PM6691

Single phase controller for Intel MVP7 GPU and CPU power supply

Data brief

Features

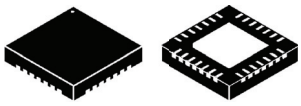
- 4.5 V to 28 V input voltage range
- 0.25 V to 1.52 V output voltage range, 8 bit SVID
- IMVP7 spec compliant
- Selectable PWM switching frequency, maximum temperature, maximum currents, boot voltage, VID transitions slew rate slow
- Adjustable load line (LL), 1 NTC needed for LL thermal compensation
- Lossless current sense with inductor DCR or accurate inductor current sense with R_{SENSE}
- CkCOT (clocked constant on time control loop) allows almost fixed pwm switching frequency
- Output voltage ripple compensation
- Tunable overshoot threshold (TOT) allows to reduce overshoot in load transient
- Skip mode allows to increase efficiency at light load
- Average and cycle by cycle OCP for each phase
- Embedded gate drivers and bootstrap diodes
- Adjustable VID transitions feature

Applications

- Intel® mobile CPU and GPU core IMVP7

Table 1. Device summary

Order codes	Package	Packaging
PM6691	QFN28 - 4x4 (exposed pad)	Tray
PM6691TR		Tape and reel



QFN28 - 4x4 (exposed pad)

Description

The PM6691 is a single phase step-down switching controller with embedded gate drivers. It has been designed to supply the CPU and GPU of the Intel® mobile platform, according with INTEL MVP7 specifications.

The controller is based on clocked constant on-time (CkCOT) architecture that allows nearly constant switching frequency over load.

An embedded integrator control loop compensates the DC voltage error due to the output voltage ripple. Load line of the output voltage can be adjusted by setting a resistor divider and it can be thermally compensated by using 1 NTC.

Current monitor IMON provides an analog output current proportional to the CPU load current. One NTC can be used to sense the maximum temperature of the switching regulator and provide the temperature information to the CPU through SVID bus.

Adjustable VID transitions feature, TOT feature, extremely low shutdown and quiescent current make the PM6691 a very flexible and cost-effective solution for IMVP7 CPU power supply.

Revision history

Table 2. Document revision history

Date	Revision	Changes
24-Mar-2011	1	Initial release

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