freescale Analog

Analog Solutions—Robust Reliable Performance

PF3000

PF Series 12-Channel Configurable PMIC

Overview

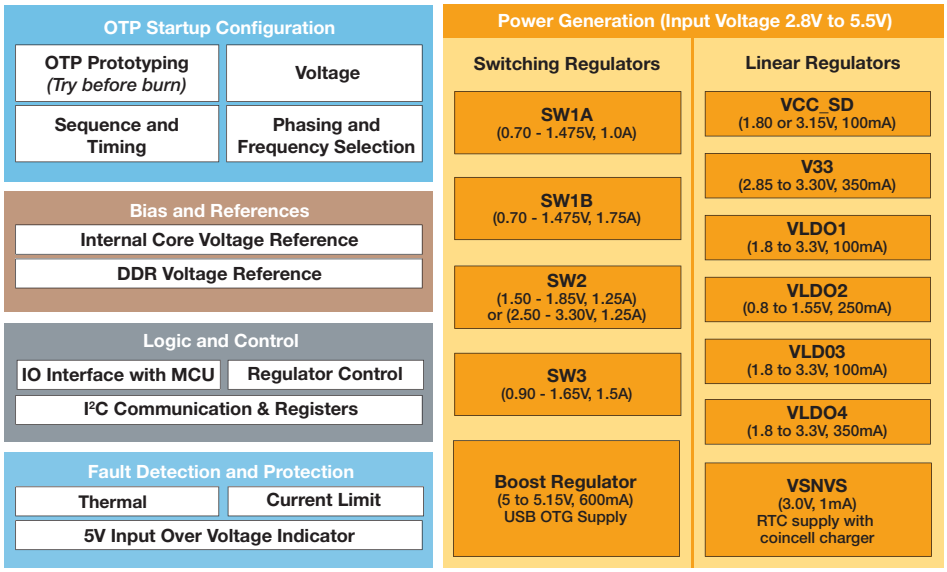
The PF3000 power management integrated circuit (PMIC) features a configurable architecture that supports numerous outputs with various current ratings as well as programmable voltage and sequencing. This enables the PF3000 to power the core processor, external memory and peripherals to provide a single-chip system power solution in multiple applications, reducing design complexity and lowering overall bill of materials. The high-performance architecture offers improved efficiency across the complete output range and delivers advanced functionality for consumer and industrial applications.

The PF3000 is ideally suited to the i.MX 7 and lower-end versions of the i.MX 6 family of applications processors. Our compatability with i.MX applications processors is shown in multiple reference designs and facilitates software controlled, dynamic voltage scaling. This provides customers with a platform-level solution from a single supplier to enable faster time to market and reduce engineering effort.

Target Applications

- eReaders
- Navigation
- Human-machine interface
- Home automation
- Industrial EBS
- Point of sale (POS) terminals
- Wearables
- Internet of Things (IoT)
- Portable medical

PF3000 Functional Internal Block Diagram



Product Longevity

Product Differentiation

Features	Benefits
4 Buck Converters	High efficiency (>90%), lower power dissipation
6 LDOs, integrated boost regulator for USB + coin cell charger, RTC supply	Supply multiple peripherals, lowering external component count
Forced PFM (Pulse Frequency Modulation), APS (Auto Pulse Skip) or PWM operation	Higher light load efficiency – longer battery standby time
Programmable output voltage, sequence, timing	Ensure scalability across platforms (multiple i.MX applications processors usage)
Quick turn customization (OTP configuration)	Try before buy option, faster time to market
5 V voltage input compatibility	Simplify bill of materials by alleviating the need for a 5 V to 4.5 V converter
I^2C digital interface for programmability	On the fly voltage scaling for better system efficiency, regulator management for versatility
Preprogrammed versions, optimized for dedicated i.MX applications processors versions	Reduces design efforts since the PMICs are designed for compatibility with the i.MX applications processors
7 x 7 mm QFN power package	Allows 4 layer printed circuit boards (PCBs)

Features

- 2.8 V to 5.5 V input voltage
- 12-channel, 7.2 A total power delivery
- 4-channel configurable buck converters
- Forced PWM/PFM or APS operation
- 6 user programmable LDOs
- Boost regulator to 5.0 V out for USB, coin cell charger, DDR reference
- Programmable output voltage, current limit, soft-start, FSW, OTP fault interrupt
- High power 7 x 7 mm QFN package
- Consumer, industrial grades available

PF3000 PMIC Enablement and Documentation

KITPF3000FRDMEVM

- Generic family evaluation and programming platform
- Friendly graphical user interface
- USB interface

i.MX 7 applications processors + PF3000

Application note: i.MX 7, i.MX 6 schematic + BOM, configuration code example

Complete Technical Documentation Available

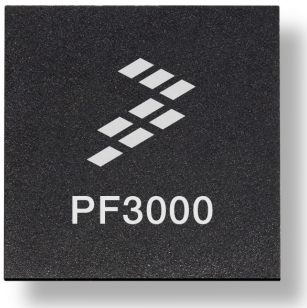
- Datasheets. application notes, EVM content

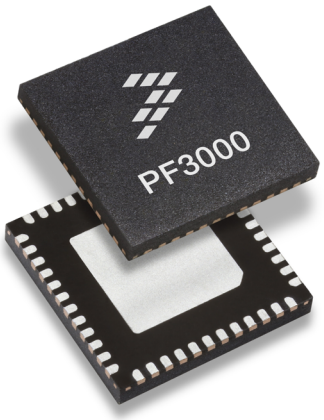
Easy to Use Tools

- GUI and evaluation systems available to test efficiency, temp rise, etc.
- Technical and hands-on training available upon request

Part Numbers	Market	Temperature
MC32PF3000	Consumer	0 to 70C°
MC34PF3000	Industrial	-40C° to +85C°

Freescale Document Number	Title	Description
PF3000	PF3000	Data Sheet
SG1002	Analog Product Selector Guide	Selector Guide
SG187	Automotive Product Selector Guide	Selector Guide
SG200	Industrial Product Selector Guide	Selector Guide





For more information visit freescale.com/PMIC

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