

High frequency inductive components — Non-electrical characteristics and measuring methods —

Part 2: Test methods for non-electrical characteristics

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National foreword

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The UK participation in its preparation was entrusted to Technical Committee EPL/51, Transformers, inductors, magnetic components and ferrite materials, which has the responsibility to:

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**High frequency inductive components –
Non-electrical characteristics and measuring methods
Part 2: Test methods for non-electrical characteristics
(IEC 62025-2:2005)**

Composants inductifs à haute fréquence -
Caractéristiques non électriques
et méthodes de mesure
Partie 2: Méthodes d'essai pour
caractéristiques non électriques
(CEI 62025-2:2005)

Induktive Hochfrequenzbauelemente -
Nichtelektrische Eigenschaften
und Messmethoden
Teil 2: Messverfahren für nichtelektrische
Eigenschaften
(IEC 62025-2:2005)

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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.

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CENELEC

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

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Foreword

The text of document 51/797/FDIS, future edition 1 of IEC 62025-2, 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 62025-2 on 2005-02-01.

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) | 2005-11-01 |
| – latest date by which the national standards conflicting with the EN have to be withdrawn | (dow) | 2008-02-01 |

Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 62025-2:2005 was approved by CENELEC as a European Standard without any modification.

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HIGH FREQUENCY INDUCTIVE COMPONENTS – NON-ELECTRICAL CHARACTERISTICS AND MEASURING METHODS –

Part 2: Test methods for non-electrical characteristics

1 Scope

This part of IEC 62025 specifies a test method for the non-electrical characteristics of the Surface Mounted Device (SMD) inductors to be used for electronic and telecommunication equipment. The object of this part of IEC 62025 is to define methods for measuring mechanical performance only. As the reliability performances and specifications relative to non-electrical performances are defined in IEC 62211, detailed measuring methods for mechanical performance of reliability testing are defined in this part of IEC 62025.

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 60068-1:1988, *Environmental testing – Part 1: General and guidance*

IEC 60068-2-6:1995, *Environmental testing – Part 2: Tests – Test Fc : Vibration (sinusoidal)*

IEC 60068-2-20:1979, *Environmental testing – Part 2: Tests – Test T: Soldering*

IEC 60068-2-21:1999, *Environmental testing – Part 2-21: Tests – Test U: Robustness of terminations and integral mounting devices*

IEC 60068-2-27:1987, *Environmental testing – Part 2: Tests – Test Ea and guidance: Shock*

IEC 60068-2-45:1980, *Environmental testing – Part 2: Tests – Test XA and guidance: Immersion in cleaning solvents*

IEC 60068-2-58:2004, *Environmental testing – Part 2-58: Tests – Test Td: Test methods for solderability, resistance to dissolution of metallization and to soldering heat of surface mounting devices (SMD)*

IEC 60068-2-69, *Environmental testing – Part 2: Tests – Test Te: Solderability testing of electronic components for surface mount technology by the wetting balance method*

IEC 60068-2-77:1999, *Environmental testing – Part 2-77: Tests – Test 77: Body strength and impact shock*

IEC 61188-5-2:2003, *Printed boards and printed board assemblies – Design and use – Part 5-2: Attachment (land/joint) considerations – Discrete components*

IEC 61190-1-2:2002, *Attachment materials for electronic assembly – Part 1-2: Requirements for solder pastes for high-quality interconnections in electronics assembly*

IEC 61190-1-3:2002, *Attachment materials for electronic assembly – Part 1-3: Requirements for electronic grade solder alloys and fluxed and non-fluxed solid solders for electronic soldering applications*

IEC 62211:2003, *Inductive components – Reliability management*

3 Terms and definitions

For the purpose of this part of IEC 62025, the terms and definitions given in the normative references apply.

4 Test conditions

4.1 Standard atmospheric conditions for test

Unless otherwise specified in the detail specification, the tests and measurements shall be carried out under standard atmospheric conditions for test as given in 5.3.1 of IEC 60068-1:

- temperature: 15 °C to 35 °C;
- relative humidity: 25 % to 75 %;
- air pressure: 86 kPa to 106 kPa.

In the event of dispute or where required, the measurements shall be repeated using the referee temperatures (as given in 4.2) and such other conditions as are prescribed in this standard.

In addition, when it is difficult to make measurements in standard atmospheric conditions, unless a doubt arises about the validity of the result, the tests and measurements may be performed in non-standard atmospheric conditions.

4.2 Referee conditions

For referee purposes, one of the standard atmospheric conditions for referee tests taken from 5.2 of IEC 60068-1, shall be selected and shall be as follows:

- temperature: 20 °C ± 2 °C;
- relative humidity: 60 % to 70 %;
- air pressure: 86 kPa to 106 kPa.

