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New Ultra-Low Power Matrix-Type LED Drivers with Configurable Matrix Size

IS31FL376X Family Supports both analog and PWM dimming methods

MILPITAS, Calif., April 08, 2024 -- Lumissil Microsystems announces the release of the IS31FL376x series of matrix LED driver ICs targeted for white goods, gaming, and battery powered devices.

The IS31FL376x devices are high-performance LED matrix drivers. The IS31FL3761 device integrates 33 constant current sinks while the IS31FL3763 and IS31FL3766 integrate 18 current sinks. All have selectable number of switching MOSFETs, the IS31FL3761 and IS31FL3763 have n (n = 1~12) while the IS31FL3766 has n (n=1~6) to support configurable LED array sizes. LED arrays can display residual light, known as a ghost effect. To address this undesirable effect, the IS31FL376x devices integrate an enhanced de-ghosting circuit to mitigate or eliminate ghosting effects in LED displays.

The IS31FL376x matrix drivers support both analog and PWM dimming methods. For analog dimming, each LED can be individually adjusted, or the entire matrix can be globally adjusted with 256 current levels. The drivers also have 8 or 12-bit configurable PWM generators to enable smooth digital dimming. Turning the LEDs ON/OFF with a varying duty cycle provides a capability for dimming and blending of RGB LED colors. During operation, these PWM generators can create electromagnetic interference (EMI) and audible noise. To mitigate this, the IS31FL376x devices incorporate spread spectrum and group phase shifting to reduce any EMI, audible noise or power supply ripple.

“Lumissil has long been the leading supplier of matrix LED drivers for the gaming and appliance markets”, said Ven Shan VP of Lumissil Marketing. “Our experience in these markets enables us to define matrix LED drivers that not only generate spectacular colors, but also integrate key features requested by our customers. For this reason, we designed-in noise reduction techniques, ultra-low operating current capability, and enhanced matrix de-ghosting while offering our customers a choice of either SPI or I2C bus interface.”

The I2C bus interface has been the de facto standard for LED drivers. The IS31FL376x devices support the Fast-mode plus (FM+) specification for 1MHz operation. To achieve this speed, the bus drivers are enhanced to comply with faster rise and fall times. The SPI bus is another fast serial bus with the advantages of higher speed (12MHz), full-duplex communication, and in some cases better performance over longer distances. The IS31FL376x devices can easily be configured for either I2C or SPI bus operation.

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Availability and pricing

The IS31FL376x matrix LED drivers are available now in production quantities. The IS31FL3761 (33x12 dot) comes in a QFN-60 package, the IS31FL3763 (18x12 dot) comes in a QFN-40 package and the IS31FL3766 (18x6 dot) comes in a QFN-32. The IS31FL376x family operates from 3.0V to 5.5V over the temperature range of -40°C to +125°C. In 1k pcs quantities, the IS31FL3761 is priced at $1.35, the IS31FL3763 is priced at $0.98 and the IS31FL3766 is priced at $0.73.

About Lumissil Microsystems

Lumissil Microsystems specializes in analog/mixed-signal products for automotive, communications, industrial, and consumer markets. Lumissil's primary products are LED drivers for low to mid-power RGB color mixing and high-power lighting applications. Other products include audio, sensors, high-speed wire communications, optical networking, and application-specific microcontrollers. Lumissil Microsystems have worldwide offices in the US, Taiwan, Japan, Singapore, mainland China, Europe, Hong Kong, India, and Korea.
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