

REDLINE VERSION



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

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

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CONTENTS

FOREWORD.....	6
1 Scope.....	8
2 Normative references	8
3 Terms and definitions	9
4 Information to be given in a detail specification.....	10
4.1 General.....	10
4.2 Outline drawing and dimensions	10
4.3 Mounting.....	10
4.4 Rating and characteristics.....	10
4.4.1 General	10
4.4.2 Nominal capacitance range.....	10
4.4.3 Particular characteristics	11
4.4.4 Soldering	11
4.5 Marking.....	11
5 Marking	11
5.1 General.....	11
5.2 Information for marking	11
5.3 Marking on the body	11
5.4 Requirements for marking	11
5.5 Marking of the packaging	11
5.6 Additional marking	11
6 Preferred ratings and characteristics	12
6.1 Preferred characteristics	12
6.2 Preferred values of ratings	12
6.2.1 Rated temperature (T_R)	12
6.2.2 Rated voltage (U_R)	12
6.2.3 Category voltage (U_C)	12
6.2.4 Preferred values of nominal capacitance and associated tolerance values.....	12
6.2.5 Temperature coefficient (α)	13
6.2.6 Dimensions.....	15
7 Quality assessment procedures	16
7.1 Primary stage of manufacture	16
7.2 Structurally similar components	16
7.3 Certified records of released lots	16
7.4 Qualification approval	16
7.4.1 General	16
7.4.2 Qualification approval on the basis of the fixed sample size procedures	16
7.4.3 Tests	17
7.5 Quality conformance inspection	22
7.5.1 Formation of inspection lots	22
7.5.2 Test schedule	22
7.5.3 Delayed delivery.....	22
7.5.4 Assessment levels	22
8 Test and measurement procedures.....	23
8.1 General.....	23

8.2	Preliminary drying	23
8.3	Measuring conditions	24
8.4	Mounting	24
8.5	Visual examination and check of dimensions	24
8.5.1	General	24
8.5.2	Visual examination	24
8.5.3	Requirements	24
8.6	Electrical tests	26
8.6.1	Capacitance	26
8.6.2	Tangent of loss angle ($\tan \delta$)	26
8.6.3	Insulation resistance	27
8.6.4	Voltage proof	27
8.7	Temperature coefficient (α) and temperature cycle drift	28
8.7.1	General	28
8.7.2	Preliminary drying	28
8.7.3	Measuring conditions	28
8.7.4	Requirements	28
8.8	Shear test	29
8.9	Substrate bending test	29
8.9.1	General	29
8.9.2	Initial measurement	29
8.9.3	Final inspection	29
8.10	Resistance to soldering heat	29
8.10.1	General	29
8.10.2	Initial measurement	29
8.10.3	Test conditions	29
8.10.4	Recovery	31
8.10.5	Final inspection, measurements and requirements	31
8.11	Solderability	31
8.11.1	General	31
8.11.2	Test conditions	32
8.11.3	Recovery	32
8.11.4	Final inspection, measurements and requirements	32
8.12	Rapid change of temperature	33
8.12.1	General	33
8.12.2	Initial measurement	33
8.12.3	Number of cycles	33
8.12.4	Recovery	33
8.12.5	Final inspection, measurements and requirements	33
8.13	Climatic sequence	33
8.13.1	General	33
8.13.2	Initial measurement	33
8.13.3	Dry heat	33
8.13.4	Damp heat, cyclic, Test Db, first cycle	33
8.13.5	Cold	34
8.13.6	Damp heat, cyclic, Test Db, remaining cycles	34
8.13.7	Final inspection, measurements and requirements	34
8.14	Damp heat, steady state	35
8.14.1	General	35

