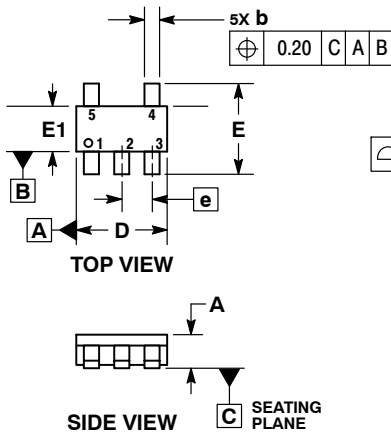
**RECOMMENDED  
MOUNTING FOOTPRINT**

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

# MC74VHC1G07, MC74VHC1GT07

## PACKAGE DIMENSIONS

SC-74A  
CASE 318BQ  
ISSUE B

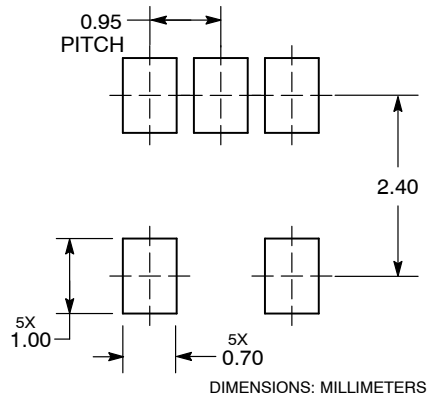


NOTES:

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\*

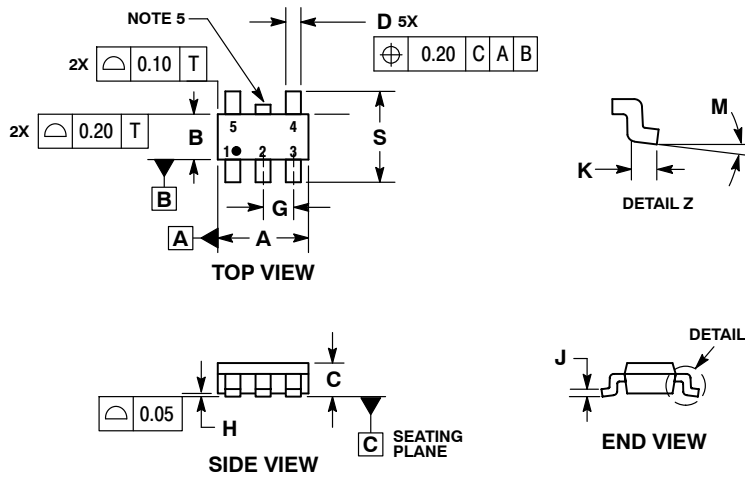


\*For additional information on our Pb-Free strategy and soldering details, please download the **onsemi** Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

# MC74VHC1G07, MC74VHC1GT07

## PACKAGE DIMENSIONS

TSOP-5  
CASE 483  
ISSUE N

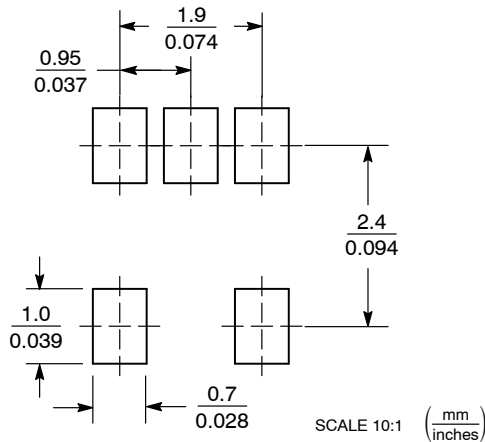


NOTES:

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.

MILLIMETERS		
DIM	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\*

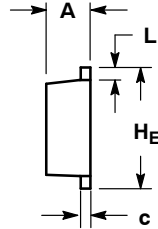
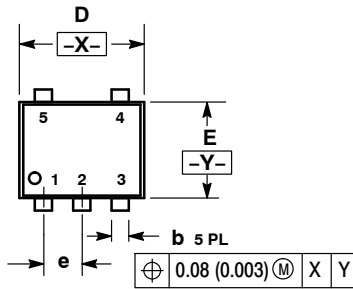


\*For additional information on our Pb-Free strategy and soldering details, please download the **onsemi** Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

# MC74VHC1G07, MC74VHC1GT07

## 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 <sub>E</sub>	1.55	1.60	1.65	0.061	0.063	0.065

### SOLDERING FOOTPRINT\*

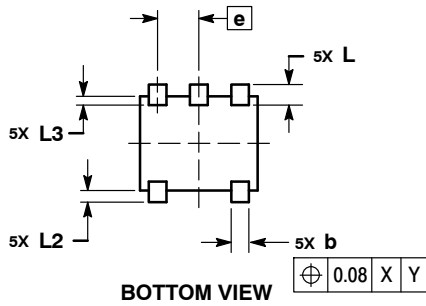
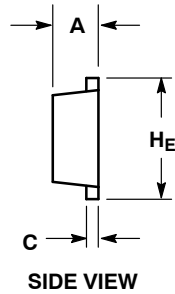
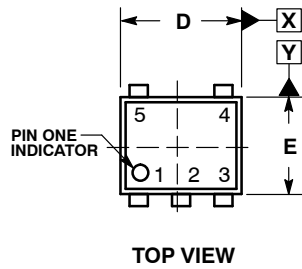


