

ISL91301A, ISL91301B

Triple/Quad Output Power Management IC

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The [ISL91301A](#) is a 4-phase, three output programmable Power Management IC (PMIC) and the [ISL91301B](#) is a 4-phase, four output programmable PMIC. They are optimized with highly efficient, synchronous buck converters capable of multiphase and single-phase operations. The devices can deliver 4A per phase continuous output current for 2.8V to 5.5V supply voltages or 3A per phase current for wider 2.5V to 5.5V supply voltages. It features four buck controllers and has the capability to reconfigure its power stages to these controllers. This flexibility allows seamless design-in for a wide range of applications that require high output power and small solution size.

The ISL91301A and ISL91301B 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 ISL91301A and ISL91301B deliver a highly robust power solution by featuring a controller based on the Renesas proprietary R5 Technology. The controller 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, the ISL91301A and ISL91301B also feature four MPIOs and two GPIOs capable of supporting SPI, I²C communication protocol, and various other pin mode functions.

Features

- Triple output 2+1+1 phases (ISL91301A) or quad output single phase (ISL91301B)
- 4A per phase for the 2.8V to 5.5V supply voltage, VIN_SEL = AVIN
- 3A per phase for the 2.5V to 5.5V supply voltage, VIN_SEL = GND
- Small solution size (6x8mm² for 4-phase design)
- High efficiency (93% for 3.8V_{IN}/1.8V_{OUT})
- Low I_Q in low power mode
- ±0.7% system accuracy, remote voltage sensing
- Programmable PWM frequency from 2MHz to 6MHz
- I²C 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
- 2.570mmx2.919mm 42 ball WLCSP with 0.4mm pitch

Applications

- Smart phones
- Wearable devices
- Tablet PCs
- SSD
- Infotainment

Related Literature

For a full list of related documents, visit our website

- [ISL91301A](#), [ISL91301B](#) product pages

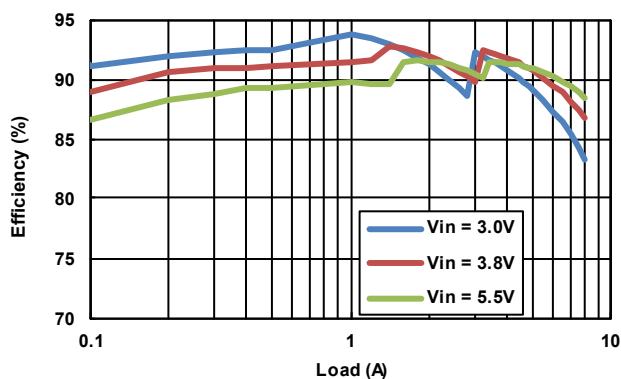


Figure 1. Dual Phase Efficiency (V_{OUT} = 1.8V), Load Sweep (0.1A to 8A)

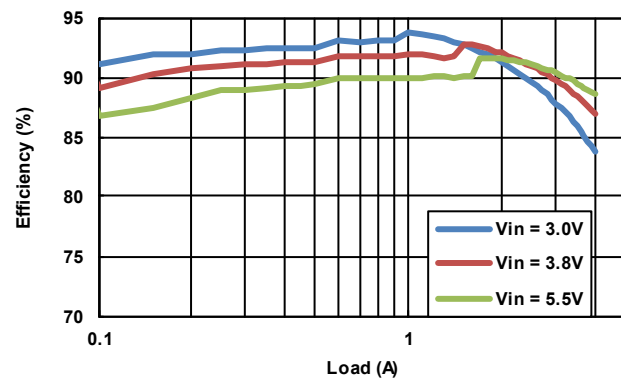


Figure 2. Single Phase Efficiency (V_{OUT} = 1.8V), Load Sweep (0.1A to 4A)

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