



Analog and Discrete  
Power Solutions

## **12-Channel LED Driver from Diodes Incorporated Enables Superior Performance for Digital Signage and Displays**

**Plano, Texas – August 29, 2024** – Diodes Incorporated (Diodes) (Nasdaq: DIOD) today introduces a new 12-channel, constant-current LED driver, the [AL58221](#). It features 12 open-drain outputs that are rated to 24V and sink up to 60mA of high-accuracy current with a fast transient response. The channel-to-channel LED current accuracy is typically  $\pm 1\%$  and the regulated output current tolerance is  $\pm 0.1\%$ .

Operating over a 3V to 5.5V input, the driver uses adaptive pulse density modulation (APDM) to help mitigate non-ideal  $I_{OUT}$  distortion and enhance visual refresh rates for enhanced performance. It can be used for indoor and outdoor LED video signage and displays, variable messaging signs (VMS), architectural and decorative LED lighting systems, and LCD backlighting.

The AL58221's LED current is set by three external resistors (for RGB master setting), with each channel's average output current being programmed independently via its digital interface. It features a 10MHz double-edge triggered data clock input that reduces EMI. The device's two-wire serial interface sends grayscale data to the function-control registers that store the configuration information. It controls grayscale resolution and clock frequency, current output waveform selection, and internal-latch function.

The driver uses APDM to increase the visual refresh rate of  $> 1,000\text{Hz}$  at 16-bit and  $> 256\text{kHz}$  at 8-bit grayscale. This technique reduces flicker and provides output-current bilateral processing for EMI reduction. The AL58221 uses a clock duty recovery technique with pulse retiming to support a longer distance connection. Its two-wire serial interface also enables cascading applications for up to 1,030 devices.

Within the same LED driver family, the recently introduced AL58263 is a 16-channel device with 16-bit PWM grayscale dimming control for higher resolution and larger display panel applications.

The [AL58221](#) and AL58263 are available in the thermally enhanced TSSOP-24EP (Type A1-B) package at \$0.37 and \$0.47 respectively in 1,000-piece quantities.

**About Diodes Incorporated**

Diodes Incorporated (Nasdaq: DIOD), a Standard and Poor's SmallCap 600 and Russell 3000 Index company, delivers high-quality semiconductor products to the world's leading companies in the automotive, industrial, computing, consumer electronics, and communications markets. We leverage our expanded product portfolio of analog and discrete power solutions combined with leading-edge packaging technology to meet customers' needs. Our broad range of application-specific products and solutions-focused sales, coupled with global operations including engineering, testing, manufacturing, and customer service, enable us to be a premier provider for high-volume, high-growth markets. For more information, visit [www.diodes.com](http://www.diodes.com).

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