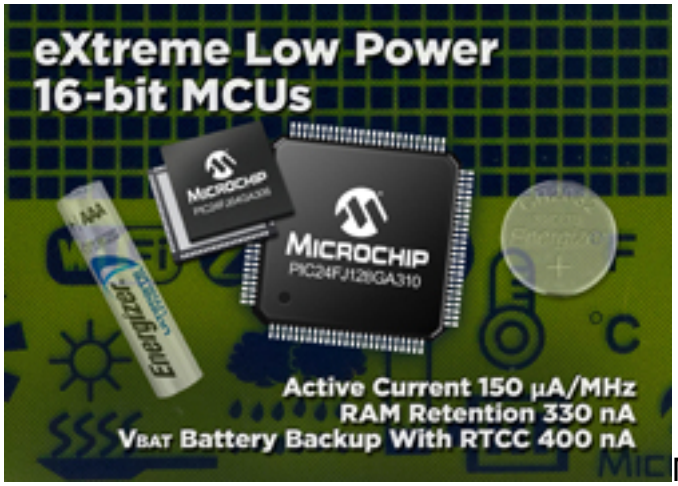
MCUs Feature Very Low Active Current, Several Low Power Sleep Modes



Microchip Technology Inc. announced the expansion of its low-power microcontrollers (MCUs) with the PIC24F “GA3” family, featuring what is asserted to be industry’s lowest active current for 16-bit Flash MCUs, as well as several flexible new low-power sleep modes. The PIC24F “GA3” devices feature 150 microamperes/MHz active current, as well as six DMA channels, which allow a routine to be executed with less power consumption and increased throughput. The family showcases the company’s eXtreme Low Power (XLP) technology and adds a new low-power sleep mode with RAM retention down to 330 nA. Additionally, these are the first PIC MCUs with VBAT for battery backup of the on-chip Real-Time Clock Calendar. With these features, plus an integrated LCD driver and numerous other peripherals, the PIC24F “GA3” devices are presented as enabling more efficient, less expensive designs in the consumer (e.g. thermostats, door locks, home automation); industrial (e.g. security, wired and wireless sensors, industrial controls); medical (e.g. portable medical devices, diagnostic equipment); and metering markets (e.g. e-Meters, energy monitoring, gas/water/heat meters, automated meter reading), among others.

Designers often want to create applications where the battery life approaches the end product’s useful life. With its run currents of 150 microamperes/MHz, numerous low-power modes, and a low-power sleep mode with RAM retention down to 330 nA, the PIC24F “GA3” MCUs enable maximum battery life by reducing the overall amount of power that the application consumes. To allow the application’s Real-Time Clock to continue running when primary power is removed, a VBAT pin can be used to supply back-up power with only 400 nA. Additionally, the transition from VDD to the VBAT supply pin occurs automatically as VDD is removed. The integrated LCD display driver provides the ability to directly drive up to 480 segments, with an eight-common-drive capability, enabling more informative and flexible displays that include descriptive icons and scrolling. The MCUs also include a Charge Time Measurement Unit (CTMU) with a constant current source that can be used for mTouch™ capacitive sensing, ultrasonic flow measurement and many other sensors. The on-chip, 12-bit ADC features threshold detection and works in

conjunction with the CTMU to perform proximity sensing while in sleep, to further reduce power consumption.

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