

## **IS32FL3761: Configurable 33×12 Matrix LED Driver for High Pixel Count Automotive Intelligent Signaling Displays**

*Up to 16 devices on one I2C bus for over 6,300 individually addressable LEDs*

**MILPITAS, CA., Aug 3, 2026** – Lumissil Microsystems today announced the IS32FL3761, a 33×12 (n=2~12) dot-matrix LED driver designed for automotive ISD applications, where hundreds of small-current LEDs must be driven, dimmed, and diagnosed with pixel-level precision. These systems use dense arrays of low-current LEDs to render symbols, text, welcome animations, charge-status indicators, driver-assistance cues, and brand signatures on interior and exterior vehicle surfaces. The IS32FL3761 supports compact, individually addressable LED designs used in ISD panels, mini LED backlights, RGB dynamic ambient lighting, center-stack and cluster displays.

The IS32FL3761 integrates 33 constant-current sinks and 12 integrated scan switches to support a configurable 33×n matrix (n = 2~12) of up to 396 individually addressable LEDs, or a 132-pixel RGB array, from one QFN-60 device. Each output channel supports up to 30mA programmable current and includes 8-bit global current control (GCC) plus 8-bit per-channel scaling (SL), allowing fine brightness balancing and color correction for enhanced display uniformity. That uniformity is backed by a current accuracy of ±5% channel-to-channel at 30mA, ensuring consistent brightness matching across the entire matrix.

To support smooth, high-quality animations and accurate color rendition, the device features selectable 12-bit, 8+4-bit, 8-bit, and 6+2-bit PWM dimming with frequencies up to 312kHz, enabling 4096-step gamma-corrected fades and breathing effects. This eliminates the visible stepping and audible artifacts typical of lower PWM frequencies, a persistent pain point in camera-adjacent automotive lighting modules. The same high-resolution dimming, combined with 8-bit per-channel SL current scaling, allows precise red, green, and blue intensity ratios to be maintained at every brightness level, preserving white-point accuracy and color fidelity. To reduce audible noise on MLCC decoupling capacitors and tame conducted EMI, the device combines 180-degree group phase shifting with programmable spread spectrum. Power efficiency is equally critical, the IS32FL3761 draws just 1.2mA typical quiescent current while remaining fully active and ready to animate, and only 0.6µA in shutdown, enabling welcome sequences and intelligent status indication without taxing the vehicle battery.

Large LED matrices are subject to parasitic glow of off-state LEDs. To address this, the IS32FL3761 integrates a configurable discharge circuit known as de-ghosting. While dedicated open and short-detect bits for every LED in the matrix allow the host to pinpoint and report the exact location of a failed LED. A SYNC pin allows clock synchronization across multiple drivers, keeping scan timing consistent in multi-chip displays.

"ISDs are redefining how a vehicle communicates with the world around it," said Aaron Reynoso, Director of Analog Marketing. "The IS32FL3761 packs 396 dots of individually dimmable, fully diagnosable driver into a single 7mm×7mm package. That density lets our automotive customers build bigger, smoother, smarter signaling surfaces with fewer components, smaller boards, and faster time-to-market."

The IS32FL3761 operates from 2.7V to 5.5V and is AEC-Q100 qualified with Temperature Grade 1 (-40°C to +125°C). The device is available in mass production quantities in a QFN-60 (7mm×7mm) package. The ordering part number is IS32FL3761-QFLCA3-TR, supplied 2,500 units per reel. For ICs, evaluation board samples, reference designs, or general inquiries, please contact your Lumissil sales representative or authorized distributor.

### **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: <https://www.lumissil.com>

Afrith Anifa  
[afrith@lumissil.com](mailto:afrith@lumissil.com)

Lyn Zastrow  
[lzastrow@lumissil.com](mailto:lzastrow@lumissil.com)



### IS32FL3761

## Feature Highlights

- ▲ Configurable Matrix Size
  - Matrix size 33 x n (n=2-12)
  - 16 drivers x 396 LEDs = 6,336 artifact-free pixels on a single synchronized bus
- ▲ 312kHz PWM Frequency @ 6+2-bit dither mode
- ▲ Selectable I2C (1MHz) or SPI (12MHz) bus interface

