



# Analog Spotlight

## Digitally Enhanced Power Analog (DEPA) Controllers

### General Information

The integration of an analog-based PWM controller and an 8-bit PIC® microcontroller, in a single compact package, enhances DC-DC conversion by bringing together the speed and efficiency of analog power management with the flexibility and connectivity of digital control. This combination creates a new family of devices that maximizes the strengths of each technology providing a cost-effective, configurable, high-performance power conversion solution. Microchip's Digitally Enhanced Power Analog Controllers can be used for multiple topologies, making these devices ideal for a wide variety of power conversion applications, such as battery charging, LED driving, USB power delivery, point-of-load and automotive power supplies.

### Features

- Analog peak-current mode Pulse-Width Modulation (PWM) control
- Synchronous MOSFET drivers
- Adjustable output voltage, switching frequency, MOSFET dead-time, current limit and more
- Support for multiple topologies
- Support for quasi-resonant mode
- Custom algorithm support
- Integrated 8-bit PIC microcontroller
- I<sup>2</sup>C communication interface
- Minimal external components
- Compact QFN packages:
  - 24-lead 4mm × 4mm
  - 28-lead 5mm × 5mm (In-circuit development support)

### Applications

- LED lighting
- USB power delivery
- Battery chargers
- Automotive systems
- Point-of-load power supplies



### Evaluation Board Support

- MCP19111 Battery Charger Evaluation Board (ADM00513)
- MCP19111 PMBus™ Enabled POL Board (ARD00609)
- MCP19111 Evaluation Board (ADM00397)
- MCP19114 Flyback Evaluation Board (ADM00578)
- MCP19117 Flyback Evaluation Board (ADM00663)

### Product Family

	MCP19114/5	MCP19116/7	MCP19110/1	MCP19118/9
Integrated PIC® MCU	Yes	Yes	Yes	Yes
Power Topologies Supported	Boost, SEPIC, Ćuk, Sync, Flyback	Boost, SEPIC, Ćuk, Sync, Flyback	Sync Buck	Sync Buck
Input Operating Voltage	4.5–42V	4.5–42V	4.5–32V	4.5–40V
Output Voltage	1V–200V*	1V–200V*	0.6V–90% of V <sub>IN</sub>	0.6V–90% of V <sub>IN</sub>
Compensation Network	External	External	Internal	Internal
Switching Frequency	32 kHz–2 MHz, Quasi-Resonant Mode	32 kHz–2 MHz, Quasi-Resonant Mode	100 kHz–1.6 MHz	100 kHz–1.6 MHz
Flash Memory	4k words	8k words	4k words	4k words
Communication Interface	I <sup>2</sup> C, Optionally PMBus™ Capable	I <sup>2</sup> C, USART, Optionally PMBus Capable	I <sup>2</sup> C, Optionally PMBus Capable	I <sup>2</sup> C, Optionally PMBus Capable
GPIO Available	Yes (10/12)	Yes (10/12)	Yes (10/14)	Yes (10/14)

\*with resistive divider network for feedback signals

[www.microchip.com/DEPA](http://www.microchip.com/DEPA)

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

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