

**Fixed capacitors for use in electronic equipment -
Part 1: Generic specification**

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EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

Käesolev Eesti standard EVS-EN 60384-1:2010 sisaldab Euroopa standardi EN 60384-1:2009 ingliskeelset teksti.

Standard on kinnitatud Eesti Standardikeskuse 28.02.2010 käskkirjaga ja jõustub sellekohase teate avaldamisel EVS Teatajas.

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Standard on kättesaadav Eesti standardiorganisatsioonist.

This Estonian standard EVS-EN 60384-1:2010 consists of the English text of the European standard EN 60384-1:2009.

This standard is ratified with the order of Estonian Centre for Standardisation dated 28.02.2010 and is endorsed with the notification published in the official bulletin of the Estonian national standardisation organisation.

Date of Availability of the European standard text 02.12.2009.

The standard is available from Estonian standardisation organisation.

ICS 31.060

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English version

**Fixed capacitors for use in electronic equipment -
Part 1: Generic specification**
(IEC 60384-1:2008 + corrigendum 2008)

Condensateurs fixes utilisés
dans les équipements électroniques -
Partie 1: Spécification générique
(CEI 60384-1:2008 +
corrigendum 2008)

Festkondensatoren zur Verwendung
in Geräten der Elektronik -
Teil 1: Fachgrundspezifikation
(IEC 60384-1:2008 +
Corrigendum 2008)

This European Standard was approved by CENELEC on 2009-10-01. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

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

Central Secretariat: Avenue Marnix 17, B - 1000 Brussels

Foreword

The text of document 40/1915/FDIS, future edition 4 of IEC 60384-1, prepared by IEC TC 40, Capacitors and resistors for electronic equipment, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 60384-1 on 2009-10-01.

This European Standard supersedes EN 60384-1:2001.

EN 60384-1:2009 constitutes a technical revision, including minor revisions related to tables, figures and references.

It contains the following significant technical changes with respect to EN 60384-1:2001:

- implementation of Annex Q which replaces Clause 3.

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) 2010-07-01
- latest date by which the national standards conflicting
with the EN have to be withdrawn (dow) 2012-10-01

Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 60384-1:2008 + corrigendum November 2008 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 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.

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 60027	Series	Letter symbols to be used in electrical technology	EN 60027	Series
IEC 60050	Series	International Electrotechnical Vocabulary (IEV)		-
IEC 60062	- ¹⁾	Marking codes for resistors and capacitors	EN 60062 + corr. January	2005 ²⁾ 2007
IEC 60063	- ¹⁾	Preferred number series for resistors and capacitors	-	-
IEC 60068-1	1988	Environmental testing - Part 1: General and guidance	EN 60068-1 ³⁾	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 60068-2-6	2007	Environmental testing - Part 2-6: Tests - Test Fc: Vibration (sinusoidal)	EN 60068-2-6	2008
IEC 60068-2-13	1983	Environmental testing - Part 2-13: Tests - Test M: Low air pressure	EN 60068-2-13	1999
IEC 60068-2-14	2009	Environmental testing - Part 2-14: Tests - Test N: Change of temperature	EN 60068-2-14	2009
IEC 60068-2-17	1994	Environmental testing - Part 2-17: Tests - Test Q: Sealing	EN 60068-2-17	1994
IEC 60068-2-20	1979	Environmental testing - Part 2-20: Tests - Test T: Soldering	HD 323.2.20 S3 ⁴⁾	1988
IEC 60068-2-21	2006	Environmental testing - Part 2-21: Tests - Test U: Robustness of terminations and integral mounting devices	EN 60068-2-21	2006
IEC 60068-2-27	2008	Environmental testing - Part 2-27: Tests - Test Ea and guidance: Shock	EN 60068-2-27	2009

¹⁾ Undated reference.

²⁾ Valid edition at date of issue.

³⁾ EN 60068-1 includes corrigendum October 1988 + A1:1992 to IEC 60068-1.

