Toshiba Launches White LED Driver IC Targeted At Cell Phone Backlighting Applications

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Toshiba America Electronic Components, Inc. (TAEC)* today announced a new driver IC that powers the white light-emitting diodes (LEDs) used to backlight color liquid-crystal display (LCD) panels in mobile devices such as cell phones. Designated TB62737FUG, the white LED driver IC incorporates an over-voltage protection function and achieves high power-efficiency of 87 percent for longer rechargeable battery life. Mass production is scheduled to start this month with a monthly production volume of five million units.

“Toshiba Corporation engineered the TB62737FUG white LED driver to provide an ideal combination of over-voltage protection, high-precision current regulation and high power-efficiency for today's advanced portable devices,” said Don Schneider, business development manager of the ASSP Business Unit at TAEC. “The optimized design minimizes total circuit size, contributing to the cell phone's small form factor.” Mr. Schneider noted that white LED drivers are a mainstay of the company's mixed-signal IC product strategy. He said that the company will continue to expand its product portfolio with other products targeted at cell phone applications as well as other portable end products, including PDAs, digital cameras and mobile game systems.

The TB62737FUG incorporates an over-voltage detection pin; this safety feature protects against an over-voltage condition in the circuit that could be caused by an open LED. The high power-efficiency of 87

percent extends rechargeable battery life. The device achieves high-precision current regulation of ± 5 percent of the required value; this allows exact control of backlight brightness.

Main Features

-- Has an over-voltage detection pin that reduces the external part count while protecting the driver circuit
-- Achieves high power-efficiency of 87 percent, an improvement of 2 percent compared to previous products
-- Reaches a current precision guaranteed value of ± 5 percent; can suppress white LED brightness fluctuation
-- Uses Bi-CD process that includes a Double Diffused MOS (DMOS) with a high-withstand voltage and large-current capacity as well as a bipolar transistor with a high-current drive and CMOS for low-power consumption and high integration
-- Achieves low power consumption and requires a minimum number of external components
-- Housed in an SOT23-6 package with package dimensions of 2.9mm high x 2.8mm wide, including lead length

Development Background

Cell phones and other mobile products increasingly incorporate color LCD panels. Because these devices run on battery power with finite battery life, it is becoming more common to use a white LED that can emit bright light for backlighting while consuming little power. As a result, world demand for white LEDs is rapidly increasing. Toshiba is meeting these needs by bringing to market a white LED driver that realizes low-power consumption, high efficiency and high precision.