4V to 16V Input, 6A Sync Step-Down Converter

Features

- Turbo Constant-On Time (TCOTTM) Control with Fast Transient Response
- VIN Input Voltage Range: 2.85 V to 16V with External Bias VCC voltage, or 4V to 16V with Internal Bias VCC
- Output Voltage Range: 0.6V to 5.5V, and 90% Max Duty Cycle
- Excellent Load and Line Regulations with 1% Voltage Accuracy
- Up to 90% Efficiency at V_{IN}=12V, V_{OUT}=1.8V
- PGOOD Active Clamp at Low Level during a Power Outage
- Programmable Soft-Start Time
- 1.0uA Current into VIN pin during shutdown
- Programmable Switch Valley Current Limit
- Programmable Switching Frequency: 600kHz and 1.1MHz
- Built-In OVP/OCP/NOCP/UVLO and OTP
- Moisture Sensitivity Level 3
- QFN-14 2x3mm package
- RoHS Compliant and Halogen Free

General Description

The PS1216 is a fully integrated, high-frequency, synchronous, step-down converter. It provides a very compact solution that achieves up to 6A output current with excellent load and line regulation over wide input voltage range. PS1216 has high working efficiency over its output current load range.

PS1216 uses proprietary Turbo Constant-On-Time (TCOTTM) control with internal compensation to provide fast transient response and simplified loop stability.

The switching frequency can be easily set to 600kHz or 1.1MHz. The switching frequency of PS1216 remains constant regardless of input and output voltages.

The soft start process is controlled by an internal 1.4msec timer, which can be increased by adding a capacitor from REF to GND. The open-drain power good (PGOOD) signal indicates whether the output is within its nominal voltage range. When the input power fails to power the PS1216, PGOOD is clamped at about 0.7V by an external pull-up voltage.

PS1216 is equipped with full suites of protection functions which includes over-current protection (OCP), over-voltage protection (OVP), under-voltage protection (UVP), and over-temperature protection (OTP).

Applications

- Telecom/Datacom
- Computing
- Point of Load Module

Typical Application Circuit