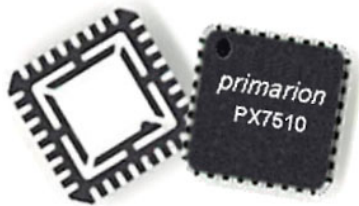


Primarion® Di-POL™ PX7510 Power Controller Digital Point-of-Load (POL)

Advanced Information Product Brief



Applications

- Low voltage distributed power supplies
- High-end microprocessor DC/DC converters
- Telecom/Datacom
- PMBus™ point-of-load (POL) power regulation

Features

- 150KHz to 2.0MHz switching frequency
- Resistor based PMBus™ address, output voltage, frequency, and current limit set
- DCR current sense
 - Digital temperature compensation
- Digital control loop
 - Voltage control loop with Proportional, Integral, and Derivative (PID) compensation
 - 4X over-sampling
- Adjustable droop control
- Single-pin current sharing
- Soft-start into prebiased load
- Internal or external voltage reference
- Up to four controllers synchronized for multi-phase operation
- PMBus™ serial interface
 - Query voltage, current, temperature faults
 - Voltage set and adjustment
 - Tracking, sequencing, margining
 - Over-ride hardwired settings
- Extensive fault detection capability with two user configurable output fault pins (FAULT1, FAULT2)
 - Input Under-/Over-voltage
 - Output Under-/Over-voltage
 - High side short
 - Peak, Average, and Constant Current Limit Protect
 - Internal/External Temperature Alert/Shutdown Limits
 - Phase Sync Reference Detect/Lock
 - PMBus™ Protocol Violation
 - NVM Configuration
 - Calibration Range and Time-Out
- On-chip non-volatile memory (NVM) to store custom configurations
- Single +5.0V supply operation
- RoHS compliant 32-lead QFN plastic package

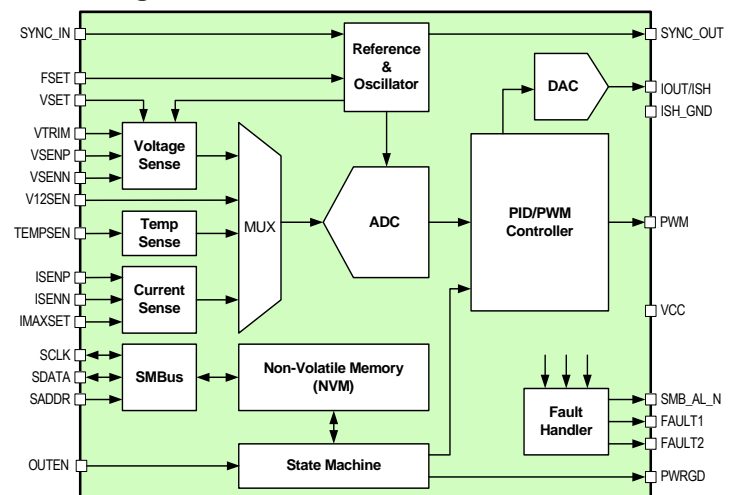
Description

The Primarion Di-POL™ PX7510 Power IC is a highly configurable Digital Point-of-Load (POL) Controller for use in buck converter topologies. which provides PMBus™ POL power regulation. Up to four controllers can be synchronized for multiphase operation. The PX7510 also supports current sharing of multiple chips to balance the power supply currents.

The PX7510 utilizes digital technology to implement all control functions, providing the ultimate in flexibility and stability. The PX7510 incorporates an industry standard PMBus™ serial interface for control and monitoring. Through the serial interface, the power supply designer can quickly optimize designs and monitor system performance. The interface allows the PX7510 to provide digitized information for real time system monitoring and control.

The PX7510 provides superior accuracy through internal calibration that measures and corrects current sense error sources upon startup. The PX7510 has programmable current sense temperature compensation that allows the designer to tailor the response for best accuracy over temperature. Superior accuracy reduces component count and solution cost.

