SLOVENSKI STANDARD
oSIST prEN IEC 60286-2:2022

01-januar-2022

Pakiranje komponent za avtomatsko obdelavo - 2. del: Trakanje komponent z enostranskimi priključki na neprekinjenih trakovih

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 Anschlussdrähten

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

Ta slovenski standard je istoveten z: **prEN IEC 60286-2:2021**

ICS:

31.020	Elektronske komponente na splošno	Electronic components in general
55.020	Pakiranje in distribucija blaga na splošno	Packaging and distribution of goods in general

oSIST prEN IEC 60286-2:2022 **en**

40/2886/CDV

COMMITTEE DRAFT FOR VOTE (CDV)

PROJECT NUMBER: **IEC 60286-2 ED5**	
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IEC TC 40 : CAPACITORS AND RESISTORS FOR ELECTRONIC EQUIPMENT	
SECRETARIAT: Netherlands	SECRETARY: Mr Ronald Drenthen
OF INTEREST TO THE FOLLOWING COMMITTEES:	PROPOSED HORIZONTAL STANDARD: ☐ Other TC/SCs are requested to indicate their interest, if any, in this CDV to the secretary.
FUNCTIONS CONCERNED: ☐ EMC ☐ ENVIRONMENT ☐ QUALITY ASSURANCE ☐ SAFETY	
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TITLE:

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

PROPOSED STABILITY DATE: 2033

NOTE FROM TC/SC OFFICERS:

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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PACKAGING OF COMPONENTS FOR AUTOMATIC HANDLING –

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

FOREWORD

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IEC 60286-2 has been prepared by IEC technical committee 40: Capacitors and resistors for electronic equipment. It is an International Standard.

This fifth edition cancels and replaces the fourth edition, published in 2015 and constitutes a technical revision.

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

a) Complete revision of structure;

b) Consolidation of essential parameters and requirements in Clause 4

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

Draft	Report on voting
40/XX/FDIS	40/XX/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.

The language used for the development of this International Standard is English

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/standardsdev/publications.

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,
- withdrawn,
- replaced by a revised edition, or
- amended.

PACKAGING OF COMPONENTS FOR AUTOMATIC HANDLING –

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

1 Scope

This part of IEC 60286 applies to the tape packaging of components with two or more unidirectional leads for use in electronic equipment. It provides dimensions and tolerances necessary to tape components with unidirectional leads. In general, the tape is applied to the component leads.

It covers requirements for taping techniques used with equipment for automatic handling, pre-forming 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.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at http://www.electropedia.org/
- ISO Online browsing platform: available at http://www.iso.org/obp

3.1
packaging
product made of any material of any nature to be used in containment, protection, structured alignment for automatic assembly, handling, and delivery

3.2
unguided lead
lead which is not held between carrier tape and hold down tape

Note 1 to entry: See Figure 5.

3.3
crimp
cinch
purposely formed angular deformation, starting at the reference plane, in such a way that the component bottom side does not touch the top surface of the printed circuit board after insertion and therefore acts as a ‘stand-off’

Note 1 to entry: The formed crimp is available in different forms, see Figure 2.

3.4
ordinate
straight line, perpendicular to the abscissa through the centre of the closest sprocket hole that follows the component to be checked

193 **3.5**
194 **abscissa**
195 straight line, through the centres of the sprocket holes in the direction of unreeling

196 **3.6**
197 **seating plane**
198 <components with straight leads> bottom of the component body, including any projections
199 which support the component on the printed board

200 Note 1 to entry: See Figure 1

201 Note 2 to entry: A method for determining the seating plane is given in IEC 60717.

202 **3.7**
203 **seating plane**
204 <components with crimped (or preformed) leads> plane that changes depending on the profile
205 of the crimp, the diameter of the leads and the hole size in the printed board

206 Note 1 to entry: See Figure 1 and Figure 2.

207 Note 2 to entry: For components with crimped (or preformed) leads a reference plane is defined instead of a seating
208 plane.

