

Brief Description

ZSPM15xx family ICs are controllers designed for high-current, non-isolated DC/DC step-down point of load (POL) converters. The ZSPM15xx has a digital control loop that is optimized for maximum stability as well as load step and steady-state performance.

ZSPM15xx family ICs have a rich set of integrated fault protection features including over-voltage/under-voltage, output over-current, and over-temperature protections. To facilitate ease of use, the ZSPM15xx is pre-programmed and available for common output voltages. To provide flexibility for the end-customer, the over-current protection threshold and the control loop compensation are selectable by the end-customer to match a number of selected power stages.

ZSPM15xx family ICs have been optimized for maximum efficiency when used with IDT's DrMOS devices. Reference designs and application instructions enable a high performance turnkey solution without extensive engineering development.

Features

- Advanced digital control techniques
 - Tru-sample Technology™
 - State-Law Control™ (SLC)
- Preconfigured compensation for selected inductance values.
- Improved transient response and noise immunity
- Protection features
 - Configuration for over-current protection
 - Over-voltage protection (VIN, VOUT)
 - Under-voltage protection (VIN, VOUT)
 - Over-temperature protection
 - Overloaded startup
 - Restart and delay

Benefits

- Factory pre-configured for industry standard output voltages and currents enabling fast time-to-market
- Simplified design and integration
- FPGA designer-friendly solution
- Highest power density with smallest footprint
- Higher energy efficiency across all output loading conditions
- Operation from a single 5V supply

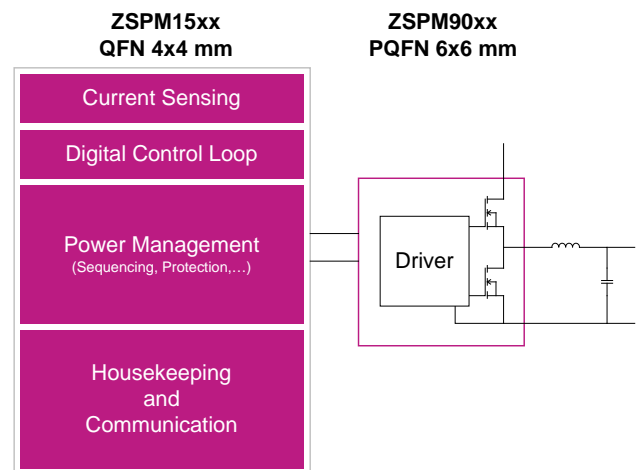
Available Support

- Reference designs
- Evaluation kits

Physical Characteristics

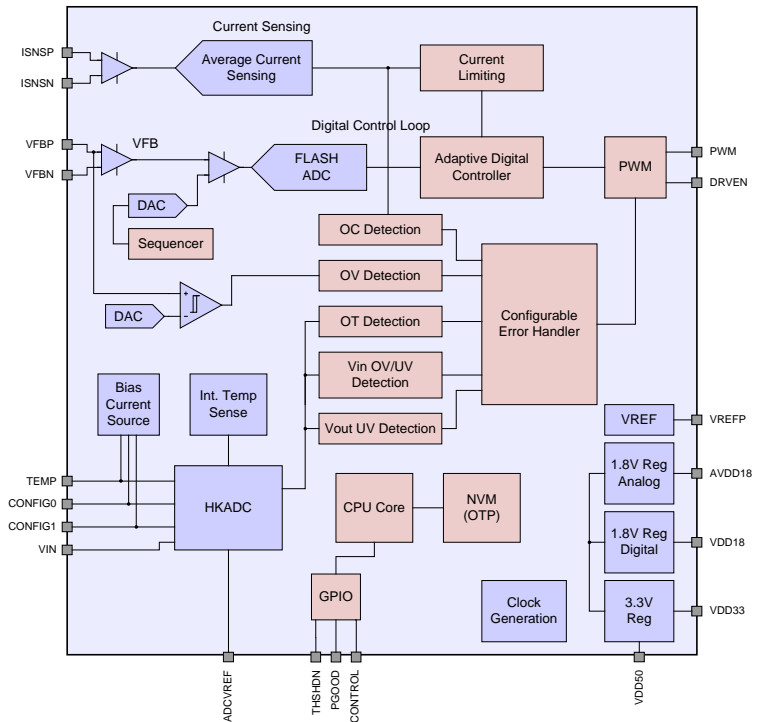
- Operation temperature: -40°C to +125°C
- V_{IN} for POL application: 10.8V to 13.2V
- VDD50 voltage supply: 4.75 to 5.25V
- Available Output Voltages: 0.85V, 1.0V, 1.2V, 1.5V, 1.8V, 2.0V, 2.5V, 3.3V, and 5.0V
- Lead free (RoHS compliant) 24-pin QFN package (4mm x 4mm)

ZSPM15xx Typical Application Diagram



ZSPM15xx 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

Product Code	Description	Package
ZSPM1501ZA1W0	ZSPM1501 lead-free QFN24; output voltage: 0.85V; inductance: 330nH; temperature: -40°C to +125°C	Reel
ZSPM1502ZA1W0	ZSPM1502 lead-free QFN24; output voltage: 1.00V; inductance: 330nH; temperature: -40°C to +125°C	Reel
ZSPM1503ZA1W0	ZSPM1503 lead-free QFN24; output voltage: 1.20V; inductance: 330nH; temperature: -40°C to +125°C	Reel
ZSPM1504ZA1W0	ZSPM1504 lead-free QFN24; output voltage: 1.50V; inductance: 470nH; temperature: -40°C to +125°C	Reel
ZSPM1505ZA1W0	ZSPM1505 lead-free QFN24; output voltage: 1.80V; inductance: 470nH; temperature: -40°C to +125°C	Reel
ZSPM1506ZA1W0	ZSPM1506 lead-free QFN24; output voltage: 2.00V; inductance: 470nH; temperature: -40°C to +125°C	Reel
ZSPM1507ZA1W0	ZSPM1507 lead-free QFN24; output voltage: 2.50V; inductance: 1000nH; temperature: -40°C to +125°C	Reel
ZSPM1508ZA1W0	ZSPM1508 lead-free QFN24; output voltage: 3.30V; inductance: 2200nH; temperature: -40°C to +125°C	Reel
ZSPM1509ZA1W0	ZSPM1509 lead-free QFN24; output voltage: 5.00V; inductance: 2200nH; temperature: -40°C to +125°C	Reel
ZSPM1511ZA1W0	ZSPM1511 lead-free QFN24; output voltage: 0.85V; inductance: 680nH; temperature: -40°C to +125°C	Reel
ZSPM1512ZA1W0	ZSPM1512 lead-free QFN24; output voltage: 1.00V; inductance: 680nH; temperature: -40°C to +125°C	Reel
ZSPM1513ZA1W0	ZSPM1513 lead-free QFN24; output voltage: 1.20V; inductance: 680nH; temperature: -40°C to +125°C	Reel