NEL CRYSTAL CLOCK OSCILLATORS

Application Note

Enable/Disable - Threestate Control Input
I_{IL} & I_{IH} Ap-Note

I_{IL} is the current flow in or out of the control input (normally out of the control input) when a logic low is applied to the control input of the oscillator.

I_{IH} is the current flow in or out of the control input (normally in to the control input) when a logic high is applied to the control input of the oscillator.

Two major factors affect the control input current flow:

  1. The IC design and associated impedances.

  2. Addition of any pull-up or pull-down resistors internal to our oscillator package.

NEL uses two different control input characteristics:

1. No additional resistors external to the IC are used inside the oscillator package. Thus, I_{IL} & I_{IH} are defined by just the IC characteristics. For CMOS inputs this is usually in the microamp range.

2. An additional pull-up resistor is used on some CMOS inputs to allow operation of the oscillator with no external connection to the control input. The value is often selected to be low enough to pull-up a TTL gate output to a voltage higher than the threshold voltage of the control input. Because of this pull-up resistor, I_{IL} is often in the milliamp range based on ohms law. NEL typically uses a 1.2k ohm ±20% pull-up resistor to assure proper levels on some control inputs. This means on a 5V±10% power supply, the I_{IL} could be as high as 5.7mA just through the resistor. I_{IH} is not significantly affected and is still dependent on the IC design.