HCTL-2001 / 2017 / 2021

Differences between HCTL-2001 / 2017 / 2021 and HCTL-2000 / 2016 / 2020

Application Note 5263

HCTL-2000/2016/2020 is Motion Control decoder/ counter that was designed many years ago on a 0.8um processes. Due to lack of support on old wafer fabrication processes, new parts are designed using new 0.5um processes with higher performances, namely HCTL-2001/2017/2021.

The HCTL-2001/2017/2021 is functionality backward compatible with HCTL-2000/2016/2020 and pin-to-pin compatible. Since the device is designed with added feature and higher performances that are used in the HCTL-2032/2022, there are few differences that the user should be aware when replacing the old HCTL-2000/2016/2020 with the new HCTL-2001/2017/2021.

There are four differences between the old and new devices:

1. Absolute Maximum Ratings

a. HCTL-2001/2017/2021
   i. DC supply voltage up to 6.0 volts.
   ii. Storage temperature up to 150°C.

b. HCTL-2000/2016/2020
   i. DC supply voltage up to 5.5 volts.
   ii. Storage temperature up to 125°C.

2. DC Characteristics

a. HCTL-2001/2017/2021
   i. Quiescent supply current maximum of 100 mA.
   ii. Output capacitance at 5 pF.

b. HCTL-2000/2016/2020
   i. Quiescent supply current maximum of 5 mA.
   ii. Output capacitance at 6 pF.

3. AC Characteristics

a. HCTL-2001/2017/2021
   i. Hold time t_{DSD} and t_{DOD} minimum of 10 ns.

b. HCTL-2000/2016/2020
   i. Holt time t_{DSD} and t_{DOD} minimum of 5 ns.

4. Output Enable (OE#) and Inhibit Logic

a. HCTL-2001/2017/2021
   i. OE# must be remained low at the entire two-byte reads.

b. HCTL-2000/2016/2020
   i. OE# can be toggled in between reading operation.

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