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High-Speed CMOS Product Designation Definitions

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TECHNICAL NOTE

HC vs. HCT

ON Semiconductor's High-Speed CMOS product family, intended to give the designer an alternative to LSTTL. HSCMOS, with the faster speed advantage over metal-gate CMOS (MC14000 series) and the lower power consumption advantage over LSTTL, is an optimum choice for midrange designs. With the availability of high-speed CMOS microprocessors and memories, the ability to design a 100% CMOS system is possible.

HCT devices offer a short-term solution to the TTL/NMOS-to-CMOS interface problem. To achieve this interface capability, some CMOS advantages had to be compromised. These compromises include power consumption, operating voltage range, and noise immunity.

In most cases HCT devices are drop-in replacements of TTL devices with significant advantages over the TTL devices. However, in some cases, an equivalent HCT device may not replace a TTL device without some form of circuit modification.


Designers can use HCT devices to perform logic level conversions only. In newer designs, the designer wants all the advantages of a true CMOS system and designs using only HC devices.

"A" versus "Non-A"

"A" Versus "Non-A" — ON Semiconductor has a device performance enhancement program for the High-Speed CMOS family. This is indicated by an "A" suffix on the device identification. Some of the characteristics of this "A" enhancement program are improved design, a better quality process, faster performing AC propagation delays and enhancements to various DC characteristics.

The old "Non-A" process was a 5 micron process that was modified to run a 3.5 micron family. The new "A" process is a true 3 micron process and gives better process control, with improved performance and quality.

Please see the specific device data sheet for "A" designation parameters.

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