

## Features

- Wide Output Current Range: 8A
- Wide Input Voltage Range: 3V~28V
- Adjustable 0.8V~20V Output Range
- $\pm 1\%$  Output Voltage Accuracy over Line and Load
- Constant-on-time control scheme for fast transient and high Efficiency
- Programmable Operation Frequency from 100kHz to 600kHz
- Integrated 18 m $\Omega$  at LDO=5V N-Channel MOSFET For High Side
- Integrated 9.5 m $\Omega$  at LDO=5V N-Channel MOSFET For Low Side
- Selectable Forced PWM or automatic PFM/PWM mode
- Support pure MLCC
- Power Good Indicator
- Under-Voltage Protection
- Over-Voltage Protection
- FB Short Protection
- Internal 5V Pre-regulator
- External Adjustable Soft-Start and Soft-Stop
- Over Temperature Protection
- Over Current Protection
- TQFN23-4x4 package
- Green Product (RoHS, Lead-Free, Halogen-Free Compliant)

## Applications

- Notebook computers
- CPU core/IO Supplies
- Chip/RAM Supplies

## General Description

The GS9239 is small size chip with a relative constant on-time synchronous buck switching converter suitable for applications in notebook computers and other battery operated portable devices. Features include wide input voltage range, high efficiency and fast dynamic response. The GS9239 has a unique power save mode, which can save battery power supply by decreasing frequency when load current falls down below preset critical current point.

The fast dynamic transient response means that buck converter applications based on GS9239 will provide about 100ns-order response to load when output voltage falls down or rises up. The frequency will increase or decrease to meet the change in output load. Moreover, the GS9239 will take the same method to regulate the output voltage when input voltage changes. When transient response regulated, the converter will maintain a new steady-state operation. Both the transient response state and the new state, the GS9239 always has the same on-time width.

The GS9239 is suitable for the solutions which the output voltage is between 0.8V and 20V. An external setting resistor and output voltage can set the on-time width and frequency for the converter. Additional features include current limit, soft-start, over-voltage and under-voltage protection, a Power Good flag and soft discharge upon shutdown. The GS9239 is available in package TQFN23-4x4.