

## Product Overview

### MC74VHCT50A: Non-inverting Buffer / CMOS Logic Level Shifter with LSTTL-Compatible Inputs

For complete documentation, see the data sheet.

The MC74VHCT50A is a hex noninverting buffer fabricated with silicon gate CMOS technology. It achieves high speed operation similar to equivalent Bipolar Schottky TTL while maintaining CMOS low power dissipation. The internal circuit is composed of three stages, including a buffered output which provides high noise immunity and stable output. The device input is compatible with TTL-type input thresholds and the output has a full 5 V CMOS level output swing. The input protection circuitry on this device allows overvoltage tolerance on the input, allowing the device to be used as a logic-level translator from 3.0 V CMOS Logic while operating at the high-voltage power supply. The MC74VHCT50A input structure provides protection when voltages up to 7.0 V are applied, regardless of the supply voltage. This allows the MC74VHCT50A to be used to interface 5 V circuits to 3 V circuits. The output structures also provide protection when  $V_{CC} = 0$  V. These input and output structures help prevent device destruction caused by supply voltage-input/output voltage mismatch, battery backup, hot insertion, etc.

### Features

- High Speed:  $t_{PD} = 3.5$  ns (Typ) at  $V_{CC} = 5$  V
- Low Power Dissipation:  $I_{CC} = 2$  mA (Max) at  $T_A = 25^\circ\text{C}$
- TTL-Compatible Inputs:  $V_{IL} = 0.8$  V;  $V_{IH} = 2.0$  V
- CMOS-Compatible Outputs:  $V_{OH} > 0.8V_{CC}$ ;  $V_{OL} \leq 0.1V_{CC}$  @Load
- Power Down Protection Provided on Inputs and Outputs
- These devices are available in Pb-free package(s). Specifications herein apply to both standard and Pb-free devices. Please see our website at [www.onsemi.com](http://www.onsemi.com) for specific Pb-free orderable part numbers, or contact your local ON Semiconductor sales office or representative.

### Part Electrical Specifications

Product	Pricing (\$/Unit)	Compliance	Status	Channels	Output	$V_{CC}$ Min (V)	$V_{CC}$ Max (V)	$t_{pd}$ Max (ns)	$I_o$ Max (mA)	Package Type
MC74VHCT50ADR2G	0.12	Pb-free Halide free non AEC-Q and PPAP	Active	6	CMOS	4.5	5.5	7.7	8	SOIC-14
MC74VHCT50ADTR2G	0.1597	Pb-free Halide free non AEC-Q and PPAP	Active	6	CMOS	4.5	5.5	7.7	8	TSSOP-14
NLVHCT50ADTR2G	0.1856	PPAP Capable Pb-free Halide free non AEC-Q and PPAP	Active	6	CMOS	4.5	5.5	7.7	8	TSSOP-14

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

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