

NOT RECOMMENDED FOR NEW DESIGNS NO RECOMMENDED REPLACEMENT contact our Technical Support Center at 1-888-INTERSIL or www.intersil.com/tsc

DATASHEET

ww.intersil.com/products/isl6216

ISL6216

Precise 2-Phase Buck PWM Controller for Intel® Mobile Voltage Positioning IMVP-IV™

FN9108 Rev 1.00 March 2004

The ISL6216 2-Phase Buck PWM control IC, with ISL6206 or ISL6207 half bridge gate drivers, provides a precision voltage regulation system for advanced microprocessors in notebook computers. Two phase operation and discrete external gate drivers address the thermal management issues and load demand of Intel's latest high performance processors. This control IC features both input voltage feedforward and average current mode control for excellent dynamic response, lossless current sensing using the lower MOSFET's r_{DS(ON)}, and user selectable switching frequencies from 200kHz to 1MHz.

The ISL6216 includes a 6 bit digital-to-analog converter (DAC) that dynamically adjusts the CORE PWM output voltage from 0.700V to 1.708V and conforms to the Intel IMVP-IV mobile VID specification. The ISL6216 also has logic inputs to detect between Active mode and Deep Sleep/Deeper Sleep suspend modes. To improve efficiency at light load operation, single channel PWM is available during Deeper Sleep operation. A precision reference, remote sensing and proprietary architecture with programmable droop compensation, provide excellent static and dynamic CORE voltage regulation.

Another feature of this controller IC is the PG_IN monitor circuit which allows a companion V_{CCP} and V_{CC_MCH} controller to inhibit the ISL6216 PGOOD until the V_{CCP} and V_{CC_MCH} voltages are within regulation. The Over-Voltage threshold is 1.724V, and CORE output voltage above this level results in converter shutting down. Under-Voltage, at 86% of the programmed level, results in PGOOD being pulled low. Over-Current protection features pulse by pulse current limiting. PG_IN, PGOOD, Over-Voltage, Under-Voltage and Over-Current features provide monitoring and protection for the microprocessor and power system.

The ISL6216 IC package is available in 28 lead SSOP.

Ordering Information

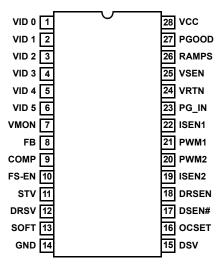
PART NUMBER	TEMP. (°C)	PACKAGE	PKG. DWG. #
ISL6216CA	-10 to 85	28 Lead SSOP	M28.15

Features

- 2-Phase or Single Phase Power Conversion
- · High Efficiency Current Sensing
 - Option for thermal compensation
 - Optional Current-Sense Resistor for Precision Over-Current
- · Precision CORE Voltage Regulation
 - 1% System Accuracy Over Temperature
- · Microprocessor Voltage Identification Input
 - 6-Bit VID Input
 - 0.700V to 1.708V in 16mV steps
 - Programmable Droop Voltage
- DSEN# (STP_CPU#) and DRSEN (DPRSLPVR) logic inputs for low power states
- · DSV voltage input for DEEP SLEEP Mode
- · DRSV voltage input for DEEPER SLEEP Mode
- · Programmable slew rate control on output voltage
- · Excellent Dynamic Response
 - Combined Input Voltage Feed-Forward, Average Current Mode Control and Output Voltage Feedback
- Over-Voltage, Under-Voltage and Over-Current Protection
- · 2 or 1 Phase User Selectable Operation
- · Power-Good Output and PG IN input
- · User selectable Switching Frequency of 200kHz -1MHz
 - 400kHz 2.0 MHz Effective Ripple Frequency

Pinout

ISL6216 (28 LEAD SSOP) TOP VIEW



© Copyright Intersil Americas LLC 2003-2004. 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

