BP3319MB

PSR Single-Stage APFC Offline LED Controller

Description

The BP3319MB is a high precision primary-side regulation PWM controller with single stage Active PFC, specially designed for universal input offline flyback or buck-boost constant current LED lighting. The controller 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 BP3319MB adopts proprietary primary side current sensing scheme. It can precisely control the LED current without secondary side sense and feedback circuits. The system size and cost are optimized, as well as the system reliability.

The BP3319MB utilizes patented line and load voltage compensation method to achieve excellent line and load regulation. And the line compensation factor can also be tuned externally for flexibility.

The BP3319MB 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 controller is over temperature.

Features

- Single-Stage Active PFC for High Power Factor and Low THD
- Primary Side Control Constant Current Operation, No Opto-Coupler required
- ±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_{CC} Over-voltage and Under-voltage Protection
- Auto Fault Recovery
- Thermal Regulation Function
- Available in Tiny SOP8 package

Applications

- E27/ GU10 LED Bulb, Spot Light
- PAR30, PAR38 LED Lamp
- T8/T10 LED String
- Other LED Lighting

Typical Application

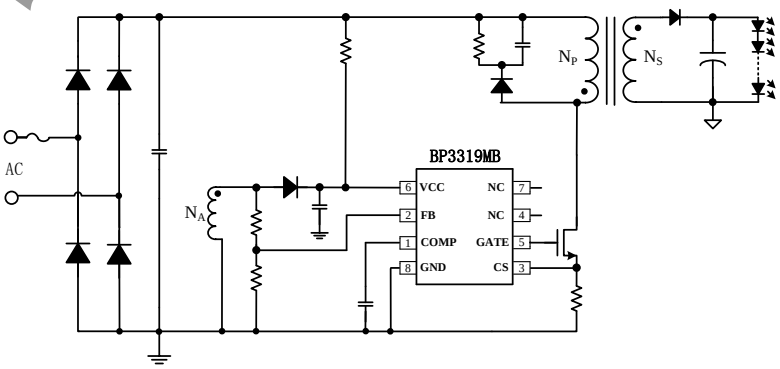


Figure 1. Typical application circuit for BP3319MB

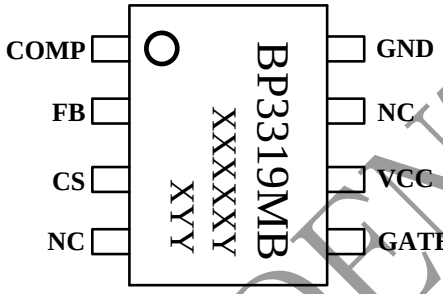
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Ordering Information

Part Number	Package	Operating Temperature	Packing Method	Marking
BP3319MB	SOP8	-40 ℃ to 105 ℃	Tape 4,000 Piece/Reel	BP3319MB XXXXXY XYY

Pin Configuration



XXXXXY: lot code
X: Year
YY：Week

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	FB	Feedback Voltage Input Pin. This pin detects the transformer demagnetization signal and the output voltage.
3	CS	Current Sense Pin. Connect a resistor to GND to sense the power MOSFET current.
4,7	NC	No connection.
5	GATE	Gate Driver Pin. Connect this pin to the gate of external power MOSFET.
6	VCC	Power Supply Pin. Connect a bypass capacitor from this pin to GND.
8	GND	Ground.

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