

INTERNATIONAL STANDARD

NORME INTERNATIONALE

**Fixed capacitors for use in electronic equipment –
Part 21: Sectional specification – Fixed surface mount multilayer capacitors of
ceramic dielectric, Class 1**

**Condensateurs fixes utilisés dans les équipements électroniques –
Partie 21: Spécification intermédiaire – Condensateurs multicouches fixes à
diélectriques en céramique pour montage en surface, de Classe 1**



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INTERNATIONAL
ELECTROTECHNICAL
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COMMISSION
ELECTROTECHNIQUE
INTERNATIONALE

PRICE CODE
CODE PRIX

W

ICS 31.060.10

ISBN 978-2-88912-822-8

CONTENTS

FOREWORD.....	5
1 General.....	7
1.1 Scope.....	7
1.2 Object.....	7
1.3 Normative references.....	7
1.4 Information to be given in a detail specification.....	7
1.4.1 Outline drawing and dimensions.....	8
1.4.2 Mounting.....	8
1.4.3 Rating and characteristics.....	8
1.4.4 Marking.....	9
1.5 Terms and definitions.....	9
1.6 Marking.....	10
1.6.1 Information for marking.....	10
1.6.2 Marking on the body.....	10
1.6.3 Requirements for marking.....	10
1.6.4 Marking of the packaging.....	10
1.6.5 Additional marking.....	10
2 Preferred ratings and characteristics.....	10
2.1 Preferred characteristics.....	10
2.1.1 Preferred climatic categories.....	10
2.2 Preferred values of ratings.....	11
2.2.1 Rated temperature (T_R).....	11
2.2.2 Rated voltage (U_R).....	11
2.2.3 Category voltage (U_C).....	11
2.2.4 Preferred values of nominal capacitance and associated tolerance values.....	11
2.2.5 Temperature coefficient (α).....	12
2.2.6 Dimensions.....	14
3 Quality assessment procedures.....	14
3.1 Primary stage of manufacture.....	14
3.2 Structurally similar components.....	14
3.3 Certified records of released lots.....	14
3.4 Qualification approval.....	14
3.4.1 Qualification approval on the basis of the fixed sample size procedures.....	14
3.4.2 Tests.....	15
3.5 Quality conformance inspection.....	19
3.5.1 Formation of inspection lots.....	19
3.5.2 Schedule.....	20
3.5.3 Delayed delivery.....	20
3.5.4 Assessment levels.....	20
4 Test and measurement procedures.....	21
4.1 Preliminary drying.....	21
4.2 Measuring conditions.....	22
4.3 Mounting.....	22
4.4 Visual examination and check of dimensions.....	22
4.4.1 Visual examination.....	22

4.4.2	Requirements	22
4.5	Electrical tests.....	24
4.5.1	Capacitance	24
4.5.2	Tangent of loss angle ($\tan \delta$)	24
4.5.3	Insulation resistance.....	24
4.5.4	Voltage proof.....	25
4.6	Temperature coefficient (α) and temperature cycle drift.....	26
4.6.1	Preliminary drying.....	26
4.6.2	Measuring conditions.....	26
4.6.3	Requirements	26
4.7	Shear test	26
4.8	Substrate bending test	27
4.8.1	Initial measurement	27
4.8.2	Final inspection	27
4.9	Resistance to soldering heat	27
4.9.1	Initial measurement	27
4.9.2	Test conditions	27
4.9.3	Recovery	28
4.9.4	Final inspection, measurements and requirements	28
4.10	Solderability	29
4.10.1	Test conditions	29
4.10.2	Recovery	30
4.10.3	Final inspection, measurements and requirements	30
4.11	Rapid change of temperature	30
4.11.1	Initial measurement	30
4.11.2	Number of cycles	30
4.11.3	Recovery	30
4.11.4	Final inspection, measurements and requirements	30
4.12	Climatic sequence.....	31
4.12.1	Initial measurement.....	31
4.12.2	Dry heat	31
4.12.3	Damp heat, cyclic, Test Db, first cycle	31
4.12.4	Cold	31
4.12.5	Damp heat, cyclic, Test Db, remaining cycles	31
4.12.6	Final inspection, measurements and requirements	31
4.13	Damp heat, steady state.....	32
4.13.1	Initial measurement	32
4.13.2	Conditions of test	32
4.13.3	Recovery	33
4.13.4	Final inspection, measurements and requirements	33
4.14	Endurance.....	33
4.14.1	Initial measurement	33
4.14.2	Conditions of test	33
4.14.3	Recovery	34
4.14.4	Final inspection, measurements and requirements	34
4.15	Robustness of terminations (only for capacitors with strip termination)	34
4.15.1	Test conditions	34
4.15.2	Final inspection and requirements	34
4.16	Component solvent resistance (if required).....	35

