

**FEATURES**

Digital dual-phase interleaved PFC controller with inherent current matching

High flexibility digital PWM

- PWM frequency ranges from 20 kHz to 200 kHz
- Switching frequency spread spectrum for improved EMI

High performance control loop

- 25 MHz sigma-delta ADC for line voltage and current sense, 12.5 MHz sigma-delta ADC for output voltage
- Enhanced dynamic loop response
- Input voltage feedforward
- Support HVDC input

Multi-mode operations

- Continuous Conduction Mode (CCM) in heavy load Conditions
- Discontinuous Conduction Mode (DCM) in light load conditions
- Burst mode in the zero load conditions

Advanced control functions

- True RMS power metering
- Inrush current control with programming relay delay
- Two channels X-cap discharge during shut down
- Dynamic current balancing between two phases

Extensive fault protections

- Fast over-voltage protection
- Bulk under-voltage protection and over-voltage protection
- External NTC thermal protection
- Cycle-by-cycle current limit
- Average switching current protection

Built-in 1 kBit MTP to store custom configurations

Low power consumption

I<sup>2</sup>C and UART interfaces

Programming via easy-to-use Graphical User Interface (GUI)

Available in QFN-24L packages

-40°C to 125°C operating temperature

**APPLICATIONS**

Ultra-High Density Power Supplies

LED Lighting

Industrial Power Supplies

Server/Telecom

EV/E-Bike Charger

Supercomputing

Variable-Frequency Drivers (VFD)

**GENERAL DESCRIPTION**

The HP1011 is a highly flexible digital Power Factor Correction (PFC) controller designed to drive the dual phase interleaved PFC stage.

A rectified diode bridge and dual-phase interleaved boost converter each has a fast-switching leg driven at the PWM switching frequency and a fast-recovery diode make up the dual-phase interleaved PFC. HP1011 supports shut-down one PWM channel under light load condition which can achieve high efficiency at light load.

The HP1011 offers RMS value of input voltage, current, and power. Through the I<sup>2</sup>C and UART interfaces, this information can be communicated to a microcontroller.

The HP1011 operates from a single 3.3 V supply. The device is available in 4 mm x 4 mm QFN-24L package specified over an ambient temperature range of -40°C to +125°C.