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92% Efficient RGBW LED Driver with Programmable Self-Running Patterns

Integrated 1x and 1.5x Charge Pump with Ultra Low I_Q for energy conscious IoT applications

AMS, Analog Mixed-Signal division of ISSI, announces the IS31FL3195, a new 4-channel LED driver designed for low-power applications. The IS31FL3195 integrates a high-efficiency charge pump and a programmable self-running pattern generator for automated RGBW lighting effects even when the local microcontroller is powered off. With the introduction of this new device, AMS expands its LED driver presence in the energy saving markets for Internet-of-Things (IOT), wearable and battery operated devices.

Compared with other LED drivers, the new IS31FL3195 is ideal for power-conscious applications where low operating current, high efficiency and a small footprint are critical. LEDs consume a considerable amount of power therefore, handheld devices benefit from LED drivers designed with power saving features. The IS31FL3195 operates with an extremely low 640µA quiescent current and a 1µA shutdown current. The individual LED current can be configured for up to 20mA with 8-bit dot correction and a low LED drop-out with current matching to maintain consistent LED brightness.

"Extending battery life is a challenge for every battery operated portable equipment manufacturer, even more so for the always connected IoT devices that use LEDs for status indication and visual notification. The IS31FL3195 with its highly efficient power savings configuration and its compact form factor is an ideal solution for driving RGBW LEDS in IoT appliances", said Ven Shan, VP of AMS products at ISSI. Once programmed by the local microcontroller, the IS31FL3195 will continue its lighting sequences even when the microcontroller shuts down or the battery voltage drops below the LED forward voltage. The 1MHz charge pump in the IS31FL3195 is automatically enabled when the battery voltage is not sufficient to power the LEDs. For additional power savings, the driver will disable unused blocks when the LEDs are not active and when the automated sequence is running; significantly decreasing the average power consumption.

Key features and benefits of the IS31FL3195

- Built-in 1MHz charge pump with 1× and 1.5× gain providing up to 92% LED drive efficiency
- 1µA shutdown current; 640µA quiescent operating current
- Support four LEDs – RGBW
    - Each LED current is configurable up to 20mA with 8-bit dot correction
    - Each LED has its own fade registers with independent start/stop
- Automatic operation with pre-established lighting patterns
- Very small footprint WLCSP-16 (1.88mm×2.08mm) and QFN-16 (4mm×4mm) packages

Price and Availability

The IS31FL3195 is available and priced at $0.31 in quantities of 10,000.

For more information on AMS LED products, visit the AMS Analog products website at ams.issi.com/US/product-analog-fxled-driver.shtml

About AMS
AMS is the analog mixed signal division of ISSI, a fabless semiconductor company that designs and markets high performance integrated circuits for the following key markets: (I) automotive, (ii) communications, (iii) industrial/medical, and (iv) digital consumer. AMS' primary products are LED drivers for low to mid-power RGB color mixing and high power lighting applications. Other products include audio, sensor and micro controller MCU semiconductor ICs. ISSI/AMS is headquartered in Silicon Valley with worldwide offices in Taiwan, Japan, Singapore, China, Europe, Hong Kong, India, and Korea. Visit our web site at http://ams.issi.com/.

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