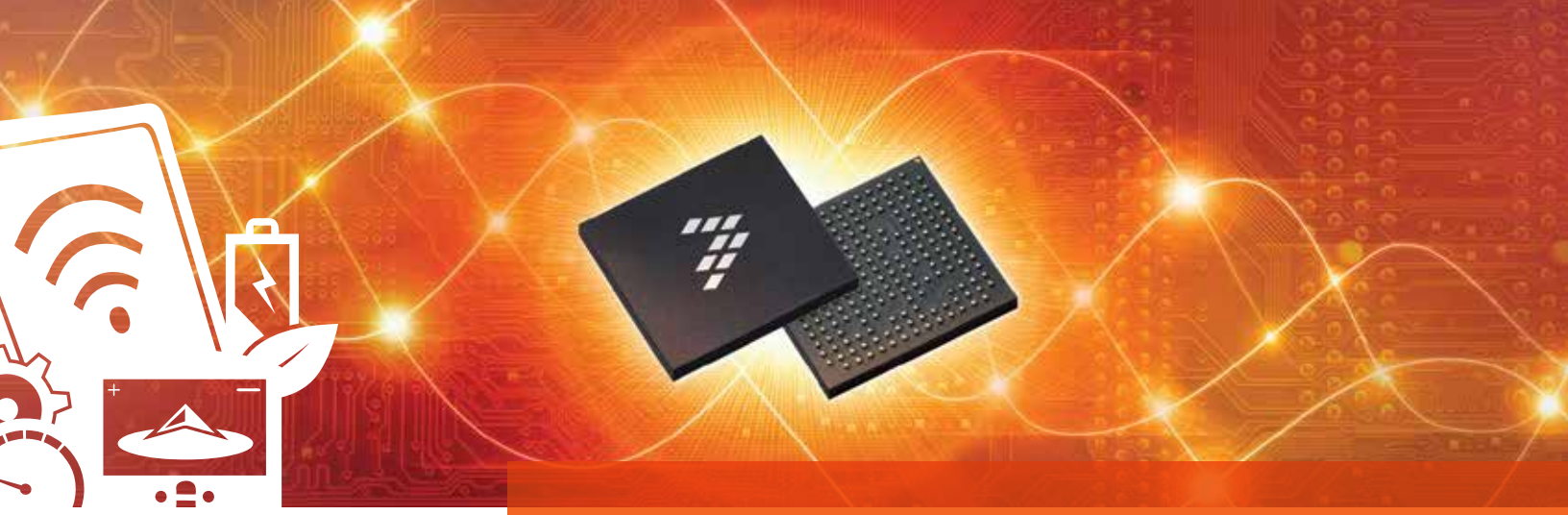


PF Series

MMPF0100 14-Channel Configurable PMIC

Target Applications

- Automotive infotainment
- Home energy management
- Human-machine interface
- IP headphones
- IPTV
- Portable medical devices
- Tablets

MMPF0100 PMIC Package for Consumer and Industrial

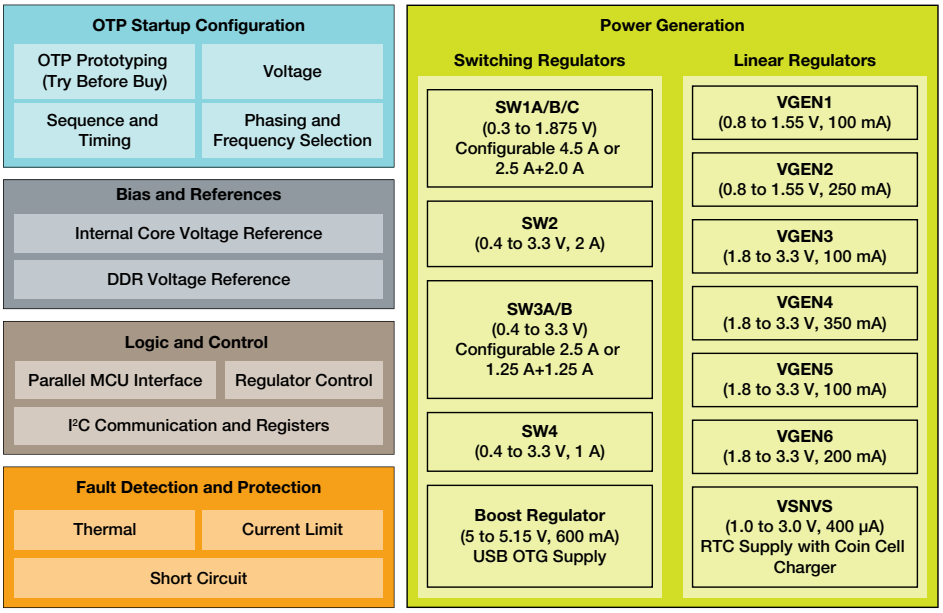
MMPF0100Z PMIC Wettable Flank Package for Automotive

Overview

The MMPF0100 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 MMPF0100 to power the core processor, memory and peripherals to provide a single-chip system power solution for 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, industrial and automotive applications.

