SLOVENSKI STANDARD
SIST EN 60286-2:2002

01-september-2002

Packaging of components for automatic handling - Part 2: Tape packaging of components with unidirectional leads on continuous tapes (IEC 60286-2:1997)

Packaging of components for automatic handling -- Part 2: Tape packaging of components with unidirectional leads on continuous tapes

Gurtung und Magazinierung von Bauelementen für automatische Verarbeitung -- Teil 2: Gurtung von Bauelementen mit einseitig herausgeführten Anschlüssen

Emballage de composants pour opérations automatisées -- Partie 2: Emballage en bandes des composants à sorties unilatérales

Ta slovenski standard je istoveten z: **EN 60286-2:1998**

ICS:

31.020	Elektronske komponente na splošno	Electronic components in general
55.060	Tulci. Vretena	Spools. Bobbins

SIST EN 60286-2:2002 **en**

EUROPEAN STANDARD

NORME EUROPÉENNE

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EN 60286-2

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ICS 31.020; 55.060

Supersedes HD 143.2 S1:1987

Descriptors: Electronic components, tape packaging, unidirectional leads

English version

Packaging of components for automatic handling
Part 2: Tape packaging of components with unidirectional leads on continuous tapes
(IEC 60286-2:1997)

Emballage de composants pour opérations automatisées
Partie 2: Emballage en bandes des composants à sorties unilatérales
(CEI 60286-2:1997)

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Teil 2: Gurtung von Bauelementen mit einseitig herausgeführten Anschlüssen
(IEC 60286-2:1997)

This European Standard was approved by CENELEC on 1998-01-01. 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.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the Central Secretariat has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

CENELEC

European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

Central Secretariat: rue de Stassart 35, B - 1050 Brussels

Foreword

The text of document 40/918/FDIS, future edition 2 of IEC 60286-2, 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 60286-2 on 1998-01-01.

This European Standard supersedes HD 143.2 S1:1987.

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) 1998-10-01
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 1998-10-01

Annexes designated "normative" are part of the body of the standard.
In this standard, annex ZA is normative.
Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 60286-2:1997 was approved by CENELEC as a European Standard without any modification.

Annex ZA (normative)

Normative references to international publications with their corresponding European publications

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

NOTE: When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

Publication	Year	Title	EN/HD	Year
IEC 60097	1991	Grid systems for printed circuits	EN 60097	1993
IEC 60294	1969	Measurement of the dimensions of a cylindrical component having two axial terminations	-	-
IEC 60301	1971	Preferred diameters of wire terminations of capacitors and resistors	HD 349 S1[1)]	1977
IEC 60717	1981	Method for the determination of the space required by capacitors and resistors with unidirectional terminations	-	-
ISO 11469	1993	Plastics - Generic identification and marking of plastic products	-	-

1) HD 349 S1 includes A1:1972 to IEC 60301.

NORME INTERNATIONALE

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60286-2

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Second edition
1997-12

Emballage de composants pour opérations automatisées –

Partie 2: Emballage en bandes des composants à sorties unilatérales

Packaging of components for automatic handling –

Part 2: Tape packaging of components with unidirectional leads on continuous tapes

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

PACKAGING OF COMPONENTS FOR AUTOMATIC HANDLING –

Part 2: Tape packaging of components with unidirectional leads on continuous tapes

FOREWORD

1) The IEC (International Electrotechnical Commission) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of the IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, the IEC publishes International Standards. Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. The IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
2) The formal decisions or agreements of the IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested National Committees.
3) The documents produced have the form of recommendations for international use and are published in the form of standards, technical reports or guides and they are accepted by the National Committees in that sense.
4) In order to promote international unification, IEC National Committees undertake to apply IEC International Standards transparently to the maximum extent possible in their national and regional standards. Any divergence between the IEC Standard and the corresponding national or regional standard shall be clearly indicated in the latter.
5) The IEC provides no marking procedure to indicate its approval and cannot be rendered responsible for any equipment declared to be in conformity with one of its standards.
6) Attention is drawn to the possibility that some of the elements of this International Standard may be the subject of patent rights. The IEC shall not be held responsible for identifying any or all such patent rights.

