## **Brief Description**

The ZSPM1035A is a flexible true-digital singlephase PWM controller optimally configured for use with the Murata Power Solutions 35A Power Block OKLP-X/35-W12-C in smart digital power solutions.

The ZSPM1035A 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  $I^2C^{TM}$  interface facilitate configuration.

IDT's PC-based Pink Power Designer<sup>™</sup> graphic user interface (GUI) provides a user-friendly and easy-to-use interface to the ZSPM1035A for communication, monitoring, and configuration of the protection and sequencing features.

A downloadable reference solution is available, including a graphical user interface, layout guide-lines, bill of materials, and step-by-step instructions.

## Features

- Programmable digital control loop
- Advanced digital control techniques
  - Tru-sample Technology™
  - State-Law Control<sup>™</sup> (SLC)
  - Sub-cycle Response<sup>™</sup> (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
- Fuse-based NVM for improved reliability
- Operation from a single 5V or 3.3V supply
- Optional PMBus<sup>™</sup> address selection without external resistors

### **Benefits**

- Fast time-to-market using off-the-shelf, optimally configured controller and power block
- Fast configurability and design flexibility
- Simplified design flow and high reliability via proven system design solution
- Reduced component count through system level integration
- Simplified monitoring for system power and thermal management
- Pin-to-pin compatible with the ZSPM1035C and ZSPM1035D PWM controllers enabling point-ofload platform designs with or without digital communication
- Higher energy efficiency across all output loading conditions

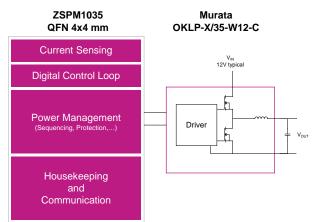
# **Available Support**

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

## **Physical Characteristics**

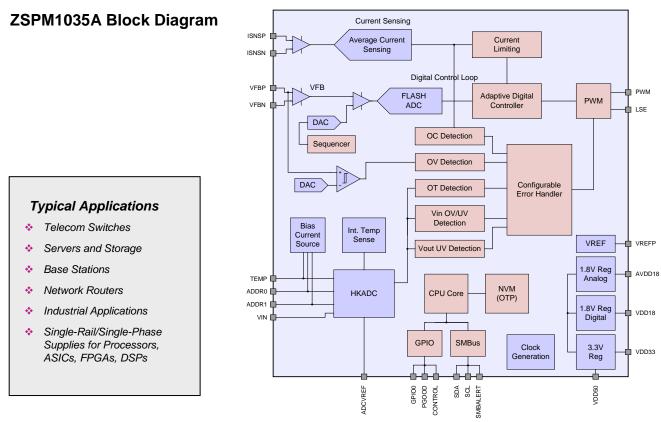
- Operation temperature: -40°C to +125°C
- V<sub>OUT</sub>: 0.35V to 3.6V
- Lead free (RoHS compliant) 24-pin QFN package (4mm x 4mm)

# **ZSPM1035A Typical Application Diagram**



<sup>\*</sup>  $I^2C^{TM}$  is a registered trademark of NXP.





# **Ordering Information**

Sales Code	Description	Package
ZSPM1035AA1W 1	ZSPM1035A Lead-free QFN24 — Temperature range: -40°C to +125°C *	Reel
	Evaluation Kit for ZSPM1035A with PMBus <sup>™</sup> Communication Interface — Pink Power Designer <sup>™</sup> GUI for kit can be downloaded from the IDT web site at <u>www.IDT.com/ZSPM1035A</u>	Kit
* 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.		

### 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 Jan 2024)

#### **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 <u>www.renesas.com/contact-us/</u>.