⁴⁾ HD 323.2.20 S3 includes A2:1987 to IEC 60068-2-20; it is superseded by EN 60068-2-20:2008, which is based on IEC 60068-2-20:2008.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60068-2-29	1987	Environmental testing - Part 2-29: Tests - Test Eb and guidance: Bump	EN 60068-2-29 ⁵⁾	1993
IEC 60068-2-30	2005	Environmental testing - Part 2-30: Tests - Test Db: Damp heat, cyclic (12 h + 12 h cycle)	EN 60068-2-30	2005
IEC 60068-2-45	1980	Environmental testing - Part 2-45: Tests - Test Xa and guidance: Immersion in cleaning solvents	EN 60068-2-45	1992
IEC 60068-2-54	2006	Environmental testing - Part 2-54: Tests - Test Ta: Solderability testing of electronic components by the wetting balance method	EN 60068-2-54	2006
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 60068-2-69	2007	Environmental testing - Part 2-69: Tests - Test Te: Solderability testing of electronic components for surface mounting devices (SMD) by the wetting balance method	EN 60068-2-69	2007
IEC 60068-2-78	2001	Environmental testing - Part 2-78: Tests - Test Cab: Damp heat, steady state	EN 60068-2-78	2001
IEC 60294	- ¹⁾	Measurement of the dimensions of a cylindrical component having two axial terminations	-	-
IEC 60410	1973	Sampling plans and procedures for inspection - by attributes	-	-
IEC 60617	Data- base	Graphical symbols for diagrams	-	-
IEC 60695-11-5	2004	Fire hazard testing - Part 11-5: Test flames - Needle-flame test method - Apparatus, confirmatory test arrangement and guidance	EN 60695-11-5	2005
IEC 60717	- ¹⁾	Method for the determination of the space required by capacitors and resistors with unidirectional terminations	-	-
IEC 61193-2	- ¹⁾	Quality assessment systems - Part 2: Selection and use of sampling plans for inspection of electronic components and packages	EN 61193-2	2007 ²⁾
IEC 61249-2-7	2002	Materials for printed boards and other interconnecting structures - Part 2-7: Reinforced base materials, clad and unclad - Epoxide woven E-glass laminated sheet of defined flammability (vertical burning test), copper-clad	EN 61249-2-7 + corr. September	2002 2005

⁵⁾ EN 60068-2-29 is superseded by EN 60068-2-27:2009, which is based on IEC 60068-2-27:2008.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC QC 001002-3	- ¹⁾	IEC Quality Assessment System for Electronic Components (IECQ) - Rules of Procedure - Part 3: Approval procedures	-	-
ISO 3	- ¹⁾	Preferred numbers - Series of preferred numbers	-	-
ISO 1000	- ¹⁾	SI units and recommendations for the use of their multiples and of certain other units	-	-
ISO 9000	- ¹⁾	Quality management systems - Fundamentals and vocabulary	EN ISO 9000	2005 ²⁾

CONTENTS

FOREWORD.....	7
1 General.....	9
1.1 Scope.....	9
1.2 Normative references.....	9
2 Technical data.....	10
2.1 Units and symbols.....	10
2.2 Terms and definitions.....	11
2.3 Preferred values.....	17
2.3.1 General.....	17
2.3.2 Preferred values of nominal capacitance.....	17
2.3.3 Preferred values of rated voltage.....	17
2.4 Marking.....	17
2.4.1 General.....	17
2.4.2 Coding.....	17
3 Quality assessment procedures.....	17
4 Tests and measurement procedures.....	18
4.1 General.....	19
4.2 Standard atmospheric conditions.....	19
4.2.1 Standard atmospheric conditions for testing.....	19
4.2.2 Recovery conditions.....	19
4.2.3 Referee conditions.....	20
4.2.4 Reference conditions.....	20
4.3 Drying.....	20
4.4 Visual examination and check of dimensions.....	20
4.4.1 Visual examination.....	20
4.4.2 Dimensions (gauging).....	20
4.4.3 Dimensions (detail).....	20
4.5 Insulation resistance.....	21
4.5.1 Preconditioning.....	21
4.5.2 Measuring conditions.....	21
4.5.3 Test points.....	21
4.5.4 Test methods.....	21
4.5.5 Temperature compensation.....	22
4.5.6 The relevant specification shall prescribe:.....	22
4.6 Voltage proof.....	23
4.6.1 Test circuit (for the test between terminations).....	23
4.6.2 Test.....	24
4.6.3 Requirements.....	26
4.6.4 Conditions to be prescribed in the relevant specification.....	26
4.7 Capacitance.....	26
4.7.1 Measuring frequency and measuring voltage.....	26
4.7.2 Measuring equipment.....	26
4.7.3 Conditions to be prescribed in the relevant specification.....	26
4.8 Tangent of loss angle and equivalent series resistance (ESR).....	27
4.8.1 Tangent of loss angle.....	27
4.8.2 Equivalent series resistance (ESR).....	27

