FEATURES

- Integrated driver, Schottky diode, control MOSFET and synchronous MOSFET
- 5mV / A on-chip MOSFET current sensing with temperature compensated reporting
- Input voltage (VIN) range of 4.5V to 15V
- VCC and VDRV supply of 4.5V to 7V
- Output voltage range from 0.25V up to 5.5V
- Output current capability of 60A
- Operation up to 1.0MHz
- VCC under voltage lockout (UVLO)
- 8mV / ^{o}C temperature analog output and thermal flag pull-up to 3.3V
- Over temperature protection (OTP)
- Cycle-by-cycle self-preservation over current protection (OCP)
- MOSFET phase fault detection and flag
- Compatible with 3.3V tri-state PWM Input
- Body-Braking™ load transient support through PWM Tri-state
- Diode emulation mode (DEM) for improved light load efficiency
- Efficient dual sided cooling
- Small 6mm x 6mm x 0.9mm PQFN package
- Lead free RoHS compliant package

APPLICATIONS

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

DESCRIPTION

The IR3555A integrated PowIRstage® contains a synchronous buck gate driver IC which is co-packed with control and synchronous MOSFETs and a Schottky diode to further improve efficiency. The package is optimized for PCB layout, heat transfer, driver/MOSFET control timing, and minimal switch node ringing when layout guidelines are followed. The paired gate driver and MOSFET combination enables higher efficiency at lower output voltages required by cutting edge CPU, GPU, ASIC and DDR memory designs.

The IR3555A PowIRstage® internal MOSFET current sense algorithm with integrated temperature compensation achieves superior current sense accuracy vs. best-in-class controller based Inductor DCR sense methods. Other features include internal cycle-by-cycle self-preservation over current protection and flag, phase fault flag, over temperature protection and flag, and internal package temperature reporting.

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.

When combined with IR's digital controllers, the IR3555A incorporates the Body-Braking™ feature through PWM tri-state which enables reduction of output capacitors. Synchronous diode-emulation mode is also supported through a built-in ZCD_EN# enabled zero-cross detect circuit in the IR3555A which increases system light-load efficiency.

The IR3555A is optimized for CPU core power delivery in server applications. The ability to meet the stringent requirements of the server market also makes the IR3555A ideally suited for powering GPU, ASIC, DDR memory, and other high current designs.

ORDERING INFORMATION

Base Part Number	Package Type	Standard Pack		Orderable Part Number
		Form	Quantity	
IR3555A	PQFN 6 mm x 6 mm	Tape and Reel	3000	IR3555AMTRPBF