

# NCP1653, NCP1653A

## Compact, Fixed-Frequency, Continuous Conduction Mode PFC Controller

The NCP1653 is a controller designed for Continuous Conduction Mode (CCM) Power Factor Correction (PFC) boost circuits. It operates in the follower boost or constant output voltage in 67 or 100 kHz fixed switching frequency. Follower boost offers the benefits of reduction of output voltage and hence reduction in the size and cost of the inductor and power switch. Housed in a DIP-8 or SO-8 package, the circuit minimizes the number of external components and drastically simplifies the CCM PFC implementation. It also integrates high safety protection features. The NCP1653 is a driver for robust and compact PFC stages.

### Features

- IEC1000-3-2 Compliant
- Continuous Conduction Mode
- Average Current-Mode or Peak Current-Mode Operation
- Constant Output Voltage or Follower Boost Operation
- Very Few External Components
- Fixed Switching Frequency: 67 kHz = NCP1653A, 100 kHz = NCP1653
- Soft-Start Capability
- $V_{CC}$  Undervoltage Lockout with Hysteresis (8.7 / 13.25 V)
- Overvoltage Protection (107% of Nominal Output Level)
- Undervoltage Protection or Shutdown (8% of Nominal Output Level)
- Programmable Overcurrent Protection
- Programmable Overpower Limitation
- Thermal Shutdown with Hysteresis (120 / 150°C)
- Pb-Free Packages are Available

### Typical Applications

- TV & Monitors
- PC Desktop SMPS
- AC Adapters SMPS
- White Goods

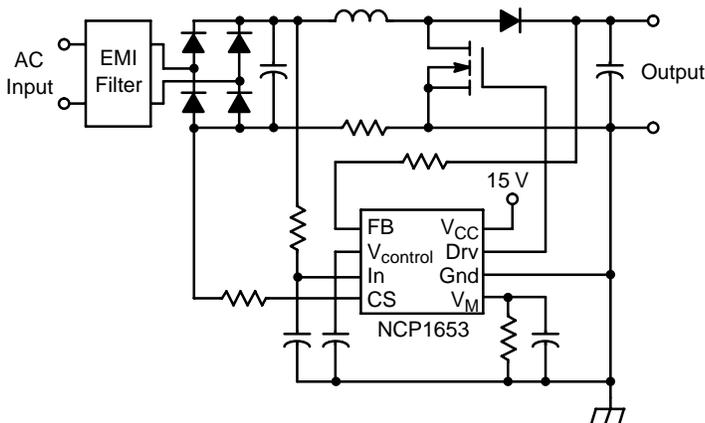
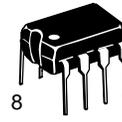


Figure 1. Typical Application Circuit



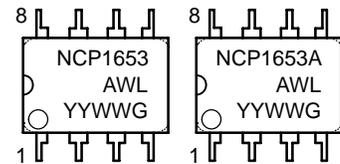
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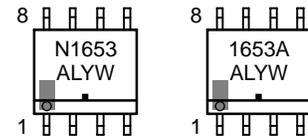


1  
8  
PDIP-8  
P SUFFIX  
CASE 626

### MARKING DIAGRAMS

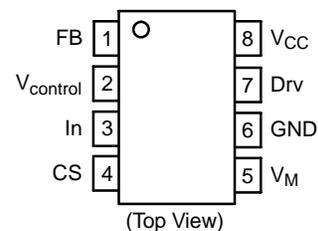


1  
8  
SO-8  
D SUFFIX  
CASE 751



A suffix = 67 kHz option  
A = Assembly Location  
WL, L = Wafer Lot  
YY, Y = Year  
WW, W = Work Week  
G or ■ = Pb-Free Package

### PIN CONNECTIONS



### ORDERING INFORMATION

See detailed ordering and shipping information in the package dimensions section on page 18 of this data sheet.

