RENESAS

ISL62884C

Single-Phase PWM Regulator for IMVP-6™ Mobile CPUs

The ISL62884C is a single-phase PWM buck regulator for microprocessor core power supply. It uses an integrated gate drivers to provide a complete solution. The PWM modulator of ISL62884C is based on Intersil's Robust Ripple Regulator (R^{3}™) technology. Compared with traditional modulators, the R^{3}™ modulator commands variable switching frequency during load transients, achieving faster transient response. With the same modulator, the switching frequency is reduced at light load, increasing the regulator efficiency.

The ISL62884C is fully compliant with IMVP-6™ specifications. It responds to DPRSLPVR signals by entering/exiting diode emulation mode. It reports the regulator output current through the IMON pin. It senses the current by using either discrete resistor or inductor DCR whose variation over-temperature can be thermally compensated by a single NTC thermistor. It uses differential remote voltage sensing to accurately regulate the processor die voltage. The adaptive body diode conduction time reduction function minimizes the body diode conduction loss in diode emulation mode. User-selectable overshoot reduction function offers an option to aggressively reduce the output capacitors as well as the option to disable it for users concerned about increased system thermal stress.

Features

- Precision Core Voltage Regulation
  - 0.5% System Accuracy Over-Temperature
  - Enhanced Load Line Accuracy
- Voltage Identification Input
  - 7-Bit VID Input, 0V to 1.500V in 12.5mV Steps
  - Supports VID Changes On-The-Fly
- Supports Multiple Current Sensing Methods
  - Lossless Inductor DCR Current Sensing
  - Precision Resistor Current Sensing
- Superior Noise Immunity and Transient Response
- Current Monitor
- Differential Remote Voltage Sensing
- High Efficiency Across Entire Load Range
- Integrated Gate Driver
- Adaptive Body Diode Conduction Time Reduction
- User-selectable Overshoot Reduction Function
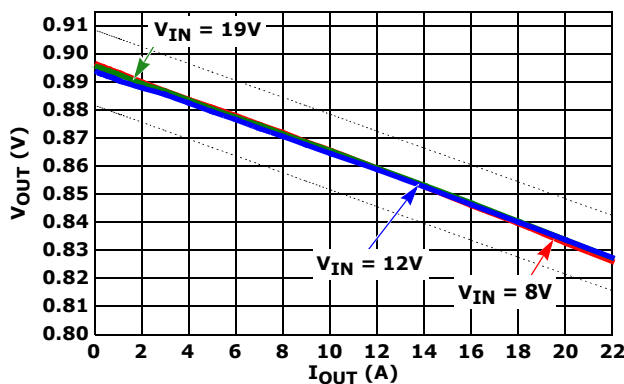- Small Footprint 28 Ld 4x4 TQFN Package
- Pb-Free (RoHS Compliant)

Applications*

- Notebook Core Voltage Regulator
- Notebook GPU Voltage Regulator

Related Literature*

- See **AN1545** for Evaluation Board Application Note "ISL62884CEVAL2Z Evaluation User Guide"

Load Line Regulation

For additional products, see www.intersil.com/en/products.html

Intersil products are manufactured, assembled and tested utilizing ISO9001 quality systems as noted
in the quality certifications found at www.intersil.com/en/support/qualandreliability.html

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