8.14.2	Initial measurement	35
8.14.3	Test conditions	35
8.14.4	Recovery	35
8.14.5	Final inspection, measurements and requirements.....	35
8.15	Endurance	36
8.15.1	General	36
8.15.2	Initial measurement	36
8.15.3	Test conditions	36
8.15.4	Recovery	37
8.15.5	Final inspection, measurements and requirements.....	37
8.16	Robustness of terminations (only for capacitors with strip termination).....	37
8.16.1	General	37
8.16.2	Test conditions	37
8.16.3	Final inspection and requirements	38
8.17	Component solvent resistance (if required)	38
8.18	Solvent resistance of the marking (if required)	38
8.19	Accelerated damp heat, steady state (if required)	38
8.19.1	General	38
8.19.2	Initial measurement	38
8.19.3	Conditioning	38
8.19.4	Recovery	39
8.19.5	Final measurements	39
Annex A (normative) Guidance for the specification and coding of dimensions of fixed surface mount multilayer capacitors of ceramic dielectric, Class 1		40
Annex B (informative) Combination of temperature coefficient and tolerance for the reference temperature of 25 °C.....		41
Annex X (informative) Cross-reference for reference to IEC 60384-21:2011.....		42
Bibliography.....		43
Figure 1 – Fault: crack or fissure.....		24
Figure 2 – Fault: crack or fissure.....		24
Figure 3 – Separation or delamination		25
Figure 4 – Exposed electrodes.....		25
Figure 5 – Principal faces		25
Figure 6 – Reflow temperature profile		31
Figure A.1 – Dimensions.....		40
Table 1 – Preferred tolerances on nominal capacitance		13
Table 2 – Nominal temperature coefficient and tolerance		14
Table 3 – Combination of temperature coefficient and tolerance		15
Table 4 – Fixed sample size test plan for qualification approval – Assessment level EZ.....		18
Table 5 – Tests schedule for qualification approval		19
Table 6 – Lot-by-lot inspection		23
Table 7 – Periodic tests		23
Table 8 – Tangent of loss angle limits		26
Table 9 – Test voltages.....		28

Table 10 – Temperature cyclic drift limits	29
Table 11 – Reflow temperature profiles for Sn-Ag-Cu alloy	30
Table 12 – Maximum capacitance change	31
Table 13 – Maximum capacitance change	33
Table 14 – Number of damp heat cycles	34
Table 15 – Final inspection, measurements and requirements	34
Table 16 – Test conditions for damp heat, steady state	35
Table 17 – Final inspection, measurements and requirements	36
Table 18 – Endurance test conditions ($U_C = U_R$)	36
Table 19 – Endurance test conditions ($U_C \neq U_R$)	37
Table 20 – Final inspection, measurements and requirements	37
Table 21 – Initial requirements	38
Table 22 – Conditioning	39
Table A.1 – Dimensions	40
Table B.1 – Combination of temperature coefficient and tolerance for the reference temperature of 25 °C	41
Table X.1 – Reference to IEC 60384-21 for clause/subclause	42
Table X.2 – Reference to IEC 60384-21 for figure/table	42

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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This Redline version provides you with a quick and easy way to compare all the changes between this standard and its previous edition. A vertical bar appears in the margin wherever a change has been made. Additions are in green text, deletions are in strikethrough red text.

International Standard IEC 60384-21 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 2011. This edition constitutes a technical revision.

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

- a) revision of the structure in accordance with ISO/IEC Directives, Part 2:2016 to the extent practicable, and for harmonizing with IEC 60384-22;
- b) deletion of the description on the permissible reactive power in 6.2.2 because it is not appropriate for the purposes of this document;
- c) the dimensions of 0201M in Annex A have been added.

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

FDIS	Report on voting
40/2639/FDIS	40/2651/RVD

Full information on the voting for the approval of this International Standard can be found in the report on voting indicated in the above table.

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

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.

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

- reconfirmed,
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FIXED CAPACITORS FOR USE IN ELECTRONIC EQUIPMENT –

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

~~1~~ General

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 document 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~~ are of equal or higher performance levels; lower performance levels are not permitted.

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 60063:~~1963~~, Preferred number series for resistors and capacitors
~~Amendment 1 (1967)~~
~~Amendment 2 (1977)~~

IEC 60068-1:~~1988~~ 2013, Environmental testing – Part 1: General and guidance

IEC 60068-2-58:~~2004~~ 2015, 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 60068-2-58:2015/AMD1:2017

