JIS

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Fixed resistors for use in electronic equipment Part 1 : Generic specification

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In the event of any doubts arising as to the contents,
the original JIS is to be the final authority.

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Foreword

This translation has been made based on the original Japanese Industrial Standard established by the Minister of International Trade and Industry through deliberations at Japanese Industrial Standards Committee in accordance with the Industrial Standardization Law:

Attention shall be drawn to the possibility that a part of this Standard may conflict with a patent right, application for a patent right after opening to the public, utility model right (including those applied before 1993-12-31) or application for registration of utility model after opening to the public which have technical properties. The Minister of International Trade and Industry and the Japanese Industrial Standards Committee are not responsible for identifying the patent right, application for a patent right after opened, utility model right or application for registration of utility model after opening to the public which have the technical properties of this kind.

There are the annexes stated below to **JIS C 5201-1**. The Annexes A to C are those specified in the corresponding International Standard, and Annexes 1 to 3 specify the type designation and marking in this country, the method of measurement of non-linearity stated in **IEC 60440** *Method of measurement of non-linearity in resistors* and the method of measurement of current noise stated in **IEC 60195** *Method of measurement of current noise generated in fixed resistors*.

The content of Annex B is omitted because this is a provision for **TC 40** of **IEC** and not applicable as Japanese Industrial Standard.

Annex A (normative)	*Interpretation of sampling plans and procedures as described in IEC 60410 for use within the IEC Quality Assessment System (IECQ) for electronic components*
Annex B (normative)	*Rules for preparation of detail specifications for capacitors and resistors for electronic equipment*
Annex C (normative)	*Example of test equipment for the periodic pulse high voltage overload test*
Annex 1 (normative)	*Type designation and marking*
Annex 2 (normative)	*Method of measurement of non-linearity in fixed resistors*
Annex 3 (normative)	*Method of measurement of current noise generated in fixed resistors*

Group standard : The following standards form the specifications for the group of element specified in this Standard.

JIS C 5201	*Fixed resistors for use in electronic equipment.*
JIS C 5201-1	*Part 1 : Generic specification*
JIS C 5201-2	*Part 2 : Sectional specification : Fixed low-power non-wirewound resistors*
JIS C 5201-2-1	*Part 2 : Blank detail specification : Fixed low-power non-wirewound resistors. Assessment level E*
JIS C 5201-2-2	*Part 2 : Blank detail specification : Fixed low-power non-wirewound resistors. Assessment level F*
JIS C 5201-4	*Part 4 : Sectional Specification : Fixed power resistors*
JIS C 5201-4-1	*Part 4 : Blank detail specification : Fixed power resistors. Assessment level E*

JIS C 5201-4-2	*Part 4 : Blank detail specification : Fixed power resistors. Assessment level F*
JIS C 5201-4-3	*Part 4 : Blank detail specification : Fixed power resistors, heat-sink types. Assessment level H*
JIS C 5201-5	*Part 5 : Sectional specification : Fixed precision resistors*
JIS C 5201-5-1	*Part 5 : Blank detail specification : Fixed precision resistors. Assessment level E*
JIS C 5201-5-2	*Part 5 : Blank detail specification : Fixed precision resistors. Assessment level F*
JIS C 5201-6	*Part 6 : Sectional specification : Fixed resistor networks with individually measurable resistors*
JIS C 5201-6-1	*Part 6 : Blank detail specification : Fixed resistor networks with individually measurable resistors, all of equal value and equal dissipation. Assessment level E*
JIS C 5201-6-2	*Part 6 : Blank detail specification : Fixed resistor networks with individually measurable resistors, of either different resistance values or different rated dissipations. Assessment level E*
JIS C 5201-8	*Part 8 : Sectional specification : Fixed chip resistors*
JIS C 5201-8-1	*Part 8 : Blank detail specification : Fixed chip resistors. Assessment level E*

Contents

Fixed resistors for use in electronic equipment Part 1 : Generic specification

Introduction This Japanese Industrial Standard has been prepared based on **IEC 60115-1**, *Fixed resistors for use in electronic equipment—Part 1 : Generic specification* published in 1982 as the second edition, Amendment 2 : 1987, Amendment 3 : 1989 and Amendment 4 : 1993 without modifying their technical contents, except the points of difference in specification stated below.

