

Product brief

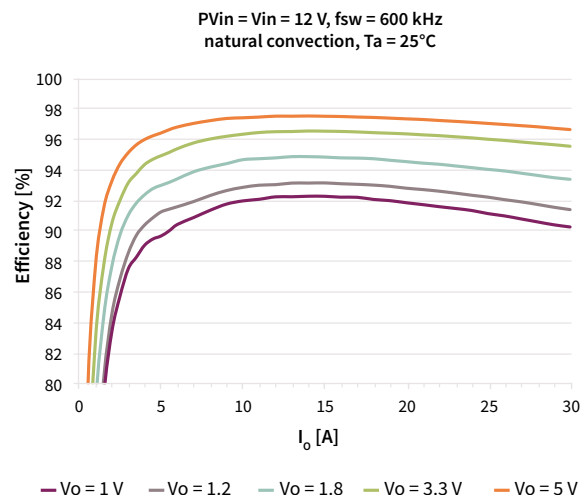
OptiMOS™ IPOL voltage regulators with FAST COT

IR3888M (25 A), IR3889M (30 A), IR3887M (30 A)

The new OptiMOS™ IR3887M, IR3889M, IR3888M integrated point-of-load DC-DC voltage regulator family is an easy-to-use, fully integrated and highly efficient DC-DC regulator that can operate from an input voltage of 12 V (4.5 V to 17 V, down to 2 V with external bias) and provide up to 30 A continuous current. The devices increase efficiency and power density and simplify design for POL applications in server, enterprise storage, netcom router and switches, datacom and telecom base stations.

Infineon's fast constant on-time (COT) engine eliminates the need for any external compensation and offers excellent steady-state stability even with "all-ceramic capacitor" design. Infineon's COT topology features a patented "floor control method" that offers excellent output voltage regulation and faster load transient response compared to alternative COT control methods with relatively lower output capacitance. Additionally, IR388xM family of regulators can operate in diode emulation mode (DEM) during light loads to save standby power.

Frequency, soft start, current limit and OVP latch/no latch can be programmed for maximum flexibility. The family also offers comprehensive protection features including pre-bias startup, thermal shutdown, overcurrent protection, undervoltage protection and V_{CC} undervoltage lockout (UVLO), together with enable pin, power good output and remote output voltage sensing.



Key features

- › Up to 30 A in PQFN 4 x 5 mm
- › All-ceramic capacitor design without additional components
- › Best-in-class steady-state regulation without external compensation
- › Wide input voltage range support (4.3 V - 17 V), and down to 2 V with external bias
- › Diode emulation or forced continuous conduction mode at light loads
- › Thermally compensated internal overcurrent protection with four selectable limits

Key benefits

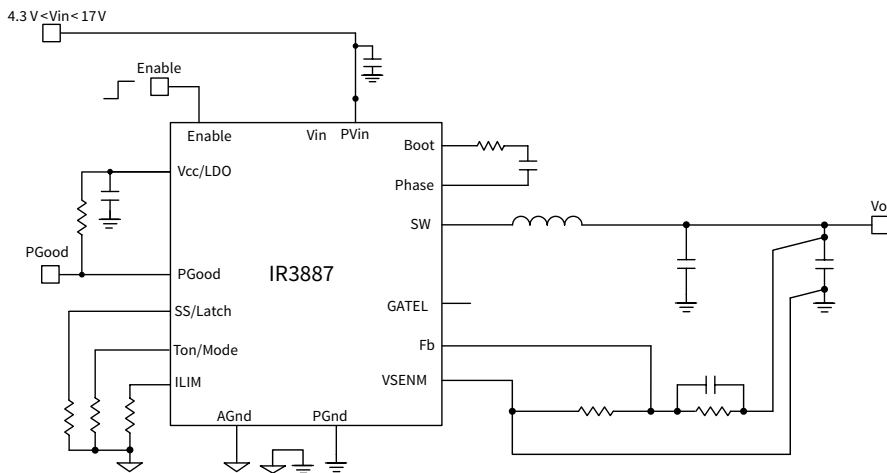
- › The smallest footprint in the market for 30 A
- › Supports higher switching frequency (up to 2 MHz) for small PCB size
- › Ease of design and layout due to minimal external components
- › Industry's best efficiency and thermal performance
- › Best-in-class output voltage regulation ($\pm 0.5\%$ Vref accuracy)
- › Ultrafast load transient response
- › Excellent output voltage regulation

Applications

- › High power density applications



Application diagram



Product features
> Stable with all ceramic caps
> Diode emulation mode and <math>< 10 \mu A</math> shutdown current
> Forced continuous conduction mode option
> Precise selectable overcurrent limit via resistor strapping
> Programmable frequency from (600 kHz to 2 MHz)
> Programmable soft-start time and latch/no latch OVP protection

Product benefits
> Easy to use with no external compensation
> Smallest BOM and enables all ceramic capacitor design
> Enhanced light load efficiency
> DCM can be disabled for applications requiring very low output voltage ripple
> Flexibility with inductor selection that enables size/performance optimization
> Robust design with accurate overcurrent fault threshold
> Flexibility to optimize size or efficiency
> Flexibility and easy design

Product portfolio

Ordering code	Package	Input voltage	Output current	Moisture level	Tape and reel quantity
IR3887MTRPBF	PQFN 4x5	2 – 17 V	30 A	MSL2	5000 pcs
IR3888MTRPBF	PQFN 5x6	2 – 17 V	25 A	MSL2	5000 pcs
IR3889MTRPBF	PQFN 5x6	2 – 17 V	30 A	MSL2	5000 pcs

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