

20A Fully Integrated Synchronous Boost Converter
Description

The MT5087/MT5088 is a high efficiency fully integrated synchronous Boost converter with built-in main switch and synchronous switch. The device has 20A switch peak current capability and provides output voltage up to 18V(MT5087) or 30V(MT5088). Synchronous rectification increases efficiency, reduces power losses and eases thermal requirements, allowing the MT5087/MT5088 to be used in high power step-up applications. The 2.7V to 18V(MT5087) or 30V(MT5088) input voltage range supports a wide range of battery and AC powered inputs. The 70 μ A no load quiescent current extends operating run time in battery-powered systems. The operating frequency can be externally set for a 50kHz to 1MHz range, as for operation mode:

- MT5087/MT5088 is automatic PSM/PWM mode.
- MT5087A is Forced PWM mode.

The MT5087/MT5088 implements a programmable soft-start function, an adjustable cycle by cycle switching peak current limit function and thermal shutdown protection. The MT5087/MT5088 is available in a small 20 pin 4mm x 4mm QFN package.

Features

- MT5087: 2.7V to 18V Input Range
3V to 18V Output Voltage
Integrated 18V Rating 9m Ω Main and Synchronous Power Switches with 20A Peak Current Capability
MT5087A: Forced PWM Mode Option
- MT5088: 2.7V to 30V Input Range
3V to 30V Output Voltage
Integrated 30V Rating 12m Ω Main and Synchronous Power Switches with 20A Peak Current Capability
- Adjustable Input UVLO through EN pin
- Low Quiescent Current 70 μ A
- Shutdown Supply Current 3.5 μ A
- Resistor or Inductor DCR Current Sensing
- Adjustable Frequency from 50kHz to 1MHz
- Programmable Soft-start
- Cycle-by-Cycle Current Limit
- Thermal Shutdown
- QFN4x4mm_20L Packages
- Pb-Free ROHS compliant

Application

- USB TypeC-PD and Thunderbolt Port for PCs
- Industrial Battery Powered POS Terminals
- Quick Charge Power Banks
- Electronic Cigarette
- Hi Power Bluetooth Speaker

Typical Application
