cap-XX

APPLICATION BRIEF No. 1005

Electrolytic and Tantalum Capacitor Replacement

May 2000

Outline

In compact, portable, battery-operated devices, DC-DC converters are commonly used to provide the required internal voltages. Electrolytic and tantalum capacitors with low ESR (Effective Series Resistance) are commonly used as power supply energy-storage and filter capacitors. For the lowest possible ESR and highest capacitance, multiple devices are usually connected in parallel. The cost and the PC board area required are significant. A single cap-XX supercapacitor provides the designer with an alternative at reduced cost.

The Problem

- Voltage-converters in portable devices require multiple low-ESR capacitors for their energy-storage and filtering.
- The costs financially and in PCB space can be significant.
- Low capacitance in DC-DC converter circuits requires that their switching frequencies are high.

The cap-XX Solution

- The use of a cap-XX supercapacitor can provide the designer with a single-device solution to the energy-storage and filtering problem.
- A cap-XX supercapacitor can be manufactured with a low ESR as well as a very high capacitance, if required.
- cap-XX supercapacitors can be designed to suit the application, in shapes, sizes and packaging to fit the space available, such as thin prismatic forms.
- Where a higher capacitance can be used, the frequency of a DC-DC converter may be reduced, without affecting ripple voltage.

The Benefits

- Single-device solution to the energy-storage and filtering problem: One cap-XX supercapacitor replaces multiple devices.
- Potential for savings in board space and in cost.
- Flexibility in design.
- The ability to use a reduced DC-DC converter switching frequency, with potential for further cost savings.

Further Information:

cap-XX will be pleased to supply you with detailed data and design information. For further details use the contact information at the foot of this page.

cap-XX Pty. Ltd.• ABN 28 077 060 872
Units 9&10 12 Mars Rd
Lane Cove NSW 2066, Australia
Tel: +61 2 9420 0390; Fax: +61 2 9420 0692
http://www.cap-xx.com E-mail: sales@cap-xx.com