

Lumissil Introduces a High-Voltage, Dual-Channel LED Lighting Controller for 48V Automotive Systems

Flexible dual-channel LED controller for 48V automotive LDMs, supporting 5–80V multi-topology designs

MILPITAS, CA., June 8, 2026 – Lumissil Microsystems today unveiled the IS32LT3962, a dual-channel LED controller designed to drive two independent high-voltage LED strings for automotive applications such as high/low beam headlights, DRLs, and turn signals. Its architecture enables Lamp Driver Modules (LDMs) to support two functions (e.g., high beam and low beam) with a single IC, reducing PCB space.

As automotive lighting transitions from traditional 12V to 48V systems, designs using the IS32LT3962 benefit from improved power efficiency, reduced thermal stress, and lower wiring harness cost and weight. The device supports a wide 5–80V input/output range for 24–48V battery systems and enables flexible designs using buck, buck-boost, SEPIC, or boost topologies on each channel. It supports both analog and internal/external PWM dimming per channel, with optimized soft-start for improved low duty-cycle performance. Dual analog dimming pins enable LED binning and thermal current roll-off using an external NTC, while programmable undervoltage current reduction improves robustness during supply transients. Spread spectrum operation combined with 180° phase shifting helps reduce system-level EMI.

Single IC, Multiple Lighting Functions

The dual output channel IS32LT3962 enables independent channel brightness control, with combined analog and internal/external PWM dimming; designers can enable compact lighting solutions. “With the IS32LT3962, automotive lighting designers can feature multiple applications such as headlamp high/low beam, turn signal, DRL using just one IC; this also reduces the wiring complexity for the system”, said Aaron Reynoso, Dir. of Analog Marketing. “This multi-topology, dual-channel architecture delivers precise, independent LED string controls with flexible multi-mode dimming. As a controller-based solution, the IS32LT3962 also allows designers to select external NMOS FETs to optimize efficiency and meet varying current requirements.”

Availability

The IS32LT3962 is available now in a compact WFQFN-32 Package with an exposed pad for enhanced thermal dissipation and specified for operation from -40°C to +125°C automotive temperature grade 1. The ordering part number is IS32LT3962-QWLCA3-TR and comes in 2,500 units 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: <https://www.lumissil.com>

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IS32LT3962

Feature Highlights

- ▲ Dual-Channel Multi-Topology Outputs
- ▲ 5-80V Input/Output Range
- ▲ $\pm 2.8\%$ Output Current Accuracy Over -40°C to $+150^{\circ}\text{C}$
- ▲ Standalone Dual Brightness Internal PWM



LDM / LCM Module