

1.2MHz, 2.5A Synchronous Step-Down Converter

❖ GENERAL DESCRIPTION

The AX3506 is a 1.2MHz constant frequency current mode PWM step-down converter. It is ideal for portable equipment requiring very high current up to 2.5A from single-cell Lithium-ion batteries while still achieving over 86% efficiency during peak load conditions. The AX3506 also can run at 100% duty cycle for low dropout operation, extending battery life in portable systems while light load operation provides very low output ripple for noise sensitive applications. The AX3506 can supply up to 2.5A output load current from a 3V to 5.5V input voltage and the output voltage can be regulated as low as 0.6V. The high switching frequency minimizes the size of external components while keeping switching losses low. The internal slope compensation setting allows the device to operate with smaller inductor values to optimize size and provide efficient operation. The AX3506 is available in adjustable (0.6V to V_{IN}) output voltage. The device is available in SOP8-EP and TDFN-10L packages.

❖ FEATURES

- 2.5V to 5.5V Input Voltage Range
- Output Voltages from 0.6V to V_{IN}
- High Efficiency: Up to 95%
- 1.2MHz Constant Frequency Operation
- 2.5A Output Current form a 3V to 5.5V Input Voltage
- No Schottky Diode Required
- Low $R_{DS(ON)}$ Internal Switches: 0.15 Ω
- Current Mode Operation for Excellent Line and Load Transient Response
- Current limit, Enable function
- Short Circuit Protect (SCP)
- Build-in Soft Start function
- $\leq 1\mu A$ Shutdown Current
- SOP8 with Exposed Pad Pb-Free and TDFN-10L packages