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**NATIONAL STANDARD OF THE  
PEOPLE'S REPUBLIC OF CHINA**

**GB/T 43593-2023**

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**Ferrite cores - Standard inductance factor for gapped cores and  
its tolerance**

铁氧体磁心 有气隙磁心的标准电感因数及其公差

**(English Translation)**

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## Foreword

This document complies with the provisions of GB/T 1.1-2020 "Standardization Work Guidelines Part 1: Structure and Drafting Rules of Standardization Documents" Drafting:

This document has been modified to adopt IEC 62358:2012 "Standard inductance factors and their tolerances for ferrite cores with air gaps":

Compared with IEC 62358:2012, this document has made the following structural adjustments:

---A chapter of "Terms and Definitions" has been added, and the subsequent chapter numbers have been postponed:

The technical differences between this document and IEC 62358:2012 and their reasons are as follows:

---Replaced the withdrawn IEC 62317-8 with IEC 63093-8 (see Table 2);

---Replaced the withdrawn IEC 61185 with IEC 63093-6 (see Table 3);

---Replaced the withdrawn IEC 62317-7 with IEC 63093-7 (see Table 3);

---Replaced the withdrawn IEC 61596 with IEC 63093-5 (see Table 4);

---Added the specifications of EP type magnetic core, as well as the corresponding AL value and tolerance (see EP5 and EP30 in Table 4) to adapt to my country's technology technical conditions to increase operability;

---Replaced the withdrawn IEC 62317-4 with IEC 63093-4 (see Table 5, Table 14);

---Replaced the withdrawn IEC 62317-2 with IEC 63093-2 (see Table 6);

---Added the specifications of the can core, as well as the corresponding AL value and tolerance (see P3:3/2:6 and P4:6/3:1 in Table 6) to adapt to our country technical conditions to increase operability;

---Deleted the specification P42x29 of the pot core, as well as the corresponding AL value and tolerance (see Table 6), consistent with IEC 63093-2;

---Replaced the withdrawn IEC 62317-13 with IEC 63093-13 (see Table 7, Table 15);

---Added the specifications of PQ type core, as well as the corresponding AL value and tolerance (see PQ16/11:6, PQ65/54, PQ78/39, PQ107/87) to adapt to my country's technical conditions and increase operability;

---Replaced the withdrawn IEC 62317-9 with IEC 63093-9 (see Table 8~Table 13):

The following editorial changes have been made to this document:

---Changed the expression form of the IEC reference core specifications in the table (see

Table 2, Table 5, and Table 6) to be consistent with the current standards;

---Change the core specification "ER40x10x32" to "ER40x10x28" (see Table 11), consistent with IEC 63093-9:

Please note that some content in this document may be subject to patents: The publisher of this document assumes no responsibility for identifying patents:

## Introduction

The AL value (inductance factor) of ferrite gapped cores and their tolerances have traditionally been specified by the user: When a manufacturer wishes to have a short when back-ordering inventory, they need to hold unprocessed air-gap products due to the lack of standards for AL values: With the development of e-commerce and the as the need to deliver products quickly increases, it will be more convenient for both users and suppliers to refer to established AL values and tolerances: Development of this document Just to meet this need:

After the implementation of this document, core suppliers and users will easily use soft ferrite air-gap cores to develop electronic components: Traditional enterprises and new companies in new areas such as e-commerce will benefit:

It is recommended that users specify AL values by selecting AL values through this file: It is recommended to use the tolerances in this document, but for historical reasons, manufacturing Specifications of some components may vary from manufacturer to manufacturer: The user is required to confirm the tolerances in the manufacturer's documentation: Encourage manufacturers to establish Air-gap cores are in stock for short-term delivery using the AL values in this document: Where the user or manufacturer specifies an air gap length with a tolerance Below, AL values will be approximate only without tolerance: This situation would be beyond the scope of this document:

Standard inductors with ferrite cores and air-gap cores Factors and their tolerances

## 1 Scope

This document specifies the standards for E-type, ETD-type, EER-type, EP-type, RM-type, can-type, PQ-type and low-profile air-gap ferrite cores:

Quasi AL value (inductance factor) and its tolerance:

This document applies to the design, development, and production of air-gap ferrite cores:

## 2 Normative reference documents

The contents of the following documents constitute essential provisions of this document through normative references in the text: Among them, the dated quotations for undated

referenced documents, only the version corresponding to that date applies to this document; for undated referenced documents, the latest version (including all amendments) applies to this document:

**Note:** GB/T 19764-2005 Selection guide for priority numbers and priority number integer series (ISO 497:1973, IDT) IEC 62044-2 Methods of measurement of magnetic cores made of soft magnetic materials Part 2: Magnetic properties at low excitation levels (Coresmade Note: GB/T 28869.2-2023 Measurement methods for magnetic cores made of soft magnetic materials Part 2: Magnetic properties at low excitation levels (IEC 62044-2:

2005, IDT)

IEC 63093-2 Guidelines for limits on dimensions and surface defects of ferrite cores Part 2: Can magnets for communications, power supplies and filters IEC 63093-4 Guidelines for limits of size and surface defects of ferrite cores Part 4: RM type cores (Ferritecores-IEC 63093-5 Guidelines for limits of size and surface defects of ferrite cores Part 5: Type EP cores for inductors and transformers IEC 63093-6 Guidelines for limits of size and surface defects of ferrite cores Part 6: ETD type cores for power supplies (Ferrite power supplies) IEC 63093-7 Guidelines for limits of size and surface defects of ferrite cores Part 7: EER type cores (Ferritecores-Note: GB/T 36103.7-2018 Ferrite core dimensions Part 7: EER type core (IEC 62317-7:2005, MOD) IEC 63093-8 Guidelines for limits of size and surface defects of ferrite cores Part 8: Type E cores (Ferritecores-IEC 63093-9 Guidelines for limits of dimensions and surface defects of ferrite cores Part 9: Planar cores (Ferritecores-IEC 63093-13 Guidelines for limits of size and surface defects of ferrite cores Part 13: PQ type cores (Ferritecores-