

Brief Description

The ZSPM1025A is a flexible true-digital single-phase PWM controller optimally configured for use with the Murata Power Solutions 25A Power Block OKLP-X/25-W12-C in smart digital power solutions.

The ZSPM1025A 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.

IDT's PC-based Pink Power Designer™ graphic user interface (GUI) provides a user-friendly and easy-to-use interface to the ZSPM1025A for communication, monitoring, and configuration of the protection and sequencing features.

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

Features

- Programmable 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
- Fuse-based NVM for improved reliability
- Operation from a single 5V or 3.3V supply
- Optional PMBus™ 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 ZSPM1025C and ZSPM1025D PWM controllers, enabling point-of-load platform designs with or without digital communication
- Higher energy efficiency across all output loading conditions

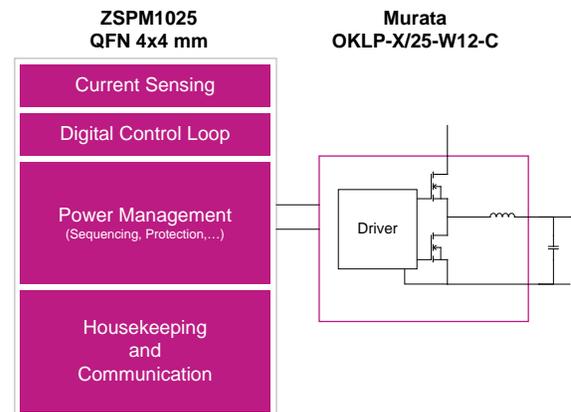
Available Support

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

Physical Characteristics

- Operation temperature: -40°C to +125°C
- V_{OUT}: 0.35V to 3.6V
- Lead free (RoHS compliant) 24-pin QFN package (4 mm x 4 mm)

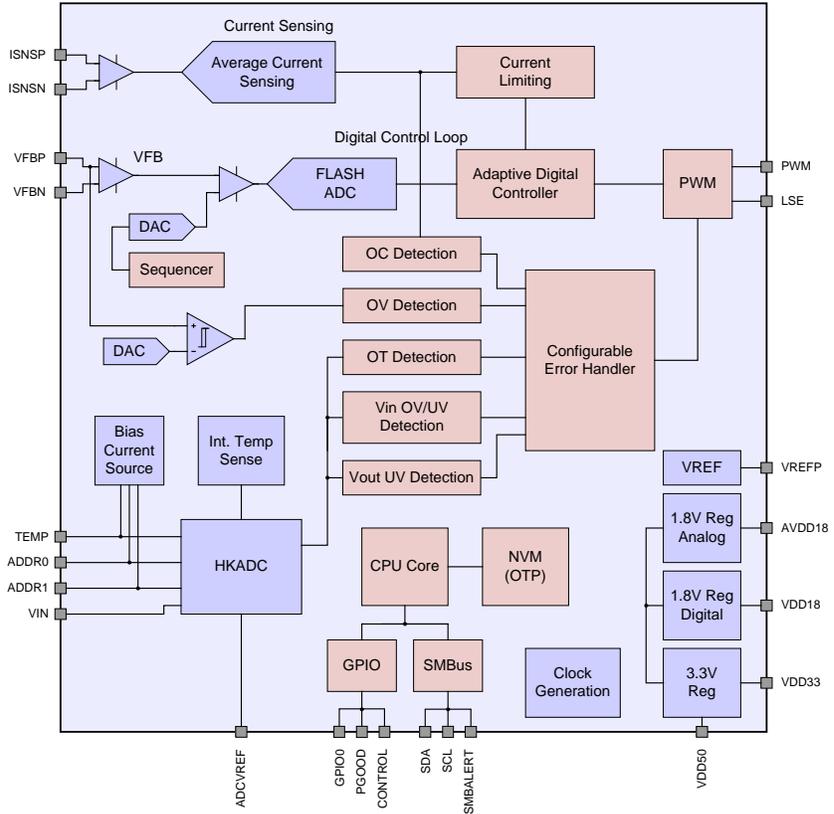
ZSPM1025A Typical Application Diagram



* I²C™ is a registered trademark of NXP.

ZSPM1025A 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 |
|----------------|---|---------|
| ZSPM1025AA1W 1 | ZSPM1025A Lead-free QFN24 — Temperature range: -40°C to +125°C | Reel |
| ZSPM8025-KIT | Evaluation Kit for ZSPM1025A with PMBus™ Communication Interface — Pink Power Designer™ GUI for kit can be downloaded from the IDT web site at www.IDT.com/ZSPM1025A | Kit |

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