

ISL6364

Dual 4-Phase + 1-Phase PWM Controller for VR12/IMVP7 Applications

FN6861
 Rev 2.00
 August 27, 2013

The ISL6364 is a dual PWM controller; its 4-phase PWMs control the microprocessor core or the memory voltage regulator, while its single-phase PWM controls the peripheral voltage regulator for graphics, system agent, or processor I/O.

The ISL6364 utilizes Intersil's proprietary Enhanced Active Pulse Positioning (EAPP) modulation scheme to achieve extremely fast transient response with fewer output capacitors.

The ISL6364 is designed to be compliant to Intel VR12/IMVP7 specifications. It accurately monitors the load current via the IMON pin and reports this information via the IOUT register to the microprocessor, which sends a PSI# signal to the controller at low power mode via SVID bus. The controller enters 1 or 2-phase operation in low power mode (PSI1); in the ultra low power mode (PSI2,3), it operates in single phase with diode emulation option. In low power modes, the magnetic core and switching losses are significantly reduced, yielding high efficiency at light load. After the PSI# signal is de-asserted, the dropped phase(s) are added back to sustain heavy load transient response and efficiency.

Today's microprocessors require a tightly regulated output voltage position versus load current (droop). The ISL6364 senses the output current continuously by measuring the voltage across a dedicated current sense resistor or the DCR of the output inductor. The sensed current flows out of the FB pin to develop a precision voltage drop across the feedback resistor for droop control. Current sensing also provides information for channel-current balancing, average overcurrent protection and individual phase current limiting. The TM and TMS pins sense an NTC thermistor's temperature, which is internally digitized for thermal monitoring and for integrated thermal compensation of the current sense elements of the respective regulator.

The ISL6364 features remote voltage sensing and completely eliminates any potential difference between remote and local grounds. This improves regulation and protection accuracy. The threshold-sensitive enable input is available to accurately coordinate the start-up of the ISL6364 with other voltage rails.

Features

- Intel VR12/IMVP7 Compliant
 - SerialVID with Programmable IMAX, TMAX, BOOT, ADDRESS OFFSET Registers
- Intersil's Proprietary Enhanced Active Pulse Positioning (EAPP) Modulation Scheme (Patented)
 - Variable Frequency Control During Load Transients to Reduce Beat Frequency Oscillation
 - Linear Control with Evenly Distributed PWM Pulses for Better Phase Current Balance During Load Transients
 - Voltage Feed-Forward and Adjustable Ramp Options
 - High Frequency and PSI Compensation Options
- Dual Outputs
 - Output 1 (VRO): 1 to 4-Phase for Core or Memory (Coupled Inductor Compatible)
 - Output 2 (VR1): Single Phase for Graphics, System Agent, or Processor I/O
 - Differential Remote Voltage Sensing
 - $\pm 0.5\%$ Closed-loop System Accuracy Over Load, Line and Temperature
 - Phase Doubler Compatibility (NOT Phase Dropping via PWM Lines)
- Proprietary Active Phase Adding and Dropping with Diode Emulation Scheme For Enhanced Light Load Efficiency
- Programmable Slew Rate of Fast Dynamic VID for VRO
- Dynamic VID Compensation (DVS) for VR1 at No Droop
- Droop and Diode Emulation Options
- Programmable 1 or 2-Phase Operation in PSI1/2/3 Mode
- Programmable Standard or Coupled-Inductor Operation
- Precision Resistor or DCR Differential Current Sensing
 - Integrated Programmable Current Sense Resistors
 - Integrated Thermal Compensation
 - Accurate Load-Line (Droop) Programming
 - Accurate Channel-Current Balancing
 - Accurate Current Monitoring
- Average Overcurrent Protection and Channel Current Limit With Internal Current Comparators
- Precision Overcurrent Protection on IMON & IMONS Pins
- Independent Oscillators, up to 1MHz Per Phase, for Cost, Efficiency, and Performance Optimization
- Dual Thermal Monitoring and Thermal Compensation
- Start-up Into Pre-Charged Load
- Pb-Free (RoHS Compliant)

**© Copyright Intersil Americas LLC 2010-2013. All Rights Reserved.
All trademarks and registered trademarks are the property of their respective owners.**

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

Данный компонент на территории Российской Федерации

Вы можете приобрести в компании MosChip.

Для оперативного оформления запроса Вам необходимо перейти по данной ссылке:

<http://moschip.ru/get-element>

Вы можете разместить у нас заказ для любого Вашего проекта, будь то серийное производство или разработка единичного прибора.

В нашем ассортименте представлены ведущие мировые производители активных и пассивных электронных компонентов.

Нашей специализацией является поставка электронной компонентной базы двойного назначения, продукции таких производителей как XILINX, Intel (ex.ALTERA), Vicor, Microchip, Texas Instruments, Analog Devices, Mini-Circuits, Amphenol, Glenair.

Сотрудничество с глобальными дистрибьюторами электронных компонентов, предоставляет возможность заказывать и получать с международных складов практически любой перечень компонентов в оптимальные для Вас сроки.

На всех этапах разработки и производства наши партнеры могут получить квалифицированную поддержку опытных инженеров.

Система менеджмента качества компании отвечает требованиям в соответствии с ГОСТ Р ИСО 9001, ГОСТ РВ 0015-002 и ЭС РД 009

Офис по работе с юридическими лицами:

105318, г.Москва, ул.Щербаковская д.3, офис 1107, 1118, ДЦ «Щербаковский»

Телефон: +7 495 668-12-70 (многоканальный)

Факс: +7 495 668-12-70 (доб.304)

E-mail: info@moschip.ru

Skype отдела продаж:

moschip.ru

moschip.ru_4

moschip.ru_6

moschip.ru_9