ISL91211A, ISL91211B

Triple/Quad Output Power Management IC

FN8922
Rev.1.00
May 8, 2017

The ISL91211A is a 4-phase, three output programmable Power Management IC (PMIC) and the ISL91211B is a 4-phase, four output programmable PMIC. They are optimized with highly efficient, synchronous buck converters capable of multiphase and single-phase operations that can deliver up to 5A per phase continuous output current. It features four buck controllers and has the capability to reconfigure its power stages to these controllers. This flexibility allows seamless design-in, in a wide range of applications where high output power and small solution size are needed.

ISL91211A and ISL91211B integrate low ON-resistance MOSFETs and programmable PWM frequency, allowing the use of very small external inductors and capacitors. They feature automatic Diode Emulation and Pulse Skipping modes under light-load conditions to further improve efficiency and maximize battery life. The ISL91211A and ISL91211B deliver a highly robust power solution by featuring a controller based on Intersil's proprietary R5 Technology, it provides tight output accuracy and load regulation, ultra-fast transient response, seamless DCM/CCM transitions, and requires no external compensation.

In addition to the standard interrupt, chip enable, and watchdog reset functions, ISL91211A and ISL91211B also feature four MPIOs and two GPIOs capable of supporting SPI, I^2C communication protocol, and various other pin mode functions.

Features

- ±0.7% system accuracy
- 2.5V to 5.5V supply voltage
- I^2C and SPI programmable output from 0.3V to 1.2V (Output range of 2V can be supported with a different factory OTP)
- 5A per phase output current capability
- Factory configurable output
  - ISL91211A . . . . 2 + 1 + 1 phase
  - ISL91211B . . . . 1 + 1 +1 +1 phase
- Independent Dynamic Voltage Scaling (DVS) for each output
- Low I_Q in Low Power mode
- Automatic Diode Emulation mode for highest efficiency
- Soft-start and fault detection (UV, OV, OC, OT)
- Remote sense monitor
- 2.551mm x 3.670mm 54 ball WLCSP with 0.4mm pin pitch

Applications

- Smart phones
- Tablet PCs
- Peripheral notebook power
- FPGA
- SSD
- Infotainment

Related Literature

- Visit our website product page for ISL91211
- UG109, "ISL91211x SPI Dongle GUI User Guide"
- UG111, "ISL91211AII-EVKIT1Z Evaluation Kit User Guide"
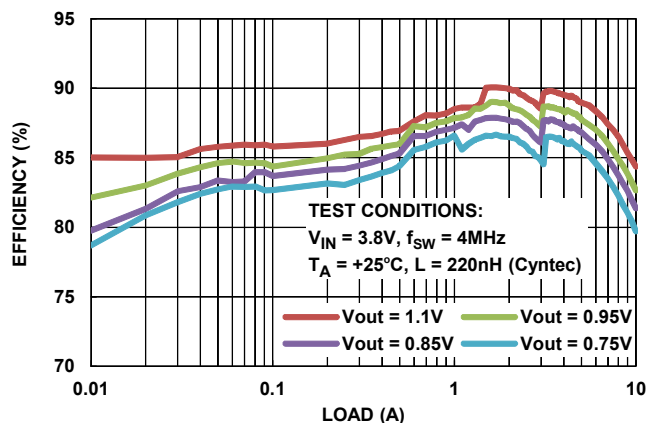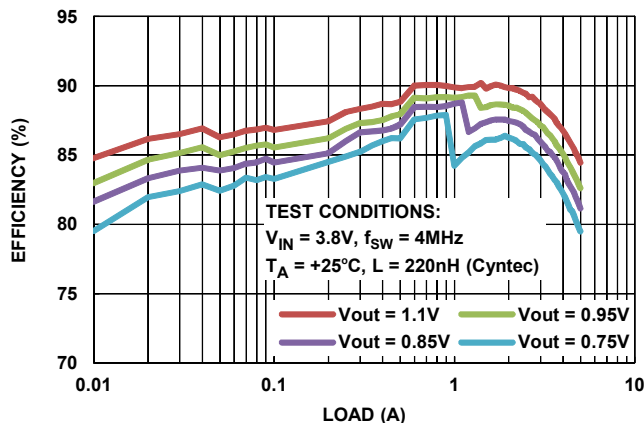- UG116, "ISL91211BII-EVKIT1Z Evaluation Kit User Guide"

TEST CONDITIONS:
V_{IN} = 3.8V, f_{SW} = 4MHz
T_A = +25°C, L = 220nH (Cyntec)

FIGURE 1A. DUAL PHASE

FIGURE 1B. SINGLE PHASE

FIGURE 1. EFFICIENCY vs LOAD

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

Intersil products are sold by description only. Intersil may modify the circuit design and/or specifications of products at any time without notice, provided that such modification does not, in Intersil's sole judgment, affect the form, fit or function of the product. Accordingly, the reader is cautioned to verify that datasheets are current before placing orders. Information furnished by Intersil is believed to be accurate and reliable. However, no responsibility is assumed by Intersil or its subsidiaries for its use; nor for any infringements of patents or other rights of third parties which may result from its use. No license is granted by implication or otherwise under any patent or patent rights of Intersil or its subsidiaries.

For information regarding Intersil Corporation and its products, see www.intersil.com