IEC 60384-1:~~2008~~ 2016, 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

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**

CONTENTS

FOREWORD.....	6
1 Scope.....	8
2 Normative references	8
3 Terms and definitions	8
4 Information to be given in a detail specification.....	9
4.1 General.....	9
4.2 Outline drawing and dimensions	10
4.3 Mounting.....	10
4.4 Rating and characteristics.....	10
4.4.1 General	10
4.4.2 Nominal capacitance range.....	10
4.4.3 Particular characteristics	10
4.4.4 Soldering	10
4.5 Marking.....	11
5 Marking	11
5.1 General.....	11
5.2 Information for marking	11
5.3 Marking on the body	11
5.4 Requirements for marking	11
5.5 Marking of the packaging	11
5.6 Additional marking	11
6 Preferred ratings and characteristics	11
6.1 Preferred characteristics	11
6.2 Preferred values of ratings	12
6.2.1 Rated temperature (T_R)	12
6.2.2 Rated voltage (U_R)	12
6.2.3 Category voltage (U_C)	12
6.2.4 Preferred values of nominal capacitance and associated tolerance values.....	12
6.2.5 Temperature coefficient (α)	13
6.2.6 Dimensions.....	14
7 Quality assessment procedures	15
7.1 Primary stage of manufacture	15
7.2 Structurally similar components	15
7.3 Certified records of released lots	15
7.4 Qualification approval	15
7.4.1 General	15
7.4.2 Qualification approval on the basis of the fixed sample size procedures	15
7.4.3 Tests	16
7.5 Quality conformance inspection	21
7.5.1 Formation of inspection lots	21
7.5.2 Test schedule	21
7.5.3 Delayed delivery.....	21
7.5.4 Assessment levels	21
8 Test and measurement procedures.....	22
8.1 General.....	22

8.2	Preliminary drying	22
8.3	Measuring conditions	23
8.4	Mounting	23
8.5	Visual examination and check of dimensions	23
8.5.1	General	23
8.5.2	Visual examination	23
8.5.3	Requirements	23
8.6	Electrical tests	25
8.6.1	Capacitance	25
8.6.2	Tangent of loss angle ($\tan \delta$)	25
8.6.3	Insulation resistance	26
8.6.4	Voltage proof	26
8.7	Temperature coefficient (α) and temperature cycle drift	27
8.7.1	General	27
8.7.2	Preliminary drying	27
8.7.3	Measuring conditions	27
8.7.4	Requirements	27
8.8	Shear test	28
8.9	Substrate bending test	28
8.9.1	General	28
8.9.2	Initial measurement	28
8.9.3	Final inspection	28
8.10	Resistance to soldering heat	28
8.10.1	General	28
8.10.2	Initial measurement	28
8.10.3	Test conditions	28
8.10.4	Recovery	30
8.10.5	Final inspection, measurements and requirements	30
8.11	Solderability	30
8.11.1	General	30
8.11.2	Test conditions	30
8.11.3	Recovery	31
8.11.4	Final inspection, measurements and requirements	31
8.12	Rapid change of temperature	31
8.12.1	General	31
8.12.2	Initial measurement	31
8.12.3	Number of cycles	31
8.12.4	Recovery	32
8.12.5	Final inspection, measurements and requirements	32
8.13	Climatic sequence	32
8.13.1	General	32
8.13.2	Initial measurement	32
8.13.3	Dry heat	32
8.13.4	Damp heat, cyclic, Test Db, first cycle	32
8.13.5	Cold	32
8.13.6	Damp heat, cyclic, Test Db, remaining cycles	32
8.13.7	Final inspection, measurements and requirements	33
8.14	Damp heat, steady state	33
8.14.1	General	33

8.14.2	Initial measurement	33
8.14.3	Test conditions	33
8.14.4	Recovery	34
8.14.5	Final inspection, measurements and requirements.....	34
8.15	Endurance	34
8.15.1	General	34
8.15.2	Initial measurement	35
8.15.3	Test conditions	35
8.15.4	Recovery	35
8.15.5	Final inspection, measurements and requirements.....	35
8.16	Robustness of terminations (only for capacitors with strip termination).....	36
8.16.1	General	36
8.16.2	Test conditions	36
8.16.3	Final inspection and requirements	36
8.17	Component solvent resistance (if required)	36
8.18	Solvent resistance of the marking (if required)	36
8.19	Accelerated damp heat, steady state (if required)	36
8.19.1	General	36
8.19.2	Initial measurement	37
8.19.3	Conditioning	37
8.19.4	Recovery	37
8.19.5	Final measurements	37
Annex A (normative) Guidance for the specification and coding of dimensions of fixed surface mount multilayer capacitors of ceramic dielectric, Class 1		38
Annex B (informative) Combination of temperature coefficient and tolerance for the reference temperature of 25 °C.....		39
Annex X (informative) Cross-reference for reference to IEC 60384-21:2011.....		40
Bibliography.....		41
Figure 1 – Fault: crack or fissure.....		23
Figure 2 – Fault: crack or fissure.....		23
Figure 3 – Separation or delamination		24
Figure 4 – Exposed electrodes.....		24
Figure 5 – Principal faces		24
Figure 6 – Reflow temperature profile		29
Figure A.1 – Dimensions.....		38
Table 1 – Preferred tolerances on nominal capacitance		12
Table 2 – Nominal temperature coefficient and tolerance		13
Table 3 – Combination of temperature coefficient and tolerance		14
Table 4 – Fixed sample size test plan for qualification approval – Assessment level EZ.....		17
Table 5 – Tests schedule for qualification approval		18
Table 6 – Lot-by-lot inspection		22
Table 7 – Periodic tests		22
Table 8 – Tangent of loss angle limits		25
Table 9 – Test voltages.....		27

