

Product brief

XDPP1100*

The smallest digital power controller with PMBus interface

The XDPP1100 is Infineon's highly integrated and programmable digital power supply controller. This device offers advanced power control solution for 48 V DC-DC power applications with isolated topologies. The XDPP1100 device features many optimized power-processing blocks and pre-programmed peripherals to enhance the performance of Isolated DC-DC converters, reduce external components and minimize firmware development effort. The controller also provides accurate telemetry and power management bus (PMBus1.3) interface for system communication, advance power conversion and monitoring. Integrated current sensing capability and compact chip size (24-pin 4 mm²) can greatly reduce the solution size by eliminating various external components.

A combination of high performance AFE, state machine based digital control loop and an Arm® Cortex® M0 integrated in a single chip makes the XDPP1100 a highly integrated, fully programmable and fastest time-to-market technology for modern high-end power systems, employed in telecom infrastructure, 48 V server motherboards, datacenter and industrial 4.0 applications.

The XDPP1100 device can be configured to support different DCDC topologies including:

- › Hard-switched full bridge and half bridge
- › Phase shifted full bridge
- › Active clamp forward
- › Interleaved FB, HB and ACF
- › Current-doubler
- › Pre-buck or post-buck configuration

Infineon offers support tools such as a complementary graphic user interface (GUI) that allows customers to configure and monitor key parameters. In addition, developers have full control of their application and FW development process with commonly used Arm® based compilers.

Typical applications:

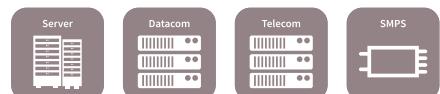
- › Isolated DCDC brick modules
- › Telecom radio power
- › 48 V point of loads
- › Non-isolated buck boost converters
- › 48 V server motherboard

Key features

- › State machine based digital control for up to 2 independent voltage loops
- › Configurable feedback control
- › Arm® Cortex®-M0 processor
- › Up to 16 configurable GPIOs
- › Up to 12 high resolution digital modulated PWM outputs
- › Input voltage feed-forward control scheme
- › 3 high-speed voltage sense ADCs: 50 MHz 11-bit ADC with set point accuracy within $\pm 1\%$ over temp range
- › 2 current sense ADCs: 25 MHz, 9-bit with 100 μ V and 1.45 mV LSB
- › Communication: 1 MHz I2C/ PMBus,
- › Operating temperature from -40 °C to 125 °C

Key benefits

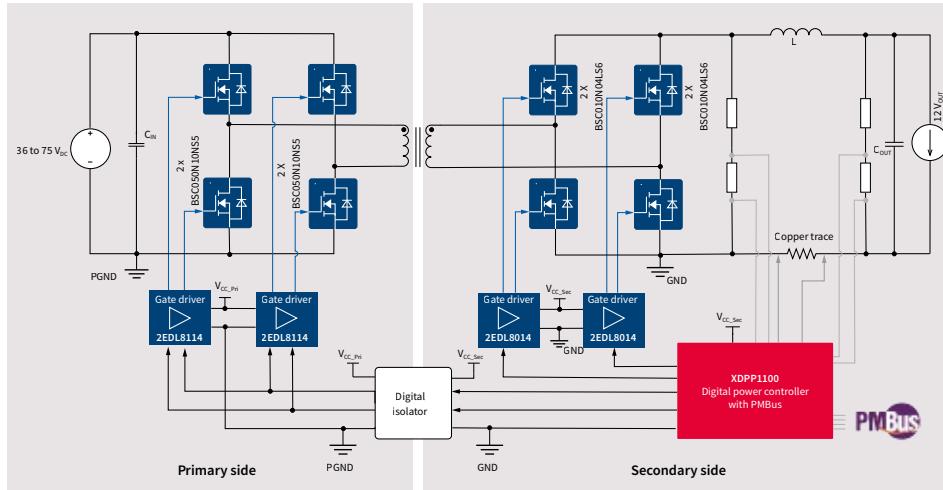
- › Ease of use thanks to firmware-based system configuration with GUI support
- › User-specific customization and software-based design changes
- › Enhanced control and excellent dynamic transient performance
- › Sophisticated system level fault handling
- › System housekeeping i.e. fan control, LED control, sequencing, with configurable GPIOs
- › High efficiency at light load management



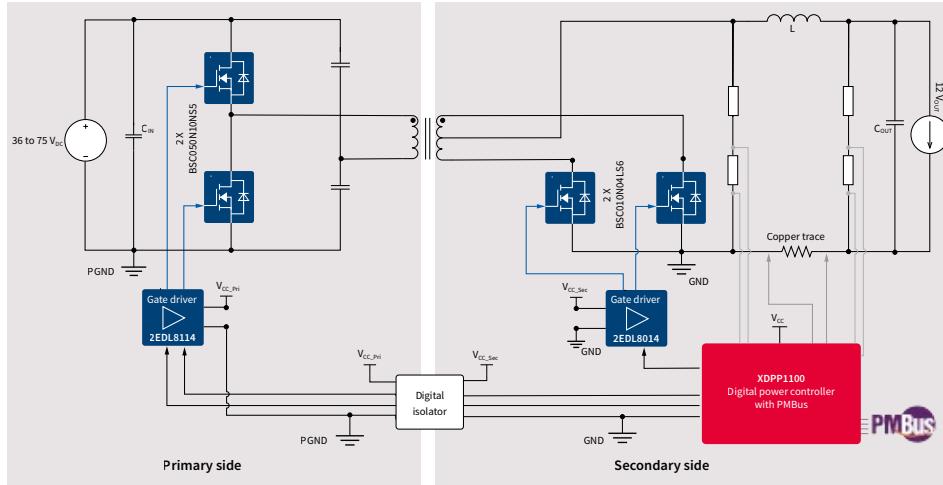
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XDPP1100 implementation in 48 V to 12 V full-bridge isolated DC-DC converter



XDPP1100 implementation in 48 V to 12 V full-bridge isolated DC-DC converter



The XDPP1100 device is offered in two packages

VQFN 24-pin	VQFN 40-pin
4 mm x 4 mm	6 mm x 6 mm
6 PWM	12 PWM
Single loop	Dual loop

* Prototype

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