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Lumissil Advances Matrix LED Driving with 220 kHz PWM and High-Speed Scanning

New IS31FL370x family delivers flicker-free, camera-friendly RGB performance, low-power operation and built-in LED diagnostics for next-generation human-machine interfaces

MILPITAS, Calif., Nov 12, 2026 – Lumissil Microsystems today introduced the IS31FL3706, IS31FL3707 and IS31FL3708, a new generation of cost-effective, scalable matrix LED drivers for RGB lighting and display applications. Designed for products ranging from gaming and streaming peripherals to video-conferencing systems, smart-home controls, medical and laboratory instruments, appliance displays, and security and access-control equipment, the new family delivers stable, visually consistent illumination whether viewed directly by users or through smartphones, webcams, security cameras and other imaging systems.

The IS31FL370x family combines high-speed matrix scanning, advanced dithered PWM, low-power operation and built-in LED diagnostics. These capabilities help designers minimize visible flicker, rolling-shutter camera banding and scan-related audible capacitor noise while simplifying production testing, system monitoring and field-service troubleshooting.

High-Speed Operation Enables Flicker-Free, Camera-Friendly Performance

The IS31FL370x family provides programmable PWM frequencies from 0.25 kHz to 220 kHz. In the 220 kHz 6+2-bit dithered PWM mode, the 4.5 microsecond scan period is more than six times faster than earlier-generation devices, enabling matrix scan rates up to 24 kHz.

The higher speed helps reduce scan-related MLCC acoustic noise and allows typical camera exposures to integrate multiple PWM and matrix-scanning cycles, reducing rolling bands, flicker and brightness variations in images captured by smartphones, webcams, security cameras and other rolling-shutter systems.

Improved De-Ghosting and LED Reliability

Integrated de-ghosting and programmable pull-up control help minimize residual glow and reduce reverse-bias voltage across the LEDs. Reducing this electrical stress, particularly for lower-forward-voltage LEDs such as red LEDs, can support improved reliability and longer operating life.

Flexible Brightness, Color and Power Control

Each LED has independent 8-bit PWM control, while every current-sink output provides 8-bit DC current scaling and supports peak LED current up to 45 mA for RGB calibration, brightness matching and white-point correction. A typical shutdown current of only 0.6 microampere helps preserve battery life in portable and always-on products.

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Individual LED Diagnostics Simplify Testing and Service

The IS31FL370x family provides individual open- and short-LED detection, with fault status stored in registers accessible through the I2C-compatible interface. These integrated diagnostics reduce external circuitry and support automated production testing, system health monitoring, fault isolation and field-service troubleshooting.

Practical Upgrade Path for Existing Lumissil Designs

The IS31FL3707 is pin-to-pin compatible with the previous-generation IS31FL3739 and IS31FL3717, while the IS31FL3708 is pin-to-pin compatible with the IS31FL3719 and IS31FL3729, providing existing customers with a practical path to adopt the new family's technological improvements while minimizing hardware redesign.

Reduced Switching Noise and Supply Ripple

Spread-spectrum operation and 180-degree phase-shifting options distribute switching activity to help reduce concentrated switching energy, electromagnetic interference and power-supply ripple.

"LED lighting has evolved from simple indicators into an important part of the user interface, and increasingly those interfaces must perform equally well for people and cameras," said Lyn Zastrow, VP of Sales and Marketing at Lumissil Microsystems. "With the IS31FL370x family, we have built on our proven matrix LED driver architecture to give customers higher-speed operation, improved visual performance and stronger system diagnostics, while providing a practical migration path for existing Lumissil designs."

Scalable Architecture for Multiple Product Designs

The family supports 63, 72 or 135 individually dimmable LEDs: the IS31FL3707 provides 8 x 8 or 7 x 9 matrices, the IS31FL3706 provides 9 x 8 or 8 x 9 matrices, and the IS31FL3708 provides 16 x 8 or 15 x 9 matrices.

All three devices share a common feature set and register architecture, helping customers reuse software across products with different LED-count and package requirements. The devices operate from a 2.7 V to 5.5 V supply and communicate with the host controller through a 1 MHz I2C-compatible interface.

Availability

The IS31FL370x family is available now in volume production. All devices are specified for operation across the industrial temperature range of -40 degrees C to +125 degrees C.

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Ordering part number	Matrix size	Package	Packing
IS31FL3706-QFLS4-TR	9 x 8 / 8 x 9	QFN-24	2,500 per reel
IS31FL3707-GRLS4-TR	8 x 8 / 7 x 9	SOP-24	1,500 per reel
IS31FL3707-SALS4-TR	8 x 8 / 7 x 9	SSOP-24	2,000 per reel
IS31FL3708-QFLS4-TR	16 x 8 / 15 x 9	QFN-32	2,500 per reel
IS31FL3708-TQLS4-TR	16 x 8 / 15 x 9	eTQFP-32	2,500 per reel
IS31FL3708-LQLS4-TR	16 x 8 / 15 x 9	LQFP-32	2,500 per reel

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 has worldwide offices in the US, Taiwan, Japan, Singapore, mainland China, Europe, Hong Kong, India, Israel, and Korea. Website: www.lumissil.com

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