ISL99360, ISL99360B

Smart Power Stage (SPS) with Integrated High Accuracy Current and Temperature Monitors

The ISL99360 and ISL99360B are Smart Power Stages (SPS) compatible with the ISL68xxx/69xxx Digital Multiphase (DMP) controllers and phase doubler (ISL6617A), respectively. The ISL99360 and ISL99360B have integrated high accuracy current and temperature monitors that can be fed back to the controller and doubler to complete a multiphase DC/DC system. They simplify design and increase performance by eliminating the DCR sensing network and associated thermal compensation. Light-load efficiency is supported through a dedicated LFET control pin. An industry leading thermally enhanced 5x5 PQFN package allows minimal overall PCB real estate.

The ISL99360 and ISL99360B feature a 3.3V compatible, 5.0V compatible tri-state PWM input that works together with the Renesas multiphase PWM controllers to provide a robust solution in abnormal operating conditions. The ISL99360 and ISL99360B also improve system performance and reliability with integrated fault protection of UVLO, HFET short, over-temperature, and overcurrent. An open-drain fault reporting pin simplifies the handshake between the SPS and controllers and can disable the controller during start-up and fault conditions.

Related Literature

For a full list of related documents, visit our website:

- ISL99360 and ISL99360B device pages

Features

- Input range: +3.0V to +16V
- Supports 60A DC current
- ISL99360: 3.3V compatible tri-state PWM input
- ISL99360B: 5.0V compatible tri-state PWM input
- Downslope current sensing
- ±3% accuracy current monitor (IMON) with REFIN input
- 8mV/°C temperature monitor with OT flag
- Dedicated low-side FET control input
- Comprehensive fault protection for high system reliability
  - High-side FET short and overcurrent protection
  - Over-temperature protection
  - V_{CC} and V_{IN} Undervoltage Lockout (UVLO)
- Open-drain fault reporting output
- Up to 1.25MHz switching frequency
- RoHS compliant with Exemption 7a, 32 Ld 5x5 PQFN

Applications

- High frequency and high efficiency VRM and VRD
- Core, graphic, and memory regulators for microprocessors
- High density VR for server, networking, and cloud computing
- POL DC/DC converters and video gaming consoles

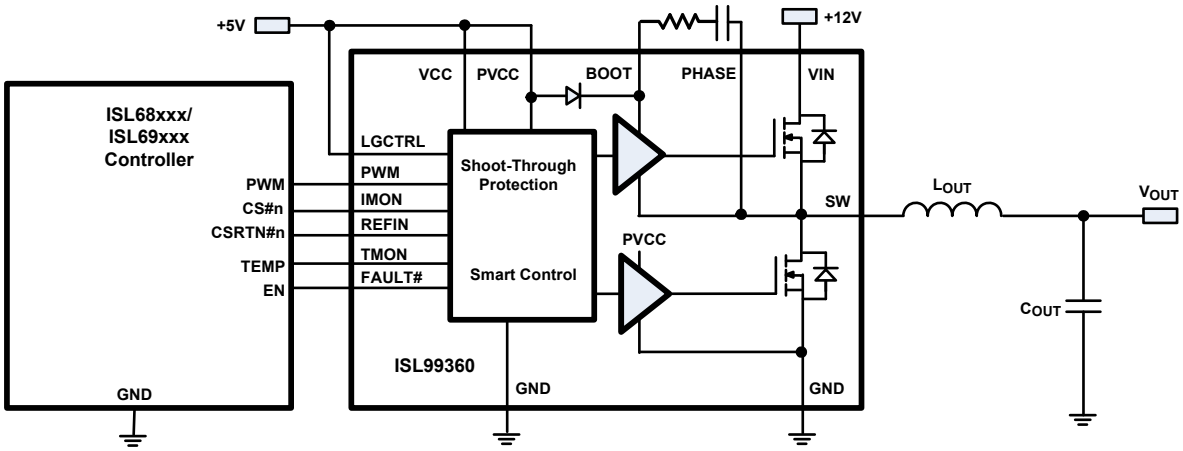

Figure 1. ISL99360 Simplified Application Block Diagram

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