

# 500kHz Synchronous Step-Up Converter with 600mA LDO

## DESCRIPTION

The EUP2412 provides a high efficiency 500kHz synchronous step-up converter and a low noise, high PSRR, low dropout (LDO) fixed output linear regulator with independent enable pins. EUP2412 input voltage range is 2.2V to 5.5V, making it ideal for applications with either a 2-cell NiMH/NiCd or a single-cell lithium-ion/polymer batteries.

The EUP2412 500kHz fixed frequency synchronous step-up converter uses smaller external components producing a compact solution for a wide range of load currents. Integrated N-Channel main switch and P-Channel synchronous rectifier greatly improve converter efficiency. Internal soft-start function reduces inrush current. The EUP2412 synchronous step-up convert regulates the output voltage up to 6V. When the synchronous step-up convert is disabled, the internal conduction path from SW to OUT is fully blocked. This output disconnect feature isolates the output from the input and reduces the shutdown current less than 0.1 $\mu$ A.

The EUP2412 LDO linear regulator has an independent input supply pin and is capable of delivering up to 600mA load current. It offers high output accuracy, extremely low dropout voltage, low quiescent current and fast start-up time. LDO is designed to work with low-ESR ceramic capacitors. Only a 2.2 $\mu$ F ceramic output capacitor can make the device stable over the entire load range. Optionally connecting a capacitor from BYPASS pin to GND gets high PSRR. The EUP2412 LDO output voltage is factory pre-set 1.2V, 1.8V, 2.5V, 2.8V or 3.3V.

The EUP2412 is available in a 10pin 3mm  $\times$  3mm TDFN-10 package.

## FEATURES

- Wide Input Voltage Range: 2.2V to 5.5V
- Synchronous Step-Up Converter:
  - 1.6Amp Peak Current Limit
  - 500kHz Fixed Switching Frequency
  - Output is Disconnected from the Input in Shutdown
  - Built-in Main Switch and Synchronous Rectifier
  - Internal Soft-Start
- Linear Regulator:
  - 600mA Output Current
  - 300mV Dropout Voltage at 600mA
  - 2% Initial Accuracy
  - Fast Line / Load Transient Response
  - 70dB PSRR at 1kHz
  - Stable with a 2.2 $\mu$ F Ceramic Output Capacitor
  - Output is Discharged to GND in Shutdown
  - Fixed Output Voltage: 1.2V to 3.6V
- Thermal Shutdown
- RoHS Compliant and 100% Lead (Pb)-Free
- Available in TDFN33-10 Package

## APPLICATIONS

- Portable Media Players
- Cellular Phones
- Bluetooth portable radios and Accessories
- Battery-Powered Equipments

## Typical Application Circuit

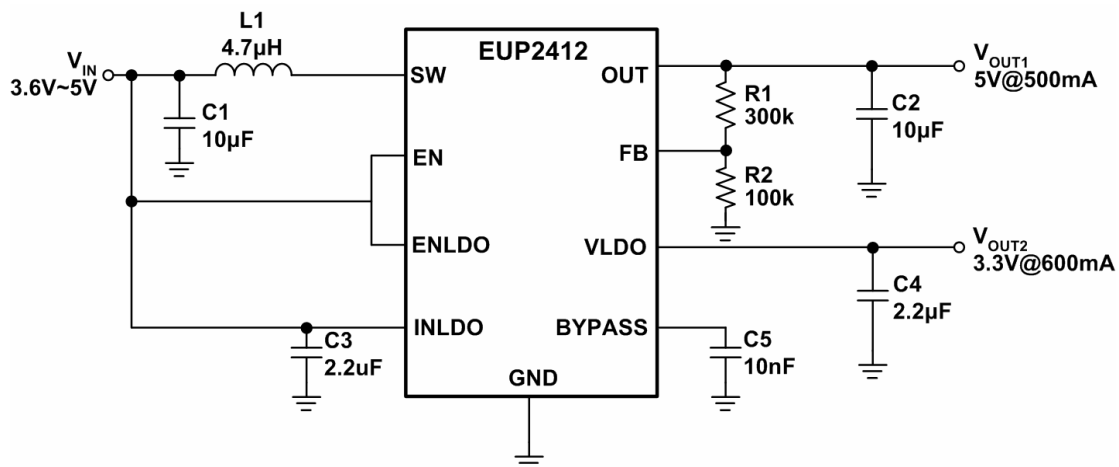


Figure 1. Application Circuit 1