ISL91212AR5770, ISL91212BR5771, ISL91212BR5769, ISL91212BR5775, ISL91212BR5772

Triple/Quad Output Power Management ICs

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The ISL91212AR5770 is a 4-phase, three output programmable Power Management IC (PMIC) and the ISL91212BR5771, ISL91212BR5769, ISL91212BR5775, and ISL91212BR5772 are 4-phase, four output programmable PMICs. 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. They feature four buck controllers and can reconfigure their power stages to these controllers. This flexibility allows seamless design-in for a wide range of applications requiring high output power and small solution size.

These ISL91212 PMICs 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. These PMICs deliver highly robust power solutions by using a controller based on Intersil's proprietary R5 Technology, which provides tight output accuracy and load regulation, ultra-fast transient response, seamless DCM/CCM transitions, and require no external compensation.

In addition to the standard interrupt, chip enable, and watchdog reset functions, these ISL91212 PMICs feature three MPIOs and two GPIOs capable of supporting I^2C communication and various other pin mode functions.

Related Literature

- For a full list of related documents, visit our website
  - ISL91212AR5770, ISL91212BR5771, ISL91212BR5769, ISL91212BR5775, and ISL91212BR5772 product pages

Features

- Triple output 2+1+1 phases (ISL91212AR5770) or quad output single phase (ISL91212BR5771, ISL91212BR5769, ISL91212BR5775, and ISL91212BR5772)
- 2.5V to 5.5V supply voltage
- 5A per phase output current capability
- Small solution size (7x10mm^2 for four phase design)
- High efficiency (94.7% for $3.8V_{IN}/1.8V_{OUT}$)
- Low I_Q in low power mode
- Patented control scheme reduces output capacitor and supports fast load transient (such as 50A/µs/phase)
- ±0.7% system accuracy, remote voltage sensing
- Programmable PWM frequency from 2MHz to 6MHz
- I^2C programmable output from 0.3V to 2V
- Independent Dynamic Voltage Scaling (DVS) for each output
- Soft-start and fault detection (UV, OV, OC, OT), short circuit protection
- 2.551x3.67mm 35 ball WLCSP with 0.5mm pin pitch

Applications

- FPGA power
- Industrial MPU power, human machine interface
- Optical transceivers
- SSD

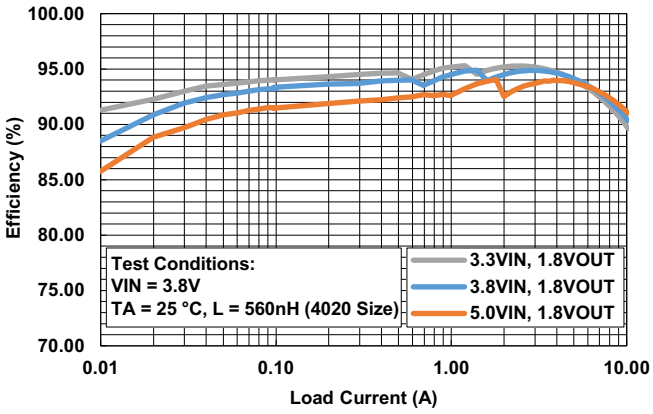

Figure 1. Dual Phase Efficiency

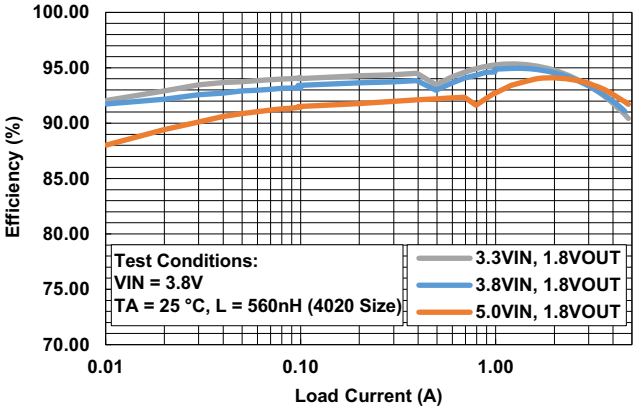

Figure 2. Single Phase Efficiency