MCP19111 Digitally-Enhanced Power Analog Controller & MCP87XXX Family of Power MOSFETs

Configurable DC/DC Analog Controller and Low Figure-of-Merit MOSFETs Combine to Form High-Efficiency Power Conversion Solutions

MCP19111: Digitally Enhanced Power Analog Synchronous Buck DC/DC Controller

Microchip's Digitally-Enhanced Power Analog technology combines the power and performance of an analog-based controller with the flexibility of a digital interface. It offers an industry-leading level of analog-configurability,

The MCP19111 integrates a configurable peak current mode analog controller, synchronous MOSFET driver, LDO, and a fully-functional PIC® Microcontroller. The integrated MCU enables a digital front-end that makes it quick and easy to configure and customize these power supply controllers to address target application needs.

Features

- Single channel
- V_{IN} Range: 4.5V to 32.0V
- Integrated, synchronous MOSFET driver:
  - Logic-Level Drive (5V)
  - 2A Source/4A Sink drive current
- Fully programmable (12F core)
  - MPLAB® X support, GUI-configurable
  - 4k word Flash, 256b RAM
  - Internal, adjustable Analog compensation
  - Adjustable deadtime/current limit/UVLO/OVLO/…
  - Switching freq: 100 kHz to 1.2 MHz
  - Up to 12 general purpose I/O
  - PMBus™/I2C™ Communication Interface
- Master/Slave ⇨ Multi-phase operation
- Packages: QFN 5 × 5mm: 28 leads

MCP87XXX Power MOSFET Family

Microchip's new Power MOSFETs combine with its Digitally-Enhanced Power Analog devices to form high-efficiency, and highly-flexible power conversion solutions, include point-of-load DC/DC applications.

Our logic-level MOSFETs offer very attractive figure-of-merit, including very low on-state resistance (Rds(on)) and ultra-low gate charge (Qg), available in industry standard 5 × 6 mm or 3.3 × 3.3 mm 8-pin PDFN packages.

MCP19111 Digitally-Enhanced Power Converter
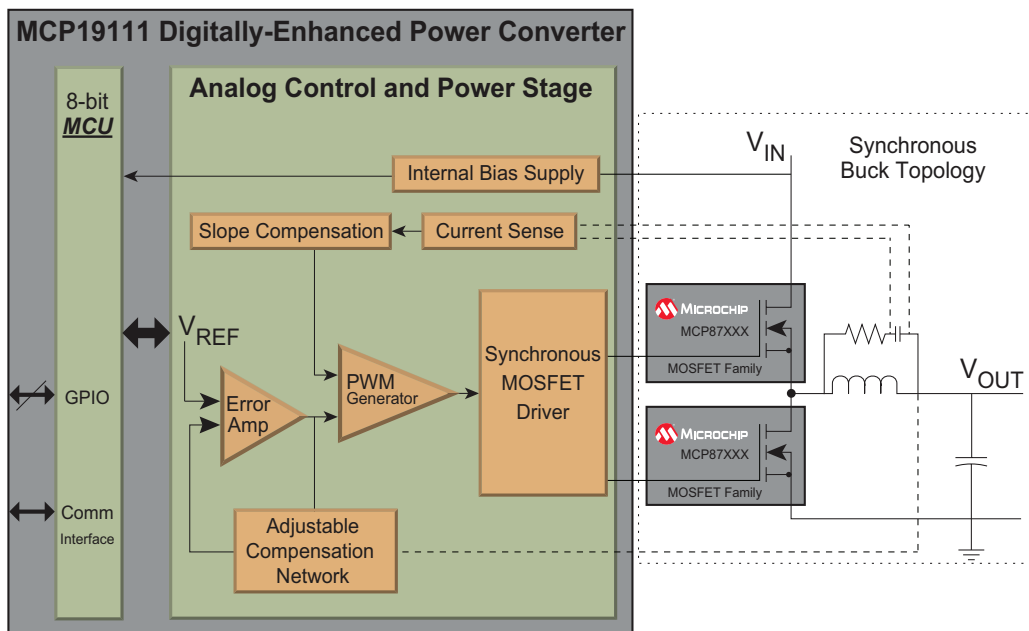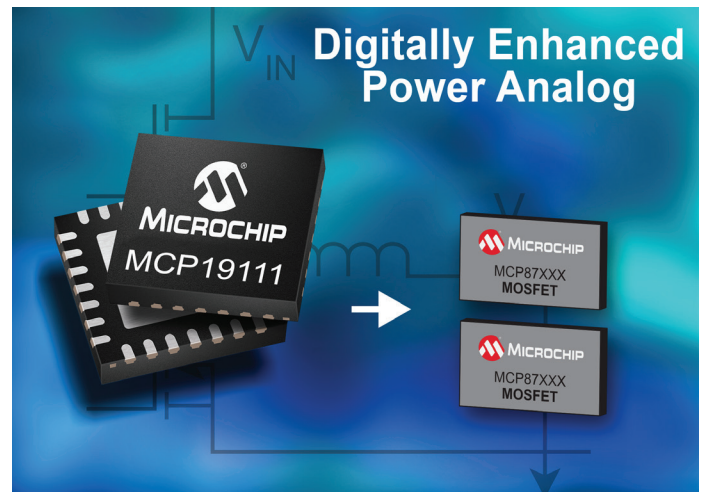
MCP19111 Digitally-Enhanced Power Analog Development Tools

Development Utilities	Description
MCP19111 Operation Overview Application Note	Application Note that provides an overview of the MCP19111 as well as a design example.
MCP19111 Evaluation Board and User Guide, Power Supply	MCP19111 Power Supply Evaluation board and user guide using Microchip's MCP87000 High Speed MOSFETs.
MCP19111 Microsoft Excel Based Design Analyzer	Microsoft Excel® based design tool that simplifies power supply applications design calculations.
MPLAB® X IDE: MCP19111 Power Supply, Graphical User InferfacePlug-in	MPLAB X IDE plug-in that offers a graphical user interface and demo firmware for the MCP19111 in a power supply application. Works with ADM000397, MCP19111 Evaluation Board.
MPLAB X IDE Plug-In: MCP19111 Power Supply, User Guide	Provides installation and "how-to" instructions using our MCP19111 Power Supply, Plug-In Graphical User Interface with our ADM000397, MCP19111 Evaluation Board.

High Speed Power MOSFET Portfolio

Product	Type	Config.	Vds (V)	Vgs (V)	Rds_on @ 4.5V (mΩ-typ.)	Qg (nC)	Package(s)
MCP87018	N	Single	25	+10/−8	1.8	32.5	5 × 6 PDFN
MCP87022	N	Single	25	+10/−8	2.2	25	5 × 6 PDFN
MCP87030	N	Single	25	+10/−8	3	13.3	5 × 6 PDFN
MCP87050	N	Single	25	+10/−8	5	9	5 × 6 PDFN
MCP87055	N	Single	25	+10/−8	5.5	6	3.3 × 3.3 PDFN
MCP87090	N	Single	25	+10/−8	9	4	5 × 6 PDFN, 3.3 × 3.3 PDFN
MCP87130	N	Single	25	+10/−8	13	2.9	5 × 6 PDFN, 3.3 × 3.3 PDFN

Power MOSFETs Development Tools

Development Utilities	Description
Power MOSFET Loss Calculator	Microsoft Excel® based simulation tool to assist in calculating the losses in power conversion systems.
AN1471: Power MOSFET Loss Calculator Application Note	Describes the equations and process methodology used in the Microsoft Excel based Power MOSFET Loss Calculator.

www.microchip.com/DEPA

Visit our web site for additional product information and to locate your local sales office.

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