

# INTERNATIONAL STANDARD

**Packaging of components for automatic handling –  
Part 2: Packaging of components with unidirectional leads on continuous tapes**

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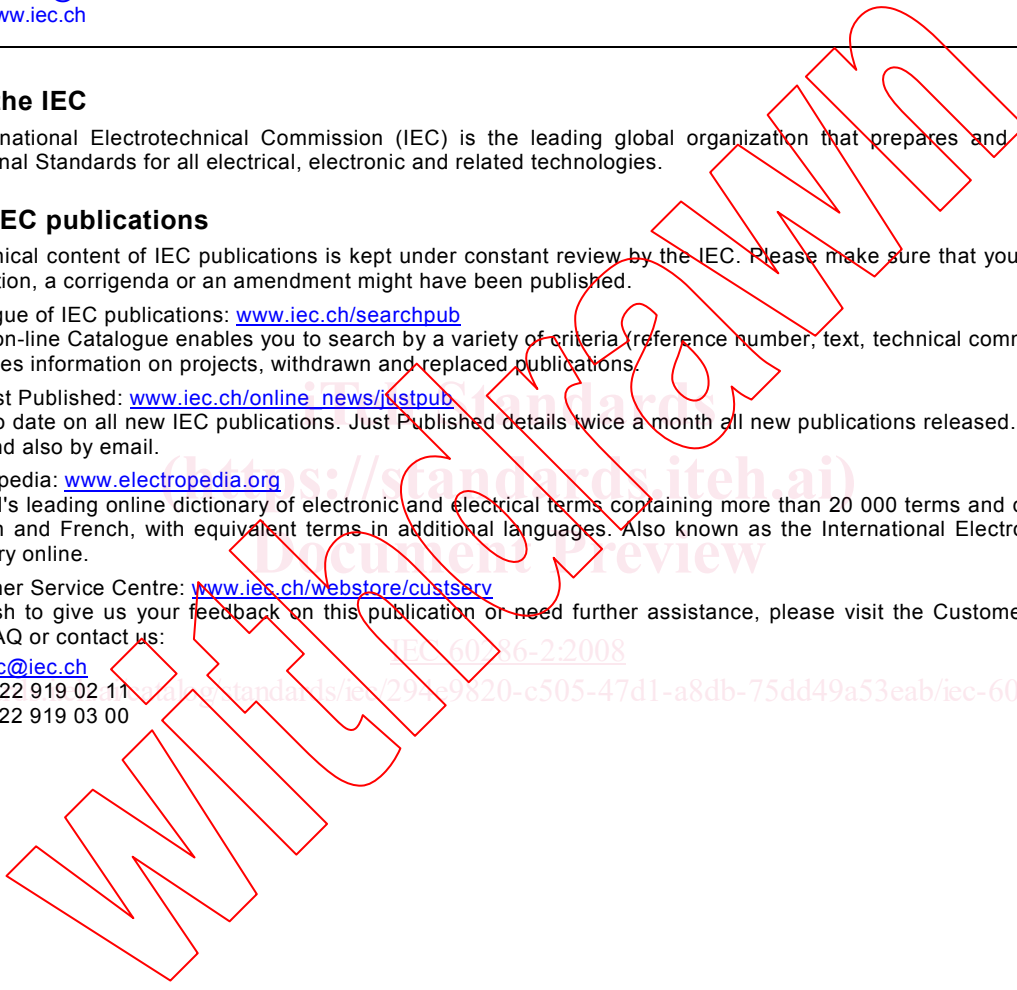
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**PACKAGING OF COMPONENTS FOR AUTOMATIC HANDLING –****Part 2: Packaging of components with unidirectional leads on continuous tapes**

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International Standard IEC 60286-2 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 1997 and its amendment 1 (2002) and constitutes a minor revision related to tables, figures and references.

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

FDIS	Report on voting
40/1870/FDIS	40/1887/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.

A list of all the parts of the IEC 60286 series, under the general title *Packaging of components for automatic handling*, can be found on the IEC website.

The committee has decided that the contents of this publication will remain unchanged until the maintenance result 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- withdrawn,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
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A bilingual version of this publication may be issued at a later date

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## PACKAGING OF COMPONENTS FOR AUTOMATIC HANDLING –

### Part 2: Packaging of components with unidirectional leads on continuous tapes

#### 1 General

##### 1.1 Scope

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

This standard 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 referenced 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 60097, *Grid systems for printed circuits*

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

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

ISO 11469, *Plastics – Generic identification and marking of plastics products*

#### 2 Terms and definitions

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

##### 2.1

###### **package**

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

##### 2.2

###### **short terminal without tape**

not held between the carrier tape and the cover tape (see Figure 1)

