

FD3501MNTXG

VR13/13.HC Digital Multiphase Controller with PMBus



Product Overview

For complete documentation, see the data sheet.

The FD3501 is a high performance 8 phase digital buck controller which can be configured for single or dual rail output rails. It is fully compatible with Intel® SVID protocol. It is designed to power Intel's VR13 and VR13.HC processor rails, DDR memory DIMM banks and high current low voltage digital loads. All of the required parameters are programmable through the PMBus interface.

The FD3501 device uses ON Semiconductor's proprietary Advanced COT architecture to implement control and power management functions with maximum flexibility, performance and minimal controller and overall solution size. The Advanced COT control features extremely low latency against severe load transients and easily permits a high switching frequency design with ceramic only output capacitors. NonVolatile OTP Memory is included to store multiple custom configurations. It also achieves the best platform efficiency by implementing fasttochange dynamic phase management and a variable frequency light load control.

The FD3501 device is designed to be used with ON Semiconductor's smart power stage 3 and 4 (SPS3 and SPS4) generations of parts which accurately integrate inductor current sensing and temperature monitoring.

Features

- Phase and Rail Configurability is M + N 3/4 8. M _ 1 and N 3/4 4
- VR13 and VR13.HC Compliant with 25 MHz SVID Bus
- PMBus 1.2 Configuration and Monitoring
- Programmable Switching Frequency 400 kHz to 1.5 MHz
- User Programmable Droop, and Internal Compensation
- Auto Phase Shedding
- Pulse Skipping
- Fault Management
- Extensive and Accurate Telemetry
- Pre-Bias Soft Startup with Soft-Stop Support

For more features, see the data sheet

Benefits

- M: Number of Phases for Rail 1N: Number of Phases for Rail 2

Applications

- High-Current Voltage Regulator for VR13 and VR13.HC Based Intel's Microprocessors
- DDR Memory Voltage Regulator in Intel's VR13 and VR13.HC Based Systems
- Multiphase Voltage Regulators in Servers, Data Networking and Telecommunications Equipment

End Products

- High-Current Voltage Regulators
- DDR Memory
- Servers, Data Networking and Telecommunication Equipment

Part Electrical Specifications

Product	Pricing (\$/Unit)	Compliance	Status	Topology	Phases	Control Mode	V _{CC} Min (V)	V _{CC} Max (V)	f _{sw} Typ (kHz)	Package Type
FD3501MNTXG	2.3333	Pb H	Active	Step-Down	1/2/3/4/5/6/7/8	Current Mode	3.135	3.465	800	QFN-40