Multiphase IMVP-IV Core Controller for Mobile CPUs

ADP3205A

D04847F–0–7/04(Sp0)

FEATURES

Pin programmable 1-, 2-, or 3-phase operation
Excellent static and dynamic current sharing
Superior load transient response when used with ADOPT™ optimal positioning technology
Noise blanking for speed and stability
Synchronous rectification control for optimized light load efficiency
Soft DAC output voltage transition for VID change
Cycle-by-cycle current limiting
Latched or hiccup current overload protection
Masked power good during output voltage transients
Soft start-up without power-on inrush current surge
2-level overvoltage and reverse voltage protection

APPLICATIONS

IMVP-IV CPU core dc-to-dc converters
Programmable output power supplies

GENERAL DESCRIPTION

The ADP3205A is a 1-, 2-, or 3-phase hysteretic peak current mode dc-to-dc buck converter controller dedicated to powering a mobile processor's core. The chip-optimized low voltage design runs from the 3.3 V system supply. The chip contains a precision 6-bit DAC whose nominal output voltage is set by VID code. The ADP3205A features high speed operation to allow a minimized inductor size that results in the fastest possible change of current to the output. To further minimize the number of output capacitors, the converter features active voltage positioning enhanced with ADOPT optimal compensation to ensure a superior load transient response. The output signals interface with ADP3415 MOSFET drivers that are optimized for high speed and high efficiency. The device is capable of providing synchronous rectification control to extend battery lifetime in light load conditions. The ADP3205A is specified over the extended commercial temperature range of 0°C to 100°C and is available in a 40-lead LFCSP package.

For more information about the ADP3205A, contact Analog Devices via email at analog.power@analog.com.

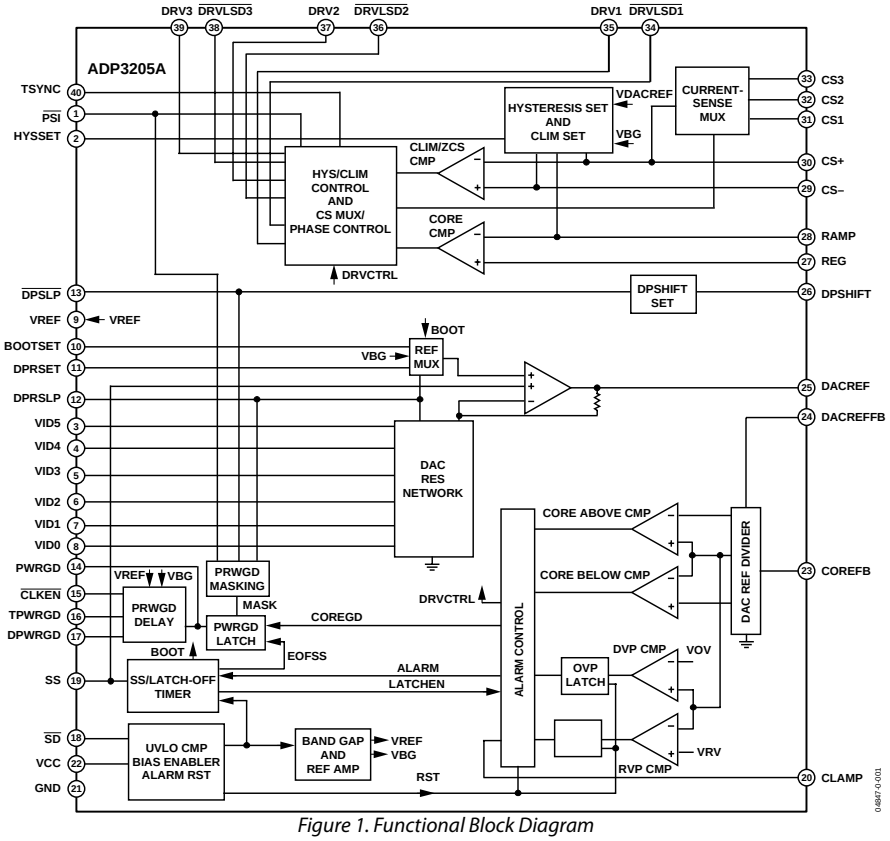

Figure 1. Functional Block Diagram

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