4.17 Solvent resistance of the marking (if required).....	35
4.18 Accelerated damp heat, steady state (if required).....	35
4.18.1 Initial measurement	35
4.18.2 Conditioning	35
4.18.3 Recovery	36
4.18.4 Final measurements	36
Annex A (normative) Guidance for the specification and coding of dimensions of fixed surface mount multilayer capacitors of ceramic dielectric, Class 1	37
Annex B (informative) Combination of temperature coefficient and tolerance for the reference temperature of 25 °C.....	38
Bibliography.....	39
Figure 1 – Fault: crack or fissure	22
Figure 2 – Fault: crack or fissure	22
Figure 3 – Separation or delamination	23
Figure 4 – Exposed electrodes.....	23
Figure 5 – Principal faces	23
Figure 6 – Reflow temperature profile	28
Figure A.1 – Dimensions.....	37
Table 1 – Preferred tolerance on nominal capacitance.....	11
Table 2 – Nominal temperature coefficient and tolerance.....	12
Table 3 – Combination of temperature coefficient and tolerance	13
Table 4 – Fixed sample size test plan for qualification approval – Assessment level EZ.....	16
Table 5 – Tests schedule for qualification approval.....	17
Table 6a – Lot-by-lot inspection	21
Table 6b – Periodic tests	21
Table 7 – Tangent of loss angle limits.....	24
Table 8 – Test voltages.....	26
Table 9 – Temperature cyclic drift limits.....	26
Table 10 – Reflow temperature profiles for Sn-Ag-Cu alloy	28
Table 11 – Maximum capacitance change.....	29
Table 12 – Maximum capacitance change.....	31
Table 13 – Number of damp heat cycles	31
Table 14 – Final inspection measurements and requirements	32
Table 15 – Test conditions for damp heat, steady state.....	32
Table 16 – Final inspection measurements and requirements	33
Table 17 – Endurance test conditions ($U_C = U_R$).....	33
Table 18 – Endurance test conditions ($U_C \neq U_R$).....	34
Table 19 – Final inspection measurements and requirements	34
Table 20 – Initial requirements.....	35
Table 21 – Conditioning	35
Table B.1 – Combination of temperature coefficient and tolerance for the reference temperature of 25 °C	38

INTERNATIONAL ELECTROTECHNICAL COMMISSION

FIXED CAPACITORS FOR USE IN ELECTRONIC EQUIPMENT –**Part 21: Sectional specification –
Fixed surface mount multilayer capacitors
of ceramic dielectric, Class 1**

FOREWORD

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International Standard IEC 60384-21 has been prepared by IEC technical committee 40: Capacitors and resistors for electronic equipment.

This second edition cancels and replaces the first edition published in 2004 and contains the following significant technical changes with respect to the previous edition:

- The test voltage of $1,2 U_R$ at $U_R \geq 1\,000\text{ V}$ has been added in 4.5.4 Voltage proof.
- Detail test conditions have been added in 4.7 Shear test and 4.8 Substrate bending test.
- Test conditions applying lead free solder alloy (Sn-Ag-Cu) have been included in 4.9 Resistance to soldering heat and 4.10 Solderability.
- A selection of the test conditions according to marketing needs have been stated in 4.13 Damp heat, steady state.
- The dimensions of 0402 M in Annex A have been added.

- The code of the temperature coefficient and the tolerance of capacitance for the reference temperature of 25 °C have been added, see Annex B.

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

FDIS	Report on voting
40/2127/FDIS	40/2140/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.

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

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

The committee has decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC web site 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.

Withdrawn

FIXED CAPACITORS FOR USE IN ELECTRONIC EQUIPMENT –

Part 21: Sectional specification – Fixed surface mount multilayer capacitors of ceramic dielectric, Class 1

1 General

1.1 Scope

This part of IEC 60384 is applicable to fixed unencapsulated surface mount multilayer capacitors of ceramic dielectric, Class 1, for use in electronic equipment. These capacitors have metallized connecting pads or soldering strips and are intended to be mounted on printed boards, or directly onto substrates for hybrid circuits.

Capacitors for electromagnetic interference suppression are not included, but are covered by IEC 60384-14.

1.2 Object

The object of this standard is to prescribe preferred ratings and characteristics and to select from IEC 60384-1 the appropriate quality assessment procedures, tests and measuring methods and to give general performance requirements for this type of capacitor. Test severities and requirements prescribed in detail specifications referring to this sectional specification should be of equal or higher performance level, lower performance levels are not permitted.

1.3 Normative references

The following reference 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 60063:1963, *Preferred number series for resistors and capacitors*
Amendment 1 (1967)
Amendment 2 (1977)

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

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 60384-1:2008, *Fixed capacitors for use in electronic equipment – Part 1: Generic specification*

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

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

1.4 Information to be given in a detail specification

The detail specification shall be derived from the relevant blank detail specification.