R2A20133DSP

Critical Conduction Mode PFC Control IC

R03DS0052EJ0100
Rev.1.00
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Description

The R2A20133D controls a boost converter to provide an active power factor correction.

The R2A20133D adopts critical conduction mode for power factor correction and realizes high efficiency and a low switching noise by zero current switching.

Because the zero current is detected by using the GND current, the ZCD Auxiliary winding is unnecessary.

The feedback loop open detection, two mode overvoltage protection, overcurrent protection are built in the R2A20133D, and can constitute a power supply system of high reliability with few external parts.

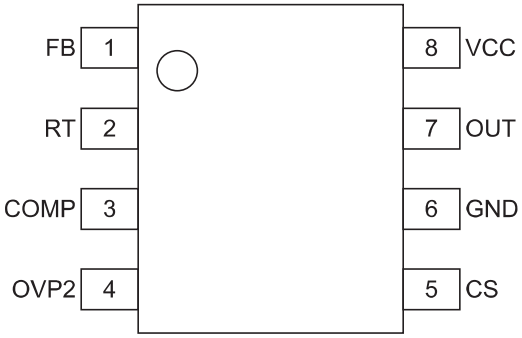
Features

- Absolute Maximum Ratings
  - Supply voltage Vcc: 24 V
  - Operating junction temperature Tjopr: –40 to +150°C
- Electrical characteristics
  - UVLO operation start voltage VH: 9.5 V ± 0.7 V
  - UVLO operation shutdown voltage VL: 8.5 V ± 0.4 V
  - UVLO hysteresis voltage Hysuvl: 1.0 V ± 0.4 V
- Functions
  - Boost converter control with critical conduction mode
  - Two mode overvoltage protection and OVP2
    Mode 1: Dynamic OVP corresponding to a voltage rise by load change
    Mode 2: Static OVP corresponding to overvoltage in stable.
    OVP2: OVP2 senses the PFC output voltage by independence pin.
  - Feedback loop, open detection
  - Overcurrent protection
  - Dynamic UVP corresponding to a voltage fall by load change
  - Frequency limiter, adjustable
  - Zero Current Detect (ZCD) delay time, adjustable
  - CS pin's open detection
  - Package lineup: Pb-free SOP-8 (JEDEC)

Ordering Information

Part No.	Package Name	Package Code	Package Abbreviation	Taping Abbreviation (Quantity)
R2A20133DSP#W5	—	PRSP0008DJ-A	SP	W (2,500 pcs/reel)

Pin Arrangement



(Top view)

Pin Functions

Pin No.	Pin Name	Function
1	FB	Error amplifier input terminal
2	RT	Max-ON time, ZCD-delay and Frequency limiter adjustment terminal
3	COMP	Error amplifier output terminal
4	OVP2	Over voltage detection terminal
5	CS	Zero current detection and overcurrent detection input terminal
6	GND	Ground
7	OUT	Power MOSFET drive terminal
8	VCC	Supply voltage terminal

Block Diagram