

# 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
- $\pm 7.7\text{mV}$  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 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

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Block Diagram

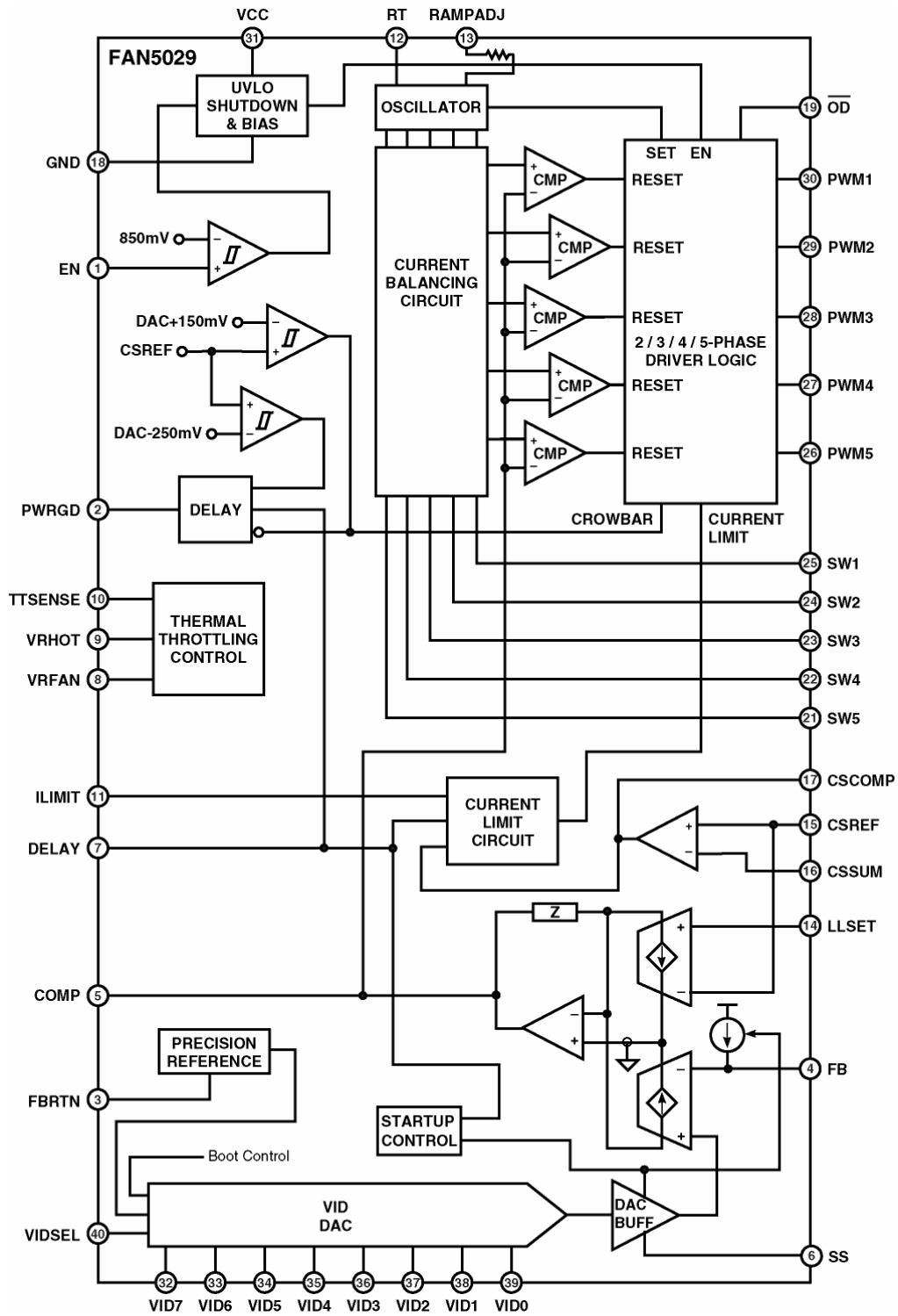


Figure 1: Block Diagram

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Build it Now™	i <sup>2</sup> C™	PACMAN™	SPM™	TINYOPTO™
CoolFET™	<i>i-Lo</i> ™	POP™	Stealth™	TinyPower™
CROSSVOLT™	ImpliedDisconnect™	Power247™	SuperFET™	TinyPWM™
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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
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