4.9	Leakage current	27
4.9.1	Preconditioning.....	27
4.9.2	Test method	28
4.9.3	Power source	28
4.9.4	Measuring accuracy.....	28
4.9.5	Test circuit	28
4.9.6	Conditions to be prescribed in the relevant specification.....	28
4.10	Impedance	28
4.11	Self-resonant frequency and inductance.....	29
4.11.1	Self-resonant frequency (f_r)	29
4.11.2	Inductance.....	32
4.11.3	Conditions to be prescribed in the relevant specification.....	32
4.12	Outer foil termination.....	32
4.13	Robustness of terminations	33
4.13.1	Test Ua ₁ – Tensile.....	33
4.13.2	Test Ub – Bending (half of the sample).....	33
4.13.3	Test Uc – Torsion (remaining sample)	33
4.13.4	Test Ud – Torque (for terminations with threaded studs or screws and for integral mounting devices)	33
4.13.5	Visual examination	34
4.14	Resistance to soldering heat	34
4.14.1	Preconditioning.....	34
4.14.2	Test procedure	34
4.14.3	Recovery	34
4.14.4	Final inspection, measurement and requirements	34
4.15	Solderability	34
4.15.1	Preconditioning.....	34
4.15.2	Test procedure	35
4.15.3	Final inspection, measurements and requirements	35
4.16	Rapid change of temperature	35
4.16.1	Initial measurement	35
4.16.2	Test procedure	35
4.16.3	Final inspection, measurements and requirements.....	35
4.17	Vibration.....	36
4.17.1	Initial measurement	36
4.17.2	Test procedure	36
4.17.3	Electrical test.....	36
4.17.4	Final inspection, measurements and requirements	36
4.18	Bump	36
4.18.1	Initial measurement	36
4.18.2	Test procedure	36
4.18.3	Final inspection, measurements and requirements	36
4.19	Shock.....	36
4.19.1	Initial measurement	36
4.19.2	Test procedure	36
4.19.3	Final inspection, measurements and requirements	37
4.20	Container sealing	37
4.21	Climatic sequence	37
4.21.1	Initial measurements	37

4.21.2	Dry heat	37
4.21.3	Damp heat, cyclic, test Db, first cycle	37
4.21.4	Cold	37
4.21.5	Low air pressure	38
4.21.6	Damp heat, cyclic, test Db, remaining cycles	38
4.21.7	Final measurements	38
4.22	Damp heat, steady state	38
4.22.1	Initial measurement	38
4.22.2	Test procedure	38
4.22.3	Final inspection, measurements and requirements	39
4.23	Endurance	39
4.23.1	Initial measurements	39
4.23.2	Test procedure	39
4.23.3	Conditions to be prescribed in the relevant specification	39
4.23.4	Test voltage	39
4.23.5	Placement in the test chamber	40
4.23.6	Recovery	40
4.23.7	Final inspection, measurements and requirements	40
4.24	Variation of capacitance with temperature	41
4.24.1	Static method	41
4.24.2	Dynamic method	41
4.24.3	Methods of calculation	42
4.25	Storage	43
4.25.1	Storage at high temperature	43
4.25.2	Storage at low temperature	43
4.26	Surge	43
4.26.1	Initial measurement	43
4.26.2	Test procedure	43
4.26.3	Final inspection, measurements and requirements	45
4.26.4	Information to be given in the relevant detail specification	45
4.27	Charge and discharge tests and inrush current test	45
4.27.1	Initial measurement	45
4.27.2	Test procedure	45
4.27.3	Charge and discharge	47
4.27.4	Inrush current	47
4.27.5	Final inspection, measurements and requirements	47
4.28	Pressure relief (for aluminium electrolytic capacitors)	47
4.28.1	a.c. test	47
4.28.2	d.c. test	47
4.28.3	Pneumatic test	47
4.28.4	Final inspection, measurements and requirements	48
4.29	Characteristics at high and low temperature	48
4.29.1	Test procedure	48
4.29.2	Requirements	48
4.30	Thermal stability test	48
4.31	Component solvent resistance	48
4.31.1	Initial measurements	48
4.31.2	Test procedure	48
4.31.3	Final inspection, measurements and requirements	49

