

PICmicro MID-RANGE MCU FAMILY

23.11 Connection Considerations

If the input voltage exceeds the rail values (V_{SS} or V_{DD}) by greater than 0.3V, then the accuracy of the conversion is out of specification.

An external RC filter is sometimes added for anti-aliasing of the input signal. The R component should be selected to ensure that the total source impedance is kept under the 10 k Ω recommended specification. Any external components connected (via hi-impedance) to an analog input pin (capacitor, zener diode, etc.) should have very little leakage current at the pin.

23.12 Transfer Function

The ideal transfer function of the A/D converter is as follows: the first transition occurs when the analog input voltage (V_{AIN}) is 1 LSb (or Analog $V_{REF} / 1024$) (Figure 23-7).

Figure 23-7: A/D Transfer Function

