IEC 60384-14-1

Edition 3.0 2016-01

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Fixed capacitors for use in electronic equipment –
Part 14-1: Blank detail specification – Fixed capacitors for electromagnetic interference suppression and connection to the supply mains – Assessment level DZ

Condensateurs fixes utilisés dans les équipements électroniques –
Partie 14-1: Spécification particulière-cadre – Condensateurs fixes d'antiparasitage et raccordement à l'alimentation – Niveau d'assurance DZ

IEC 60384-14-1:2016-01(en-fr)

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

FIXED CAPACITORS FOR USE IN ELECTRONIC EQUIPMENT –

Part 14-1: Blank detail specification – Fixed capacitors for electromagnetic interference suppression and connection to the supply mains – Assessment level DZ

FOREWORD

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International Standard IEC 60384-14-1 has been prepared by IEC technical committee 40: Capacitors and resistors for electronic equipment.

This third edition cancels and replaces the second edition published in 2005 and constitutes a technical revision.

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

The assessment level has been changed to DZ (zero acceptance). The contents is the same as in old IEC 60384-14-3 with editorial changes. IEC 60384-14-3 has been deleted.

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

FDIS	Report on voting
40/2421/FDIS	40/2445/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.

A list of all parts in the IEC 60384 series, published under the general title *Fixed capacitors for use in electronic equipment*, can be found on the IEC website.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

This International Standard is to be used in conjunction with IEC 60384-1:2016.

The committee has decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC website 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- withdrawn,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.

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INTRODUCTION

0 Blank detail specification

0.1 General

This blank detail specification forms the basis for a uniform procedure for a common international safety mark. It implements the approval schedule for safety tests in IEC 60384-14, requires a declaration of design for parameters relevant to safety and indicates conformance tests to be conducted on every lot prior to its release and requalification tests depending on changes to the declared design.

This specification offers the assessment level DZ (zero defects).

The use of IEC 60384-14-1, may be more appropriate for components manufactured in mass production, whereas the employment of IEC 60384-14-2 (safety tests only) may be necessary in those cases where approval and requalification tests contribute considerably to the costs of the product.

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 may 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 1.4 of the sectional specification shall be taken into account.

0.2 Identification of the detail specification

The first page of the detail specification should have the layout recommended on the next page of this blank detail specification. The numbers between square brackets correspond to the following information which shall be inserted at the position indicated:

[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, or sectional specification, as relevant.

[4] If different from the IEC number, the national number of the detail specification, date of issue and any further information required by the national system, together with any amendment numbers.

0.3 Identification of the capacitor

[5] A short description of the type of capacitor or range of capacitors. The text should be suitable for an entry in the IECQ register of approvals.

[6] Information on typical construction (when applicable). The text should be suitable for an entry in the IECQ register of approvals.

[7] Outline drawing with main dimensions which are of importance for interchangeability and/or reference to the appropriate national or international documents for outlines. Alternatively, the drawing may be given in an annex to the detail specification, but [7] should always contain an illustration of the general outer appearance of the component.

[8] The level(s) of quality assessment covered by the detail specification, as appropriate.

[9] Reference data giving information on the most important properties of the component which allow comparison between the various component types intended for the same or similar applications.

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<table>
<tr><td></td><td>[1]</td><td>IEC 60384-14-1-XXX</td><td>[2]</td></tr>
<tr><td rowspan="2">ELECTRONIC COMPONENTS OF ASSESSED QUALITY IN ACCORDANCE WITH:

IEC 60384-1
IEC 60384-14</td><td rowspan="2">[3]</td><td rowspan="2">IEC 60384-14-1</td><td rowspan="2">[4]</td></tr>
<tr><td rowspan="3">FIXED CAPACITORS FOR ELECTROMAGNETIC INTERFERENCE SUPPRESSION AND CONNECTION TO THE SUPPLY MAINS (ASSESSMENT LEVEL DZ)</td><td rowspan="3">[5]</td></tr>
<tr><td rowspan="3">Outline drawing: [see Table 1]

[first angle projection]

[Other shapes are permitted within the dimensions given]</td><td rowspan="3">[7]</td></tr>
<tr><td>TYPICAL CONSTRUCTION (Examples)</td><td>[6]</td></tr>
<tr><td>Class/subclass</td><td>[8]</td></tr>
<tr><td colspan="4">For references [1] to [4], see 0.2.

