

### POWER MANAGEMENT

#### Description

The SC1479 PowerStep IV™ IC is a single chip high-performance Hysteretic PWM controller. With its integrated Smart™ Driver, it powers low-power advanced Pentium® IV processors. The SC1479 features extended Intel Mobile Voltage Positioning (IMVP™) to increase battery life by reducing the voltage at the processor when it is heavily loaded. It directly supports Intel's SpeedStep™ processors for even longer battery life. The SC1479 fully supports the Intel® Geyserville-III™ core voltage specification. It provides direct "deeper sleep" mode and boot voltage support. Automatic "power-save" is present to prevent negative current flow in the low-side FET during light loading conditions, saving even more power.

A 6-bit DAC, accurate to 0.85%, sets the output voltage reference, and implements the 0.700V to 1.708V range required by the processor. The hysteretic converter uses a comparator without an error amplifier, and therefore provides the fastest possible transient response, while avoiding the stability issues inherent to classical PWM controllers.

The SC1479 operates from a chip and driver supply of 5 Vdc and also features soft-start, an open-drain PWRGD signal with power-good blanking, and an enable input. Programmable current limiting shuts down the SC1479 after 32 current limit pulses.

#### Features

- ◆ IMVP-IV™ compliant single chip solution
- ◆ High speed hysteretic controller
- ◆ Single phase operation
- ◆ Selectable analog or VID controlled DeeperSleep setting
- ◆ 6 bit VID programmable output
- ◆ Integrated drivers
- ◆ Programmable softstart
- ◆ Programmable boot voltage
- ◆ Programmable DeeperSleep voltage
- ◆ Under-voltage lock out on VccA
- ◆ Over-voltage protection on CORE
- ◆ Current limit protection on CORE
- ◆ Thermal protection
- ◆ Powergood flag with blanking during VID or DeeperSleep mode changes
- ◆ Automatic powersave at light load
- ◆ TSSOP-28 package Or pin compatible with SC1476 TSSOP-38 package. Upgrade to dual phase made possible

#### Applications

- ◆ Low power Notebook and Laptop computers

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#### Conceptual Application Circuit

