

Linear PSU replacement controllers



Resonant Discontinuous Forward Converter (RDFC)

- CamSemi controllers are at the heart of the Resonant Discontinuous Forward Converter topology
- Enables a cost-effective solution across a wide power range
- Produces a highly efficient circuit with low no-load power with low EMI

Overview

The C2470 series of controllers offers a novel approach for offline power conversion. They replace linear-type power supplies with a low cost switch-mode solution. Environmental compliance is made possible by achieving SMPS-type no-load and efficiency performance at the cost of a linear or less. By creating small and lightweight power supplies this new type of converter captures many of the best features available in both SMPS and linear power supplies.

High efficiency, low no-load are achieved through the use of a neat and simple single-switch resonant discontinuous forward converter topology combined with an intelligent digital/analogue controller.

Devices are available in SOT23-6, one of the industry's most popular standard packages.

Product Summary

The RDFC is the only controller specifically designed for low power forward converter applications. It creates a converter that delivers the benefits of a linear-type PSU, whilst adding many SMPS features.



High Efficiency and low no-load enables ENERGY STAR compliance

The C2470 controller series enables easy EMI and safety compliance. The resonant topology offers low EMI emissions and combined with the forward converter topology lends itself well to high isolation. No Y-Cap is required up to 20 W.

Typical Application Circuit

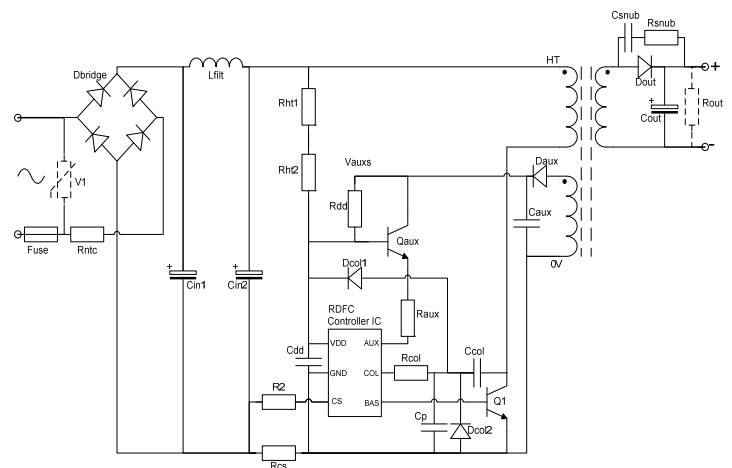


Figure 1: Typical application circuit 6 - 60 W

Features and Benefits

CamSemi's controller and RDFC topology offer commercial and technical benefits including:

- Low system BOM cost with standard low cost bipolar transistors as power switches
- Inherently low EMI due to resonant switching
- Very high safety isolation voltages
- Low no-load power and high efficiency
- Enables easy ENERGY STAR and CEC compliance
- Over-temperature and over-current protection
- Adaptive frequency compensation accepts wide component tolerances
- Switching frequency variations reduce RF (Radio Frequency) emissions further
- Mixed signal controller for the best in real time analogue inputs and digital control techniques.

Efficiency & No-load Power

Efficiency

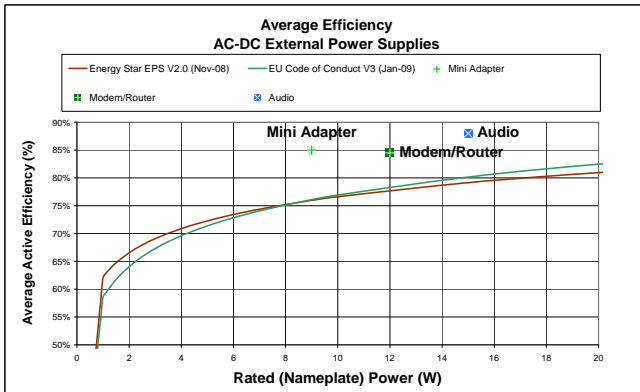


Figure 2: Efficiency achieved for a 9 W mini adapter, 12 W modem and 15 W audio application vs new ENERGY STAR 2.0 requirements

Input Voltage	Output Power	Efficiency achieved	ENERGY STAR 2.0 requirement
110 V	9 W	85%	76%
110 V	12 W	85%	78%
230 V	15 W	88%	79%

No-Load

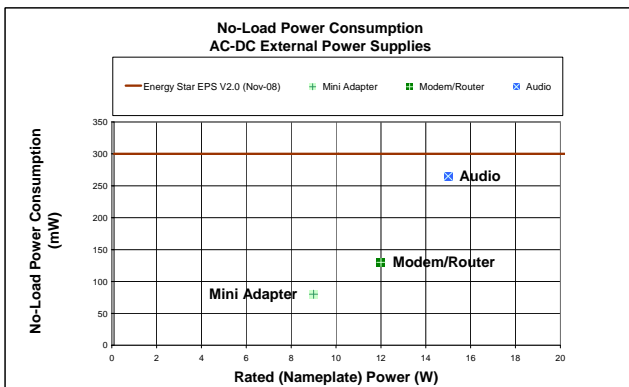


Figure 3: No Load achieved for a 9 W mini adapter, 12 W modem and 15 W audio application vs new ENERGY STAR 2.0 requirements

Input Voltage	Output Power	No Load Power achieved	ENERGY STAR 2.0 No Load requirement
110 V	9 W	80 mW	300 mW
110 V	12 W	130 mW	300 mW
230 V	15 W	265 mW	300 mW

Target Applications

This product is primarily intended to replace linear power supplies for applications such as:

- Chargers
- Adapters
- External power supplies
- Modem/Routers
- External Hard Disk Drives
- Digital Picture Frame
- STB/DVD
- Audio equipment



Controller Series

The following controller options are available:

Part Number	Package
C2471LX2	SOT23-6
C2472PX2	SOT23-6

For more Information

For details of our channel partners and information on future product, technology or corporate announcements, visit www.camsemi.com

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