October 2015

FAN53565
5A Digitally Programmable TinyBuck™ Regulator

Features

- 2.4 MHz Fixed-Frequency Operation
- 5 A Continuous Output Current Capability
- 2.5 V to 5.5 V Input Voltage Range
- Programmable Slew Rate for Voltage Transitions
- I^2C™-Compatible Interface up to 3.4 Mbps
- PFM Mode for High Efficiency in Light Load.
- Internal Soft-Start
- Thermal Shutdown and Overload Protection

Applications

- Application, Graphic, and DSP Processors
  - ARM™, Tegra™, OMAP™, XSCALE™
- Hard Disk Drive
- Tablets, Netbooks®, Ultra-Mobile PCs
- Smart Phones
- Gaming Devices

Additional Information

- For the full datasheet, please contact a Fairchild Sales Representative.

Description

The FAN53565 is a step-down switching voltage regulator that delivers a digitally programmable output from an input voltage supply of 2.5 V to 5.5 V. The output voltage is programmed through an I^2C interface which is capable of operating up to 3.4 MHz.

Using a proprietary architecture with synchronous rectification, the FAN53565 is capable of delivering 5A continuous and capable of achieving 92% maximum efficiency, while maintaining a very high efficiency of over 80% at load currents as low as 10 mA. Pulse currents as high as 6.5 A can be supported by one device option. The regulator operates at a nominal fixed frequency of 2.4 MHz, which reduces the value of the external components to 330 nH and as low as 44 µF for the output capacitor. Additional output capacitance can be added to improve regulation during load transients without affecting stability.

At moderate and light loads, pulse frequency modulation (PFM) is used to operate the device in power-save mode with a typical quiescent current of 135µA. Even with such a low quiescent current, the part exhibits excellent transient response during large load swings. At higher loads, the system automatically switches to fixed-frequency control, operating at 2.4 MHz. In shutdown mode, the supply current drops below 1 µA, reducing power consumption. PFM mode can be disabled if constant frequency is desired.

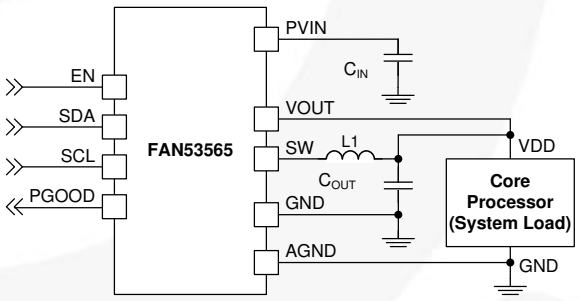

Figure 1. Typical Application

Ordering Information

Part Number	Power Up Defaults	Temperature Range	Packing Method
FAN53565UC03X	0.90 V	-40 to 85°C	Tape and Reel

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Preliminary	First Production	Datasheet contains preliminary data; supplementary data will be published at a later date. Fairchild Semiconductor reserves the right to make changes at any time without notice to improve design.
No Identification Needed	Full Production	Datasheet contains final specifications. Fairchild Semiconductor reserves the right to make changes at any time without notice to improve the design.
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