4.32	Solvent resistance of marking	49
4.32.1	Test procedure	49
4.32.2	Final inspection, measurements and requirements	49
4.33	Mounting (for surface mount capacitors only)	49
4.33.1	Substrate	49
4.34	Shear test	52
4.34.1	Test procedure	52
4.34.2	Final inspection, measurements and requirements	52
4.35	Substrate bending test	52
4.35.1	Test procedure	52
4.35.2	Recovery	52
4.35.3	Final inspection and requirements	52
4.36	Dielectric absorption	52
4.36.1	Test procedure	52
4.36.2	Requirement	53
4.37	Accelerated damp heat, steady state (for multilayer ceramic capacitors only)	53
4.37.1	Mounting of capacitors	53
4.37.2	Initial measurement	53
4.37.3	Test procedure	53
4.37.4	Recovery	54
4.37.5	Final inspection, measurements and requirements	54
4.38	Passive flammability	54
4.38.1	Test procedure	54
4.38.2	Final inspection, measurements and requirements	54
4.39	High surge current test	55
4.39.1	Initial measurements	55
4.39.2	Test procedure	55
4.39.3	Requirements for the charging circuit	55
4.39.4	Nonconforming items	56
4.40	Voltage transient overload (for aluminium electrolytic capacitors with non-solid electrolyte)	56
4.40.1	Initial measurement	56
4.40.2	Test procedure	56
4.40.3	Final inspection, measurements and requirements	57
4.40.4	Conditions to be prescribed in the relevant specification	57
Annex A	(normative) Interpretation of sampling plans and procedures as described in IEC 60410 for use within the IECQ system	58
Annex B	(normative) Rules for the preparation of detail specifications for capacitors and resistors for electronic equipment for use within the IECQ system	59
Annex C	(normative) Layout of the first page of a PCP/CQC specification	60
Annex D	(normative) Requirements for capability approval test report	61
Annex E	(informative) Guide for pulse testing of capacitors	62
Annex F	(informative) Guidance for the extension of endurance tests on fixed capacitors	65
Annex G	(normative) Damp heat, steady state with voltage applied, for metallized film capacitors only	66
Annex Q	(normative) Quality assessment procedures	67

Figure 2 – Relation between category temperature range and applied voltage	16
Figure 3 – Voltage-proof test circuit	24
Figure 4 – Schematic diagram of the impedance measuring circuit	28
Figure 5 – Capacitor mounting arrangement	30
Figure 6 – Capacitor mounting arrangement	30
Figure 7 – Typical diagram of an absorption oscillator-wavemeter	31
Figure 8 – Schematic diagram of the measuring circuit	31
Figure 9 – Test circuit	32
Figure 10 – Test circuit for electrolytic capacitors	40
Figure 11 – Relay circuit	44
Figure 12 – Thyristor circuit	44
Figure 13 – Voltage waveform across capacitor	45
Figure 14 – Voltage and current waveform	46
Figure 15 – Suitable substrate for mechanical tests (may not be suitable for impedance measurements)	51
Figure 16 – Suitable substrate for electrical tests	51
Figure 17 – High surge current test	55
Figure 18 – Voltage transient overload test circuit	56
Figure 19 – Voltage waveform	57
Figure Q.1 – General scheme for capability approval	70
Table 1 – Referee conditions	20
Table 2 – Measurement of insulation resistance	21
Table 3 – Measuring points	23
Table 4 – Tensile force	33
Table 5 – Torque	33
Table 6 – Number of cycles	38
Table 7 – Severities and requirements	54