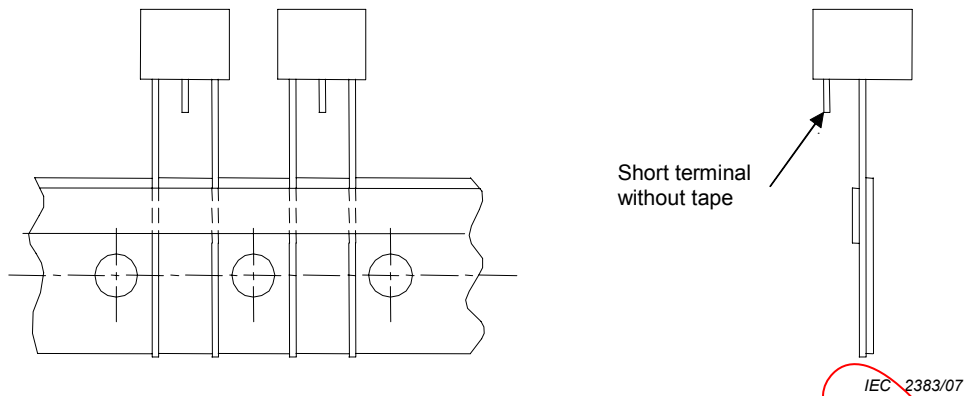


Figure 1 – Short terminal without tape

### 3 Dimensions

NOTE For the symbols and dimensions given below, reference is made to Figures 2, 4, 6, 7, 8, 9, and 10, and Annex A through Annex F.

#### 3.1 Dimensions common to tapes and taped components

See Figure 2 and 3.1.1 to 3.1.7.

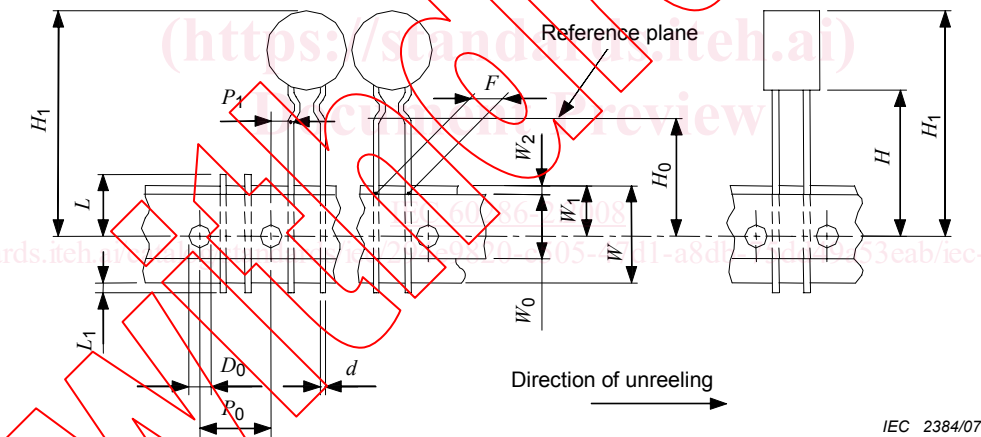
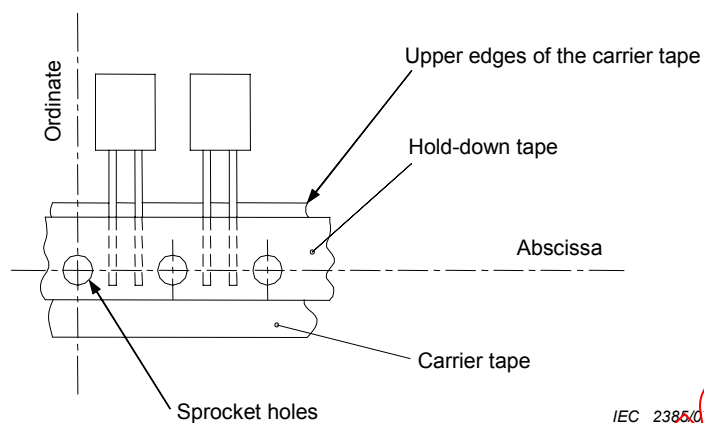


Figure 2 – Dimensions common to tapes and taped components

#### 3.1.1 Coordinate system

The coordinate system as shown in Figure 3 shall be used as follows.

- 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 3 – Coordinate system**

### 3.1.2 Tape width

- Carrier tape width  $W$

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

- 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.

- Position of sprocket hole  $W_1$
- Distance  $W_2$

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

$$W_2 = 3 \text{ mm max.}$$

### 3.1.3 Pitches of components and sprocket holes

- Pitch  $P$  of the mutual components (see Annex A to Annex F)
- Pitch  $P_0$  of the sprocket holes (see Annex A to Annex F)
- Pitch  $P_1$  between ordinate and first lead terminal of the drawer side (see Annex A to Annex F)
- Diameter  $D_0$  of the sprocket holes