

### Description

The BP3316D is a high precision primary-side regulation driver with single stage Active PFC, specially designed for universal input offline flyback or buck-boost constant current LED lighting. The driver with on-chip PFC circuit achieves high power factor and low THD. Operating in critical conduction mode, the power MOSFET switching loss is reduced and the inductor is fully utilized.

The BP3316D adopts proprietary primary side current sensing scheme. It can precisely control the LED current without secondary side sense and feedback circuits. The device integrates a 650V power MOSFET to further reduce external components, for saving cost and PCB area.

The BP3316D utilizes patented line and load voltage compensation method to achieve excellent line and load regulation.

The BP3316D offers rich protection functions to improve the system reliability, including LED open circuit protection, LED short circuit protection, VCC over voltage protection, VCC under voltage protection, CS resistor open protection and cycle by cycle current limit. All the protection functions are auto-recovery. The system reliability is further improved by the thermal regulation function. The output current is reduced when the driver is over temperature.

### Typical Application

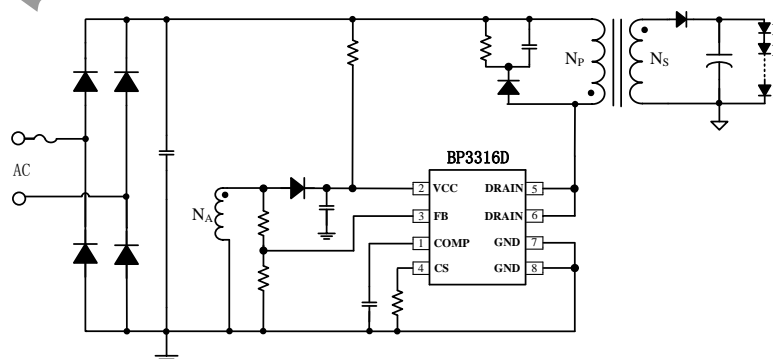


Figure 1. Typical application circuit for BP3316D

### Features

- Single-Stage Active PFC for High Power Factor and Low THD
- Primary Side Control Constant Current Operation, No Opto-Coupler required
- Integrated 650V Power MOSFET
- $\pm 3\%$  LED Current Accuracy
- Excellent Line and Load Regulation
- Critical Conduction Mode Operation
- Ultra-Low (33uA) Startup Current
- High Resistance Feedback Resistor for Improved Efficiency
- LED Open and Short Circuit Protection
- CS Resistor Open Circuit Protection
- Cycle-by-Cycle Current Limit
- V<sub>CC</sub> Over-voltage and Under-voltage Protection
- Auto Fault Recovery
- Thermal Regulation Function
- Available in DIP-8 package

### Applications

- LED Bulb, Spot Light
- PAR30, PAR38 LED Lamp
- T8/T10 LED String
- Other LED Lighting

### Ordering Information

Part Number	Package	Operating Temperature	Package Method	Marking
BP3316D	DIP8	-40 °C to 105 °C	Tube 50 Piece/Tube	BP3316D XXXXXY WXY

### Pin Configuration and Marking Information

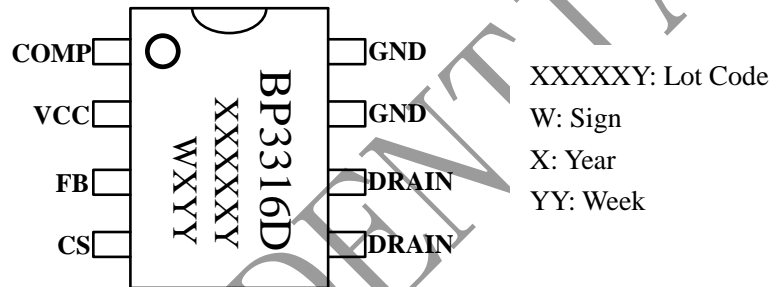


Figure 2. Pin configuration

### Pin Definition

Pin No.	Name	Description
1	COMP	Loop Compensation Node. This pin connects a capacitor to GND for stabilization of the control loop, achieving accurate LED current, high Power Factor and low THD.
2	VCC	Power Supply Pin. Connect a bypass capacitor from this pin to GND.
3	FB	Feedback Voltage Input Pin. This pin detects the transformer demagnetization signal and the output voltage.
4	CS	Current Sense Pin. Connect a resistor to GND to sense the power MOSFET current.
5,6	DRAIN	Internal HV Power MOSFET Drain.
7,8	GND	Ground.