IEC 60938-2-1

Edition 2.0 2023-12

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Fixed inductors for electromagnetic interference suppression – Part 2-1: Blank detail specification – Inductors for which safety tests are required

Inductances fixes d'antiparasitage – Partie 2-1: Spécification particulière-cadre – Inductances exigeant des essais de sécurité

IEC 60938-2-1:2023-12(en-fr)

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FIXED INDUCTORS FOR ELECTROMAGNETIC INTERFERENCE SUPPRESSION –

Part 2-1: Blank detail specification – Inductors for which safety tests are required

FOREWORD

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IEC 60938-2-1 has been prepared by IEC technical committee 40: Capacitors and resistors for electronic equipment. It is an International Standard.

This second edition cancels and replaces the first edition published in 1999. This edition constitutes a technical revision.

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

a) it combines IEC 60938-2-1:1999 and IEC 60938-2-2:1999 into one Blank detail specification (BDS);
b) test schedule for quality conformance inspection is moved to an informative annex (Annex B).

The text of this International Standard is based on the following documents:

Draft	Report on voting
40/3084/FDIS	40/3103/RVD

Full information on the voting for its approval can be found in the report on voting indicated in the above table.

The language used for the development of this International Standard is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/standardsdev/publications.

A list of all parts in the IEC 60938 series, published under the general title *Fixed inductors for electromagnetic interference suppression*, can be found on the IEC website.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under webstore.iec.ch in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn, or
- revised.

INTRODUCTION

Blank detail specification

A blank detail specification is a supplementary document to the sectional specification and contains requirements for style, layout and minimum content of detail specifications. Detail specifications not complying with these requirements shall not be considered as being in accordance with IEC specifications nor shall they so be described.

In the preparation of detail specifications, the content of 4.3 of the sectional specification shall be taken into account.

The numbers between square brackets on the first page of the detail specification correspond to the following information which shall be inserted in the position indicated.

Identification of the detail specification

[1] The "International Electrotechnical Commission" or the National Standards Organization under whose authority the detail specification is drafted.

[2] The IEC or National Standards number of the detail specification, date of issue and any further information required by the national system.

[3] The number and issue number of the IEC or national generic specification.

[4] The IEC number of the blank detail specification.

Identification of the inductor

[5] A short description of the type of inductor.

[6] Information on typical construction (when applicable).

[7] Outline drawing with main dimensions which are of importance for interchangeability and/or reference to the national or international documents for outlines. Alternatively, this drawing may be given in an annex to the detail specification.

[8] Application or group of applications covered and/or assessment level.

[9] Reference data on the most important properties, to allow comparison between the various inductor types.

[1]	IEC 60938-2-1XX [2] QC XXXXXXXXXXXX
ELECTRONIC COMPONENTS OF ASSESSED QUALITY IN ACCORDANCE WITH: [3]	IEC 60938-2-1 [4] QC XXXXXX
Outline drawing: (see Table 1) (... angle projection) [7] (Other shapes are permitted within the dimensions given)	FIXED INDUCTORS FOR ELECTROMAGNETIC INTERFERENCE SUPPRESSION FOR WHICH SAFETY TESTS ARE REQUIRED [5] [6] [8]
NOTES [1] to [9] see page 4.	[9]

Information on the availability of components qualified to this detail specification is given in the Register of Approvals.

FIXED INDUCTORS FOR ELECTROMAGNETIC INTERFERENCE SUPPRESSION –

Part 2-1: Blank detail specification – Inductors for which safety tests are required

1 Scope

This part of IEC 60938-2 is applicable to the drafting of detail specifications for fixed inductors for which safety tests are required for use in electronic equipment.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 60938-2:2021, *Fixed inductors for electromagnetic interference suppression – Part 2: Sectional specification on power line chokes*

3 Terms and definitions

No terms and definitions are listed in this document.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at https://www.electropedia.org/
- ISO Online browsing platform: available at https://www.iso.org/obp

4 General information

4.1 Methods of mounting

The recommended method of mounting for normal use shall be specified. It is mandatory to use this method for the application of shock and vibration tests.

The method of mounting shall be given in the detail specification. This method shall be used for the application of shock and vibration tests.

If the design of the inductor requires special mounting fixtures in its use, the detail specification shall describe the mounting fixtures and they shall be used in the application of shock and vibration tests. The specified heat sink shall be used in the application of the endurance test.

4.2 Dimensions

Table 1 – Dimensions related to case size

Case size reference or type	Dimensions mm						
	L	*W*	*H*				

When there is no case size reference, the dimensions should be given per type designation.

The dimensions should be given as maximum dimensions or as nominal dimensions with a tolerance.

4.3 Ratings and characteristics

- nominal inductance (L_N) (see Table 2)
- tolerance on inductance
- rated current (I_R) (see Table 2)
- DC resistance (R) (see Table 2)
- rated voltage
- rated temperature
- climatic category
- category of passive flammability (optional)

Table 2 – Type designation related to values of inductance, rated current and DC resistance

Type designation related to values of inductance, rated current and DC resistance	L_N per line mH	I_R A	R_{max} per line Ω

4.4 Marking

The marking of the inductor and the package shall be in accordance with the requirements of 4.5 of IEC 60938-2:2021.

The details of the marking of the component and packaging shall be given in full in the detail specification.

4.5 Ordering information

Orders for inductors covered by this specification shall contain, in clear or in coded form, the following minimum information:

a) type designation;
b) nominal inductance;
c) rated current;
d) number and issue reference of the detail specification and style reference.

4.6 Certified records of released lots

Required/non required.

4.7 Additional information (not for inspection purposes)

4.8 Additional or increased severities or requirements to those specified in the generic or sectional specification

Additions or increased requirements should be specified only when essential and listed in Table 3.

Table 3 – Other characteristics

This table is to be used for defining characteristics which are additional to or more severe than those given in the sectional specification.

5 Inspection requirements

5.1 Procedures

For qualification approval, the procedure shall be in accordance with 5.1 of IEC 60938-2:2021.

5.2 Test schedules

5.2.1 Initial approval

See IEC 60938-2:2021, Annex A and Annex B for sampling plan and test schedule.

5.2.2 Conformance tests

5.2.2.1 **Conformance tests** (lot-by-lot)

See Table 4.

Table 4 – Conformance tests (lot by lot)

Subclause number and test of IEC 60938 2:2021 and Clause 4 of this document	D or ND	Conditions of test	Sample size	Requirements of IEC 60938 2:2021 and Clause 4 of this document
5.6 Inductance	ND		100 % [a]	Within specified tolerance
5.3 Visual examination				Legible marking and as specified in 4.4 of this specification
5.5 Voltage test				No permanent breakdown or flashover

[a] Can be carried out as end-of-line testing.

Key:

D destructive

ND non destructive