LED family has filtered PWM and integrated current sink

Advanced Analogic Technologies, Inc. today introduced the AAT14XX family of 31 mA step-up single-channel light-emitting diode (LED) drivers capable of driving up to 10 LEDs in a single string. The drivers' small size and quiet operation make them ideal LED backlight solutions for single cell Lithium-ion battery-based equipment, including mobile and smart phones, MP3 players, portable media players (PMPs) and portable navigation device-type applications with larger screens.

The AAT14XX family enables larger displays, allows higher efficiencies and offers filtered pulse-width modulation (PWM) dimming to eliminate interference with the radios in cell phones and other handheld devices. With a 1.15 x 1.55 mm wafer-level chip scale package (WLCSP) size, the devices require only 0.7 cm2 of space on a printed circuit board, making them one of the smallest solutions available.

"The requirements and features for optimal backlight power management are constantly evolving in tandem with the growth of the LED market," said Roger Smullen, Director, Strategic Marketing at AnalogicTech. "The AAT14XX family brings to market one of the smallest solutions for serial LED drivers, strengthening our portfolio for handheld devices. These new products add new capabilities to our comprehensive LED offerings, which are rapidly encompassing a broad range of end products ranging from handheld devices to tablets to televisions."

LED brightness is controlled in one of three ways: 32 dimming steps using the S2CwireTM interface and filtered or direct PWM control. PWM dimming frequency of 100 KHz eliminates audible noise and is compatible with content adaptive brightness control (CABC) to further reduce backlight power consumption by up to 50 percent.

The major source of power drain in portable systems with displays is the backlight in a liquid crystal display (LCD) screen. The AAT14XX family addresses this with three dimming controls, and an integrated precision, high voltage current sink that provides maximum flexibility in adjusting LED current from 10 to 31 mA regardless of the number of series LEDs. This approach achieves a high efficiency of 88 percent, significantly more than that offered by traditional LED drivers that use a ballast resistor.

The family consists of four parts: the AAT1410 drives up to 4 series LEDs at 31mA, the AAT1401 up to 6, the AAT1402 up to 8 and the AAT1403 up to 10. The devices support a voltage input range of 2.7 to 5.5 V, include over-temperature protection, programmable over-voltage protection, open LED protection and automatic recovery when the fault conditions are removed. The AAT14XX family is available in a 10-pin WLCSP package that is 80 percent smaller than a SOT23 package and 55 percent smaller than a 2 x 2 QFN package. The devices are rated over the -40

degree C to +85 degree C temperature range.

The AAT1401 is priced at US$0.36 @10K units. For others, contact AnalogicTech or its distributors. The 14xx family is currently shipping.