▸ Adjustable, wide input range PFM controller family

FEATURES

- Supply voltage range VS 3V to 60V
- Up to 90% efficiency
- 40µA standby current
- 180µA circuit operating current
- 1.5V to 24V or more adjustable output voltage
- Up to 300kHz switching frequency
- Improved current-limited PFM control scheme
- High current driver for external MOSFET
- Under-voltage lockout and thermal shutdown
- –40°C to +125°C operating temperature
- SO8n package
- 910.26 basis version
- 910.24 additive with peak current halving for medium loads and extended max. switch-on-time
- 910.25 additive with peak current halving for medium loads and extended max. switch-on-time and fault protection

APPLICATION

- Minimum component DC-DC converters
- 14V, 28V or 42V automotive systems
- Power conditioning for portable equipment
- High efficiency on-card switching regulators

DESCRIPTION

The family of highly flexible, easy to use PFM controllers is ideal for the use in wide input range switching regulator applications.

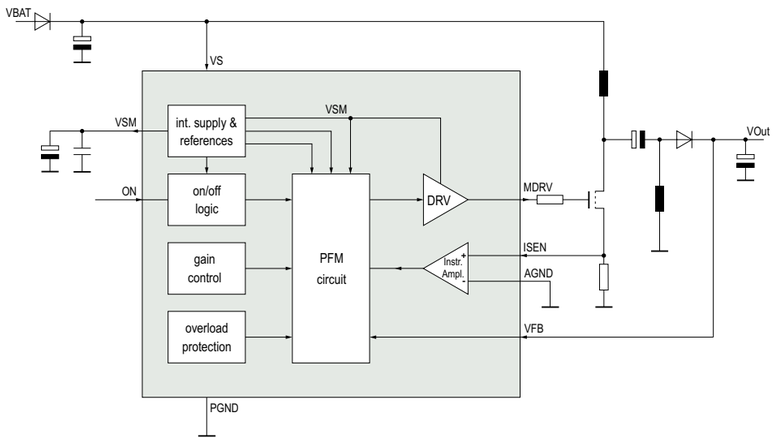
An advanced PFM control scheme gives these devices the benefits of PWM converters with high efficiency for heavy loads, while using very low operating current for light loads to maintain excellent behaviour with output load variation.

The switching circuits are suitable for topologies requiring low side FET, such as boost, flyback, Sepic, etc. Depending on the utilized topology the controllers are capable of producing regulated positive or negative output voltage.

Operating from 3V to 60V supply and in temperature ranges from –40°C to +125°C the device is well suited for automotive applications. Requiring a minimum number of external components, these regulators are simple to use and cost-saving.

Self-protection features include an overload detection circuit, an overtemperature shutdown under fault conditions and an under-voltage lockout.

BLOCK DIAGRAM



PINNING

Pin	Name	Description
1	PGND	Driver power ground pin. Connect pin to the current sense resistor, the (-) terminal of the input capacitor and the (-) terminal of the output capacitor. Due to high currents, and high frequency operation of the IC, a low impedance circuit ground plane is highly recommended
2	AGND	Analog ground pin. This pin provides a clean ground for the controller circuitry: The output voltage sensing resistors should be connected to this ground pin. This pin is connected to the IC substrate. Connect to the (-) terminal of the output capacitor
3	ISEN	Current sense input pin. Voltage generated across an external sense resistor is fed into this pin. Filters extensive high-frequency noise
4	VFB	Positive feedback pin. Connect to SMPS output via external resistor divider to set output voltage and is referenced to 1.22V. For best stability, keep VFB lead as short as possible and VFB stray capacitance as small as possible
5	ON	Switch ON input. Tie this pin to ground to force the IC into idle mode. A voltage of VSM or higher switches the controller in operating mode
6	VS	Main supply input. Filters out high-frequency noise with a 100nF ceramic capacitor placed close to the pin to PGND
7	VSM	Internal 5V regulator output. The driver and all control circuits are powered from this voltage. Decouple this pin to PGND with a minimum of 4.7µF tantalum and 100nF ceramic capacitors
8	MDRV	Drive output. Drives the gate of the external MOSFET between PGND and VSM. Connect the external MOSFET via a damping resistor to this pin

PACKAGE