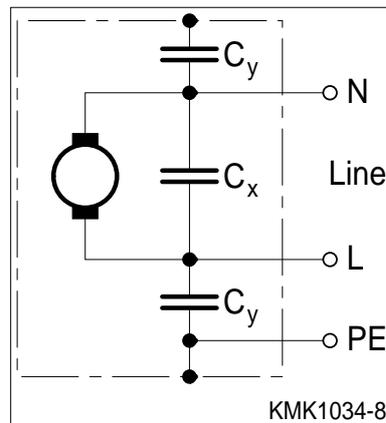


April 30, 2010

Film Capacitors

Application Note for X1/X2 EMI suppression capacitors

Standard X2 EMI suppression capacitors are connected in series and are also sometimes used in power supplies. In such cases loads can occur that exceed the specifications in the data sheets.



Standard X2 capacitors are designed to operate “across the line” in order to filter bursts from the grid. Because different loads occur when the capacitors are connected in series this requires a special capacitor design.

For such circuits EPCOS has developed various product series, which are listed in the enclosed Application Note.

Enclosure Application Note

Contact Martina Auer, FK DC PM, München

Customers should kindly address inquiries directly to their sales contacts.



Film Capacitors

Application note for capacitors used in power lines

Date: January 2010

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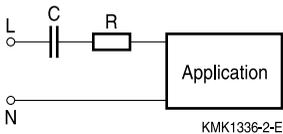
Application note for capacitors used in series or in parallel to the power line

In series with the power line (i.e. capacitive power supply)

Typical Applications:

- Power meters
- ECUs for white goods and household appliances
- Different sensor applications
- Severe ambient conditions

Basic circuit



Required features

- High capacitance stability over the lifetime
- Narrow tolerances for a controlled current supply

Recommended EPCOS product series

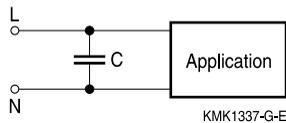
- B3293* (305 V AC)
heavy duty series, also with EN approval for X2 (UL Q1/2010)
- B3292*7 (305 V AC)
humidity improved series, also with EN approval for X2
- B3265* MKP series
standard MKP capacitor without safety approvals
- B3267*L MKP series
standard MKP capacitor without safety approvals

In parallel with the power line

Typical Applications:

Standard X2 are used parallel over the mains for reducing electromagnetic interferences coming from the grid.

Basic circuit



Required features

- Standard safety approvals (ENEC, UL, CSA, CQC)
- High pulse load capability
- Withstand surge voltages

Recommended EPCOS product series

- B3292*C/D (305 V AC)
standard series, approved as X2
- B3292*E/F (305 V AC)
miniaturized series (> 2.2 μ F), approved as X2
- B3291* (330 V AC), approved as X1

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The following applies to all products named in this publication:

1. Some parts of this publication contain **statements about the suitability of our products for certain areas of application**. These statements are based on our knowledge of typical requirements that are often placed on our products in the areas of application concerned. We nevertheless expressly point out **that such statements cannot be regarded as binding statements about the suitability of our products for a particular customer application**. As a rule, EPCOS is either unfamiliar with individual customer applications or less familiar with them than the customers themselves. For these reasons, it is always ultimately incumbent on the customer to check and decide whether an EPCOS product with the properties described in the product specification is suitable for use in a particular customer application.
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3. **The warnings, cautions and product-specific notes must be observed.**
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