

Product Overview

NCP1593: Synchronous Buck Regulator, 1 MHz, 3.0 A

For complete documentation, see the data sheet.

The NCP1593 is a fixed 1 MHz, high output current, synchronous PWM converter that integrates a low-resistance, high-side P-channel MOSFET and a low-side N-channel MOSFET. The NCP1593 utilizes internally compensated current mode control to provide good transient response, ease of implementation and excellent loop stability. It regulates input voltages from 4.0 V to 5.5 V down to an output voltage as low as 0.6 V and is able to supply up to 3 A of load current. The NCP1593 includes an internally fixed switching frequency (FSW), and an internal soft-start to limit inrush current. Other features include cycle-by-cycle current limiting, 100% duty cycle operation, short-circuit protection, power saving mode and thermal shutdown.

Features

- Wide Input Voltage Range: from 4.0 V to 5.5 V
 - Internal 90 mΩ High-Side P-Channel MOSFET and 70 mΩ Low-Side N-Channel MOSFET
 - Fixed 1 MHz Switching Frequency
 - Cycle-by-Cycle Current Limiting
 - Hiccup Mode Short-Circuit Protection
 - Overtemperature Protection
 - Internal Fixed SoftStart with External Adjustment
 - Start-up with Pre-Biased Output Load
 - Adjustable Output Voltage Down to 0.6 V
 - Auto Power Saving Mode During Light Load
- For more features, see the data sheet

Benefits

- Ability to run from various input voltage sources
- High efficiency and good thermal performance
- Small output inductor/capacitor and low output ripple voltage
- Protection feature
- Protection feature
- Protection feature
- Ability to reduce external components with fixed internal SS time or adjust externally
- Protection feature
- Ability to regulate low output voltages
- Increased efficiency at light load

Applications

- +5Vin buck regulator

End Products

- DVD Drives and HDD
- Notebook Computing
- Set-Top-Box (STB)

Part Electrical Specifications

Product	Pricing (\$/Unit)	Compliance	Status	Topology	Control Mode	V _{OC} Min (V)	V _{OC} Max (V)	V _O Typ (V)	I _O Typ (A)	Efficiency (%)	f _{SW} Typ (kHz)	Package Type
NCP1593AMNTWG	0.3333	Pb-free Halide free non AEC-Q and PPAP	Active	Step-Down	Current Mode	4	5.5	0.6 to 5.0	3	90	1000	DFN-10
NCP1593BMNTWG	0.3333	Pb-free Halide free non AEC-Q and PPAP	Active	Step-Down	Current Mode	4	5.5	0.6 to 5.0	3	90	1000	DFN-10

For more information please contact your local sales support at www.onsemi.com.

Created on: 3/8/2021