209 Note 3 to entry: A method for determining the seating plane is given in IEC 60717.

210 **3.8**
211 **reference plane**
212 line parallel to the abscissa through the lowest centre of the radius of curvature of the bending
213 of the crimp

214 Note 1 to entry: See Figure 1 and Figure 2.

215

4 Dimensions and specific requirements

4.1 General

The symbols and dimensions are given in Figure 1 to Figure 6, Table 1, Annex A and Annex B. All dimension referencing to the component leads are to the centreline of the lead.

4.2 Coordinate system

The coordinate system common to tapes and taped components consists of abscissa and ordinate, both using the centre of the sprocket hole that follows the component to be checked as reference point (see Figure 1).

To determine the position of components in taped condition, the seating plane shall be used for components with straight leads, and the reference plane for components with crimped (or otherwise formed) leads (see Figure 2).

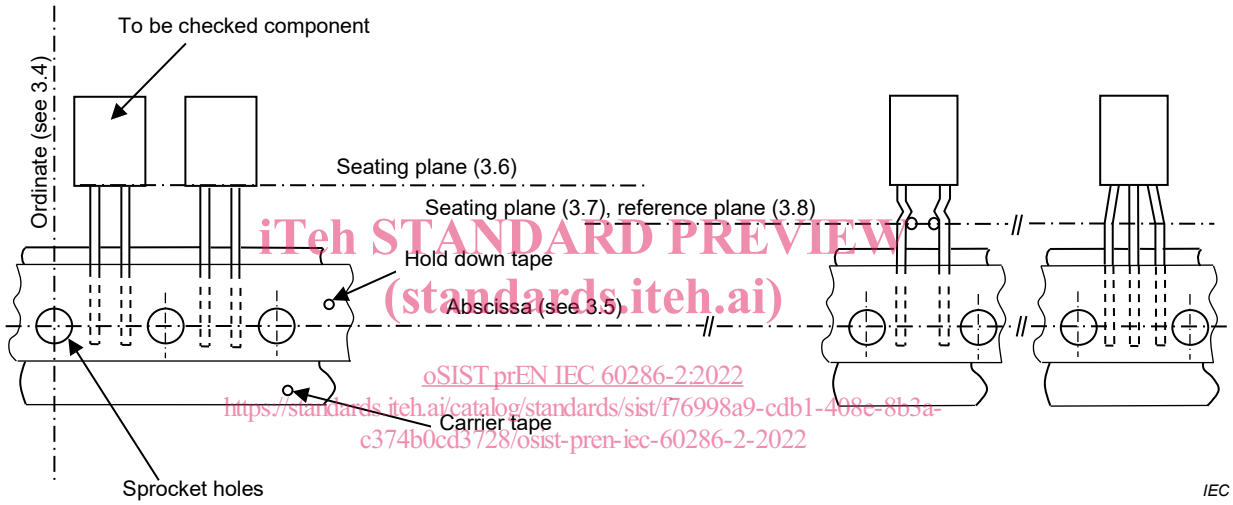


Figure 1 – Abscissa, ordinate, reference plane and seating plane

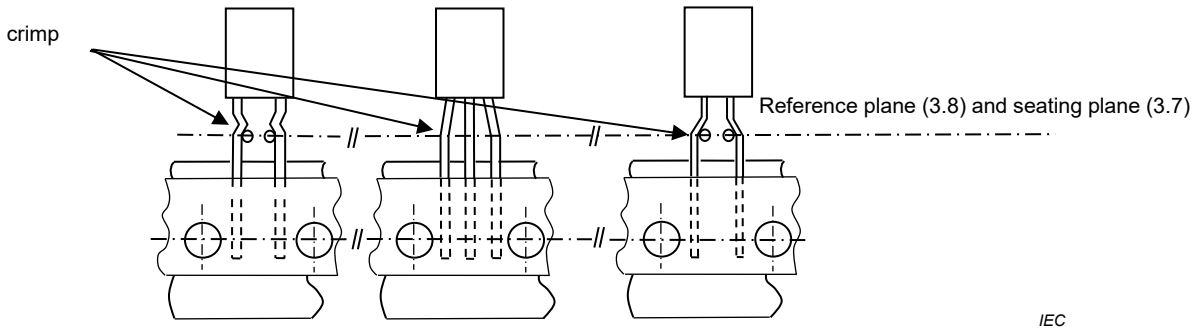


Figure 2 – Crimped or otherwise formed leads

4.3 Lead taping dimensions

Figure 3 to Figure 5 provide an exemplary description of different taping styles and the related symbols (Sketches A to F) and Table 1.

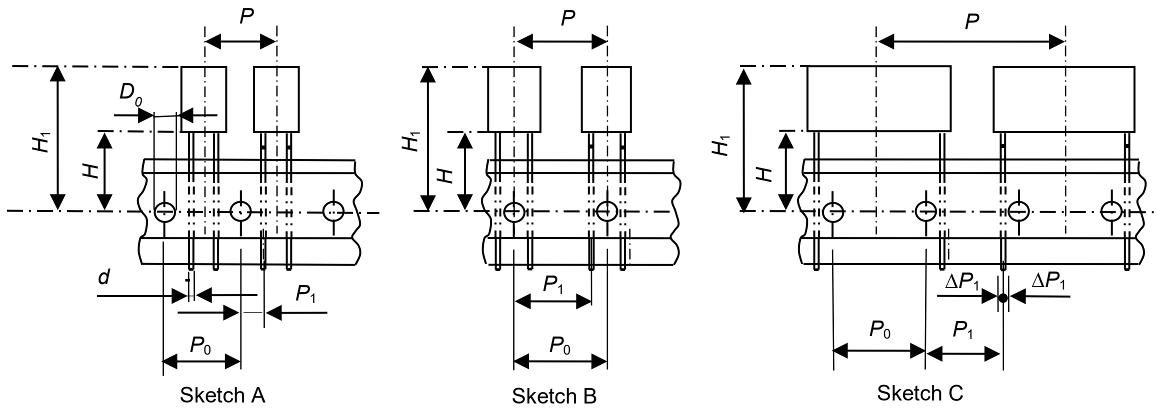


Figure 3 – Lead taping dimensions (straight leads)

