Brief Description

The ZSPM1025C and ZSPM1025D are true-digital single-phase PWM controllers optimally configured for use with the Murata Power Solutions 25A Power Block OKLP-X/25 in smart digital power solutions.

The ZSPM1025C and ZSPM1025D 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 25A Power Block OKLP-X/25
- 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 ZSPM1025A PWM controller enabling point-of-load platform designs with or without digital communication
- Higher energy efficiency across all output loading conditions

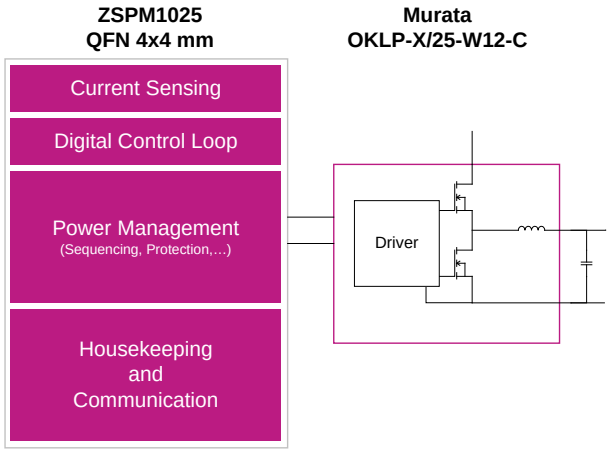
Available Support

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

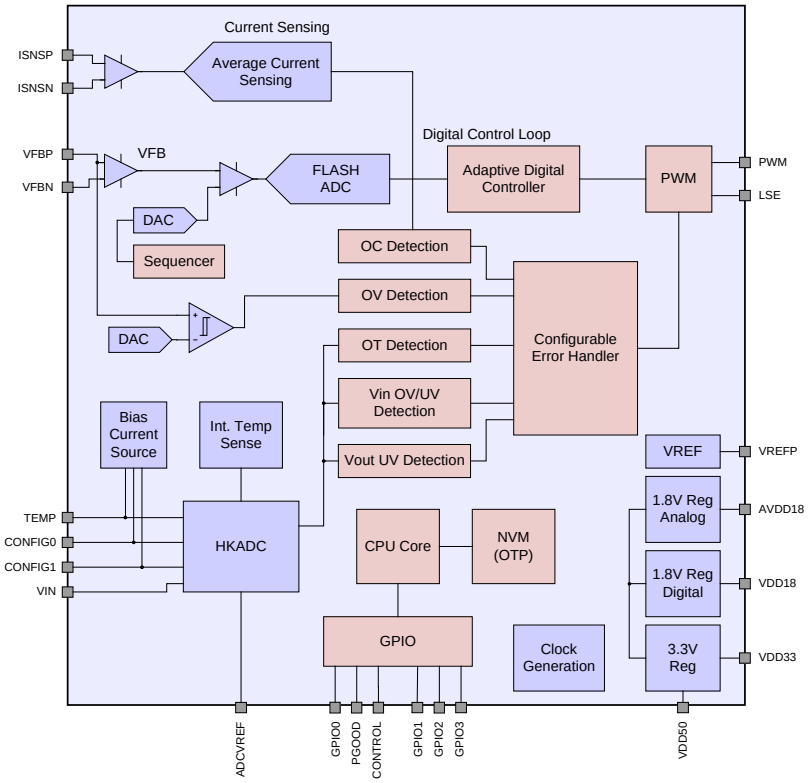
Physical Characteristics

- Operation temperature: -40°C to +125°C
- ZSPM1025C V_{OUT}: 0.62V to 1.20V
- ZSPM1025D V_{OUT}: 1.25V to 3.40V
- Lead free (RoHS compliant) 24-pin QFN package (4mm x 4mm)

ZSPM1025C/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, DSP's, etc.*

Ordering Information

Sales Code	Description	Package
ZSPM1025CA1W 0	ZSPM1025C Lead-free QFN24 — Temperature range: -40°C to +125°C	7" Reel
ZSPM1025DA1W 0	ZSPM1025D Lead-free QFN24 — Temperature range: -40°C to +125°C	7" Reel
ZSPM8725-KIT	Evaluation Kit for ZSPM1025C with PMBus™ Communication Interface *	Kit
ZSPM8825-KIT	Evaluation Kit for ZSPM1025D with PMBus™ Communication Interface *	Kit

* Pink Power Designer™ GUI for kit can be downloaded from the IDT web site at www.IDT.com/ZSPM1025C or www.IDT.com/ZSPM1025D.

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