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FIXED CAPACITORS FOR USE IN ELECTRONIC EQUIPMENT –

Part 1: Generic specification

1 General

1.1 Scope

This part of IEC 60384 is a generic specification and is applicable to fixed capacitors for use in electronic equipment.

It establishes standard terms, inspection procedures and methods of test for use in sectional and detail specifications of electronic components for quality assessment or any other purpose.

1.2 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 60027, *Letter symbols to be used in electrical technology*

IEC 60050 (all parts), *International Electrotechnical Vocabulary (IEV)*

IEC 60062, *Marking codes for resistors and capacitors*

IEC 60063, *Preferred number series for resistors and capacitors*

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

IEC 60068-2-1:2007, *Environmental testing – Part 2-1: Tests – Tests A: Cold*

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

IEC 60068-2-6:2007, *Environmental testing – Part 2: Tests – Test Fc: Vibration (sinusoidal)*

IEC 60068-2-13:1983, *Environmental testing – Part 2: Tests – Test M: Low air pressure*

IEC 60068-2-14:1984, *Environmental testing – Part 2: Tests – Test N: Change of temperature*

IEC 60068-2-17:1994, *Environmental testing – Part 2-17: Tests – Test Q: Sealing*

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

IEC 60068-2-21:2006, *Environmental testing – Part 2-21: Tests – Test U: Robustness of terminations and integral mounting devices*

IEC 60068-2-27:2008, *Environmental testing – Part 2-27: Tests – Test Ea and guidance: Shock*

IEC 60068-2-29:1987, *Environmental testing – Part 2-29: Tests – Test Eb and guidance: Bump*

IEC 60068-2-30:2005, *Environmental testing – Part 2-30: Tests – Test Db: Damp heat, cyclic (12 h + 12 h cycle)*

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

IEC 60068-2-54:2006, *Environmental testing – Part 2-54: Tests – Test Ta: Solderability testing of electronic components by the wetting balance method*

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 60068-2-69:2007, *Environmental testing – Part 2: Tests – Test Te: Solderability testing of electronic components for surface mounting devices (SMD) by the wetting balance method*

IEC 60068-2-78:2001, *Environmental testing – Part 2-78: Tests – Test Cab: Damp heat, steady state*

IEC 60294, *Measurement of the dimensions of a cylindrical component having two axial terminations*

IEC 60410:1973, *Sampling plans and procedures for inspection by attributes*

IEC 60617, *Graphical symbols for diagrams*

IEC 60695-11-5:2004, *Fire hazard testing – Part 11-5: Test flames – Needle-flame test method – Apparatus, confirmatory test arrangement and guidance*

IEC 60717, *Method for the determination of the space required by capacitors and resistors with unidirectional terminations*

IEC 61193-2, *Quality assessment systems – Part 2: Selection and use of sampling plans for inspection of electronic components and packaging*¹

IEC 61249-2-7:2002, *Materials for printed boards and other interconnecting structures – Part 2-7: Reinforced base materials clad and unclad – Epoxide woven E-glass laminated sheet of defined flammability (vertical burning test), copper-clad*

IEC QC 001002-3, *Rules of Procedure – Part 3: Approval procedures*

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

ISO 1000, *SI units and recommendations for the use of their multiples and of certain other units*

ISO 9000, *Quality management systems – Fundamentals and vocabulary*

2 Technical data

2.1 Units and symbols

Units, graphical symbols and letter symbols should, whenever possible, be taken from the following publications:

¹ To be published.