5 Mechanical characteristics test

5.1 Body strength test

5.1.1 Body strength test procedures

The body strength test procedure, as referenced in IEC 60068-2-77, shall be as follows.

a) Preconditioning

If required, preconditioning shall be performed on the specimens in accordance with the detail specification.

b) Initial measurement

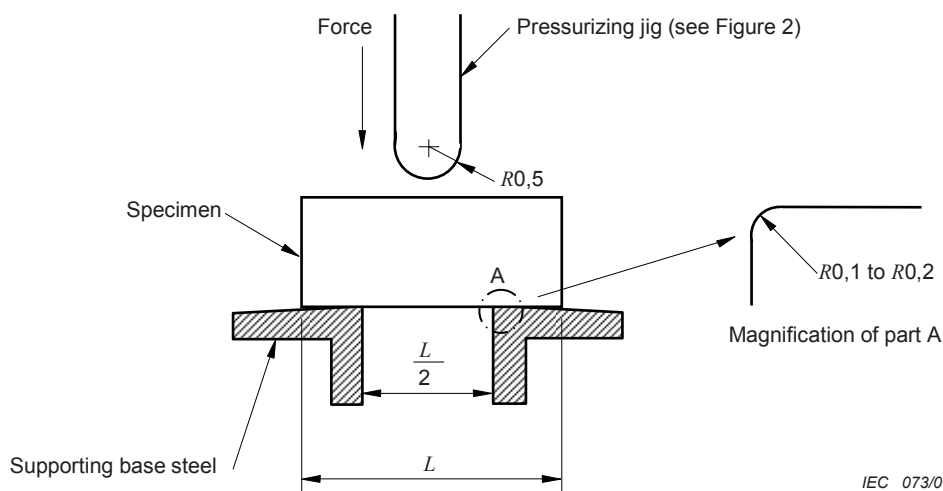
The appearance of the specimen shall be checked with a magnification of at least 10× under adequate light.

If specified in the detail specification, the electrical performances shall be measured.

c) Layout

Unless otherwise specified in the detail specification, the specimen shall be placed on the supporting base, as shown in Figure 1, so that both ends of the specimen are symmetrically positioned on the supporting base. The test table shall be placed on a plane, robust platform so that the test result shall not be affected when a force is applied.

Dimensions in millimetres



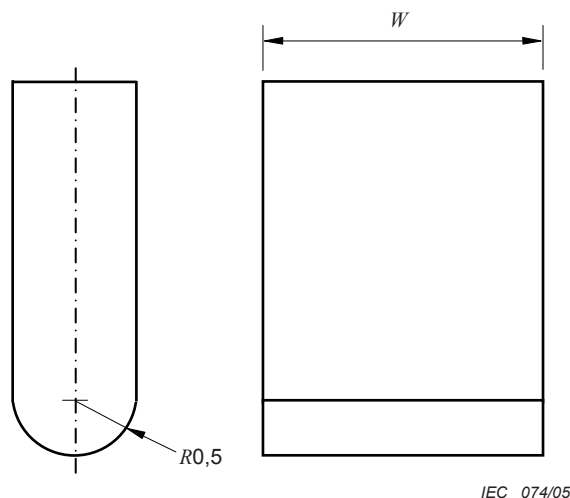
NOTE The angle of the taper in part A shall be between 70° and 90°.

Figure 1 – Method for pressurizing body

d) Applied force

The force shall be applied to the centre of the specimen by the pressurizing jig as shown in Figure 2, for a duration of (10 ± 1) s. Unless otherwise specified in the detail specification, the force shall be selected from either (one of) 10 N, 20 N or 30 N. If specified in the detail specification, the electrical performances shall be measured during the application of the force.

Dimensions in millimetres



NOTE 1 Dimension W of the pressurizing jig is wider than the width of the specimen.

NOTE 2 Hardness: HV 500 and more.

NOTE 3 When the length of the specimen is 2 mm or less, the radius of the pressurizing jig should be 0,2 mm.

Figure 2 – Pressurizing jig

e) Recovery

If required, recovery conditioning shall be performed for the specimens in accordance with the detail specification.

f) Final measurement

After the test, the appearance of the specimen shall be checked with a magnification of at least 10× under adequate light. There shall be no signs of damage such as cracks or flaws. If specified in the detail specification, the electrical performances shall be measured.

5.1.2 Information to be given in the detail specification

The following information shall be given in the detail specification.

- a) Preconditioning (if required) – see 5.1.1.a);
- b) initial measurement items, final measurement items (if required) – see 5.1.1.b) and f);
- c) measurement during applied force (if required) – see 5.1.1.d);
- d) recovery (if required) – see 5.1.1.e).

5.2 Robustness of termination (electrode)

5.2.1 Resistance to bending of printed circuit board

5.2.1.1 General

The test for resistance of terminations and electrodes mounted on a printed circuit board shall be as follows.