INTERNATIONAL STANDARD

IEC 62317-9

First edition
2006-04

Ferrite cores – Dimensions –

Part 9: Planar cores

Reference number
IEC 62317-9:2006(E)

Publication numbering

As from 1 January 1997 all IEC publications are issued with a designation in the 60000 series. For example, IEC 34-1 is now referred to as IEC 60034-1.

Consolidated editions

The IEC is now publishing consolidated versions of its publications. For example, edition numbers 1.0, 1.1 and 1.2 refer, respectively, to the base publication, the base publication incorporating amendment 1 and the base publication incorporating amendments 1 and 2.

Further information on IEC publications

The technical content of IEC publications is kept under constant review by the IEC, thus ensuring that the content reflects current technology. Information relating to this publication, including its validity, is available in the IEC Catalogue of publications (see below) in addition to new editions, amendments and corrigenda. Information on the subjects under consideration and work in progress undertaken by the technical committee which has prepared this publication, as well as the list of publications issued, is also available from the following:

- **IEC Web Site (www.iec.ch)**

- **Catalogue of IEC publications**

  The on-line catalogue on the IEC web site (www.iec.ch/searchpub) enables you to search by a variety of criteria including text searches, technical committees and date of publication. On-line information is also available on recently issued publications, withdrawn and replaced publications, as well as corrigenda.

- **IEC Just Published**

  This summary of recently issued publications (www.iec.ch/online_news/ justpub) is also available by email. Please contact the Customer Service Centre (see below) for further information.

- **Customer Service Centre**

  If you have any questions regarding this publication or need further assistance, please contact the Customer Service Centre:

  Email: custserv@iec.ch
  Tel: +41 22 919 02 11
  Fax: +41 22 919 03 00

INTERNATIONAL STANDARD

IEC 62317-9

First edition
2006-04

Ferrite cores – Dimensions –

Part 9: Planar cores

International Electrotechnical Commission, 3, rue de Varembé, PO Box 131, CH-1211 Geneva 20, Switzerland
Telephone: +41 22 919 02 11 Telefax: +41 22 919 03 00 E-mail: inmail@iec.ch Web: www.iec.ch

Commission Electrotechnique Internationale
International Electrotechnical Commission
Международная Электротехническая Комиссия

PRICE CODE Q

For price, see current catalogue

CONTENTS

INTERNATIONAL ELECTROTECHNICAL COMMISSION

FERRITE CORES – DIMENSIONS –

Part 9: Planar cores

FOREWORD

1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of the IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards. Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.
3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
5) IEC provides no marking procedure to indicate its approval and cannot be rendered responsible for any equipment declared to be in conformity with an IEC Publication.
6) All users should ensure that they have the latest edition of this publication.
7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
9) Attention is drawn to the possibility that some of the elements of this IEC publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

International Standard IEC 62317-9 has been prepared IEC technical committee 51: Magnetic components and ferrite materials.

This International Standard cancels and replaces IEC 61860 published in 2000. This edition constitutes a technical revision. This International Standard includes the following significant technical changes and additions with respect to IEC 61860:2000:

a) addition of the planar EL family of cores;
b) addition of the low-profile ER family of cores;
c) the low-profile RM-family defined in IEC 61860:2000 has been moved to IEC 62137-4 for RM-cores and associated parts.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

The text of this standard is based on the following documents:

FDIS	Report on voting
51/849/FDIS	51/858/RVD

Full information on the voting for the approval of this standard can be found in the report on voting indicated in the above table.

IEC 62317 consists of the following parts, under the general title *Ferrite cores – Dimensions*:

Part 1: General (under consideration)
Part 2: Pot cores (under consideration, currently available as IEC 60133)
Part 3: Half pot cores (under consideration, currently available as IEC 62323)
Part 4: RM-cores and associated parts
Part 5: EP-cores (under consideration, currently available as IEC 61596)
Part 6: ETD-cores (under consideration, currently available as IEC 61185)
Part 7: EER-cores
Part 8: E-cores
Part 9: Planar cores
Part 10: PM-cores (under consideration, currently available as IEC 61247)
Part 11: EC-cores (under consideration, currently available as IEC 60647)
Part 12: Uncoated ring cores (under consideration, currently available as IEC 61604)

The committee has decided that the contents of this publication will remain unchanged until the maintenance result date indicated on the IEC web site under "http://webstore.iec.ch" in the data related to the specific publication. At this date, the publication will be

- reconfirmed;
- withdrawn;
- replaced by a revised edition, or
- amended.

A bilingual version of this publication may be issued at a later date.

INTRODUCTION

Nowadays, d.c.-d.c. converter power supplies increasingly employ transformers and chokes the windings of which are made of multi-layer printed circuit board or the windings are constructed in the motherboard, rather than the transformers wound by conventional copper wires. This part of IEC 62317 specifies the optimum shapes and dimensions of cores for SMD (Surface Mounted Device) and of cores for which the windings are constructed in the motherboard. The motherboard has slots cut out to accept the ferrite cores. This is called the total integration in a multi-layer motherboard. The core shape specified in this part of IEC 62317 satisfies the demand for lower profile as well as for smaller floor space.

FERRITE CORES – DIMENSIONS –

Part 9: Planar cores

1 Scope

This International Standard specifies the shapes and dimensions of ferrite cores for inductive components (transformers and chokes) of which the coil is typically constructed by multi-layer board or the coil is part of the motherboard.

The general consideration upon which the design of this range of cores is based is given in Annex A.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 60205, *Calculation of the effective parameters of magnetic piece parts*

IEC 62317-4:2005, *Ferrite cores – Dimensions – Part 4: RM cores and associated parts*

3 Primary standard

3.1 Planar shape and dimensions

The main shapes and dimensions shall be as given in the following figures and tables.

The main shape, dimensions, and parameters for EL core are given in:

Figure 1 – Planar core EL and mating PLT-core;

Table 1 – Dimensions of planar core EL and the mating PLT-core;

Table 2 – Effective parameter values and $A_{\min}$ values.

The main shape, dimensions, and parameters for low-profile E-cores are given in:

Figure 2 – Low-profile E-core and mating PLT-core;

Table 3 – Dimensions of low-profile E-core and the mating PLT-core;

Table 4 – Effective parameter values and $A_{\min}$ values.

The main shape, dimensions, and parameters for ER-cores are given in:

Figure 3 – Low-profile ER-core;

Table 5 – Dimensions of low-profile ER-core;

Table 6 – Effective parameter values and $A_{\min}$ values.

A uniform dimensional nomenclature has been chosen in order to facilitate a comparison of major physical attributes among the different core shapes.