For references [5] to [8], see 0.3.</td></tr>
</table>

<table>
<tr><td>Information on the availability of components qualified to this detail specification is given in the Qualified products list.</td><td>[9]</td></tr>
<tr><td colspan="2">For reference [9], see 0.3.</td></tr>
</table>

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FIXED CAPACITORS FOR USE IN ELECTRONIC EQUIPMENT –

Part 14-1: Blank detail specification – Fixed capacitors for electromagnetic interference suppression and connection to the supply mains – Assessment level DZ

1 General data

1.1 Recommended method(s) of mounting (to be inserted)

See IEC 60384-14:2013, 1.4.2.

1.2 Dimensions

The dimensions are given in Table 1.

Table 1 – Dimensions

Case size reference	Dimensions mm						
	L_1	W	H	L_2	L_3	L_4	…

When there is no case size reference, Table 1 may be omitted and the dimensions shall be given in Table 2, which then becomes Table 1.

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

1.3 Ratings and characteristics

Ratings and characteristics are as listed below.

a) Capacitance range (see Table 2)
b) Tolerance on nominal capacitance
c) Rated voltage (see Table 2)
d) Climatic category
e) Rated temperature
f) Tangent of loss angle
g) Insulation resistance

Table 2 – Values of capacitance related to voltages and case sizes

Rated voltage				
	Case size	Case size	Case size	Case size
Nominal capacitance pF and/or nF				

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1.4 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 60384-1:2016, *Fixed capacitors for use in electronic equipment – Part 1: Generic specification*

IEC 60384-14:2013, *Fixed capacitors for use in electronic equipment – Part 14: Sectional specification – Fixed capacitors for electromagnetic interference suppression and connection to the supply mains*

IEC 61193-2:2007, *Quality assessment systems – Part 2: Selection and use of sampling plans for inspection of electronic components and packages*

1.5 Marking

The marking of the capacitor, if any, and the packaging shall be in accordance with IEC 60384-14:2013, 1.6.

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

1.6 Ordering information

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

a) nominal capacitance;

b) tolerance on nominal capacitance;

c) rated voltage;

d) manufacturer's type designation;

e) number and issue reference of the detail specification and style reference.

1.7 Certified records of released lots

Required/not required.

1.8 Additional information (not for inspection purposes)

1.9 Additional or increased severities or requirements to those specified in the generic and/or sectional specification

Additional or increased requirements should be specified only when essential. They should be given 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 generic and/or sectional specification.

2 Inspection requirements

For qualification approval the procedures shall be in accordance with IEC 60384-14:2013, 3.4.

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For quality conformance inspection the test schedule (see Table 4 and Table 5) includes sampling, periodicity, severities and requirements. The formation of inspection lots is covered by IEC 60384-14:2013, 3.5.1.

Table 4 – Test schedule for lot-by-lot tests (Groups A and B inspection) – Assessment level DZ

Subclause number and test[a]	D or ND [b]	Conditions of test[a]	IL [b]	*c*	Performance requirements[a]
Group A1	ND		S-4	0	
4.1 Visual examination					No visible damage Any marking shall be legible and correct
4.1 Dimensions (gauging)					As specified in Table 1 of this specification
Group A2	ND		I	0	
4.2.2 Capacitance					Within specified tolerance
4.2.4 Resistance (if applicable)					Within specified tolerance
4.2.3 Tangent of loss angle (metallized and ceramic capacitors only)		Frequency: ... Hz			Within specified limits
4.2.1 Voltage proof [c] (Test A)		Method:			No permanent breakdown or flashover
4.2.5 Insulation resistance (Test A)		Method:			See Table 12
Group B1	D		S-3	0	
4.5 Solderability (if applicable)		Without ageing Method:			Methods 1 and 2: good tinning Method 3: <3 s

The sampling sizes corresponding to inspection levels should be selected from IEC 61193-2:2007, Table 1.

[a] Subclause numbers of tests and performance requirements as well as the table numbers refer to the sectional specification, IEC 60384-14:2013, unless specified otherwise.

[b] D = destructive;

ND = non-destructive;

IL = inspection level;

c =acceptance criterion (permitted number of non-conforming items).

[c] The voltage proof test shall be combined with a suitable monitoring method to detect defects in insulation resistance.

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