SLOVENSKI STANDARD

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High frequency inductive components - Electrical characteristics and measuring methods - Part 1: Nanohenry range chip inductor (IEC 62024-1:2002)

ICS 29.100.10

Referenčna številka
SIST EN 62024-1:2004(en)

EUROPEAN STANDARD **EN 62024-1**

NORME EUROPÉENNE

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English version

High frequency inductive components - Electrical characteristics and measuring methods Part 1: Nanohenry range chip inductor

(IEC 62024-1:2002)

Composants inductifs à haute fréquence - Caractéristiques électriques et méthodes de mesure Partie 1: Inductance pastille de l'ordre du nanohenry (CEI 62024-1:2002)

Induktive Hochfrequenzbauelemente - Elektrische Eigenschaften und Messmethoden Teil 1: Chipinduktivitäten im Nanohenry-Bereich (IEC 62024-1:2002)

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Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CENELEC member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the Central Secretariat has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovakia, Spain, Sweden, Switzerland and United Kingdom.

CENELEC
European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

Central Secretariat: rue de Stassart 35, B - 1050 Brussels

Ref. No. EN 62024-1:2002 E

Foreword

The text of document 51/658/FDIS, future edition 1 of IEC 62024-1, prepared by IEC TC 51, Magnetic components and ferrite materials, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 62024-1 on 2002-07-01.

The following dates were fixed:

– latest date by which the EN has to be implemented at national level by publication of an identical national standard or by endorsement	(dop)	2003-04-01
– latest date by which the national standards conflicting with the EN have to be withdrawn	(dow)	2005-07-01

Annexes designated "normative" are part of the body of the standard.
In this standard, annex A and ZA are normative.
Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 62024-1:2002 was approved by CENELEC as a European Standard without any modification.

Annex ZA
(normative)

Normative references to international publications with their corresponding European publications

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

NOTE When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

Publication	Year	Title	EN/HD	Year
IEC 60249-1	1982	Base materials for printed circuits Part 1: Test methods	EN 60249-1 [1)]	1993
ISO 6353-3	1987	Reagents for chemical analysis Part 3: Specifications - Second series	-	-
ISO 9453	1990	Soft solder alloys - Chemical compositions and forms	EN 29453	1993

[1)] EN 60249-1:1993 includes A1:1984 + A2:1989 + A3:1991 to IEC 60249-1:1982.

NORME INTERNATIONALE

INTERNATIONAL STANDARD

CEI IEC 62024-1

Première édition
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Composants inductifs à haute fréquence – Caractéristiques électriques et méthodes de mesure –

Partie 1:
Inductance pastille de l'ordre du nanohenry

High frequency inductive components – Electrical characteristics and measuring methods –

Part 1:
Nanohenry range chip inductor

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

HIGH FREQUENCY INDUCTIVE COMPONENTS – ELECTRICAL CHARACTERISTICS AND MEASURING METHODS –

Part 1: Nanohenry range chip inductor

FOREWORD

1) The IEC (International Electrotechnical Commission) 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, the IEC publishes International Standards. 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. The IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
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International Standard IEC 62024-1 has been prepared by IEC technical committee 51: Magnetic components and ferrite materials.

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

FDIS	Report on voting
51/658/FDIS	51/675/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.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 3.

Annex A forms an integral part of this standard.

The committee has decided that this publication remains valid until 2006. At this date, in accordance with the committee's decision, the publication will be

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

HIGH FREQUENCY INDUCTIVE COMPONENTS – ELECTRICAL CHARACTERISTICS AND MEASURING METHODS –

Part 1: Nanohenry range chip inductor

1 Scope

This International Standard specifies electrical characteristics and measuring methods for the nanohenry range chip inductor that is normally used in high frequency (over 100 kHz) range.

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 60249-1:1982, *Base materials for printed circuits – Part 1: Test methods*

ISO 6353-3:1987, *Reagents for chemical analysis – Part 3: Specifications – Second series*

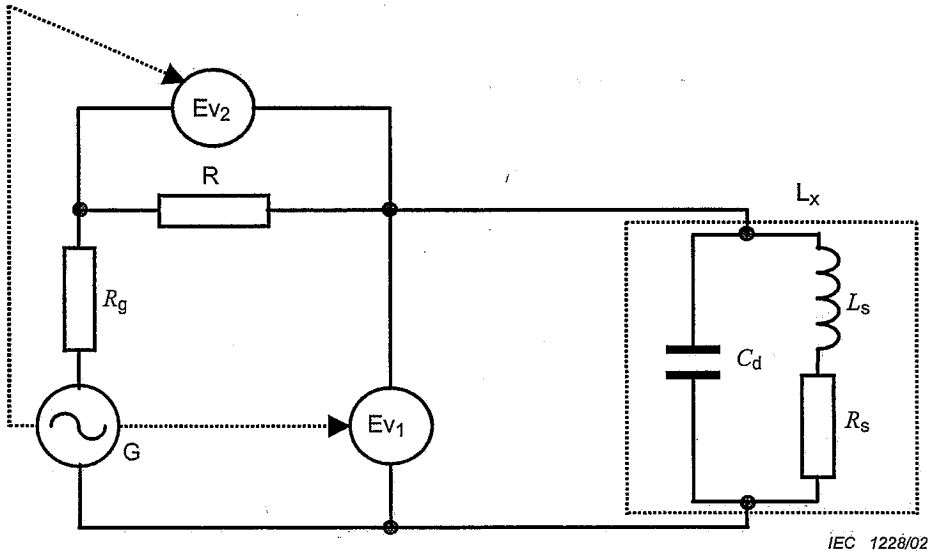
ISO 9453:1990, *Soft solder alloys – Chemical compositions and forms*

3 Inductance, Q-factor and impedance

3.1 Inductance

The inductance of an inductor is measured by the vector voltage/current method.

