



The Future of Analog IC Technology

# MP28310

Ultra-Low 500nA  $I_q$ , Wide Input 2V-5.5V,  
300mA Step-Down Regulator Plus 300nA  $I_q$ ,  
2V-5.5V Input, 100mA LDO 1.2x1.6mm CSP

**PRELIMINARY SPECIFICATIONS SUBJECT TO CHANGE**

## DESCRIPTION

The MP28310 is a monolithic power-management unit containing 300mA, high-efficiency, step-down, switching converters and a 100mA LDO regulator. The nanoamp quiescent current provides extremely high efficiency when the load current is down in the  $\mu$ A range. With minimum input voltage as low as 2V, the MP28310 allows the system to operate directly from the battery.

The constant-on-time control scheme provides fast transient response, high light-load efficiency, and requires minimal capacitance. The regulation can be made tight by integrating an error amplifier to correct the output voltage.

An 100mA LDO regulator provides easy system configuration with clean output voltage.

The CTRL pins control the on/off and output voltage selection functions.

Fault protection features include under-voltage lockout (UVLO), over-current protection (OCP), and thermal shutdown.

The MP28310 requires a minimal number of readily available, standard, external components and is available in a small CSP-12 (1.2mmx1.6mm) package.

## FEATURES

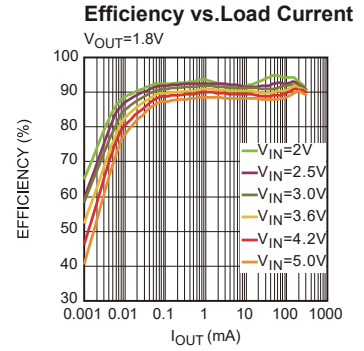
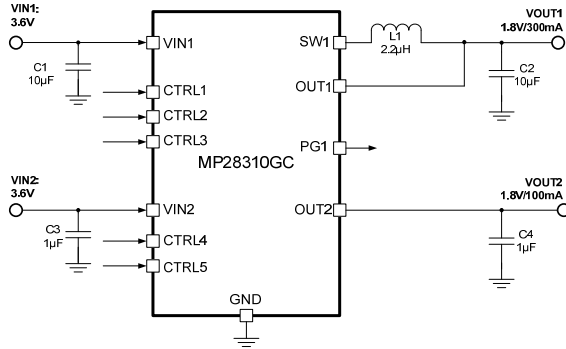
- 300mA Buck Switcher
  - Ultra-Low  $I_q$ : 500nA
  - Wide 2.0V to 5.5V Operating Input Range
  - 7 Selectable Output Voltages
  - Up to 300mA Output Current
  - 1.5MHz Switching Frequency in Continuous Conduction Mode (CCM)
  - 100% Duty Cycle in Dropout
  - 0.25 $\Omega$  and 0.25 $\Omega$  Internal Power MOSFET Switches
  - Cycle-by-Cycle Over-Current Protection (OCP)
  - Short-Circuit Protection (SCP) with Hiccup Mode
- 100mA LDO
  - Ultra-Low  $I_q$ : 300nA
  - 2.0V to 5.5V Operating Input Range
  - 3 Selectable Output Voltages
  - Over-Temperature Protection (OTP)
- Available in a CSP-12 (1.2mmx1.6mm) Package

## APPLICATIONS

- Wearables
- IOT
- Portable Instruments
- Battery-Powered Devices

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### TYPICAL APPLICATION



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