

FEATURES

- Peak efficiency up to 93.8% at 1.2V
- Integrated driver, control MOSFET, synchronous MOSFET and Schottky diode
- Input voltage (VIN) operating range up to 15V
- Output voltage range from 0.25V up to 3.3V
- Output current capability of 40A
- Operation up to 1.0MHz
- Integrated current sense amplifier
- VCC under voltage lockout
- Thermal flag
- Body-Braking™ load transient support
- Diode-emulation high efficiency mode
- Compatible with 3.3V PWM logic and VCC tolerant
- Compliant with Intel DrMOS V4.0
- PCB footprint compatible with IR3550 – IR3551
- Efficient dual sided cooling
- Small 4mm x 6 mm x 0.9mm PQFN package
- Lead-free RoHS compliant package

APPLICATIONS

- High frequency, low profile DC-DC converters
- Voltage Regulators for CPUs, GPUs, and DDR memory arrays

DESCRIPTION

The IR3553 integrated PowIRstage™ is a synchronous buck gate driver IC with co-packed control and synchronous MOSFETs and Schottky diode. It is optimized internally for PCB layout, heat transfer and driver/MOSFET timing. Custom designed gate driver and MOSFET combination enables higher efficiency at lower output voltages required by cutting edge CPU, GPU and DDR memory designs.

Up to 1.0MHz switching frequency enables high performance transient response, allowing miniaturization of output inductors, as well as input and output capacitors while maintaining industry leading efficiency. The IR3553's superior efficiency enables smallest size and lower solution cost. The IR3553 PCB footprint is compatible with IR3550 (60A), and the IR3551 (50A).

Integrated current sense amplifier achieves superior current sense accuracy vs. best-in-class controller based Inductor DCR sense methods.

The IR3553 incorporates the Body-Braking™ feature which enables reduction of output capacitors and is activated quickly. Synchronous diode-emulation mode in the IR3553 removes the zero-current detection and control burden from the PWM controller and increases system efficiency.

The IR3553 is optimized specifically for CPU core power delivery in server applications. The ability to meet the stringent requirements of the server market also makes the IR3553 ideally suited to powering GPU and DDR memory designs.

BASIC APPLICATION

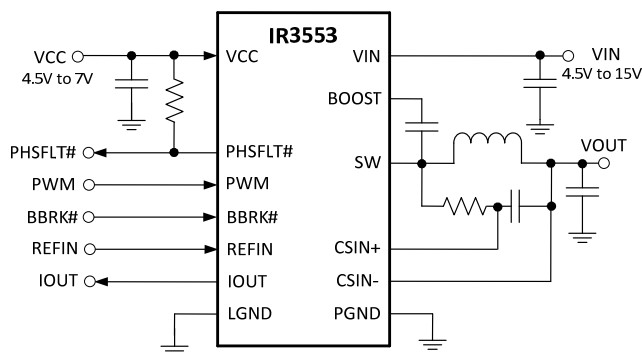


Figure 1: IR3553 Basic Application Circuit

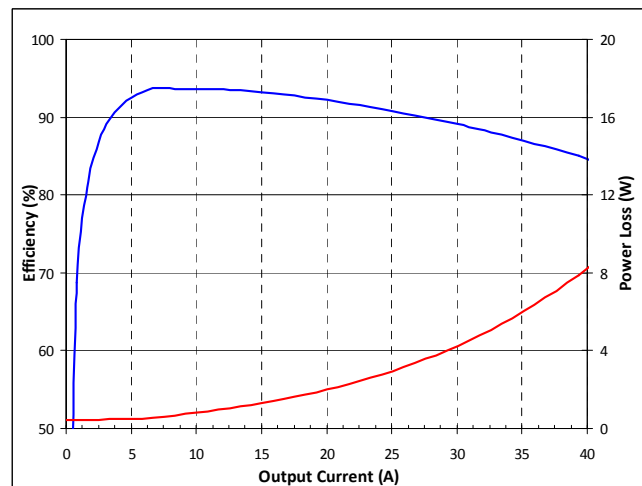


Figure 2: IR3553 Efficiency and Power Loss