

Product Overview

NCV8851-1: Automotive Average Current Mode Controller

For complete documentation, see the data sheet.

The NCV8851-1 is an adjustable output, synchronous buck controller, which drives dual N-channel MOSFETs, ideal for high power applications. Average current mode control is employed for very fast transient response and tight regulation over wide input voltage and output load ranges. The IC incorporates an internal fixed 6.0 V low-dropout linear regulator (LDO), which supplies charge to the switch mode power supply's (SMPS) bottom gate driver, limiting the power lost to excess gate drive. The IC is designed for operation over a wide input voltage range (4.5 V to 40 V) and is capable of 10 to 1 voltage conversion at 500 kHz. Additional controller features include undervoltage lockout, internal soft start, low quiescent current sleep mode, programmable frequency, SYNC function, average current limiting, cycle-by-cycle overcurrent protection and thermal shutdown.

Features

- Average current mode control
- 0.8 V 2% reference voltage
- Wide input voltage range of 4.5 V to 40 V
- 6.0 V low-dropout linear regulator (LDO)
- Input UVLO (Undervoltage Lockout)
- Internal soft-start
- 1.0 μ A maximum quiescent current in sleep mode
- Adaptive non-overlap circuitry
- Programmable fixed frequency 170 kHz to 500 kHz
- External clock synchronization up to 600 kHz

For more features, see the data sheet

Benefits

- Fast transient response and simple compensator design
- Tight tolerance on programmable output voltage
- Allows for direct regulation from car battery through load dump conditions
- Supplies internal supply for gate drivers
- Disables start-up in undervoltage conditions
- Lowers inrush current and avoids output overshoot during start-up
- Very low sleep current
- Protects against switch cross-conduction (shoot-through)
- Allows for design flexibility
- Allows for frequency synchronization and spread spectrum operation

Applications

- Automotive systems requiring high current
- Pre-regulated supply for low-voltage SMPSs and LDOs

End Products

- Automotive systems

Part Electrical Specifications

Product	Compliance	Status	Topology	Phases	Control Mode	V _{CC} Min (V)	V _{CC} Max (V)	f _{SW} Typ (kHz)	Package Type
NCV8851-1DBR2G	AEC Qualified PPAP Capable Pb-free	Active	Step-Down	1	Current Mode	4.5	40	Up to 500	TSSOP-20

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

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