ISL95836

Dual 3+2 PWM Controller for IMVP-7/VR12™ CPUs

FN7835
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The ISL95836 Pulse Width Modulation (PWM) controller IC provides a complete solution for IMVP-7/VR12™ compliant microprocessor and graphic processor core power supplies. It provides the control and protection for two Voltage Regulators (VRs). The first VR, typical for V_{core}, incorporates 2 integrated drivers and can operate in 3-, 2- or 1-phase configurations. The second VR, typical for graphics, incorporates 1 integrated driver and can operate in 2- or 1-phase configurations. The two VRs share a serial control bus to communicate with the CPU and achieve lower cost and smaller board area compared with the two-chip approach.

Both VRs utilize Intersil's Robust Ripple Regulator R3 Technology™. The R3 modulator has numerous advantages compared to traditional modulators, including faster transient response, variable switching frequency during load transients, and improved light load efficiency due to its ability to automatically change switching frequency.

The ISL95836 has several other key features. Both outputs support either DCR current sensing with a single NTC thermistor for DCR temperature compensation, or more precise resistor current sensing if desired. Both outputs come with remote voltage sense, programmable V_{BOOT} voltage, I_{MAX}, and switching frequency, adjustable overcurrent protection and separate Power-Good signals.

Features

- Serial Data Bus
- Dual Outputs:
  - Configurable 3-, 2- or 1-phase for the 1st Output Using Two Integrated Gate Drivers
  - Configurable 2- or 1-phase for the 2nd Output Using One Integrated Gate Driver
- R3 Modulator
  - Excellent Transient Response
  - High Light Load Efficiency
- 0.5% System Accuracy Over-Temperature
- Supports Multiple Current Sensing Methods
  - Lossless Inductor DCR Current Sensing
  - Precision Resistor Current Sensing
- Differential Remote Voltage Sensing
- Programmable V_{BOOT} Voltage at Start-up
- Resistor Programmable I_{MAX}, Switching Frequency for Both Outputs
- Adaptive Body Diode Conduction Time Reduction

Applications

- IMVP-7/VR12 Compliant Computers

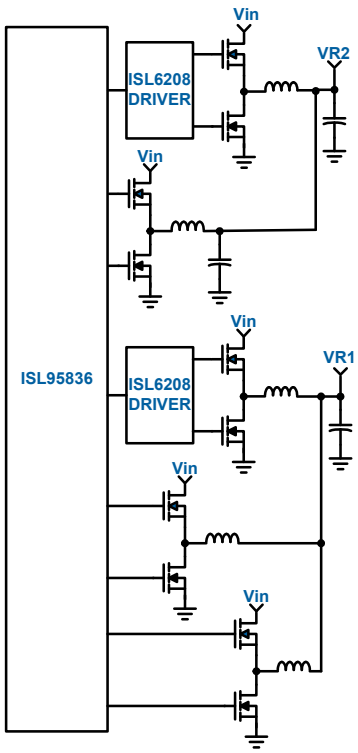


FIGURE 1. SIMPLIFIED APPLICATION CIRCUIT

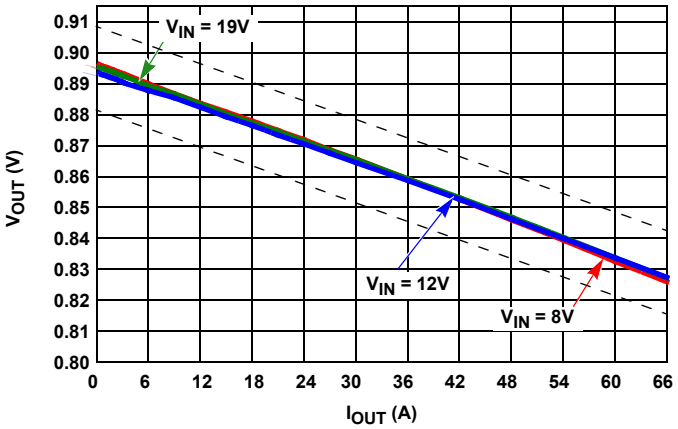


FIGURE 2. LOAD LINE REGULATION

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