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High Performance Non-Isolated Buck PFC Controller

FEATURES

- Low Cost LED Driver Solution with Typical Non-Isolated Buck PFC
- Quasi-Resonant Switching to Achieve >90% Efficiency
- Accurate LED Output Current $\leq \pm 1\%$ Control with Universal Input
- Proprietary Constant On-time Control for $PF > 0.97$
- Proprietary ZCD Method to Save Auxiliary Winding Design
- Building-in Complete Protection:
 - LED Open and Short Protection
 - Cycle-by-Cycle Over Current Protection
 - OVP for IC Bias Voltage
 - Maximum and Minimum Switching Frequency Limit
 - Built-in Thermal Protection
- RoHS Compliant and Halogen Free
- Available with SOT23-6 Package

APPLICATIONS

- LED Driver Power Supplies
- Commercial and Residential LED Fixtures
- Non isolated Applications E27, PAR30,
- Offline LED Lights
- 5w-35w typical application.

GENERAL DESCRIPTION

KP101 is a pulse-width modulated (PWM) controller with integrated high side floating gate driver. This switching mode power supply controller is intended for driving low to medium power single stage power factor corrected (PFC) LEDs. The devices operate in boundary mode and are suitable for buck topologies. Constant on-time boundary mode control scheme guarantees high power factor and low gate turn-on loss. Build-in gate control limits the switching frequency range from 16 kHz to 200 kHz, solving the audible noise and high switching loss issue inherited from boundary mode operation: the switching frequency will change with variation of line voltage, load voltage or load current.

The devices feature a gate driver, duty cycle limiter, error amplifier, PWM control circuitry and protection functions, as well as the proprietary zero cross detection (ZCD) technique required to implement a boundary mode switch power supply. The accurate output LED current is achieved by an average current feedback loop. The fault protection features include Under Voltage Lockout (UVLO), Over Current Protection (OCP), Over Voltage Protection (OVP) and thermal protection function (OTP). Moreover, for high efficiency, the device features low startup current enabling fast, low loss charging of the VIN capacitor.

TYPICAL APPLICATION

