



New Product Announcement

AL1698K

High Power-Factor, Boost LED Driver Delivers 95% Efficiency with Fast Start-Up in Offline Interior LED Lamps

The DIODES AL1698K is a high-efficiency and high power-factor off-line LED driver. It supports boost, buck-boost, and flyback topologies and also triac dimmable LED lamps compliant with the NEMA SSL6 standard.

The AL1698K's high-precision current sense provides an accurate output current across wide line and load variation. In boost topology it achieves up to 95% efficiency enabling it to meet the latest lighting regulatory high-efficiency requirements. Operating in boundary conduction mode (BCM), its wide switching frequency eases EMI/EMC design and testing.

The AL1698K LED driver integrates a 600V/2A high-voltage MOSFET, enabling it to cover both 120V_{AC} and 230V_{AC} mains-driven LED lighting applications without an external high-voltage MOSFET. A built-in high-voltage JFET enables a fast system start-up and a stable V_{CC} supply design.

Its built-in thermal foldback protection automatically reduces output current, thereby reducing potential temperature flickering.

The AL1698K works with a wide range of leading-edge and trailing-edge dimmers, and achieves deep dimming down to 1%.

It is available in the SO-7 package.

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The DIODES Advantage

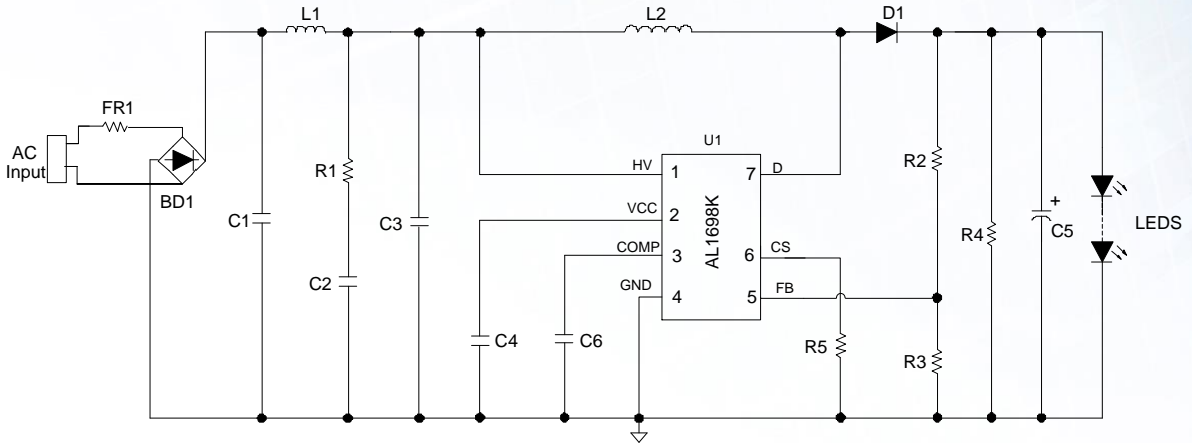
The AL1698K provides a high-efficiency, high power-factor solution that meets the latest requirements of LED lamps.

- **High-Efficiency Boost Topology up to 95%**
Meets latest lamp efficiency targets
- **Integrated 600V/2A High-Voltage MOSFET**
Supports both 120V and 230V LED lamps with low BOM costs
- **Integrated High-Voltage JFET for Fast Start-Up**
Supports fast LED lamp start-up times with low BOM costs
- **Full Protection Feature Set**
Undervoltage lockout (UVLO), thermal foldback (TFP), overvoltage (OVP), overcurrent (OCP), overtemperature (OTP), and leading-edge blanking (LEB) provide robustness and reliability
- **Compatible with a Wide Range of Leading- and Trailing-Edge Triac Dimmers**
Simplifies lamp designs to adhere with traditional dimming methods

Applications

- Mains retrofit Tx tube LED lamps
- LED high bay lamps
- LED power supply modules
- Triac dimmable LED lamps

Typical Application



AL1698K Boost Topology LED Lamp Circuit

Product Portfolio

Part Number	Min Input Voltage	Max Input Voltage	CS Accuracy	Efficiency	Operating Temp Range	High Power Factor	Fast System Startup	Dimming	Dimming Standard	Topology	Package
	V _{AC}	V _{AC}	%	%	°C						
AL1698K	85	265	±3	95	-40 to +105	>0.9	Y	Triac	NEMA SSL6	Boost, Fly-Back, Buck-Boost	SO-7
AL1698	85	265	±3	85	-40 to +105	>0.9	Y	Triac	NEMA SSL6	Fly-Back, Buck-Boost	SO-7

Ordering Information

Orderable Part Number	Compliance (Only Automotive Supports PPAPs)	Package	Moisture Sensitivity	Packing	
				Quantity	Carrier
AL1698K-20CS7-13	Standard	SO-7	MSL-1	4,000	13" Tape and Reel