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New Product Announcement

AP1688

# Universal Input Voltage, High Power Factor and High Efficiency LED Buck Controller

The AP1688 is a high power factor, constant current buck controller for universal input voltage applications. The buck controller operates under Boundary Conduction Mode (BCM) to achieve high efficiency, low electromagnetic interference (EMI) and low total harmonic distortion (THD).

Open loop control is adopted for the AP1688, which achieves excellent line and load regulation.

AP1688 features fast start-up, low start-up current, low operation current and high efficiency.

It also has comprehensive protection features including under-voltage lock out (UVLO), over-voltage protection (OVP), over-current protection (OCP), over- protection (OTP) and LED short and open protection.


## The Diodes' Advantage

**The AP1688 provides a simple cost effective solution for general illumination LED lamps and LED Tubes.**

- **Universal High Power Factor Buck Solution**
  Low cost BOM solution
- **Built-in UVLO, OVP, OCP, OTP, LED short and open Protection**
  Provides full protection functions
- **Good line regulation and load regulation**
  Solution can meet universal input voltage with full load applications
- **Boundary Conduction Mode (BCM) Operation**
  Achieves higher efficiency and EMI reduction using fewer components
- **High Efficiency Up to 90%**
  High efficiency saves energy

## Applications

- LED tubes
- Retrofit Par38
- Down light

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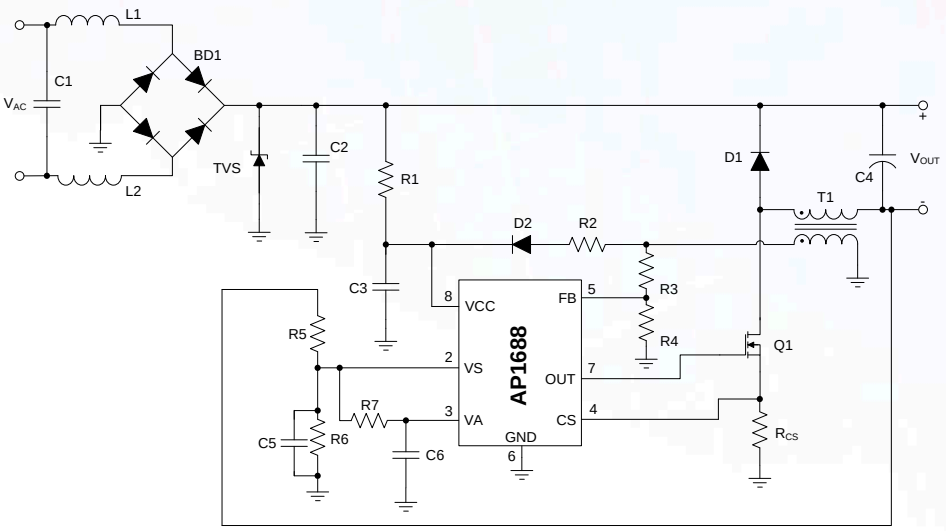
## Typical Application: LED Tubes




## Diodes Offline LED Drivers

| Part Number | Max. Output Voltage | Max. LED Current | current accuracy | Efficiency | Operating temp range | High Power Factor | Triac Dimmable | Topology | Package Outline | Comments |
|---|---|---|---|---|---|---|---|---|---|---|
| | V | mA | % | % | ˚C | | | | | |
| AP1684A | **80** | External MOSFET | +/-2 | 90 | -40 ~ 105 | Y | N | Buck | SO-8 | External MOS For >10W lamps |
| AP1685 | **80** | 200 | +/-2 | 90 | -40 ~ 105 | Y | N | Buck | SO-7 | Internal MOS for <10W Lamps |
| AP1688 | 80 | External MOSFET | +/-3 | 90 | -40 ~ 105 | Y | N | Buck | SO-8 | External MOS For >10W lamps |

To find out more information:
LED Driver Web page http://diodes.com/catalog/off_line_led_drivers_183/
Datasheet http://www.diodes.com/datasheets/AP1688.pdf

## Ordering Information

| Device | Packaging | Marking ID | Reel Size | Tape width | Quantity |
|---|---|---|---|---|---|
| AP1688MTR-G1 | SO-8 | 1688-G1 | 13” | 12mm | 4000 |