FAIRCHILD SEMICONDUCTOR®

January 2007

FAN5029

8-Bit Programmable 2- to 5-Phase Synchronous Buck Controller

Features

- Selectable 2-, 3-, 4-, or 5-phase operation at up to 1MHz per phase
- ±7.7mV worst-case differential sensing error
- Active current balancing between the output phases
- Power good and crowbar blanking supports on-the-fly VID code changes
- Selectable VR10 extended (7-bit) and VR11 (8-bit) VID tables
- Programmable short-circuit protection and latch-off delay
- Programmable soft start ramp

Applications

- Desktop PC/Server processor power supplies for existing and next generation Intel processors
- VRM modules products

Part Numbers

- FAN5029MPX is not for new designs.
- The FAN5029MPX_NAA238 replaces the FAN5029MPX and is compatible with all VR10 and VR11 processors.

Description

The FAN5029 is a multi-phase buck switching regulator controller optimized to convert a 12V input supply to the processor core voltage required by high-performance Intel® processors. It has an internal 8-bit DAC that converts digital voltage identification (VID) code that is sent from the processor to set the output voltage between 0.5V and 1.6V. It outputs a PWM to external MOSFET drivers that, in turn, drive the switching power MOSFETs. The switching frequency of the system is programmable by a single resistor value and the number of phases can be programmed to support 2-, 3-, 4-, or 5-phase applications.

The FAN5029 also includes programmable no-load offset and droop functions to adjust the output voltage as a function of the load current, as required by the Intel specifications. The FAN5029 also provides an accurate and reliable short-circuit protection function with an adjustable over-current set point.

The FAN5029 is specified over the extended commercial temperature range of 0°C to +85°C and is available in a 40-lead MLP package.

Ordering Information

Part Number	Temperature Range	Package Type	Lead Free	Packing Method	Quantity per Reel
FAN5029MPX	Not For New Designs				
FAN5029MPX_NAA238	0°C to 85°C	MLP-40	Yes	Tape and Reel	3,000

For more information, please contact Ron Berthiaume at ronald.berthiaume@fairchildsemi.com.

Block Diagram

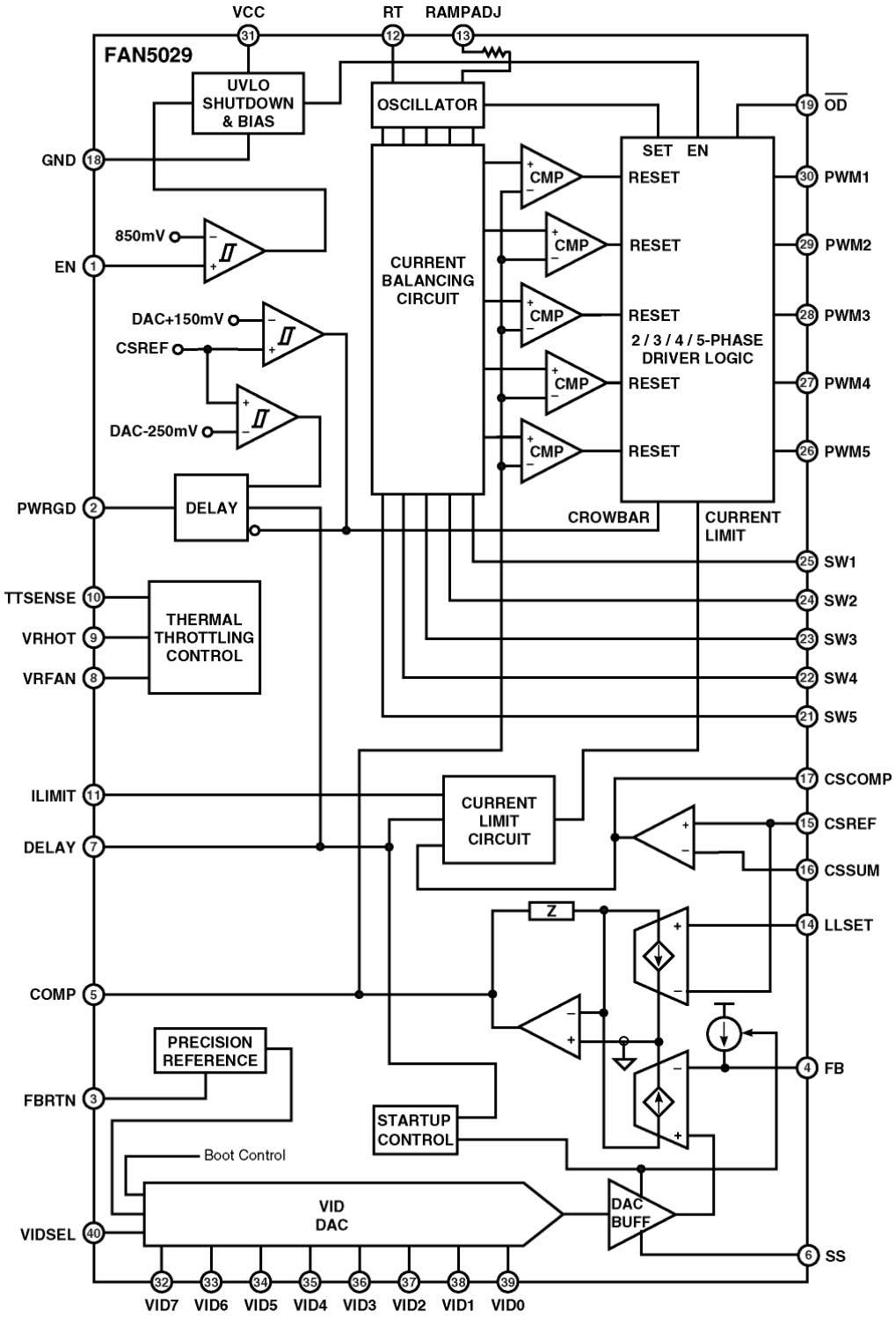

Figure 1: Block Diagram

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EnSigna™	MICROCOUPLER™	QFET®	SyncFET™	VCX™
FACT®	MicroFET™	QS™	TCM™	Wire™
FACT Quiet Series™	MicroPak™	QT Optoelectronics™		
FAST®	MICROWIRE™	Quiet Series™		
FASTr™	MSX™	RapidConfigure™	Across the board. Around the world.™	
FPS™	MSXPro™	RapidConnect™	Programmable Active Droop™	
FRFET™	OCX™	ScalarPump™	The Power Franchise®	

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PRODUCT STATUS DEFINITIONS

Definition of Terms

Datasheet Identification	Product Status	Definition
Advance Information	Formative or In Design	This datasheet contains the design specifications for product development. Specifications may change in any manner without notice.
Preliminary	First Production	This 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.
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Rev. I22