Product Brief

iPOL Voltage Regulators

IR3883 (3 A)

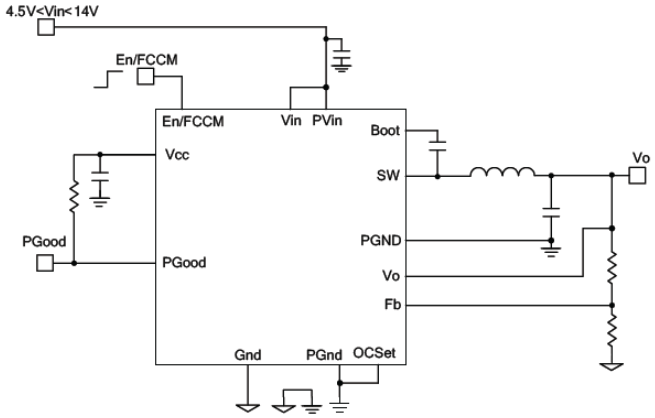
The IR3883 is an easy-to-use, fully integrated and highly efficient DC/DC regulator that can operate from 12 V and 5 V and provide up to 3 A continuous current in a small 3 mm x 3 mm footprint for high-density applications.

It employs an enhanced stability engine that makes it stable with ceramic capacitors without external compensation for easy design.

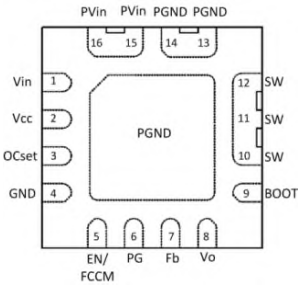
IR3883 can operate in Forced Continuous Conduction Mode (FCCM) or can enter Diode Emulation Mode (DEM) during light loads to save power. With ultra-light loads, IR3883 can enter a low quiescent current mode making it ideal for standby power supplies.

It also features all protection functions required for enterprise:
Pre-bias startup, thermal shutdown, over current protection, internal soft-start, enable pin and power good output.

Application Diagram



Footprint



Key features

- Up to 3 A in PQFN 3 mm x 3 mm
- Enhanced Stability Engine with ceramic capacitors without need of external compensation
- Wide input voltage range of 4.5 V-14 V, 2.5 V_{min} with 5 V ext. bias
- Light load efficiency
- Thermally compensated internal over current protection with three selectable limits
- Precise output voltage (0.6% accurate 0.5 V reference voltage)

Key benefits

- Small PCB size (total solution <100 mm2)
- Easy design and layout
- Three precise current limits for smaller and cheaper inductor
- Tight accuracy and min./max. for current limit and Vref specified in datasheet over temperature and tested for reliability

Applications

High density voltage regulator up to 3 A

Product portfolio

Ordering code	Package	Input voltage	Output current	Moisture level	T&R QTY
IR3883MTRPBF	PQFN 3x3	2.5 V – 14 V	3 A	MSL1	3000 pcs

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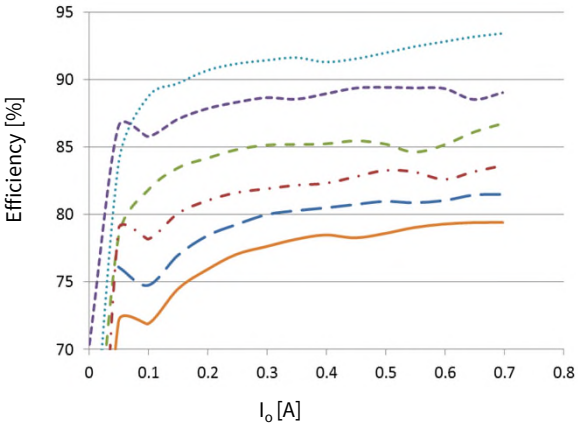
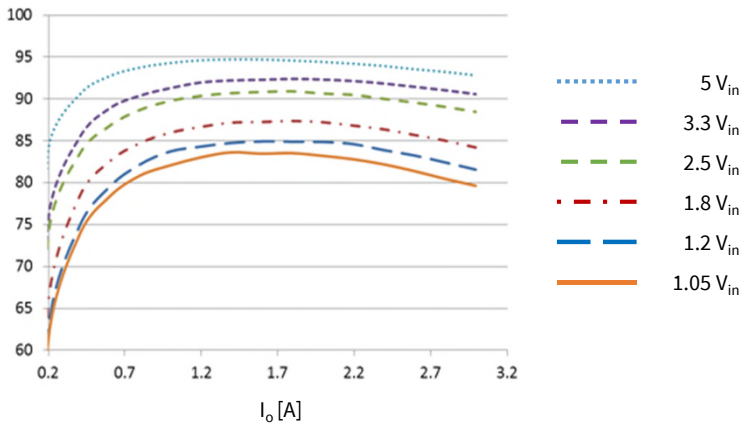
IR3883 Efficiency @ PV_{in} = 12 V and DEM



IR3883 Efficiency @ PV_{in} = 12 V and FCCM



Feature	Benefit
Stable with all ceramic caps	› No compensation for easier design › Less components (About 5 components saving + no external ripple injection, snubber and components to program frequency, current limit and soft start) › Competitor COT requires extra components for stability and for ripple injection
Enhanced light load efficiency	› Meets new light load efficiency requirements in storage and HE energy star consumer applications › <10 µA shutdown current › <150 µA operating on (no switching)
Forced Continuous Conduction Mode Option	› DCM can be disabled for applications requiring very low ripple or to avoid interference/beat frequency
Thermally compensated internal current limit with three selectable levels	› No need to oversize the inductor › Saves a resistor › More robust: Digital OCSET eliminates false trips from external noise
Footprint optimized for easy layout	› Easier Layout (PV_{in}/P_{GND} and SW/Boot are adjacent) › Less noise radiated and picked-up › Allows for best placement of bypass caps

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Additional information
For further information on technologies, our products, the application of our products, delivery terms and conditions and/or prices please contact your nearest Infineon Technologies office (www.infineon.com).

Warnings
Due to technical requirements, our products may contain dangerous substances. For information on the types in question please contact your nearest Infineon Technologies office.
Except as otherwise explicitly approved by us in a written document signed by authorized representatives of Infineon Technologies, our products may not be used in any life endangering applications, including but not limited to medical, nuclear, military, life critical or any other applications where a failure of the product or any consequences of the use thereof can result in personal injury.

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