

Brief Description

The ZSPM4551 is a DC/DC synchronous switching lithium-ion (Li-Ion) battery charger with fully integrated power switches, internal compensation, and full fault protection.

Its switching frequency of 1MHz enables the use of small filter components, resulting in smaller board space and reduced BOM costs.

In Full-Charge Constant-Current Mode, the regulation is for constant current (CC). Once termination voltage is reached, the regulator operates in voltage mode. When the regulator is disabled (the EN pin is low), the device draws $10\mu A$ (typical) quiescent current.

The ZSPM4551 includes supervisory reporting through the NFLT (inverted fault) open-drain output to interface other components in the system. Device programming is achieved by an I²C™* interface through the SCL and SDA pins.

Benefits

- Up to 1.5A of continuous output current in Full-Charge Constant-Current (CC) Mode
- High efficiency up to 92% with typical loads

Available Support

- Evaluation Kit
- · Support Documentation

Features

- VBAT reverse-current blocking
- Programmable temperature-compensated termination voltage: 3.94V to 4.18V ± 1%
- User programmable maximum charge current: 50mA to 1500mA
- Current mode PWM control in constant voltage
- Supervisor for VBAT reported at the NFLT pin
- Input supply under-voltage lockout
- Full protection for over-current, over-temperature, VBAT over-voltage, and charging timeout
- Charge status indication
- I²C[™] program interface with EEPROM registers

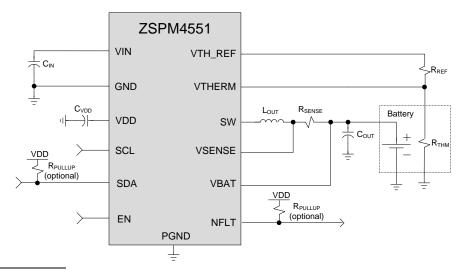
Related IDT Smart Power Products

- ZSPM4121 Ultra-low Power Under-Voltage Switch
- ZSPM4141 Ultra-Low-Power Linear Regulator

Physical Characteristics

- Wide input voltage range: V_{BAT} + 0.3V (3.5V min.) to 7.2V
- Junction operating temperature: -40°C to 125°C
- Package: 16-pin PQFN (4mm x 4mm)

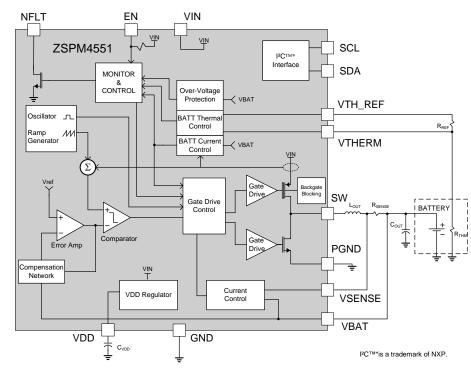
ZSPM4551 Application Circuit



^{*} I²C™ is a trademark of NXP.



ZSPM4551 Block Diagram



Typical Applications

- Portable battery chargers
- Smart phones
- Laptops
- Tablets/e-readers

Ordering Information

Ordering Code	Description	Package
ZSPM4551AA1W	ZSPM4551 High-Efficiency Li-Ion Battery Charger	16-pin PQFN / 7" Reel (1000 parts)
ZSPM4551AA1R	ZSPM4551 High-Efficiency Li-Ion Battery Charger	16-pin PQFN / 13" Reel (3300 parts)
ZSPM4551KIT	ZSPM4551 Evaluation Kit	



Corporate Headquarters 6024 Silver Creek Valley Road San Jose, CA 95138 www.IDT.com Sales 1-800-345-7015 or 408-284-8200 Fax: 408-284-2775 www.IDT.com/go/sales

Tech Support www.IDT.com/go/support

DISCLAIMER Integrated Device Technology, Inc. (IDT) reserves the right to modify the products and/or specifications described herein at any time, without notice, at IDT's sole discretion. Performance specifications and operating parameters of the described products are determined in an independent state and are not guaranteed to perform the same way when installed in customer products. The information contained herein is provided without representation or warranty of any kind, whether express or implied, including, but not limited to, the suitability of IDT's products for any particular purpose, an implied warranty of merchantability, or non-infringement of the intellectual property rights of others. This document is presented only as a guide and does not convey any license under intellectual property rights of IDT or any third parties.

IDT's products are not intended for use in applications involving extreme environmental conditions or in life support systems or similar devices where the failure or malfunction of an IDT product can be reasonably expected to significantly affect the health or safety of users. Anyone using an IDT product in such a manner does so at their own risk, absent an express, written agreement by IDT.

Integrated Device Technology, IDT and the IDT logo are trademarks or registered trademarks of IDT and its subsidiaries in the United States and other countries. Other trademarks used herein are the property of IDT or their respective third party owners. For datasheet type definitions and a glossary of common terms, visit www.idt.com/go/glossary. All contents of this document are copyright of Integrated Device Technology, Inc. All rights reserved.