Table 10 – Temperature cyclic drift limits	28
Table 11 – Reflow temperature profiles for Sn-Ag-Cu alloy	29
Table 12 – Maximum capacitance change	30
Table 13 – Maximum capacitance change	32
Table 14 – Number of damp heat cycles	33
Table 15 – Final inspection, measurements and requirements	33
Table 16 – Test conditions for damp heat, steady state	34
Table 17 – Final inspection, measurements and requirements	34
Table 18 – Endurance test conditions ($U_C = U_R$)	35
Table 19 – Endurance test conditions ($U_C \neq U_R$)	35
Table 20 – Final inspection, measurements and requirements	36
Table 21 – Initial requirements	37
Table 22 – Conditioning	37
Table A.1 – Dimensions	38
Table B.1 – Combination of temperature coefficient and tolerance for the reference temperature of 25 °C	39
Table X.1 – Reference to IEC 60384-21 for clause/subclause	40
Table X.2 – Reference to IEC 60384-21 for figure/table	40

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IEC 60068-2-58:2015, *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 60068-2-58:2015/AMD1:2017

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

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

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

SOMMAIRE

AVANT-PROPOS	46
1 Domaine d'application	48
2 Références normatives	48
3 Termes et définitions	48
4 Informations devant figurer dans une spécification particulière	50
4.1 Généralités	50
4.2 Dessin d'encombrement et dimensions	50
4.3 Montage.....	50
4.4 Valeurs assignées et caractéristiques	50
4.4.1 Généralités.....	50
4.4.2 Plage de capacités nominales	50
4.4.3 Caractéristiques particulières	51
4.4.4 Brasage.....	51
4.5 Marquage	51
5 Marquage	51
5.1 Généralités	51
5.2 Informations relatives au marquage	51
5.3 Marquage sur le corps	51
5.4 Exigences relatives au marquage.....	51
5.5 Marquage de l'emballage	52
5.6 Marquage supplémentaire.....	52
6 Valeurs assignées et caractéristiques préférentielles.....	52
6.1 Caractéristiques préférentielles.....	52
6.2 Valeurs assignées préférentielles	52
6.2.1 Température assignée (T_R)	52
6.2.2 Tension assignée (U_R)	52
6.2.3 Tension de catégorie (U_C).....	52
6.2.4 Valeurs préférentielles de capacité nominale et valeurs de tolérance associées	53
6.2.5 Coefficient de température (α).....	53
6.2.6 Dimensions.....	56
7 Procédures d'assurance de la qualité	56
7.1 Etape initiale de fabrication.....	56
7.2 Modèles associables.....	56
7.3 Enregistrements certifiés de lots livrés	56
7.4 Homologation.....	56
7.4.1 Généralités.....	56
7.4.2 Homologation fondée sur les procédures avec un nombre d'échantillons fixe	56
7.4.3 Essais	57
7.5 Contrôle de conformité de la qualité.....	62
7.5.1 Formation des lots de contrôle.....	62
7.5.2 Programme d'essais	62
7.5.3 Livraison différée	62
7.5.4 Niveaux d'assurance.....	62
8 Procédures d'essais et de mesures	63

