

A8530 : High-efficiency white LED driver IC for display backlight and flash/torch applications

The new A8530 from Allegro MicroSystems Europe is a high-efficiency charge pump integrated circuit that offers a simple, low-cost white LED driver solution for driving four display backlight and two flash/torch video-mode white LEDs.

Using a proprietary adaptive control scheme (1 X , 1.5 X , 2 X), the new device can deliver well-matched (typically within 0.5%) LED current while maintaining the highest efficiency for extended battery life and low electromagnetic interference. The LED current is regulated over the entire range of a lithium battery's voltage to provide uniform intensity.

The four white LED backlight channels can be driven with up to 30 mA each, while the two flash/torch channels can be driven with up to 100 mA each. Channels can also be tied together for application flexibility, with a maximum total output current of up to 320 mA continuous.

LED brightness and on/off status can be controlled for four display backlight LEDs and two flash/torch LEDs through single-wire serial interface pins. The use of a 1 MHz operating frequency minimises external component requirements, while a soft-start feature limits inrush current. Comprehensive protection circuitry includes short-circuit, overvoltage and thermal shutdown protection.

The A8530 is supplied in a very thin profile (0.75 mm nominal height) 3.0 mm × 3.0 mm MLP-16 package.