LUMISSIL Microsystems
A Division of ISSI

48-Channel LED Driver IC with 16-bit PWM and Programmable Current Adjustments

Fast 33MHz Serial Bus with Cascade Operation for mini-LED backlights and Large Displays

MILPITAS, Calif., May 08, 2023 -- Lumissil Microsystems, a division of Integrated Silicon Solution, Inc. (ISSI), announces the release of its latest 48-channel LED driver with a high-speed serial bus for RGB color tunning or single color brightness and contrast control. The IS31FL3248 can be used in LED displays to control the individual pixels, allowing the creation of dynamic, high-resolution images. It enables displays to realize accurate local dimming, provide bright colors and ultra-high contrast that enhance the visual experience. It integrates EMI suppression circuitry and readback of LED diagnostics in case of fault conditions for robust designs. This device simplifies the design of message boards, LED status indicators, mini-LED backlight, and animation lighting.

"The demand for constant-current LED drivers that support ever greater number of LEDs with consistent LED brightness and color accuracy continues to grow" said Ven Shan VP of Lumissil Marketing. "The IS31FL3248 with its high-speed serial bus and highly accurate LED current sinks enables high brightness and contrast for the emerging mini-LED backlights displays providing a highly vivid and immersive experience."

The IS31FL3248 is an ideal LED driver for applications with many LEDs to be controlled by a simple four wire serial bus running at 33MHz. The SDI and SDO pins allow more than one device to be connected in a daisy chain for LED control using one serial interface. An external resistor sets the current for all 48 channels up to 33mA; software registers further adjust the three-channel grouping current and/or the individual channel current. An 8-bit register sets the brightness level for each grouping and a 6-bit register adjusts the brightness deviation between channels.

The IS31FL3248 uses proprietary programmable algorithms to minimize system noise generation and improve the overall EMI system performance. Applying PWM switching to the LED outputs can be particularly troublesome with regards to EMI. To optimize EMI performance, the IS31FL3248 includes a programmable spread spectrum function to lower the PWM clock's peak electromagnetic energy by spreading it over a wide frequency range. In addition, a selectable 180-degree phase delay of the output-channels reduces power supply inrush current that further helps reduce EMI.

The IS31FL3248 also has real-time LED open (LOD) and short (LSD) diagnostic capabilities. When enabled, the LED open or short condition can be detected in real time with the status information stored in a system readable register.

Typical applications for the IS31FL3248 include banks of 7-segment displays, single LED indicators as well as arrays of LEDs that form grids or panels for message boards or mini-LED backlighting. These usage examples are typically found on control panels for appliances or industrial applications. Simple signage displays composed of large LED dot arrays are also perfect applications for the IS31FL3248.

A soon to be released automotive variant, the IS32FL3248 is designed to meet the strict AEC-Q100 qualification standards. The automotive grade IS32FL3248 allows cars to display rich animation information in the cabin as well as on the head and taillights. Automotive applications include animated taillights, welcome lighting, messaging displays, charge status indicator and interior cabin ambient color lighting.

Availability and pricing

The IS31FL3248 is available now in production quantities and comes in both eTQFP-64 and QFN-64 packages. It operates from 3.0V to 5.5V over the temperature range of -40°C to +125°C. The IS31FL3248 is priced at $1.20 for the eTQFP-64 and $1.09 in the QFN-64 package in 1k pcs quantities.

The automotive variant, IS32FL3248 is sampling now with production release scheduled for early Q3 this year. The supporting PPAP documentation along with AEC-Q100 qualification will be available upon production release. The IS32FL3248 is available in eLQFP-64 and WFQFN-64 packages and operates from 3.0V to 5.5V over the temperature range of -40°C to +125°C. The IS32FL3248 is priced at $1.30 for the eLQFP-64 and $1.75 for the WFQFN-64 package in 1k pcs quantities.

About Lumissil Microsystems

Lumissil Microsystems is a division of ISSI specializing 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 wired communications, optical networking and application-specific microcontrollers. ISSI and Lumissil Microsystems have worldwide offices in the US, Taiwan, Japan, and Singapore, mainland China, Europe, Hong Kong, India, and Korea. Website: http://www.lumissil.com

About Integrated Silicon Solution, Inc. (ISSI)

(ISSI) ISSI is a fabless semiconductor company that designs, develops and markets high performance SRAM, DRAM, Flash memory (including NOR flash, NAND flash and managed NAND solutions (eMMC)), and Analog/Mixed-signal integrated circuits. ISSI provides high-quality semiconductor products and has been a committed long-term supplier to its customers. ISSI has worldwide offices in the US, Taiwan, Japan, Singapore, mainland China, Europe, Hong Kong, India, and Korea. Visit our website at http://www.issi.com/

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