\*For additional information on our Pb-Free strategy and soldering details, please download the **onsemi** Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

# MC74VHC1G07, MC74VHC1GT07

## PACKAGE DIMENSIONS

SOT-953  
CASE 527AE  
ISSUE E

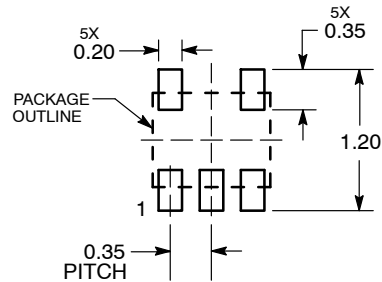


NOTES:

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 <sub>E</sub>	0.95	1.00	1.05
L	0.175 REF		
L2	0.05	0.10	0.15
L3	---	---	0.15

SOLDERING FOOTPRINT\*



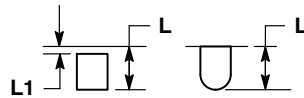
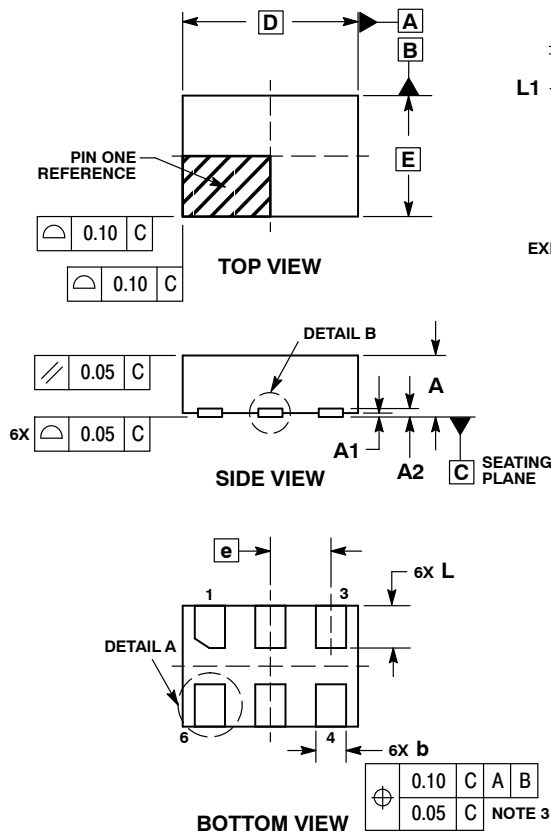
DIMENSIONS: MILLIMETERS

