

INTERNATIONAL STANDARD

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

Withhold

IEC 62024-1:2008

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**HIGH FREQUENCY INDUCTIVE COMPONENTS –
ELECTRICAL CHARACTERISTICS AND MEASURING METHODS –****Part 1: Nanohenry range chip inductor**

FOREWORD

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International Standard IEC 62024-1 has been prepared by IEC technical committee 51: Magnetic components and ferrite materials.

This second edition cancels and replaces the first edition published in 2002. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

- a) sizes 0402 added in Table 1 and Table 2;
- b) contents of 4.4 reviewed for easier understanding;
- c) correct errors in 3.1.4.2.

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

| FDIS | Report on voting |
|-------------|------------------|
| 51/908/FDIS | 51/915/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 2.

A list of all parts of IEC 62024 series, published under the general title *High frequency inductive components – Electrical characteristics and measuring methods*, can be found on the IEC website.

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- withdrawn,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.

The contents of the corrigendum of July 2008 have been included in this copy.

HIGH FREQUENCY INDUCTIVE COMPONENTS – ELECTRICAL CHARACTERISTICS AND MEASURING METHODS –

Part 1: Nanohenry range chip inductor

1 Scope

This part of IEC 62024 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 61249-2-7, *Materials for printed boards and other interconnecting structures – Part 2-7: Reinforced base materials clad and unclad – Epoxy resin woven E-glass laminated sheet of defined flammability (vertical burning test) copper-clad*

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

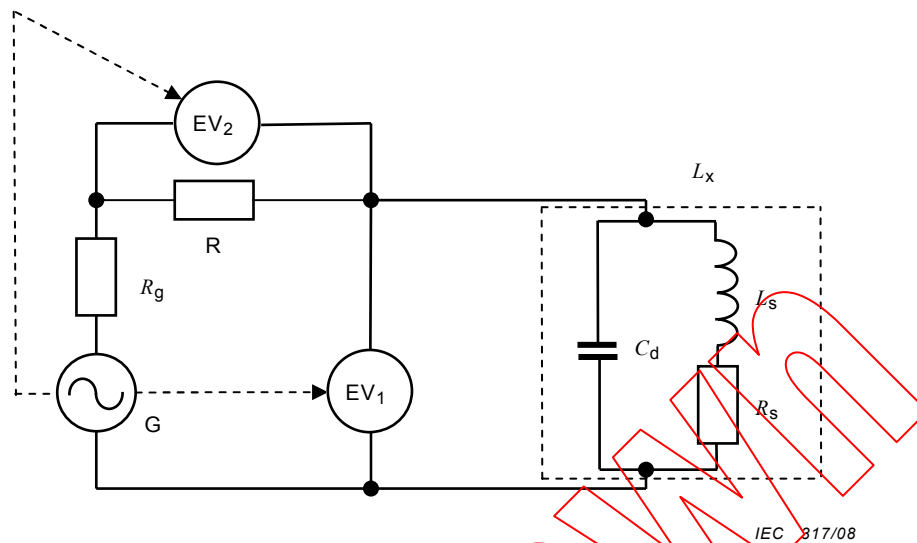
ISO 9453, *Soft solder alloys – Chemical compositions and forms*

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 Measuring circuit



Components

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

\dashrightarrow phase reference signal

EV₁, EV₂ vector voltmeter

G signal generator

Figure 1 – Example of circuit for 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.

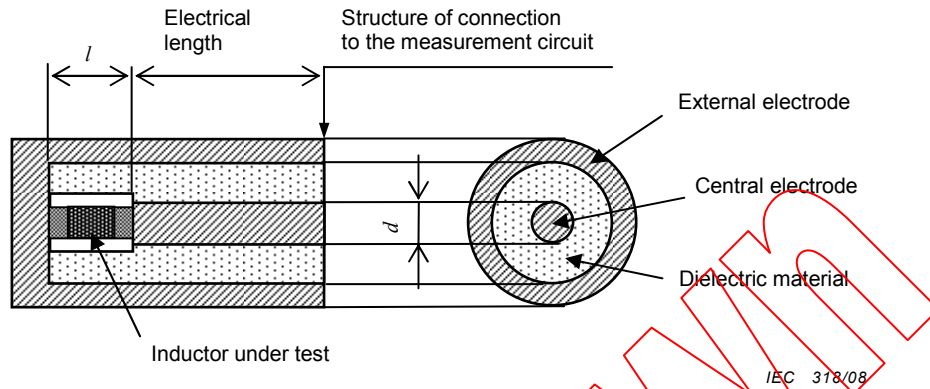


Figure 2 – Fixture A

Table 1 – Dimensions of *l* and *d*

| Size of inductor under test | <i>l</i> mm | <i>d</i> mm |
|-----------------------------|----------------|----------------|
| 1608 | 1,6 | 0,95 |
| 1005 | 1,0 | 0,60 |
| 0603 | 0,6 | 0,36 |
| 0402 | 0,4 | 0,26 |

The electrodes of test fixture shall contact the electrodes of 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.

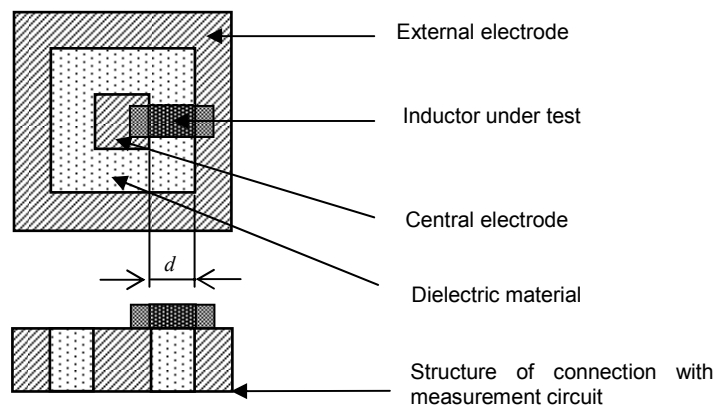


Figure 3 – Fixture B