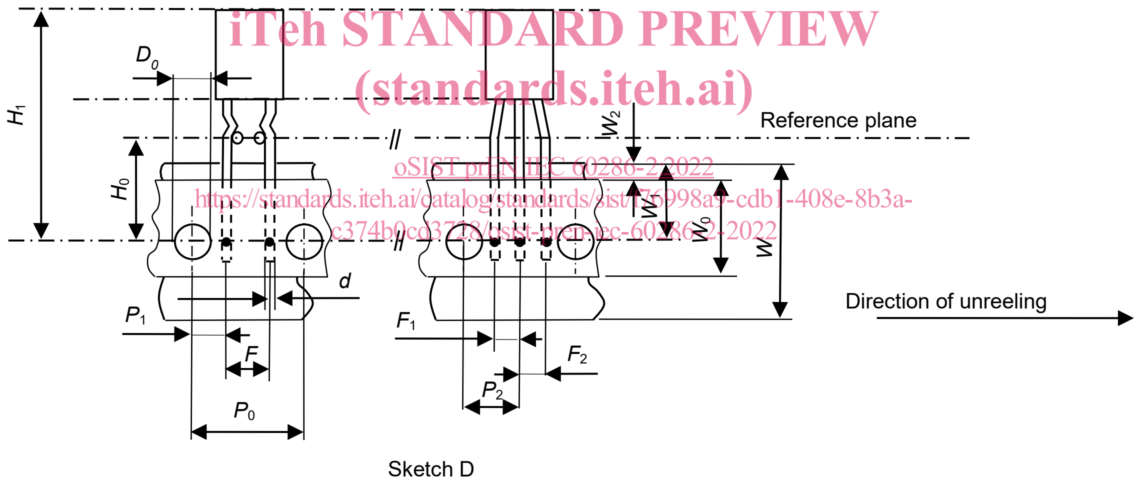
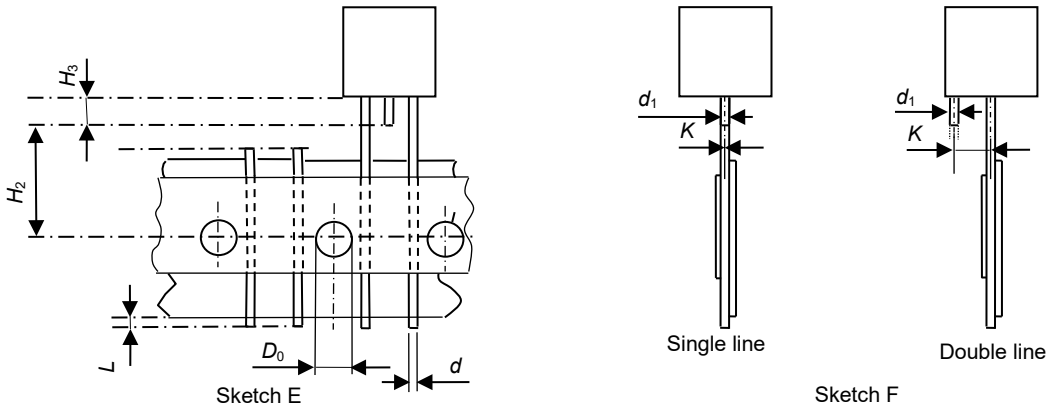


Figure 4 – Lead taping dimensions (crimped leads)



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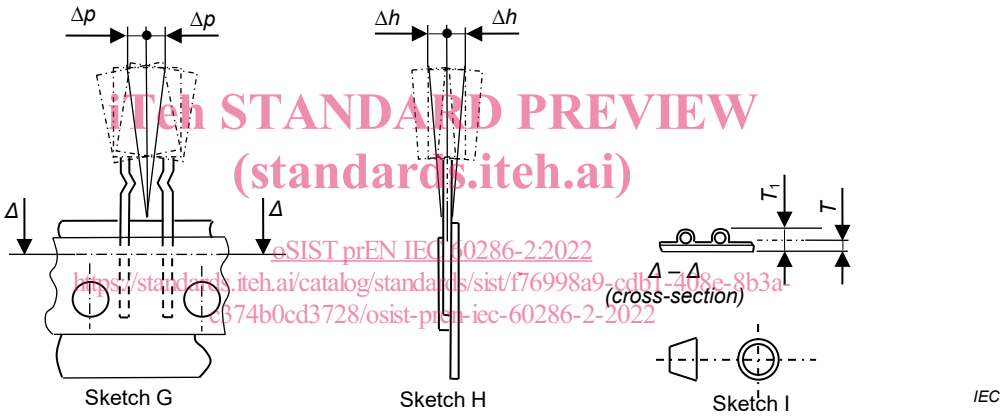
241 **Figure 5 – Lead taping dimensions – unguided leads**

242 Front-to-back tilt and lateral tilt of components from the ideal position in tape are defined as *Δh*
243 deviations and Δ*p* deviations in Figure 6.



244

245 **Figure 6 – Front-to-back and lateral deviations**

246 Table 1 provides the symbols, definitions, values and tolerances of those dimensions, which
247 are essential to specify the tape and taped components for automatic handling by inserters.

248 In Annex A and Annex B examples for the dimensions of common component styles are given.

249