



Expertise Applied | Answers Delivered

## Deliver High Reliability, Low Maintenance, and Long Term Life of LED Lighting Products

From 1W to 300W, indoor, outdoor—even highly exposed pole-mounted applications—Littelfuse offers a wide range of protection technologies that enhance LED lighting designs with solutions that minimize maintenance and warranty costs.

### Varistor Products ▶

#### TMOV® Series

The TMOV's integrated thermal element helps facilitate TVSS module compliance, with appropriate enclosure, to UL1449 for both cord connected and permanently connected applications. The TMOV offers quick thermal response and lower inductance than most discrete solutions resulting in improved clamping performance to fast over voltage transients.



### Fuse Products ▶

#### 464 Series

Offering a miniature, fast-acting surface-mount 250V fuse, compliant with IEC Publication IEC60127-4, the 464 series was specifically designed to support power supply and lighting systems designs.



#### 477 and 505 Series

Both designed for high energy and power supply applications: The 477 series offers 400 VDC/500 VAC rated, time-lag, surge withstand fuses offered in a miniature 5 mm x 20 mm package. The 505 series offers 500 VAC/VDC rated fuse with remarkable interrupting rating up to 50 kA in a 6.3 mm x 32 mm package.



### TVS Diode Products ▶

#### AK6/AK10 Series

The AK6 and AK10 series are very high-current rated Transient Voltage Suppressors (TVS) designed specially to protect AC and DC line inputs from damaging transient voltages. Rated at 6 kA (8 μs x 20 μs) and 10 kA (8 μs x 20 μs) the AK series is ideal for applications intended for very harsh environments.



#### 15KPA/30KPA Series

The 15KPA and 30KPA are high-current rated Transient Voltage Suppressors (TVS) designed to protect AC and DC input lines from damaging transient voltages. Rated at 15,000W and 30,000W respectively, these TVS are ideal to protect LED lighting applications intended for exposed environments.



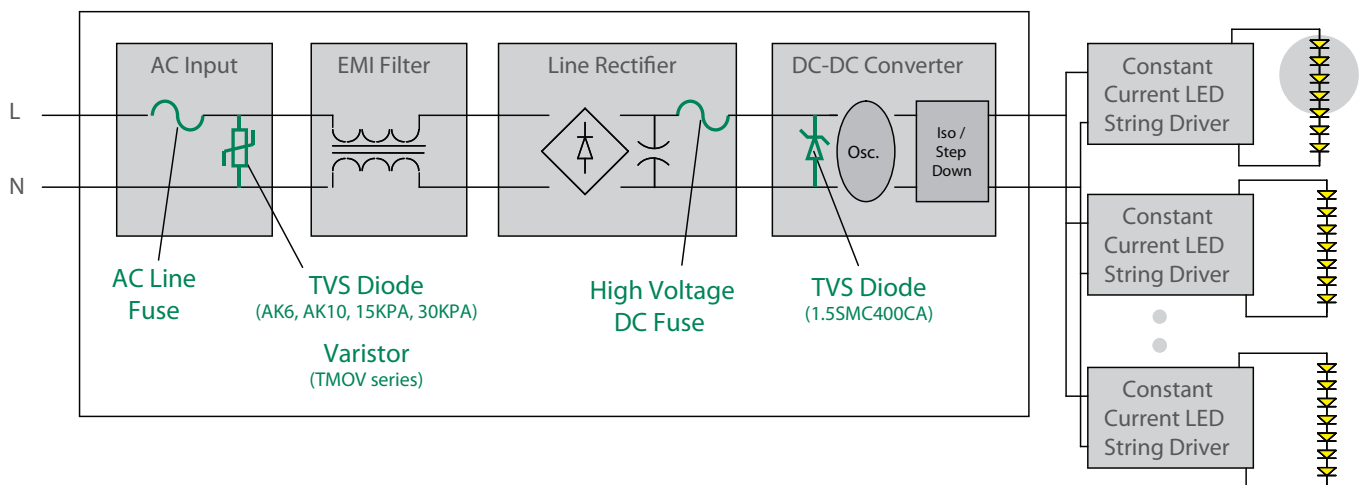
#### 1.5SMC Series

The 1.5SMC series is a Transient Voltage Suppressor (TVS) device rated at 1,500W making it ideal to protect DC-DC converters from transient voltages. The 1.5SMC series is packaged in a surface-mount DO-214AB (SMC).

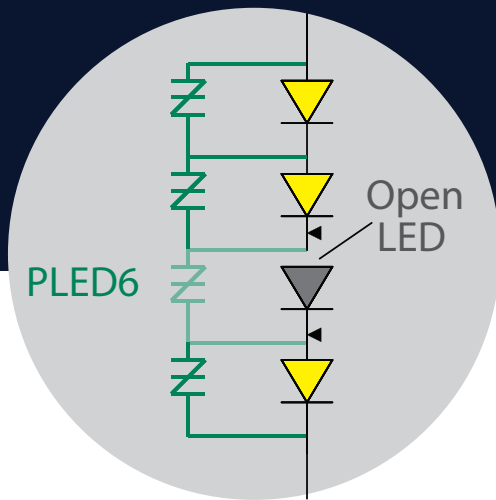


### Switch Mode Power Supply

### LED Arrays

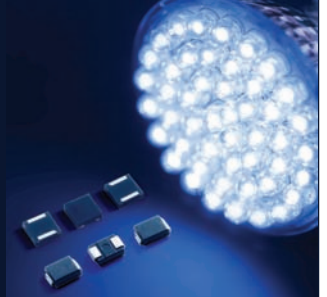


## Spotlight On ▶



# PLED

## Open LED Protector Series

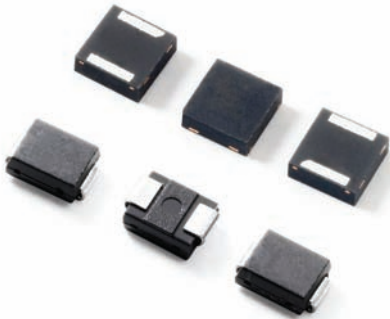


The new Littelfuse PLED series provides added reliability to LED lighting designs by minimizing the impact due to the loss of a single LED in a series string of LEDs.

The PLED provides a switching electronic shunt path that activates only when an LED goes open circuit. This shunt path bypasses the open LED and allows current to flow to the remaining LED in the string.

- Compatible with 1W, 2W, and 3W LED that have a nominal 3V forward characteristic
- Available in DO-214 AA or a chip scale QFN package
- Automatically resets after a power cycle
- Compatible with PWN dimming speeds up to 10 KHz
- Available in the following versions:
  - 6V – Ideal for placing in parallel with a single LED
  - 9V – Ideal for placing parallel with 2 LED
  - 13V – Ideal for placing in parallel with 3 LED

By minimizing the impact due to the loss of a single LED, the PLED is ideal for high reliability LED lighting destined for harsh environments.



Littelfuse offers one of the broadest and deepest portfolios of circuit protection products and a global network of technical support.

Visit our design support center to access:

- |                       |                           |                           |
|-----------------------|---------------------------|---------------------------|
| • Reference designs   | • SPICE models            | • Technical articles      |
| • Application notes   | • Local technical support | • Certification documents |
| • Application testing | • Product samples         | • Data sheets             |

Visit [lighting.arrow.com/designtools](http://lighting.arrow.com/designtools) to access design tools including the Littelfuse design support center.