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

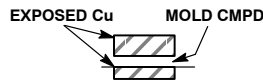
# MC74VHC1G07, MC74VHC1GT07

## PACKAGE DIMENSIONS

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



**DETAIL A**  
OPTIONAL  
CONSTRUCTIONS



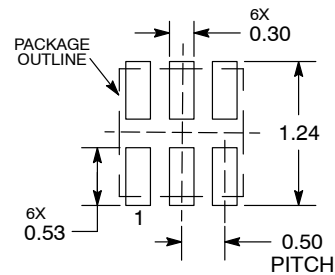
**DETAIL B**  
OPTIONAL  
CONSTRUCTIONS

**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



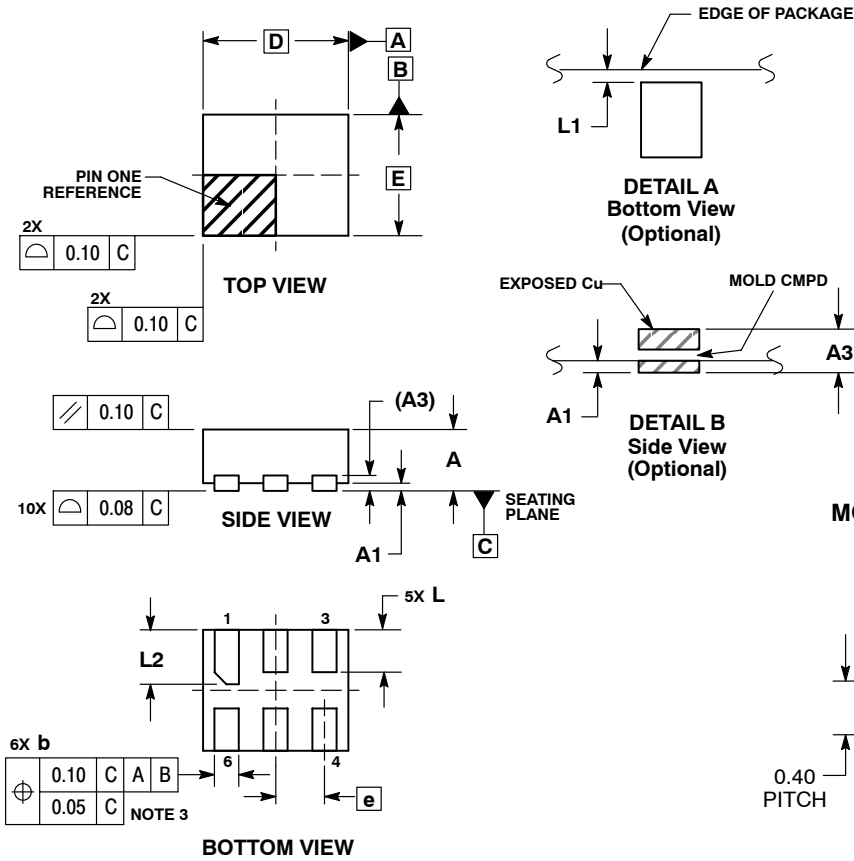
DIMENSIONS: MILLIMETERS

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

# MC74VHC1G07, MC74VHC1GT07

## PACKAGE DIMENSIONS

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

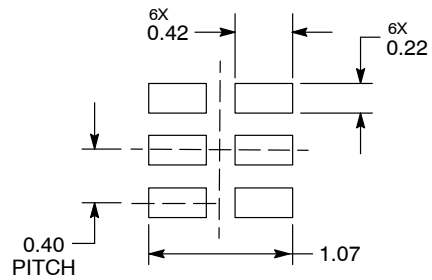


**NOTES:**

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\***



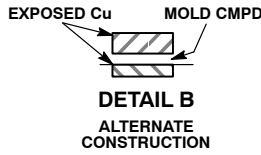
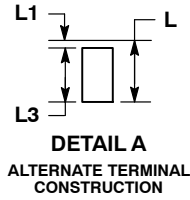
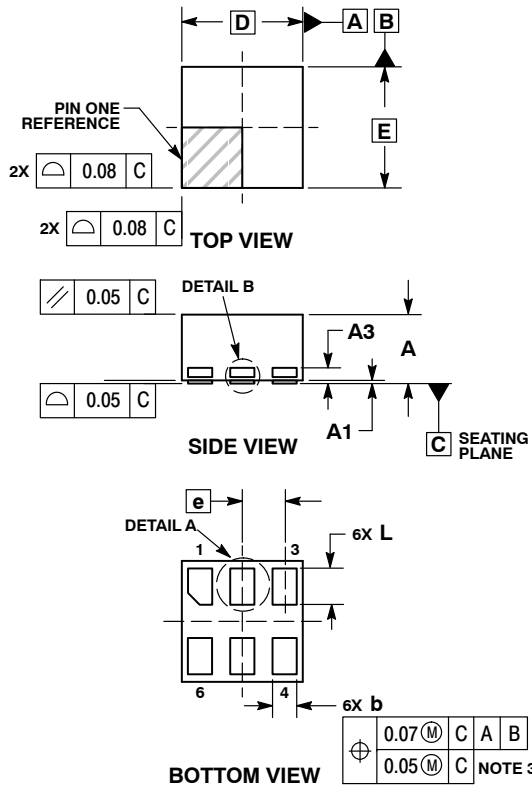
DIMENSIONS: MILLIMETERS

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

# MC74VHC1G07, MC74VHC1GT07

## PACKAGE DIMENSIONS

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

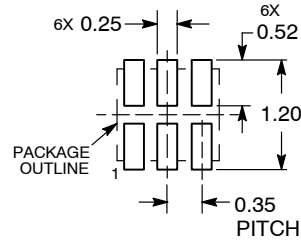


NOTES:

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

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

**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-Marketing.pdf](http://www.onsemi.com/site/pdf/Patent-Marketing.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](http://www.onsemi.com/design/resources/technical-documentation)  
onsemi Website: [www.onsemi.com](http://www.onsemi.com)

**ONLINE SUPPORT:** [www.onsemi.com/support](http://www.onsemi.com/support)

For additional information, please contact your local Sales Representative at [www.onsemi.com/support/sales](http://www.onsemi.com/support/sales)

## Looking for pricing, stock, or lifecycle information?

Click below to explore more details on WIN SOURCE:

-  [View NLVVHC1G07DFT1G on WIN SOURCE](#)
-  [ON Semiconductor Information](#)

## Optimize Your Supply Chain with WIN SOURCE Solutions

-  Global Sourcing Solution
-  Obsolete Management
-  Cost Control Management
-  Shortage Management
-  Alternative Solution
-  Excess Inventory Management