

Brief Description

The ZSPM1063 is a configurable true-digital single-phase PWM controller for high-current, non-isolated DC/DC supplies. It operates as a synchronous step-down converter in a single-rail and single-phase configuration.

The ZSPM1063 integrates a digital control loop, optimized for maximum flexibility and stability, as well as load step and steady-state performance. In addition, a rich set of protection and monitoring functions is provided. On-chip, non-volatile memory (NVM) and an I²C interface facilitate configuration.

The PC-based IDT Pink Power Designer™ graphical user interface (GUI) provides a user-friendly and easy-to-use interface to the device for communication and configuration. It can guide the user through the design of the digital compensator and offers intuitive configuration methods for additional features, including protection and sequencing.

Benefits

- Fast configurability and design flexibility
- Simplified design and integration
- Reduced component count through system level integration
- Simplified monitoring for system power and thermal management
- Higher energy efficiency across all output loading conditions

Physical Characteristics

- Operation temperature: -40°C to +125°C
- Operation from a single 5V or 3.3V supply
- V_{OUT} max: 5V
- Lead-free (RoHS compliant) 32-pin QFN package (5mm x 5mm)

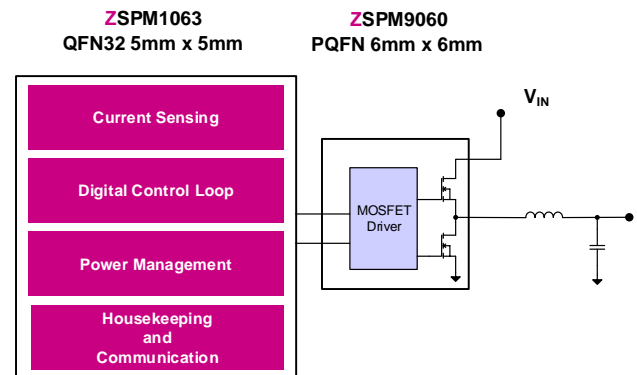
Available Support

- Evaluation Kit
- PC-based Pink Power Designer™ GUI

Features

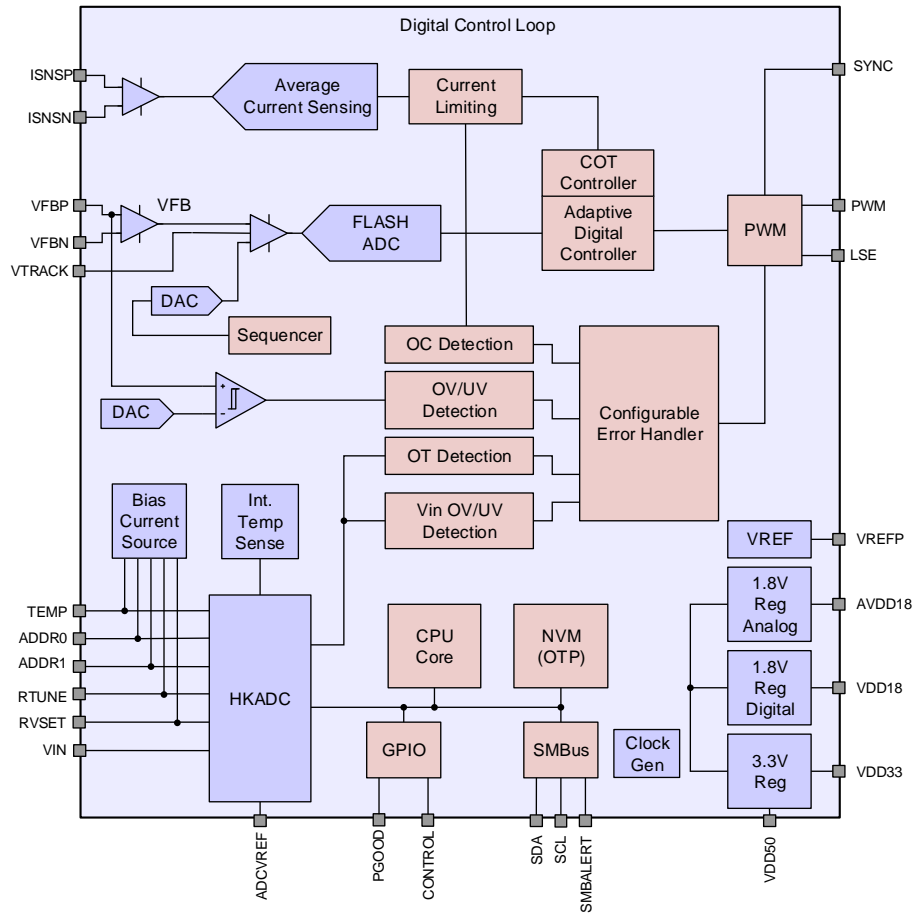
- Programmable digital control loop
- Optional PMBus™ address selection without external resistors
- V_{IN} feed-forward
- Advanced, digital control techniques
 - Tru-sample Technology™
 - State-Law Control™ (SLC)
 - Sub-cycle Response™ (SCR)
- Improved transient response and noise immunity
- Discontinuous conduction mode (DCM) at light loads
- Protection features
 - Over-current protection
 - Over-voltage protection (V_{IN}, V_{OUT})
 - Under-voltage protection (V_{IN}, V_{OUT})
 - Overloaded startup
 - Restart and delay
- Fuse-based NVM for improved reliability
- Re-programmable one-time programmable (OTP) memory feature
- V_{OUT} sequencing from external source
- Pin-strapping options: RTUNE and RVSET
- Tri-state PWM output
- Additional driver support options
- Constant on-time controller (COT) in DCM

ZSPM1063 Typical Application Diagram



ZSPM1063 Block Diagram

- Typical Applications**
- ❖ Telecom Switches
 - ❖ Servers and Storage
 - ❖ Base Stations
 - ❖ Network Routers
 - ❖ Industrial Applications
 - ❖ Single-Rail/Single-Phase Supplies for Processors, ASICs, FPGAs, DSPs



Ordering Information

Sales Code	Description	Package
ZSPM1063BA1R 1	ZSPM1063 Lead-free QFN32 — Temperature range: -40°C to +125°C	Reel
ZSPM1063-KIT02	Evaluation Kit with PMBus™ Communication Interface. The Pink Power Designer™ GUI is available for download on www.IDT.com/ZSPM1063 after login (see details in data sheet section 7).	

* This product is sold under a limited license from PowerOne, Inc. related to digital power technology as set forth in U.S. Patent 7000125 and other related patents owned by PowerOne, Inc. This license does not extend to stand-alone power supply products.



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.