

C2471 Linear PSU replacement controller



Resonant Discontinuous Forward Converter (RDFC)

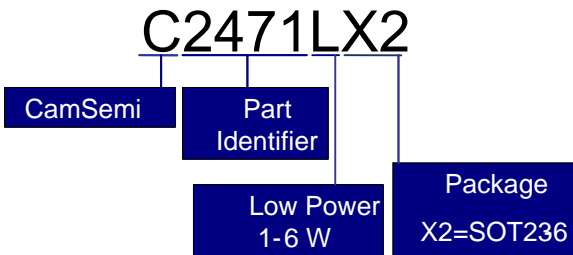
- CamSemi low power controllers especially designed for applications from 1 to 6 W.
- Enables a low BOM cost-effective solution, whilst meeting new efficiency requirements.
- Low EMI, enabling easy compliance with FCC68 requirements.

Overview

The C2471 controller is a range extension in the C2470 family. The controller offers a novel approach for offline power conversion by replacing linear-type power supplies with a low cost switch-mode solution. Environmental compliance is achieved by offering SMPS-type no-load and efficiency performance but at the cost of a linear or less.

The part has been designed for high volume low power applications rated at 1 to 6 W.

Part Numbering



Packages



Figure 1: SOT23-6

Applications

Typical low power applications include:

- Cordless phones
- Low power audio (eg radio alarm clock)
- Rice cookers
- Linear replacement
- General industrial applications

Typical Application Circuit

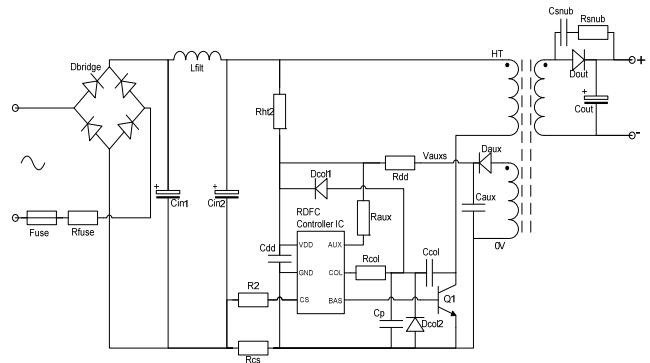


Figure 2: Typical application circuit 1 - 6 W

Efficiency

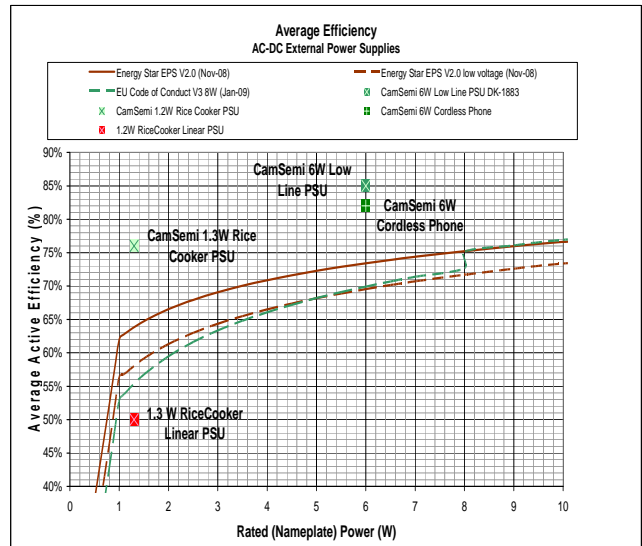


Figure 3: various low power RDFC applications passing new efficiency requirements such as ENERGY STAR 2.0

No Load Power

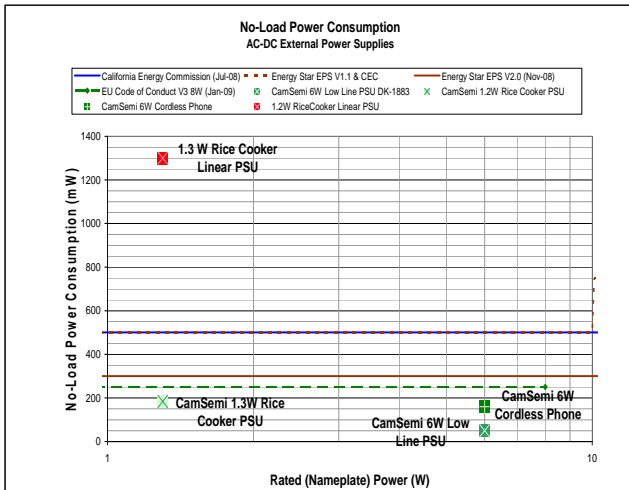


Figure 4: various low power applications passing no load requirements such as ENERGY STAR 2.0

EMI

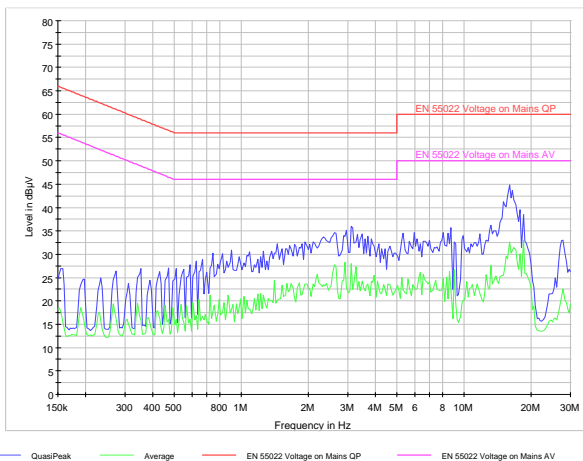


Figure 5: EMI results in a 6 W cordless phone charger on the live line

FCC Part 68

FCC part 68 compliance is a key requirement for telecoms equipment such as cordless telephones. However, it can be very easily met using a combination of the C2471 controller with the unique RDFC topology.

Below tests passed on a 6 W cordless phone PSU.

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FCC Part 68 Testing

Test	Description	Status
4.2.4	Tests the capability of the power supply to withstand a differential surge between the live and neutral mains input terminals	PASS
4.5.5	Measures the level of noise that the PSU generates in frequency bands of interest for telecoms applications.	PASS
4.6.2	Measures how much of a signal injected across the tip and ring terminals appears as longitudinal (common-mode) noise.	PASS

For more detailed information, please refer to CamSemi Application Design report.

How Low EMI is achieved

Low EMI is achieved from several contributing features but the main one is that RDFC uses a low noise soft switching resonant waveform compared with flyback SMPS.

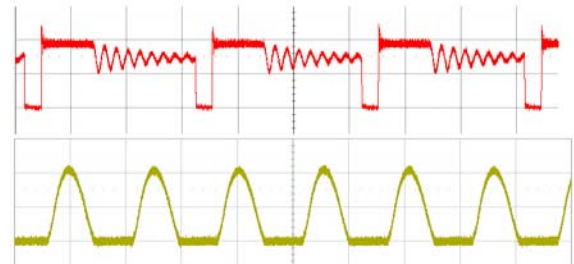


Figure 6: Top waveform showing the hard switching flyback waveform, the lower smooth resonant waveform minimises EMI.

Controller Series

The following controller options are available:

Part Number	Package
C2471LX2	SOT23-6

For more Information

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