The portions with solid sidelines or dotted underlines show the matters not included in the original International Standard.

Outline of difference in specification

a) In the original International Standard, Environmental testing procedures of **IEC 60068-2** with one publication year (for each procedure) are stated in Sub-clause **2.1** Normative references. However, the test procedures of **JIS C 00** series are employed here, by taking such consideration into account, that the corresponding test procedures of **JIS C 00** series are newly revised, new working for application of new test procedures of **IEC 60068-2** is proposed in the revision (draft) of **IEC 60115-1** and the **JIS** series will not cause trouble.

b) As for Sub-clause **2.2.2** type, Sub-clause **2.2.3** style and Sub-clause **2.4.2** coding, the type designation, coding and marking which are widely used in this country are specified in Annex 1 for use of such designation and symbolization.

c) The tolerance of $^{0}_{-10}$ % is specified on the measuring voltage for use in measurement of resistance in Sub-clause **4.5** of the original International Standard. However, the highest value is specified in this Standard, for the measuring voltage when digital type resistance measuring device is used, from such considerations that it is difficult to satisfy this limits because almost all the measuring apparatus used now is digital-multi-meters and, that to limit the highest voltage for measurement of resistance with digital-multi-meters is proposed in new revision work (draft) of **IEC 60115-1**.

d) In the original International Standard, the test temperature for solderability is 230 °C as stated in Sub-clause **4.17**. However this temperature is revised to 235 °C due to change of temperature in normative references and present state of the market.

e) The solvent to be used for solvent resistance tests specified in the original Standard was the mixture of 1,1,2-trichloro 1·1·2 trifluoroethane (fleon 113) the use of which is restricted in the world and 2-propanol, but in **4.29** and **4.30** of this Standard, this solvent is changed to 2-propanol which is recommended in the amendment to the normative reference.

f) The original International Standard specifies 340 mm for the radius of curvature of the bending jig stated in Sub-clause **4.33**. However this Standard specifies 230 mm for this radius of curvature, because contacts appear at several points since the deflection is specified to be 2 mm to 3 mm in this country. The jig

with this radius of curvature is covered by the Japanese Industrial Standard, and proposal of revision is submitted to TC 91 (SMT) and the deliberation is now carried out.

Section One—Scope

1 Scope This Japanese Industrial Standard is the generic specification of fixed resistors for use in electronic equipment, and specifies fixed resistors for used in electronic equipment (hereafter referred to as "resistors").

It establishes standard terms, inspection procedures and methods of test for use in sectional and detail specifications for qualification approval and for quality assessment systems for electronic components.

Remarks : The International Standard corresponding to this Standard is given below.

IEC 60115-1 : 1982 *Fixed resistors for use in electronic equipment Part 1 : Generic specification*
Amendment 2 : 1987
Amendment 3 : 1989
Amendment 4 : 1993

Section Two—General

2 General

2.1 Normative references The following standards contain provisions which, through reference in this Standard, constitute provisions of this Standard. If the indication of the year of coming into effect is given to these referred standards, only the edition of indicated year constitutes the provision of this Standard but the revision and amendment made thereafter are not applied. The normative references without the indication of the year of coming into effect apply limiting only to the most recent edition (including the amendment).

Japanese Industrial Standards

JIS C 0010-1993 *Environmental testing Part 1 : General and guidance*

Remarks : All the matters cited from **IEC 60068-1** : 1978, *Basic environmental testing procedures Part 1 : General* are equivalent to the corresponding matters stated in the said Standard.

JIS C 0010 : 1993 is identical with **IEC 60068-1** : 1988 *Environmental testing—Part 1 : General and guidance.*

C 0020 : 1995 *Environmental testing procedures Part 2 : Tests, Tests A : Cold*

Remarks : All the matters cited from **IEC 60068-2-1** : 1974, *Test A : Cold* and **IEC 60068-2-1A** Supplement A : 1976 are equivalent to the corresponding matters stated in the said Standard.