

Brief Description

The ZSPM1035C and ZSPM1035D are true-digital single-phase PWM controllers optimally configured for use with the Murata Power Solutions 35A Power Block OKLP-X/35-W12-C in smart digital power solutions.

The ZSPM1035C and ZSPM1035D integrate 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 functions is provided.

To simplify the system design, a set of optimized configuration options have been pre-programmed in the devices. These configurations can be selected by setting the values of two external resistors.

Reference solutions are available complete with layout recommendations, example circuit board layouts, complete bill of materials and more.

Features

- Application-optimized digital control loop
- Advanced, digital control techniques
 - Tru-sample Technology™
 - State-Law Control™ (SLC)
 - Sub-cycle Response™ (SCR)
- Improved transient response and noise immunity
- Protection features
 - Over-current protection
 - Over-voltage protection (VIN, VOUT)
 - Under-voltage protection (VIN, VOUT)
 - Overloaded startup
 - Continuous retry (“hiccup”) mode for fault conditions
- Pre-programmed for optimized use with Murata Power Solutions 35A Power Block OKLP-X/35-W12-C
- 2-pin configuration for loop compensation, output voltage, and slew rate.
- Operation from a single 5V or 3.3V supply

Benefits

- Fast time-to-market using off-the-shelf, optimally configured controller and power block
- Fast configuration and design flexibility
- Simplified design and integration
- FPGA designer-friendly solution
- Highest power density with smallest footprint
- Pin-to-pin compatible with the ZSPM1035A PWM controller enabling point-of-load platform designs with or without digital communication
- Higher energy efficiency across all output loading conditions

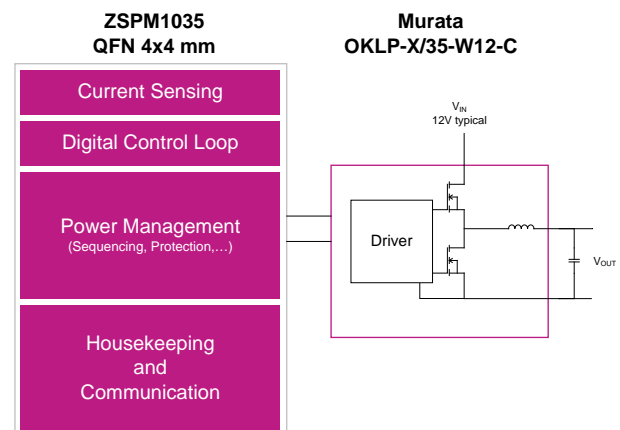
Available Support

- Evaluation Kit
- Reference Solutions
- PC-based Pink Power Designer™ Graphic User Interface (GUI)

Physical Characteristics

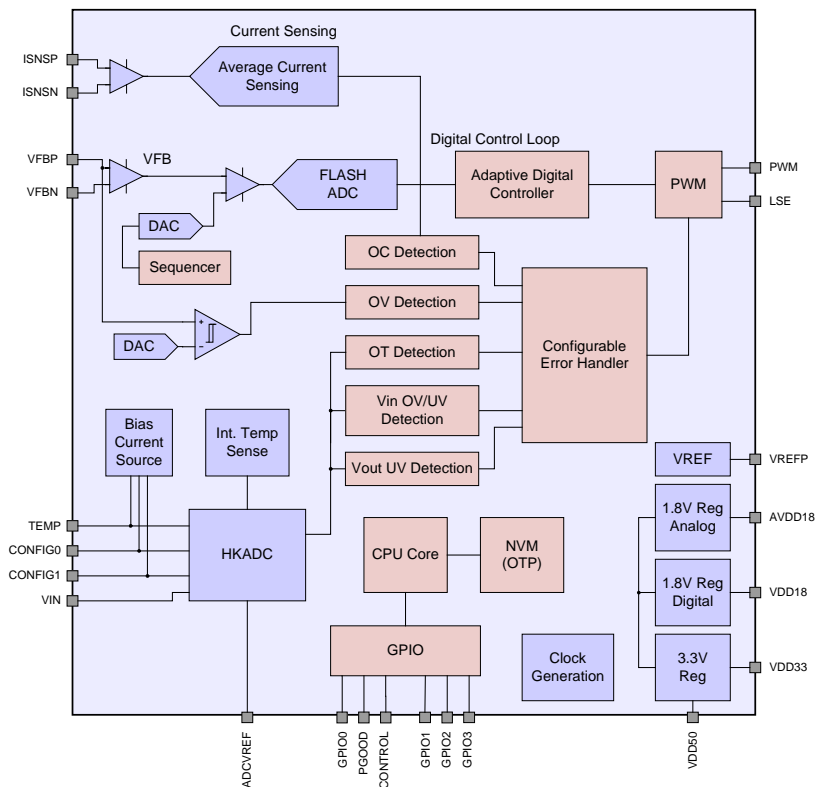
- Operation temperature: -40°C to +125°C
- ZSPM1035C V_{OUT} : 0.62V to 1.20V
- ZSPM1035D V_{OUT} : 1.25V to 3.40V
- Lead free (RoHS compliant) 24-pin QFN package (4mm x 4mm)