3.1.1 Measurement circuit



Key

R_g	source resistance (50 Ω)
R	resistor
L_x	inductor under test
C_d	distributed capacitance of inductor under test
L_s	series inductance of inductor under test
R_s	series resistance of inductor under test
⋯▶	phase reference signal
Ev_1,Ev_2	vector voltmeter
G	signal generator

Figure 1 – Example of circuit for the vector voltage/current method

3.1.2 Mounting of the inductor to the test fixture

The inductor shall be measured in a test fixture as specified in the relevant standard. If no fixture is specified, one of the following test fixtures A or B shall be used. The fixture used shall be reported.

3.1.2.1 Fixture A

The shape and dimensions of fixture A shall be as shown in figure 2.

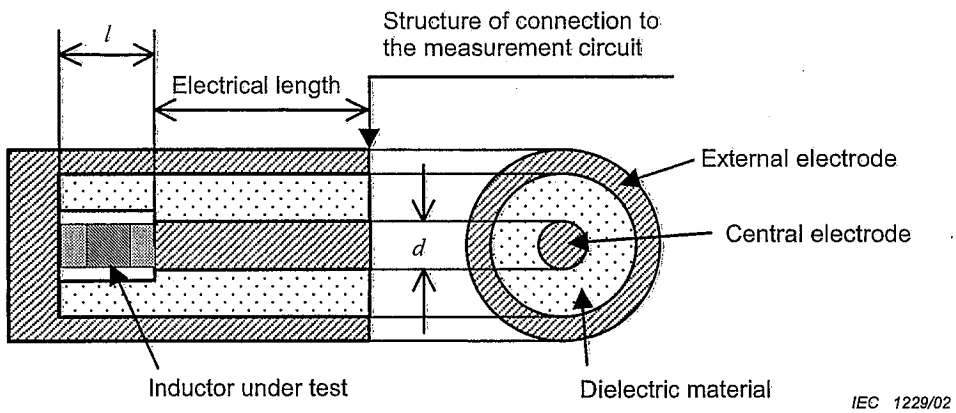


Figure 2 – Fixture A

Table 1 – Dimensions of *l* and *d*

Dimensions in millimetres

Size of inductor under test	*l*	*d*
1608	1,6	0,95
1005	1,0	0,60
0603	0,6	0,36

The electrodes of the test fixture shall be in contact with the electrodes of the inductor under test by mechanical force provided by an appropriate method. This force shall be chosen so as to provide satisfactory measurement stability without influencing the characteristics of the inductor. The electrode force shall be specified. The structure between the measurement circuit and test fixture shall maintain a characteristic impedance as near as possible to 50 Ω.

3.1.2.2 Fixture B

The test fixture B as shown in figure 3 shall be used.

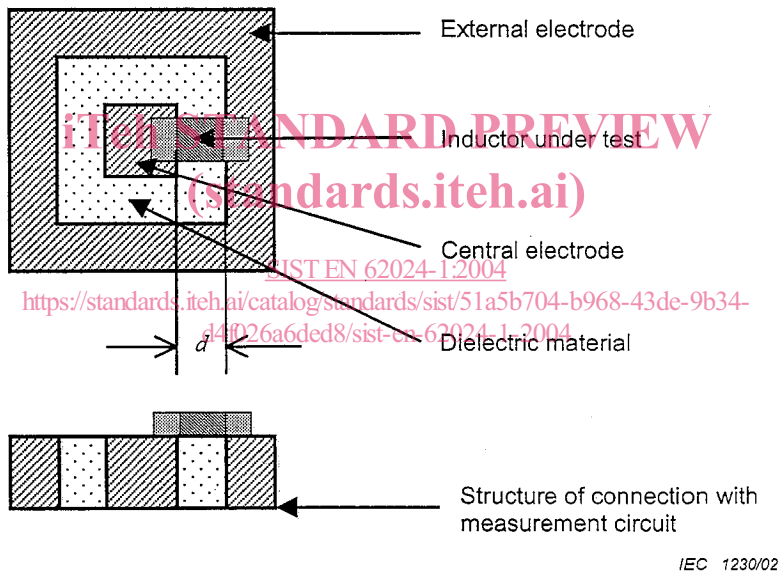


Figure 3 – Fixture B

The electrodes of the test fixture shall be in contact with the electrodes of the inductor under test by mechanical force provided by an appropriate method. This force shall be chosen so as to provide satisfactory measurement stability without influencing the characteristics of the inductor. The electrode force shall be specified.

The structure between the measurement circuit and test fixture shall maintain a characteristic impedance as near as possible to 50 Ω.

Dimension *d* shall be specified between the parties concerned.