2-/3-/4-Phase Synchronous Buck Controller for IMVP-5 CPUs

ADP3206

FEATURES

- **Selectable 2-, 3-, or 4-phase operation at up to 1 MHz per phase**
- **6-bit digitally programmable 0.8375 V to 1.6 V output**
- **±10 mV DAC accuracy over temperature**
- **Logic-level PWM outputs for interface to external high power drivers**
- **Active current/thermal balancing between phases**
- **Built-in Power Good/crowbar blanking supports on-the-fly VID code changes**
- **Programmable deep sleep offset and deeper sleep reference voltage**
- **Programmable soft transient control to minimize inrush currents during output voltage changes**
- **Programmable short-circuit protection with programmable latch-off delay**

APPLICATIONS

- **Desk-note and notebook PC power supplies for IMVP-5 compliant Intel® processors**

GENERAL DESCRIPTION

The ADP3206 is a highly efficient multiphase synchronous buck-switching regulator controller optimized for converting the notebook main supply into the core supply voltage required by IMVP-5 Intel processors. It uses an internal 6-bit DAC to read a voltage identification (VID) code directly from the processor, which is used to set the output voltage between 0.8375 V and 1.6 V, and uses a multimode PWM architecture to drive the logic-level outputs at a programmable switching frequency that can be optimized for VR size and efficiency. The phase relationship of the output signals can be programmed to provide 2-, 3-, or 4-phase operation.

The ADP3206 includes programmable no-load offset and slope functions to adjust the output voltage as a function of the load current so that it is always optimally positioned for a system transient. The ADP3206 also provides accurate and reliable short-circuit protection, adjustable current limiting, deep sleep and deeper sleep programming inputs, and a delayed power good output that accommodates on-the-fly output voltage changes requested by the CPU.

ADP3206 is specified over the commercial temperature range of 0°C to 100°C and is available in a 40-lead LFCSP package.

For more information about the ADP3206, contact Analog Devices via email at lee.space@analog.com.

FUNCTIONAL BLOCK DIAGRAM

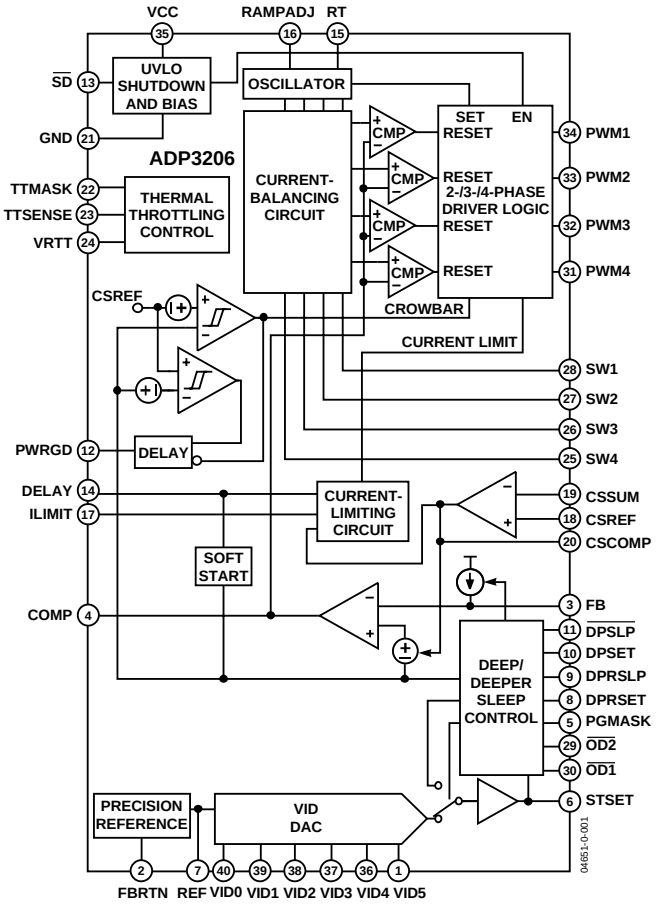

Figure 1.

Rev. Sp0

Information furnished by Analog Devices is believed to be accurate and reliable. However, no responsibility is assumed by Analog Devices for its use, nor for any infringements of patents or other rights of third parties that may result from its use. Specifications subject to change without notice. No license is granted by implication or otherwise under any patent or patent rights of Analog Devices. Trademarks and registered trademarks are the property of their respective owners.

One Technology Way, P.O. Box 9106, Norwood, MA 02062-9106, U.S.A.
Tel: 781.329.4700 **www.analog.com**
Fax: 781.326.8703 **© 2004 Analog Devices, Inc. All rights reserved.**

© 2004 Analog Devices, Inc. All rights reserved. Trademarks and registered trademarks are the property of their respective owners.
D04651F–0–4/04(Sp0)