

Voltage References

Our world consists of millions of millions of Analog signals that we have to interact with and convert them into data. To convert the analog signals into digital we have to use something called ADC. If we looked at the block diagram of almost every kind of ADCs we will find a block named "Voltage ref" or in MCUs named "Aref". This block is one of the most important blocks in the ADCs as it's responsible for making a constant voltage over time and independent of any outer factor like temperature. We can find this block also found in the voltage regulator ICs. There are many types of Vref circuits like Series, Shunt, bandgap and buried Zener. Every type has its own characteristics and features. I have said before that the output voltage is constant and independent of any factor but in real life this is not 100% true. Voltage references can vary with temperature or mechanical stresses and this can be considered a drawback of Vref circuits.