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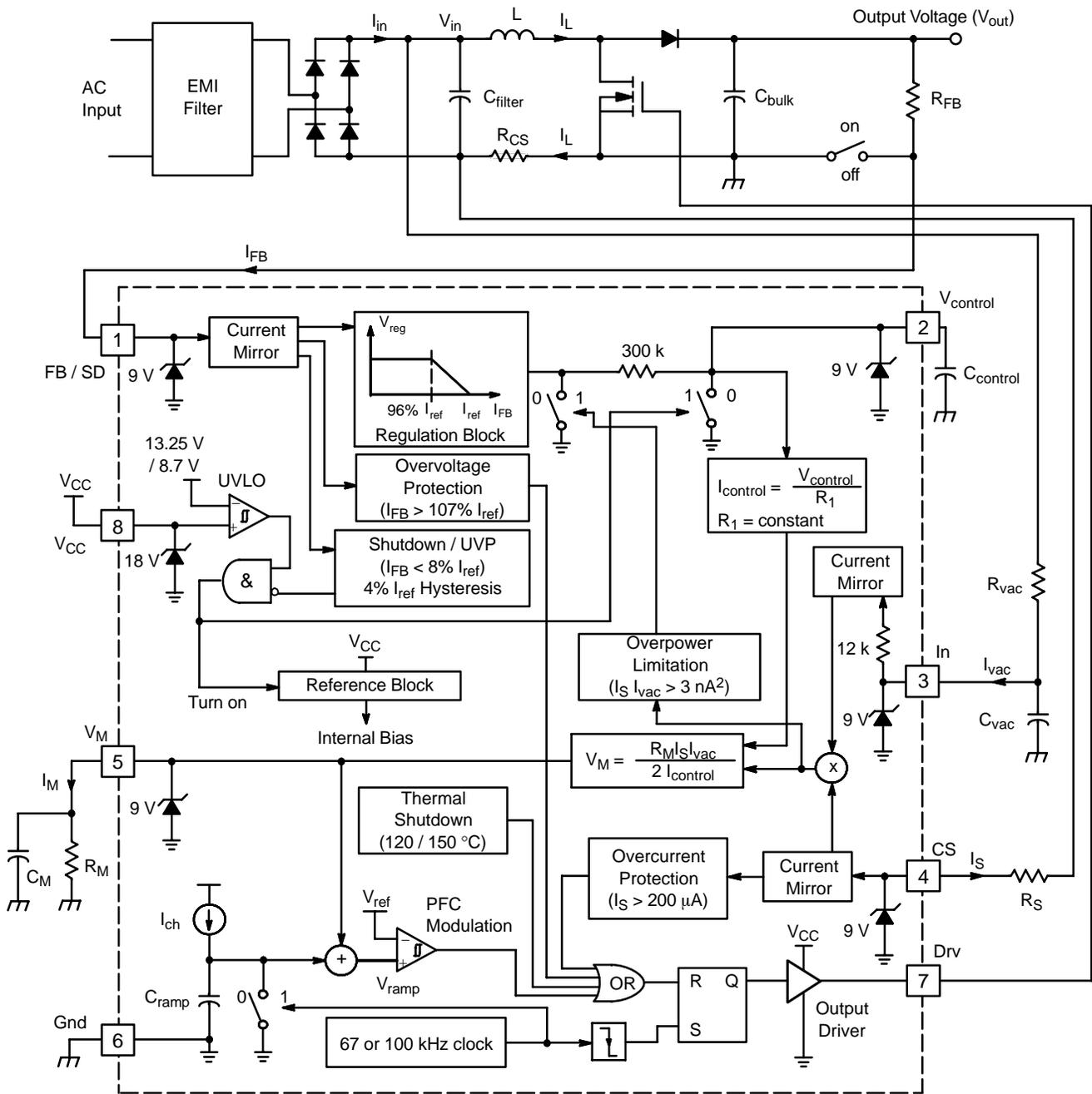


Figure 2. Functional Block Diagram