8.1	Généralités	63
8.2	Séchage préliminaire	64
8.3	Conditions de mesure	64
8.4	Montage.....	64
8.5	Examen visuel et contrôle des dimensions	64
8.5.1	Généralités	64
8.5.2	Examen visuel	64
8.5.3	Exigences.....	64
8.6	Essais électriques.....	66
8.6.1	Capacité	66
8.6.2	Tangente de l'angle de perte ($\tan \delta$)	66
8.6.3	Résistance d'isolement	67
8.6.4	Tenue en tension.....	68
8.7	Coefficient de température (α) et dérive cyclique de température.....	68
8.7.1	Généralités	68
8.7.2	Séchage préliminaire	69
8.7.3	Conditions de mesure	69
8.7.4	Exigences.....	69
8.8	Essai de cisaillement	69
8.9	Essai de courbure du substrat.....	69
8.9.1	Généralités	69
8.9.2	Mesure initiale	69
8.9.3	Contrôle final	70
8.10	Résistance à la chaleur de brasage	70
8.10.1	Généralités	70
8.10.2	Mesure initiale	70
8.10.3	Conditions d'essai	70
8.10.4	Rétablissement.....	71
8.10.5	Exigences, mesures et contrôle final.....	71
8.11	Brasabilité.....	72
8.11.1	Généralités	72
8.11.2	Conditions d'essai	72
8.11.3	Rétablissement.....	72
8.11.4	Exigences, mesures et contrôle final.....	72
8.12	Variations rapides de température	73
8.12.1	Généralités	73
8.12.2	Mesure initiale	73
8.12.3	Nombre de cycles	73
8.12.4	Rétablissement.....	73
8.12.5	Exigences, mesures et contrôle final.....	73
8.13	Séquence climatique.....	73
8.13.1	Généralités	73
8.13.2	Mesure initiale	73
8.13.3	Chaleur sèche	74
8.13.4	Chaleur humide, cyclique, Essai Db, premier cycle	74
8.13.5	Froid.....	74
8.13.6	Chaleur humide, cyclique, essai Db, cycles restants	74
8.13.7	Exigences, mesures et contrôle final.....	74
8.14	Chaleur humide, essai continu	75

8.14.1	Généralités	75
8.14.2	Mesure initiale	75
8.14.3	Conditions d'essai	75
8.14.4	Rétablissement.....	76
8.14.5	Exigences, mesures et contrôle final.....	76
8.15	Endurance	76
8.15.1	Généralités	76
8.15.2	Mesure initiale	76
8.15.3	Conditions d'essai	76
8.15.4	Rétablissement.....	77
8.15.5	Exigences, mesures et contrôle final.....	77
8.16	Robustesse des sorties (uniquement pour les condensateurs munis de sorties à lamelle)	78
8.16.1	Généralités.....	78
8.16.2	Conditions d'essai	78
8.16.3	Exigences et contrôle final.....	78
8.17	Résistance au solvant des composants (si cela est exigé)	78
8.18	Résistance au solvant du marquage (si cela est exigé)	78
8.19	Chaleur humide, essai continu accéléré (si cela est exigé).....	78
8.19.1	Généralités	78
8.19.2	Mesure initiale	78
8.19.3	Conditionnement	79
8.19.4	Rétablissement.....	79
8.19.5	Mesures finales	79
Annexe A (normative) Recommandations pour la spécification et le codage des dimensions des condensateurs multicouches fixes à diélectriques en céramique pour montage en surface, Classe 1.....		80
Annexe B (informative) Combinaison du coefficient de température et de la tolérance pour la température de référence de 25 °C		82
Annexe X (informative) Correspondance des références avec l'IEC 60384-21:2011		83
Bibliographie.....		84
Figure 1 – Défaut: craquelure ou fissure		64
Figure 2 – Défaut: craquelure ou fissure		65
Figure 3 – Séparation ou décollement interlaminaire.....		65
Figure 4 – Electrodes exposées		65
Figure 5 – Faces principales		66
Figure 6 – Profil de température de refusion		71
Figure A.1 – Dimensions.....		80
Tableau 1 – Tolérances préférentielles sur la capacité nominale.....		53
Tableau 2 – Coefficient de température nominale et tolérance		54
Tableau 3 – Combinaisons de coefficient de température et de tolérance		55
Tableau 4 – Plan d'essais avec un nombre d'échantillons fixe pour homologation – Niveau d'assurance EZ		58
Tableau 5 – Programme d'essais pour homologation		59
Tableau 6 – Contrôle lot par lot.....		63

Tableau 7 – Essais périodiques	63
Tableau 8 – Limites de la tangente de l'angle de perte.....	67
Tableau 9 – Tensions d'essai.....	68
Tableau 10 – Limites de dérive après cycle thermique	69
Tableau 11 – Profils de température de refusion pour alliage Sn-Ag-Cu.....	71
Tableau 12 – Variation maximale de capacité	71
Tableau 13 – Variation maximale de capacité	73
Tableau 14 – Nombre de cycles de chaleur humide	74
Tableau 15 – Exigences, mesures et contrôle final	75
Tableau 16 – Conditions d'essai continu de chaleur humide	75
Tableau 17 – Exigences, mesures et contrôle final	76
Tableau 18 – Conditions d'essai d'endurance ($U_C = U_R$)	77
Tableau 19 – Conditions d'essai d'endurance ($U_C \neq U_R$)	77
Tableau 20 – Exigences, mesures et contrôle final	77
Tableau 21 – Exigences initiales.....	79
Tableau 22 – Conditionnement	79
Tableau A.1 – Dimensions	80
Tableau B.1 – Combinaison du coefficient de température et de la tolérance pour la température de référence de 25 °C	82
Tableau X.1 – Référence à l'IEC 60384-21 pour les articles/paragraphes	83
Tableau X.2 – Référence à l'IEC 60384-21 pour les figures/tableaux	83

