High-Efficiency CrM Boost PFC Controller

1 Descriptions

The SC3201 is a Power Factor Correction (PFC) controller which is applied to boost converter. It features High performance by using multi-mode control strategy. At heavy load or full load, it operates in Critical conduction Mode (CrM). When load decreases, it operates in Discontinuous Conduction Mode (DCM) with valley switching and lower frequency for high efficiency. And at no load, the IC will operate in Burst Mode to reduce power consumption and minimize audio noise. Using SC3201 together with the Flyback controller and secondary synchronous rectifier controller, high efficiency over full load can be achieved, and extremely low standby power consumption of system can easily meet the efficiency regulations.

Benefit from the SC3201, the PFC stage will obtain nearly unity power factor and sinusoidal line input current with few external components.

SC3201 offers comprehensive protections to prevent the circuit from damage under abnormal conditions.

SOT23-6 package is provided to simplified user's design and reduced system cost

2 Features

- Unity power factor and low THD
- Critical conduction mode (CrM)
- Boost follow mode
- Valley switching operation with frequency fold-back
- No need for second winding on boost inductor
- High Efficiency and Ultra-low no-load input power
- Burst mode with noise immunity
- Comprehensive Protection
  - VDD under voltage protection
  - Cycle-by-cycle current limit
  - Second independent output over-voltage protection
  - Inductor current CCM protection
  - Over-temperature protection
- Driver capability: 0.5A/-1.2A
- VCC Range: from 9 V to 30 V
- SOT23-6 package

3 Applications

- USB-PD chargers
- AC-DC adapters for Portable Devices
- Desktop computing and TV/Monitor
- LED drivers
- Industrial and communication power supplies
- Power tools chargers
- E-bike chargers