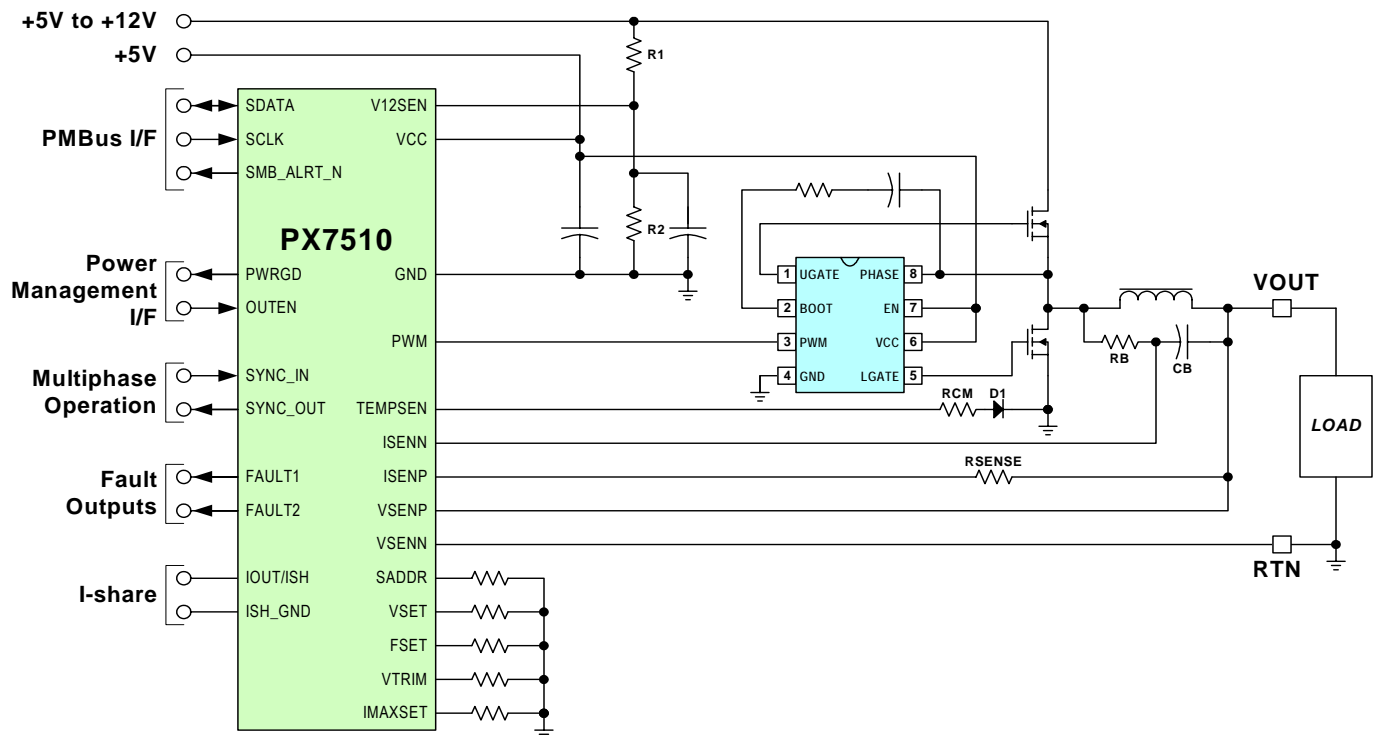
Block Diagram



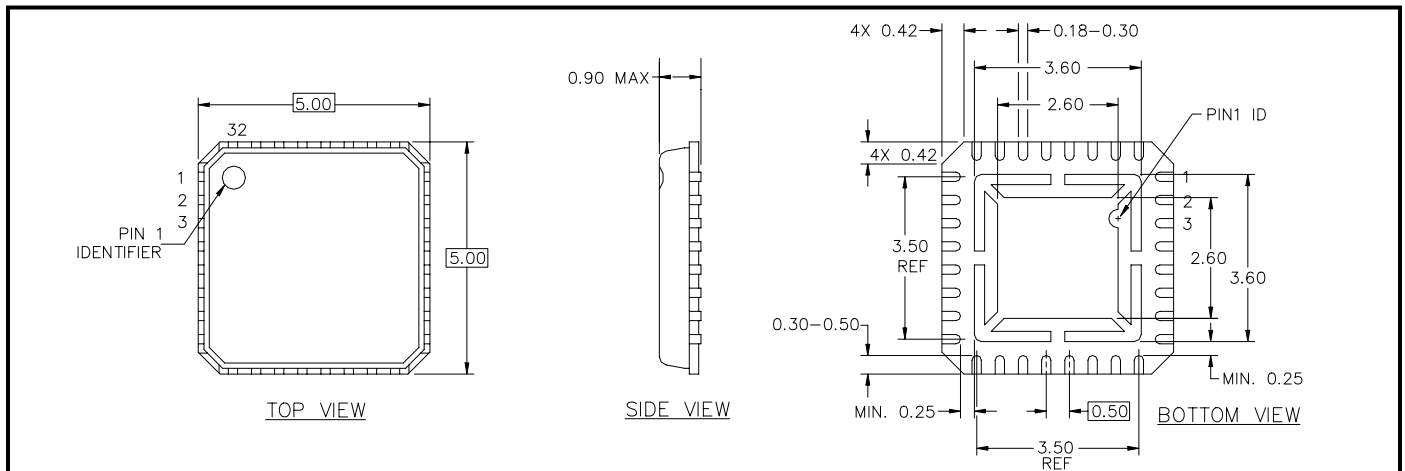
Primarion® Di-POL™ PX7510 Power IC Digital POL Controller

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Reference Design



Physical Characteristics (32-lead 5mm X 5mm QFN)



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