

New LED driver and sequencer launched to enable complete programmability of 18 LEDs

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Dialog Semiconductor Plc has launched a new universal LED controller which provides complete programmability of up to 18 LEDs for the control of lightshows, backlights and signal LEDs in cellular handsets, handheld games, and other portable devices requiring varying light sequences. The new DA9026 IC allows the control of sequences of LED patterns including combined RGB LEDs, with programmable variables such as pattern, repetition rate and intensity of each LED – this is done entirely within the device, removing the need for dedicated processing power.

The DA9026 universal LED controller especially addresses the growing complexity of LED management in applications such as clamshell handsets, lightshows, backlights (keypad and LCD) and signal LEDs. This is in response to a growing trend for the display or lights to flash in appropriate sequences to ringtones, music or different callers for example. In addition, for phones used in handsfree kits in the automotive environment, it allows manufacturers to control and customize the handset backlight to match color and level of illumination of the car's dashboard display.

Dialog Semiconductor has addressed these needs with this universal LED driver and sequencer. Unlike other devices it can control up to 18 single color LEDs or six RGB LEDs – or any combination of single and RGB. It can also store and replay (from on-chip memory) 15 light sequences with programmable start and end points, without the need for external components and controlled using a simple 2-wire interface to

upload sequence and command data. A comprehensive PC-based development tool allows handset manufacturers to create and program the control code required to generate these sequences.

Other key features include fading and dimming functionality without the need for baseband processor support, brightness correction for true RGB color, and an integrated step-up converter to generate the higher voltages required for high intensity blue, green and white LEDs. The 4-bit current control enables 4k color options per RGB channel, and the DA9026 is optimized for lithium battery supplies.

One of the most significant benefits of having everything contained in one chip and only requiring two-wire control is the ability to improve reliability in clamshell type cellular handsets – instead of requiring multiple control lines across the flip mechanism only two signals are required to control up to 18 LEDs. The DA9026 will typically preload sequence data in the device RAM on power-up, and then the only communication required subsequently will be to activate the required sequences.

Another important feature of the DA9026 is its high current capability, ideal for generating high brightness levels. It can supply 4.8V at up to a maximum of 420mA to provide a regulated power source for large display configurations of up to 18 LEDs, with consistent color generation capability for all the LEDs, even as the battery discharges. When the LED voltage does not need to be greater than 3V, the LED driver can be directly connected to the battery.

The DA9026 universal LED controller is available now and packaged in a 24-lead 4 x 4mm QFN package.

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