

CamSemi Controller Answers Need for Low-Cost Energy-Efficient Power Supplies

CamSemi launches its first products - a family of breakthrough performance controller ICs - that will enable power supply designers and volume manufacturers for the first time to develop more energy-efficient products at lower cost than existing inefficient solutions.

The C2470 family is based on recent advances in intelligent digital/analog control, coupled with a neat and simple resonant single-switch topology that has never before been exploited in an inte-

grated form for off-line AC to DC power conversion. This patented, proprietary approach allows manufacturers to secure operating efficiencies in excess of 80% and 100 mW standby but at a new low-cost price point. While offering higher performance and superior safety features, products based on the C2470 family are cost competitive with iron-cored linear transformers and significantly cheaper than currently popular Switched Mode Power Supply (SMPS) approaches.

Given initiatives such as ENERGY STAR and the California Energy Commission, manufacturers are under increasing market and legislative pressures to stop producing bulky and energy-inefficient linear transformers that place an unnecessary burden on the environment. However, until today, a manufacturer's only option was to migrate to much more costly and complex SMPS flyback or Ringing Choke Converter (RCC) designs.

"When we first introduced our mixed signal controller concept and RDFC [Resonant Discontinuous Forward Converter] topology to early-adopter customers, the feedback was so positive that we took the strategic decision to bring them to market in advance of our other product developments. Our goal is to enable energy-efficient off-line power conversion without a cost penalty and the C2470 family of controllers does just that. The devices have been specifically optimised for high volume, low cost, single rail input markets while offering double the efficiency over traditional linear supplies," said David Baillie, CEO of CamSemi.

The C2470 family is a major advance for power supply designers in using a forward resonant topology with naturally

high efficiency and low EMI. Now manufacturers can produce small, lightweight and more energy-efficient supplies without having to design-in complex EMI filtering circuitry typically needed with SMPS.

CamSemi's new controllers simplify circuit design by cutting a manufacturer's bill of materials, improving margins and speeding up product development cycles while also providing built-in protection and other features as standard within the controller. They employ sophisticated mixed signal control allowing the use of lower cost bipolar junction transistors, as opposed to more expensive MOSFETs and lead to lower overall system costs than the currently popular SMPS flyback designs. At output power ratings of around 6W and above they become cheaper than linear power supplies, currently the industry's lowest-cost standard solution for off-line power conversion but which suffer from poor conversion efficiency and are bulky.

CamSemi's new devices can easily be incorporated into energy-efficient power supplies, for a wide range of applications, with only minimal changes to layouts and components allowing multiple new product developments to be carried out in parallel. By operating in resonant mode, EMI is greatly reduced enabling the replacement of linear power supplies in demanding applications such as audio products and cordless phone chargers. As secondary feedback circuitry is no longer required, component counts are lower, circuits are simpler and with no opto-couplers or 'Y' capacitors safety approval is easier.

The first three members from the C2470 family are for 6 to 40W power range.

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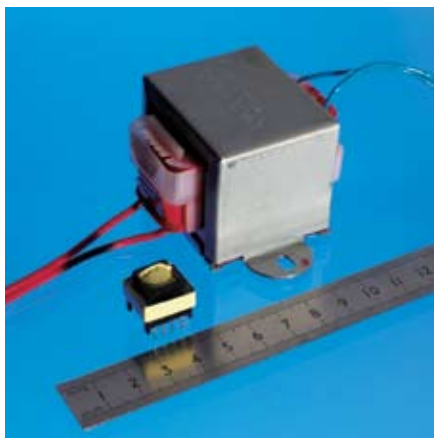


Figure 1. The C2470 family uses a tiny ferrite core in place of bulky and heavy iron-cored transformers.



Figure 2. The C2470 family and RDFC topology are ideal for the replacement of bulky, energy-inefficient linears with small footprint mini adapters.