The MMPF0100 is ideally suited to the i.MX 6 series of applications processors, for which it is incorporated into multiple reference designs. This provides customers a platform-level solution from a single supplier to enable faster time to market and reduced engineering effort.

MMPF0100 Functional Internal Block Diagram



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Features

- Input voltage: 2.8–4.5 V
- Four buck converters, up to six channels
  - SW1: 1 x 2.5 A single/dual phase + 1 x 2.0 A, or 1 x 4.5 A
  - SW2: 1 x 2.0 A
  - SW3: 1 x 2.5 A single/dual phase or 2 x 1.25 A
  - SW4: 1 x 1.0 A (VTT option for DDR)
  - Dynamic voltage scaling
  - PWM, PFM and APS switching modes
  - Adjustable switching frequency: 1, 2 or 4 MHz
- 5.0 V boost regulator: 1 x 600 mA with OTG support
- Six LDOs
  - VGEN1/2, 0.80–1.55 V @ 100/250 mA
  - VGEN3/4/5/6, 1.8–3.3 V @ 100/350/100/200 mA
- Fully programmable output voltage, current limit, switching mode, soft start and frequency
- Independent on, off and standby mode programming
- Programmable startup sequence and timing
- One-time programmable memory (user programmable)
- RTC supply: 1.0–3.0 V @ 400 µA
- DDR memory reference voltage at 10 mA
- Coin cell charger
- I²C interface

Benefits

- Faster time to market with complete system reference designs based on i.MX6x application processors
- Highly integrated, cost-effective solution reduces board space for compact designs
- High efficiency switching regulators increase battery life for portable applications

Orderable Part Numbers (Consumer and Industrial)

Part Number (add R2 for tape and reel packaging)	Temperature (T_A)	Package	Programming	Reference Designs
MMPF0100NPEP	–40 °C to +85 °C	56 QFN 8 x 8 mm–0.5 mm pitch E-Type QFN (full lead)	NP	N/A
MMPF0100F0EP	–40 °C to +85 °C	56 QFN 8 x 8 mm–0.5 mm pitch E-Type QFN (full lead)	F0	MCIMX6Q-SDP MCIMX6Q-SDB MCIMX6DL-SDP
MMPF0100F1EP	–40 °C to +85 °C	56 QFN 8 x 8 mm–0.5 mm pitch E-Type QFN (full lead)	F1	MCIMX6SLEVK
MMPF0100F2EP	–40 °C to +85 °C	56 QFN 8 x 8 mm–0.5 mm pitch E-Type QFN (full lead)	F2	N/A

Orderable Part Numbers (Automotive)

Part Number (add R2 for tape and reel packaging)	Temperature (T_A)	Package	Programming	Reference Designs*
MMPF0100NPZES	–40 °C to +85 °C	56 QFN 8 x 8 mm–0.5 mm pitch Wettable Flank QFN (full lead)	NP	MCIMX6QAICPU1 MCIMX6SAICPU1 MCIMX6DLAICPU1

* These reference designs use the default startup configuration (VDDOTP = VCOREDIG) which is also available in any OTP programmed part.

Documentation

Document Number	Title	Description
MMPF0100	14-Channel Configurable Power Management Integrated Circuit (consumer/industrial)	Data Sheet
MMPF0100Z	14-Channel Configurable Power Management Integrated Circuit (automotive)	Data Sheet
MMPF0100ER	14-Channel Configurable Power Management Integrated Circuit	Errata
AN4622	MMPF0100 Layout Guidelines	App Note
KTPF0100UG	KITPF0100EPEVBE User Guide	User Guide
KTPFPGMEMVEUG	KITPFPGMEVME User Guide	User Guide

Development Tools

Part Number	Description
KITPFPGMEVME	PF series programmer
KITPF0100EPEVBE	MMPF0100 evaluation board

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For more information, visit freescale.com/PMIC

Document Number: MMPF0100FS REV 1