

PFC Controller Integrates Numerous Protection Features

From [MagnaChip Semiconductor](#), a Korea-based designer and manufacturer of analog and mixed-signal semiconductor products, the MAP8800 is a power factor correction (PFC) controller that has been optimized for use in LCD TVs, but is also well suited for general power supply and lighting applications. Operating in voltage-mode critical conduction mode (CRM), this PFC controller does not require the input-voltage sense line (see Figs 1 and 2.) Housed in an 8-pin SOP, the MAP8800 integrates numerous protection features.

The controller provides features such as a maximum-frequency limiting function to prevent damage to the TV power supply and diode short protection, which protects the TV when a boost diode is shorted. Additionally, the MAP8800 provides overvoltage and overcurrent protection as well as feedback protection when the feedback loop is shorted.

“The MAP8800 is an optimum product designed to improve the energy efficiency and power supply stability of LCD TVs,” said H.K. Kim, EVP and general manager of MagnaChip’s Display and Power Solutions Division. “By consolidating multiple protection circuits within one device, the MAP8800 enables LCD TV manufacturers to design products capable of using fewer parts that can withstand a higher power factor resulting in lower product costs and improved stability performance.”

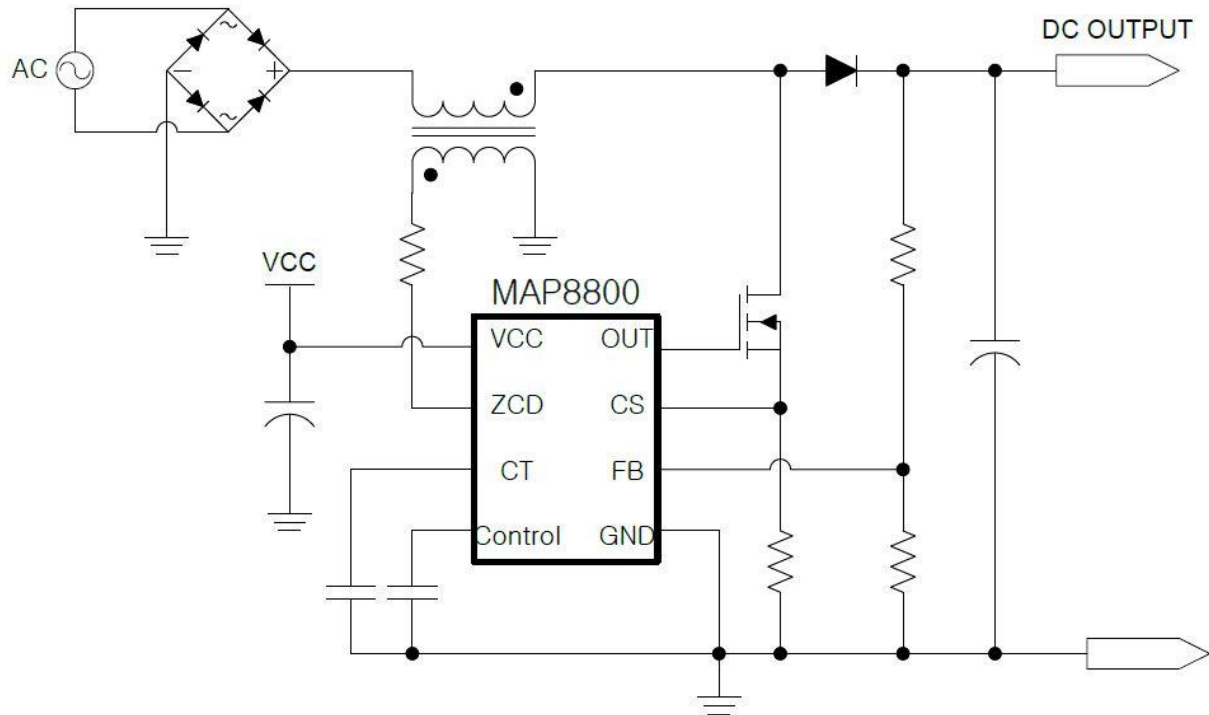


Fig. 1. Typical application circuit for the MAP8800, a voltage-mode critical-conduction-mode PFC controller optimized for LCD TVs. This chip protects against numerous fault conditions including boost-diode shorting, bypass-diode shorting, ZCD-winding shorting, as well as overvoltage, overcurrent, and undervoltage conditions, and open/floating feedback.

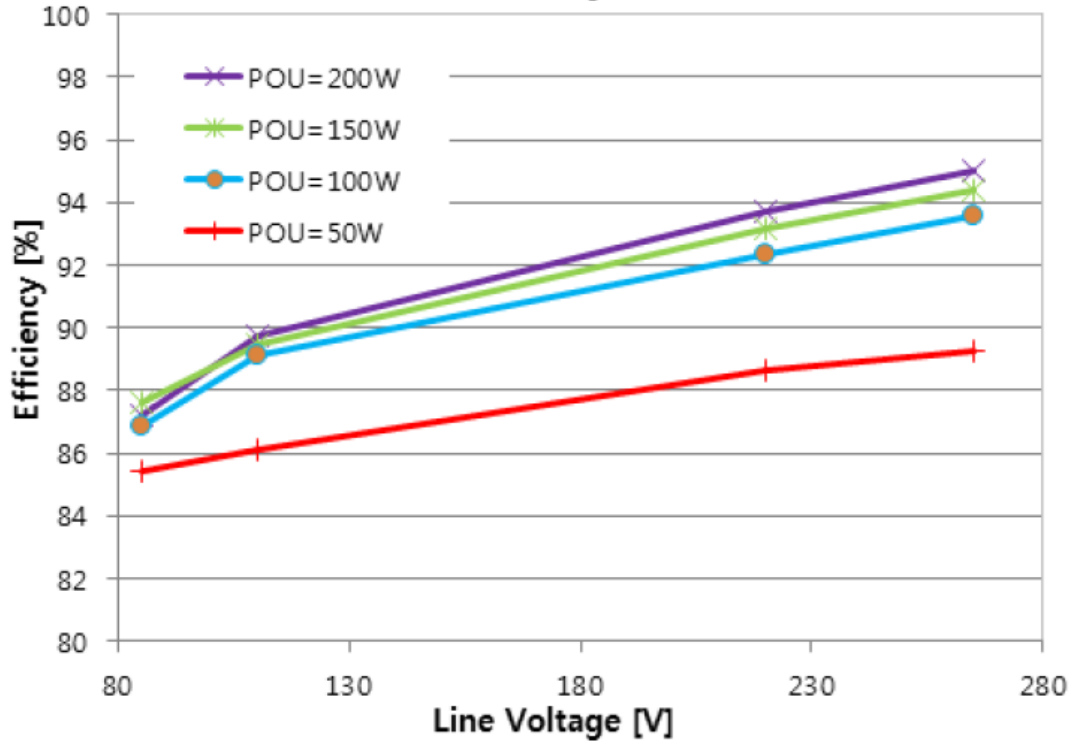


Fig. 2. The MAP8800 PFC controller achieves greater than 85% efficiency at output power levels above 50 W.