

Reducing power supply unit size and weight

- Small size at high efficiency
- Fewer components reduces cost
- Tiny transformers cut manufacturing and transportation costs

Overview

The C2470 series of controllers features a novel approach to offline power conversion. The mixed signal controllers replace linear-type power supplies with a low cost switch-mode solution called Resonant Discontinuous Forward Converter (RDFC).

This new approach brings significant design, performance and commercial benefits over current linear or flyback approaches.

Features and Benefits

There are several benefits in reducing the size of the power supply:

- Lower cost, by reducing the size and number of components necessary
- Less demand on expensive raw materials
- Lower weight and volume also cuts transportation costs

Achieving Small Size

RDFC's low size and weight compare favourably against existing power supply topologies:

Advantages over Linear Converters

The main benefit is the reduction in transformer size, which the RDFC achieves by high frequency switching. At higher powers the difference in transformer size increases significantly.

Advantages Over Flyback SMPS

There are two main benefits compared to flyback:

- The transformer is not used to store energy so opto-couplers and secondary feedback circuitry are no longer required.
- Resonant switching produces low EMI so a Y-capacitor and other filtering circuitry are unnecessary.

Advantages of the RDFC

RDFC enables the fast design of power supplies based on simple, highly-integrated and efficient circuits. Solutions have a low Bill of Materials (BOM) and a small 'footprint' covering a wide power band for both surface and through-hole mounting options.

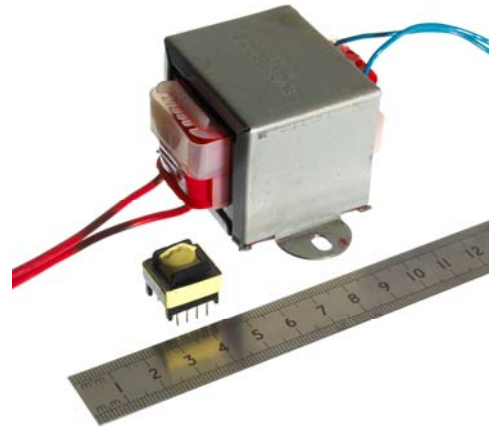


Figure 1: 14 W linear versus an equivalent RDFC transformer. Scale in cm.

Reducing the Cost of Transformers

The cost of transformers is currently rising steeply due to worldwide shortages of copper for the transformer windings, as well as steel.

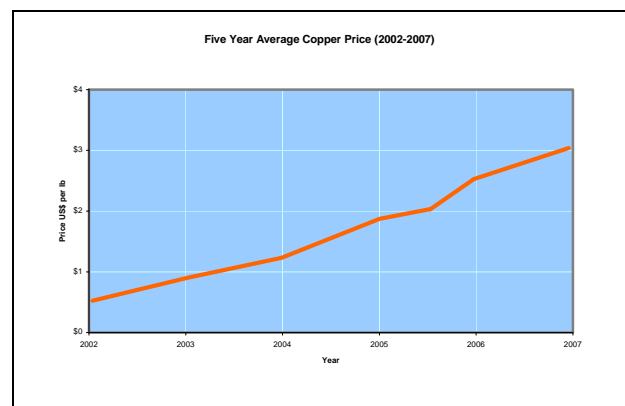


Figure 2: Five year average commodity price for copper (2002-2007)

The RDFC topology also helps cut costs by limiting the need for EMC and opto-coupler components.

Removing opto-coupler and EMC components

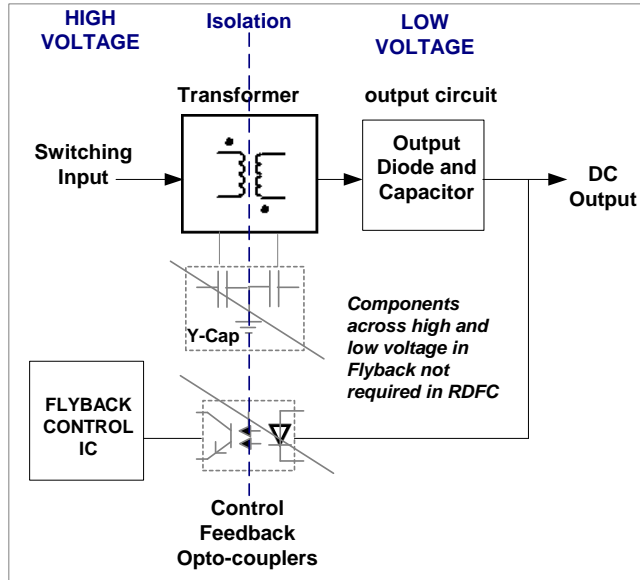


Figure 3: Y-Cap and opto-couplers are unnecessary

RDFC Circuit Provides Low BOM Count

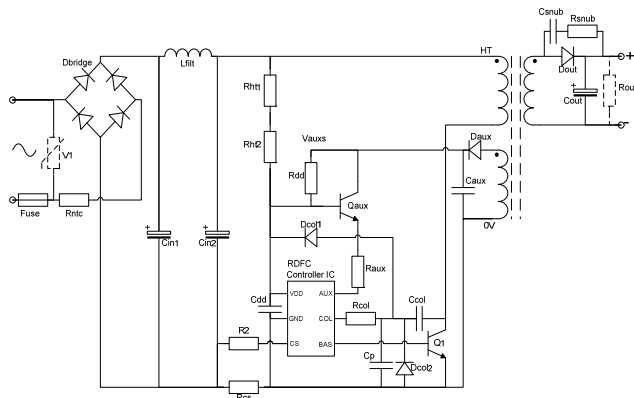


Figure 4: Typical RDFC circuit – simple circuits requiring few components

Controller Packages

RDFC controllers are in industry standard SOT23-6 packages, shown below.

Figure 5: SOT23-6

The technical performance, design and commercial benefits of the controller and RDFC topology are all essential in delivering small, lightweight and compact energy-efficient power supplies.



Figure 6: 9 W linear power supply versus an RDFC mini adapter at the same rated power

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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