COMMISSION ÉLECTROTECHNIQUE INTERNATIONALE

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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La Norme internationale IEC 60384-21 a été établie par le comité d'études 40 de l'IEC: Condensateurs et résistances pour équipements électroniques.

Cette troisième édition annule et remplace la deuxième édition parue en 2011. Cette édition constitue une révision technique.

La présente édition inclut les modifications techniques majeures suivantes par rapport à l'édition précédente:

- a) révision de la structure conformément aux directives ISO/IEC, Partie 2:2016, dans la mesure du possible, et pour l'harmonisation avec l'IEC 60384-22;

- b) suppression de la description de la puissance réactive admissible en 6.2.2, parce qu'elle n'est pas adaptée aux besoins du présent document;
- c) les dimensions de 0201M à l'Annexe A ont été ajoutées.

Le texte de cette Norme internationale est issu des documents suivants:

FDIS	Rapport de vote
40/2639/FDIS	40/2651/RVD

Le rapport de vote indiqué dans le tableau ci-dessus donne toute information sur le vote ayant abouti à l'approbation de cette Norme internationale.

Ce document a été rédigé selon les Directives ISO/IEC, Partie 2.

Une liste de toutes les parties de la série IEC 60384, publiées sous le titre général *Condensateurs fixes utilisés dans les équipements électroniques*, peut être consultée sur le site web de l'IEC.

Le comité a décidé que le contenu de ce document ne sera pas modifié avant la date de stabilité indiquée sur le site web de l'IEC sous "<http://webstore.iec.ch>" dans les données relatives à la publication recherchée. A cette date, le document sera

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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

1 Domaine d'application

La présente partie de l'IEC 60384 est applicable aux condensateurs multicouches fixes à diélectriques en céramique pour montage en surface non encapsulés, Classe 1, utilisés dans les équipements électroniques. Ces condensateurs possèdent des pastilles de connexion métallisées ou des bandes de brasure et sont destinés à être montés sur des cartes imprimées ou directement sur des substrats de circuits hybrides.

Les condensateurs d'antiparasitage ne sont pas inclus, mais ils sont couverts par l'IEC 60384-14.

L'objet du présent document est de prescrire des caractéristiques et des valeurs assignées préférentielles et de sélectionner à partir de l'IEC 60384-1 les procédures d'assurance de la qualité, les essais et les méthodes de mesure appropriées et de donner les exigences de performance générales pour ce type de condensateur. Les exigences et les sévérités des essais prescrits dans les spécifications particulières se référant à la présente spécification intermédiaire sont d'un niveau de performance supérieur ou égal, des niveaux de performance inférieurs ne sont pas admis.

2 Références normatives

Les documents suivants cités dans le texte constituent, pour tout ou partie de leur contenu, des exigences du présent document. Pour les références datées, seule l'édition citée s'applique. Pour les références non datées, la dernière édition du document de référence s'applique (y compris les éventuels amendements).

IEC 60063, *Séries de valeurs normales pour résistances et condensateurs*

IEC 60068-1:2013, *Essais d'environnement – Partie 1: Généralités et lignes directrices*

IEC 60068-2-58:2015, *Essais d'environnement – Partie 2-58: Essais – Essai Td – Méthodes d'essai de la soudabilité, résistance de la métallisation à la dissolution et résistance à la chaleur de brasage des composants pour montage en surface (CMS)*
IEC 60068-2-58:2015/AMD1:2017

IEC 60384-1:2016, *Condensateurs fixes utilisés dans les équipements électroniques – Partie 1: Spécification générique*

IEC 61193-2:2007, *Quality assessment system – Part 2: Selection and use of sampling plans for inspection of electronic components and packages* (disponible en anglais seulement)

ISO 3:1973, *Nombres normaux – Séries de nombres normaux*