

BS EN 62674-1:2012



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High Frequency Inductive Components — Fixed surface mount inductors for use in electronic and telecommunication equipment

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The UK participation in its preparation was entrusted to Technical Committee EPL/51, Transformers, inductors, magnetic components and ferrite materials.

A list of organizations represented on this committee can be obtained on request to its secretary.

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**High frequency inductive components -
Part 1: Fixed surface mount inductors for use in electronic and
telecommunication equipment
(IEC 62674-1:2012)**

Composants inductifs à haute fréquence -
Partie 1: Inductances fixes pour montage
en surface utilisées dans les matériels
électroniques et les équipements de
télécommunications
(CEI 62674-1:2012)

Induktive Hochfrequenzbauelemente -
Teil 1: Oberflächenmontierbare
Festinduktivität für den Einsatz in
Elektronik und
Telekommunikationsgeräten
(IEC 62674-1:2012)

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Foreword

The text of document 51/1006/FDIS, future edition 1 of IEC 62674-1, prepared by IEC TC 51, "Magnetic components and ferrite materials" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 62674-1:2012.

The following dates are fixed:

- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2013-08-16
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2015-11-16

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The text of the International Standard IEC 62674-1:2012 was approved by CENELEC as a European Standard without any modification.

Annex ZA (normative)

Normative references to international publications with their corresponding European publications

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

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

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60068-1 + corr. October	1988 1988	Environmental testing - Part 1: General and guidance	EN 60068-1 ¹⁾	1994
IEC 60068-2-1	2007	Environmental testing - Part 2-1: Tests - Test A: Cold	EN 60068-2-1	2007
IEC 60068-2-2	2007	Environmental testing - Part 2-2: Tests - Test B: Dry heat	EN 60068-2-2	2007
IEC 60068-2-14	2009	Environmental testing - Part 2-14: Tests - Test N: Change of temperature	EN 60068-2-14	2009
IEC 60068-2-45	-	Environmental testing - Part 2: Tests - Test Xa and guidance: Immersion in cleaning solvents	EN 60068-2-45	-
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)	EN 60068-2-58 + corr. December	2004 2004
IEC 60068-2-78	-	Environmental testing - Part 2-78: Tests - Test Cab: Damp heat, steady state	EN 60068-2-78	-
IEC 61605	2005	Fixed inductors for use in electronic and telecommunication equipment - Marking codes	EN 61605	2005
IEC 62024-1 + corr. July	2008 2008	High frequency inductive components - Electrical characteristics and measuring methods - Part 1: Nanohenry range chip inductor	EN 62024-1	2008
IEC 62024-2	2008	High frequency inductive components - Electrical characteristics and measuring methods - Part 2: Rated current of inductors for DC to DC converters	EN 62024-2	2009
IEC 62025-2	2005	High frequency inductive components - Non- electrical characteristics and measuring methods - Part 2: Test methods for non- electrical characteristics	EN 62025-2	2005
IEC 62211	2003	Inductive components - Reliability management	EN 62211	2004
ISO 3	-	Preferred numbers - Series of preferred numbers	-	-

¹⁾ EN 60068-1 includes A1 to IEC 60068-1+ corr. October .

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
ISO 3599	-	Vernier callipers reading to 0,1 and 0,05 mm	-	-
ISO 3611	-	Geometrical product specifications (GPS) - Dimensional measuring equipment: Micrometers for external measurements - Design and metrological characteristics	EN ISO 3611	-
ISO 6906	-	Vernier callipers reading to 0,02 mm	-	-

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HIGH FREQUENCY INDUCTIVE COMPONENTS –

Part 1: Fixed surface mount inductors for use in electronic and telecommunication equipment

1 Scope

This part of IEC 62674 applies to fixed surface mount inductors and ferrite beads.

The object of this standard is to define the terms necessary to describe the inductors covered by this standard, provide recommendations for preferred characteristics, recommended performance, test methods and general guidance.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. 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 60068-2-1:2007, *Environmental testing – Part 2-1: Tests – Test A: Cold*

IEC 60068-2-2:2007, *Environmental testing – Part 2-2: Tests – Test B: Dry heat*

IEC 60068-2-14:2009, *Environmental testing – Part 2-14: Tests – Test N: Change of temperature*

IEC 60068-2-45, *Basic environmental testing procedures – Part 2-45: 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 60068-2-78, *Environmental testing – Part 2-78: Tests – Test Cab: Damp heat, steady state*

IEC 61605:2005, *Fixed inductors for use in electronic and telecommunication equipment – Marking codes*

IEC 62024-1:2008, *High frequency inductive components – Electrical characteristics and measuring methods – Part 1: Nanohenry range chip inductor*

IEC 62024-2:2008, *High frequency inductive components – Electrical characteristics and measuring methods – Part 2: Rated current of inductors for DC to DC converters*

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

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

ISO 3:1973, *Preferred numbers – Series of preferred numbers*

ISO 3599, *Vernier callipers reading to 0,1 and 0,05 mm*

ISO 3611, *Geometrical product specifications (GPS) – Dimensional measuring equipment: Micrometers for external measurements – Design and metrological characteristics*

ISO 6906, *Vernier callipers reading to 0,02 mm*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1

rated current

maximum current which may be loaded continuously by inductors at the rated temperature

Note 1 to entry: A DC saturation limited current value or a temperature rise limited current value, whichever is less, has been adopted as the rated current (see IEC 62024-2:2008, Clause 7).

3.2

operating temperature range

category temperature range

range of ambient temperatures for which the inductor has been designed to operate continuously

Note 1 to entry: Unless otherwise specified in the detail specification, the operating temperature is ambient temperature plus temperature rise of components.

4 Designation

It is recommended to express the designation of the fixed surface mount inductors by the following 12 digits format. In the case of another format, designation shall be specified in the detail specifications.

The designation of ferrite beads shall be specified in the detail specifications.

□□□ □□□□ □ □□□ □
a) b) c) d) e)

a) Identification of the type of inductor

Fixed surface mount inductors shall be identified by the three alphabetic characters 'LCL'.

b) Indication of outline dimensions

The outline dimensions of the surface mount inductor shall be indicated by a four-digit number based on two significant figures for each dimension of L and W (or H). As for the dimensions of shape D, the first two digits indicate the longer side dimension L , and the last two digits indicate the shorter side dimension W , as shown in Figure 1. As for the dimensions of shape K, the first two digits indicate the outline dimension L , and the last two digits indicate the height dimension H .

c) Indication of shape

A single alphabetic character as given in Figure 1 indicates the shape for fixed surface mount inductors.

The shape codes are classified by the base shape of inductors.

D: rectangular

K: square

d) Indication of nominal inductance

Three alphanumeric characters specified in IEC 61605:2005, Clause 4, indicate the nominal inductance value (see Table 1).

Table 1 – Letter code for inductance value

Inductance values	Digit and letter code
0,1 nH 0,47 nH	N10 N47
1 nH 4,7 nH	1N0 4N7
10 nH 47 nH	10N 47N
0,1 µH 0,47 µH	R10 R47
1 µH 4,7 µH	1R0 4R7
10 µH 47 µH	100 470
100 µH 470 µH	101 471
1 mH 4,7 mH	102 472
10 mH 47 mH	103 473
100 mH 470 mH	104 474
1 H 4,7 H	105 475
10 H 47 H	106 476

e) Indication of tolerance for inductance

Single alphabetic characters specified in Table 8 indicate the tolerance for the inductance value.