ZSPM1035C/D Typical Application Diagram



ZSPM1025C/D Block Diagram

- Typical Applications**
- ❖ Telecom Switches
 - ❖ Servers and Storage
 - ❖ Base Stations
 - ❖ Network Routers
 - ❖ Industrial Applications
 - ❖ FPGA Designs
 - ❖ Point-of-Load Power Solutions
 - ❖ Telecommunications
 - ❖ Single-Rail/Single-Phase Supplies for Processors, ASICs, DSPs, etc.



Ordering Information

Sales Code	Description	Package
ZSPM1035CA1W 0	ZSPM1035C Lead-free QFN24 — Temperature range: -40°C to +125°C	7" Reel
ZSPM1035DA1W 0	ZSPM1035D Lead-free QFN24 — Temperature range: -40°C to +125°C	7" Reel
ZSPM8735-KIT	Evaluation Kit for ZSPM1035C with PMBus™ Communication Interface *	Kit
ZSPM8835-KIT	Evaluation Kit for ZSPM1035D with PMBus™ Communication Interface *	Kit

* Pink Power Designer™ GUI for kit can be downloaded from the IDT web site at www.IDT.com/ZSPM1035C or www.IDT.com/ZSPM1035D.

IMPORTANT NOTICE AND DISCLAIMER

RENESAS ELECTRONICS CORPORATION AND ITS SUBSIDIARIES (“RENESAS”) PROVIDES TECHNICAL SPECIFICATIONS AND RELIABILITY DATA (INCLUDING DATASHEETS), DESIGN RESOURCES (INCLUDING REFERENCE DESIGNS), APPLICATION OR OTHER DESIGN ADVICE, WEB TOOLS, SAFETY INFORMATION, AND OTHER RESOURCES “AS IS” AND WITH ALL FAULTS, AND DISCLAIMS ALL WARRANTIES, EXPRESS OR IMPLIED, INCLUDING, WITHOUT LIMITATION, ANY IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR NON-INFRINGEMENT OF THIRD-PARTY INTELLECTUAL PROPERTY RIGHTS.

These resources are intended for developers who are designing with Renesas products. You are solely responsible for (1) selecting the appropriate products for your application, (2) designing, validating, and testing your application, and (3) ensuring your application meets applicable standards, and any other safety, security, or other requirements. These resources are subject to change without notice. Renesas grants you permission to use these resources only to develop an application that uses Renesas products. Other reproduction or use of these resources is strictly prohibited. No license is granted to any other Renesas intellectual property or to any third-party intellectual property. Renesas disclaims responsibility for, and you will fully indemnify Renesas and its representatives against, any claims, damages, costs, losses, or liabilities arising from your use of these resources. Renesas' products are provided only subject to Renesas' Terms and Conditions of Sale or other applicable terms agreed to in writing. No use of any Renesas resources expands or otherwise alters any applicable warranties or warranty disclaimers for these products.

(Disclaimer Rev.1.01)

Corporate Headquarters

TOYOSU FORESIA, 3-2-24 Toyosu,
Koto-ku, Tokyo 135-0061, Japan
www.renesas.com

Trademarks

Renesas and the Renesas logo are trademarks of Renesas Electronics Corporation. All trademarks and registered trademarks are the property of their respective owners.

Contact Information

For further information on a product, technology, the most up-to-date version of a document, or your nearest sales office, please visit www.renesas.com/contact-us/.