

## Ultra-Low Voltage Drop Linear LED Driver with 5KV ESD Vin and Adjustable Output Current

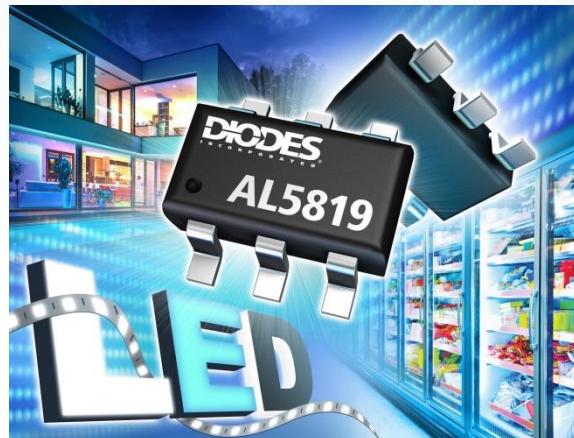
The DIODES™ AL5819 is a 36V linear LED driver with a 250mV minimum operating overhead and excellent temperature stability. Its output current is adjustable up to 100mA, which is set by an external resistor.

The device's 5V to 36V input voltage range and 250mV minimum overhead enables it to drive more LEDs from a given power rail than traditional linear LED driving solutions, making it ideal for 5V, 12V, and 24V LED lamps and strips.

The LED current is adjusted by an external, high-value  $R_{SET}$  resistor that does not impact the LED current path. The resistor instead maintains the output-current accuracy while minimizing the required headroom to regulate the LED current.

The AL5819 has built-in thermal foldback protection, which reduces its output current once the junction temperature is above 135°C.

The device is available in the SOT26 (Type SM) package with a 5kV HBM rating on the Vin.



### The DIODES™ Advantage

The AL5819's low minimum voltage drop allows it to drive longer LED chains in 12V and 24V lamps.

- **Low Minimum Voltage Drop of 250mV Max @ 60mA**  
Drives more LEDs per chain than traditional LED drivers
- **Adjustable Output Current up to 100mA with High-Value Current-Setting Resistor**  
Provides a simple current-setting solution without affecting LED chain voltages
- **5V to 36V Wide Input Voltage Range**  
Supports standard 5V, 12V, and 24V lamps
- **Thermal Foldback Protection  $T_j > 135^\circ\text{C}$**   
Improves the reliability of LED lamps by reducing the LED current
- **PWM Dimming via MOSFET on  $R_{SET}$  Control and Vin**  
Enables a simple solution for brightness control
- **Improved 5kV HBM ESD Rating on Vin**  
Improves ruggedness of lamps, particularly in 12V strip lamps

### Applications

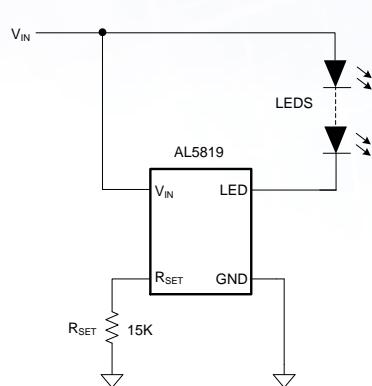
- LED strip lamps and displays
- LED displays and channel letters
- Architectural and landscape lighting
- Retail lighting in fridges, freezer cases, and vending machines

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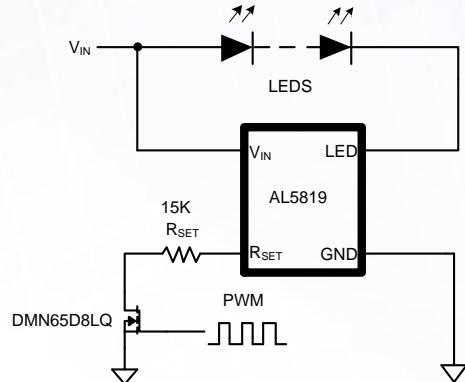
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### Typical Application



Non-Dimming Application



PWM Dimming Application

### Product Portfolio

Part Number	Min. Input Voltage	Max. Input Voltage	Max. Output Current	Reference Voltage Accuracy	Thermal Foldback Trip Temperature	Operating Temp. Range	Dimming Method			Package
	V	V	mA	±%	°C	°C	VIN	Analog	PWM	
<a href="#">AL5819</a>	5	36	100	5	135	-40 ~ +125	Y	N	Y	SOT26 (Type SM)
<a href="#">BCR430UW6</a>	5	42	100	5	125	-40 ~ +125	N	N	Y	SOT26

### Ordering Information

Orderable Part Number	Package	Moisture Sensitivity	Packing	
			Quantity	Carrier
<a href="#">AL5819W6-7</a>	SOT26 (Type SM)	MSL-3	3000	7" Tape and Reel