Supervisory Circuits Extend Battery Life in Portable Electronics

Maxim Integrated Products has released the MAX16056-MAX16059, ultra-low-power microprocessor supervisory circuits that monitor a single system supply voltage. These devices consume an industry-low 125nA supply current to extend battery life in power-sensitive applications.

Additionally, the devices feature capacitor-adjustable watchdog (MAX16056/MAX16058) and reset timeouts to maximize design flexibility. This configurability makes it easy for designers to quickly change design parameters, and enables the supervisors to be used in unique power-saving schemes.

Because of their ultra-low power consumption and flexible timeout configuration, these devices can be utilized in multiple ways within the system while saving valuable board space.

Many microprocessors in battery-powered systems spend the vast majority of their time in standby/sleep mode, only waking up periodically to perform a required function. In these applications, standby current consumption is often the most important factor in determining battery life, as the application may spend as much as 99% of the day in sleep mode.

To minimize system power consumption in these applications, the MAX16056-MAX16059 can be used to periodically wake up the processor to complete its required duties, and then turn off the processor when those functions are complete. At a mere 125nA, the operating supply current of these supervisory circuits is much lower than the standby supply current of a typical microcontroller (> 1microamp). The MAX16056-MAX16059, therefore, have a negligible impact on the application's power budget, effectively reducing system shutdown current to zero. Altogether, these supervisors can increase battery life by several months in low-power applications.br>br> The MAX16056 and MAX16059 are well suited for battery-powered devices, handheld electronics, metering equipment, and other applications where battery life is crucial.br>br> The MAX16056-MAX16059 can also be used as low-power oscillators to conserve energy, as they consume much less power than integrated adjustable oscillators.