International Standard IEC 60286-2 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 1985 and constitutes a technical revision.

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

FDIS	Report on voting
40/918/FDIS	40/1034/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.

PACKAGING OF COMPONENTS FOR AUTOMATIC HANDLING –

Part 2: Tape packaging of components with unidirectional leads on continuous tapes

1 General

1.1 Scope

This Standard applies to the tape packaging of components with two or more unidirectional leads for use in electronic equipment. In general, the tape is applied to the component leads.

It covers requirements for taping techniques used with equipment for automatic handling, preforming of leads, insertion and other operations and includes only those dimensions which are essential to the taping of components intended for the above-mentioned purposes.

1.2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this part of IEC 60286. At the time of publication, the editions indicated were valid. All normative documents are subject to revision, and parties to agreements based on this part of IEC 60286 are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

IEC 60097: 1991, *Grid systems for printed circuits*

IEC 60294: 1969, *Measurement of the dimensions of a cylindrical component having two axial terminations*

IEC 60301: 1971, *Preferred diameters of wire terminations of capacitors and resistors*

IEC 60717: 1981, *Method for determination of the space required by capacitors and resistors with unidirectional terminations*

ISO 11469: 1993, *Plastics – Generic identification and marking of plastic products*

2 Dimensions

NOTE – For the symbols and dimensions given below, reference is made to figures 2, 3 and 4, pages 13, 15 and 19.

2.1 Dimensions common to tapes and taped components with unidirectional leads

The coordinate system as shown in figure 1 shall be used

- the abscissa is a straight line through the centres of the sprocket holes in the direction of unreeling;
- the ordinate is a straight line perpendicular to the abscissa through the centre of the sprocket hole that follows the component to be checked.

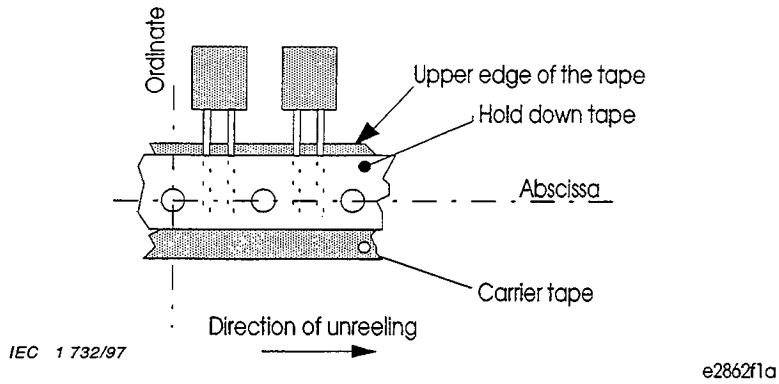

Figure 1 – Ordinate system

2.1.1 Tape width

2.1.1.1 Carrier tape width *W*

$W = 18^{+1}_{-0,5}$ mm

2.1.1.2 Hold-down tape width W_0

This dimension is governed by the retention of the components in the tape. The hold-down tape shall not protrude beyond the carrier tape.

2.1.1.3 Distance W_2

Between the upper edges of the carrier tape and the hold-down tape.

$W_2 = 3$ mm max.

2.1.2 Position W_1 of sprocket holes

$W_1 = 9^{+0,75}_{-0,5}$ mm

2.1.3 Diameter D_0 of sprocket holes

$D_0 = 4$ mm ± 0,2 mm

2.1.4 Distance *H*

Between the abscissa and the bottom plane of the component body.

$H = 18^{+2}_{-0}$ mm

NOTE – Taped components having a cylindrical body diameter ≥10 mm and with $H = 16$ mm ± 0,5 mm are used in the market place. In this case interchangeability cannot be guaranteed.

Seating plane

The method for determining the seating plane is given in IEC 60717

– For components with straight leads.

  The bottom of the component body, including any projections which support the component on the printed board (line in parallel to the reference abscissa through the bottom point nearest to the tape).

– For components with crimped (or otherwise preformed) leads.

The seating plane depends on the profile of the crimp, the diameter of the leads and the hole size in the printed board. For this reason a reference plane is defined, for components with crimped leads only, as follows: