

ANALOG SPOTLIGHT

MCP19124/5

Digitally-Enhanced Power Analog Synchronous Low-Side Dual-Loop PWM Controller

General Information

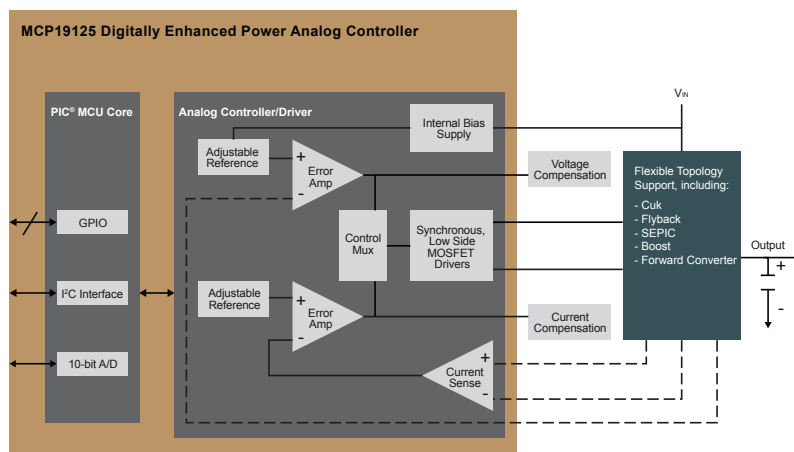
The MCP19124/5 are highly integrated, mixed-signal low-side synchronous controllers that operate from 4.5V to 42V. This family features individual analog PWM control loops for both current regulation or voltage regulation. These features along with an integrated microcontroller core make this an ideal device for battery charging applications, LED lighting systems and any other low-side switch PWM applications.



Features

- Independent voltage and current control loops
- 4.5V to 42V input voltage range (48V transient for 500 ms)
- Supports multiple low-side switch topologies:
 - Flyback, Ćuk, Boost, SEPIC
- Quasi-resonant or fixed frequency operation
- Switching frequency range: 31.25 kHz to 2.0 MHz
- Available in a 24-lead 4 × 4 mm QFN package
- AEC-Q100

Block Diagram



Microcontroller Features

- Precision 8 MHz oscillator $\pm 1\%$ typical
- I²C communications
- Interrupt capable
- 4,095 words on-chip memory
- Only 35 instructions to learn

Applications

- Battery and super capacitor charging
- Standard power conversion for legacy loads
- Automotive lighting
- LED lighting

Benefits

- Topology optimization based on need
- Dynamic configuration changes
- Nearly seamless transition between control modes
- Speed of analog control combined with the flexibility of digital control

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