

INTERNATIONAL STANDARD



Product package labels for electronic components using bar code and two-dimensional symbologies

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**PRODUCT PACKAGE LABELS FOR ELECTRONIC COMPONENTS
USING BAR CODE AND TWO-DIMENSIONAL SYMBOLOGIES**

FOREWORD

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International Standard IEC 62090 has been prepared by IEC technical committee 91: Electronics assembly technology.

This second edition cancels and replaces the first edition published in 2002. This edition constitutes a technical revision.

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

- a) Applicable data elements have been added. Data identifiers of those data elements are "10D", "14D", "2P", "25L", "18V", "V", "J", "3S", "13E", "33L" and "34L".
- b) The following new informative annexes have been added:
 - Annex C, *URL*;
 - Annex D, *Examples of data element short titles*;
 - Annex E, *Package levels for component package labels*.

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

CDV	Report on voting
91/1394/CDV	91/1430/RVC

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.

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- withdrawn,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.

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PRODUCT PACKAGE LABELS FOR ELECTRONIC COMPONENTS USING BAR CODE AND TWO-DIMENSIONAL SYMBOLOGIES

1 Scope

This document applies to labels on the packaging of electronic components for automatic handling in B2B processes. These labels use linear bar code and two-dimensional (2D) symbols. Labels for direct product marking and shipping labels are excluded. Labels required on the packaging of electronic components that are intended for the retail channel of distribution in B2C processes are also excluded from this document.

Bar code and 2D symbol markings are used, in general, for automatic identification and automatic handling of components in electronics assembly lines. Intended applications include systems that automate the control of component packages during production, inventory and distribution.

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.

ISO/IEC 15417, *Information technology – Automatic identification and data capture techniques – Code 128 bar code symbology specification*

ISO/IEC 15418, *Information technology – Automatic identification and data capture techniques – GS1 Application Identifiers and ASC MH 10 Data Identifiers and maintenance*

ISO/IEC 15434, *Information technology – Automatic identification and data capture techniques – Syntax for high-capacity ADC media*

ISO/IEC 15459 (all parts), *Information technology – Automatic identification and data capture techniques – Unique identification*

ISO/IEC 16022, *Information technology – Automatic identification and data capture techniques – Data Matrix bar code symbology specification*

ISO/IEC 16388, *Information technology – Automatic identification and data capture techniques – Code 39 bar code symbology specification*

ISO/IEC 18004, *Information technology – Automatic identification and data capture techniques – QR Code bar code symbology specification*

ISO/IEC 19762, *Information technology – Automatic Identification and data capture (AIDC) techniques – Harmonized vocabulary*

ISO 8601, *Data elements and interchange formats – Information interchange – Representation of dates and times*

ANSI MH10.8.2, *Data Identifier and Application Identifier Standard*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO/IEC 19762 and the following 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

component

electronic or electrical parts (e.g. bare printed circuit boards, integrated circuits, capacitors, diodes, electronic modules, switches, heat sinks, resistors, electronic/electrical connectors, etc.) used in a first level assembly

3.2

component package

commercial unit of components defined by the supplier including, if applicable, their means for protection, structured alignment or for automated assembly

Note 1 to entry Typical examples are shown in Figure 4.

Note 2 to entry For the purposes of this document, the term “component package” includes a multiple of the elements depicted in Figure 4, e.g. four reels in one box.

3.3

country of origin

manufacturing country where the product obtained its present identity as a part, subassembly, or finished product

Note 1 to entry: The definition of “country of origin” should be in line with local regulations.

4 Label data content and requirements

4.1 Data elements – general

This document allows mutual agreements between the supplier and the customer to alter or enhance any of the specifications done in this document.

The label format accommodates mandatory, optional and mutually agreed data elements. Examples of data element short titles are given in Annex D.

This document does not supersede or replace any applicable safety or regulatory marking or labelling requirements. This document is to be applied in addition to any other mandated labelling requirements. The labelling requirements of this document and other documents may be combined into one label or appear as separate labels.

Approval and conformity markings, branding elements and other information can be added when applicable. Typically, these are not relevant for automatic processing, and therefore not further outlined in this document.

The number included in the character count is exclusive of overhead characters such as start and stop characters, data identifiers and any other characters required by a standard symbology specification for properly encoded data.

All data elements encoded in a machine-readable medium shall be preceded by the appropriate ISO/IEC 15418 or ANSI MH10.8.2 Data Identifier.

The manufacturer may add any data on the label. Additional linear bar codes or data elements in the 2D symbol shall use the appropriate data identifiers.

If the optional data specified in 4.3 are indicated on the labels, they should be used as described below.

Any further additional data or specific formats or anything else may mutually be agreed between the supplier and the customer. Mutual agreements between trading partners are not restricted by this document.

Data elements where global uniqueness is relevant shall follow the ISO/IEC 15459 series' rules, or be combined with the ISO/IEC 15459 series' compliant company ID with data identifier "18V" and be unique within the scope in this company.

4.2 Mandatory data elements

4.2.1 Manufacturer item identification – DI "1P" and "25P"

The manufacturer-assigned item identification is mandatory.

If "1P" is used, the conformity to the ISO/IEC 15459 series is achieved by its combination with the globally unique company ID "18V".

4.2.2 Customer product code – DI "P"

The customer product code is the code assigned to the product by the customer, and may be transmitted together with the order.

NOTE Customer product codes on component packages are relatively widely adopted. But when manufacturing on stock or selling via distributors, this information is not yet known.

Adding customer information on the label is subject to a purchase agreement between the supplier and the customer. If there is no specific purchase agreement, it is up to the manufacturer to add this information or not.

4.2.3 Manufacturer identification – DI "18V" and "21V"

The manufacturer identification shall uniquely identify the manufacturer to which the component is traceable.

"18V" is the default manufacturer identification.

In case the manufacturer's organizational sub unit is required, e.g. to indicate a manufacturing location, then DI "21V" is used in addition to "18V". In case of mutual agreement between trading partners, "21V" can be used instead of "18V".

In human-readable form, the manufacturer identification is the full manufacturer name or its logo. In machine-readable form, the manufacturer identification is assigned by a recognized body that assigns company identification according to the ISO/IEC 15459 series.

The human-readable manufacturer identification and the machine-readable manufacturer identification are different. It is recommended that there be a 1:1 relation between human-readable and machine-readable manufacturer identification.

4.2.4 Quantity – DI "Q" and "7Q"

The quantity shall be the quantity in the package or container to which the label is affixed. The default unit of measure for data identifier "Q" is "EACH" or "PIECES".

When a different unit of measure is required, as agreed between trading partners, data identifier “7Q” shall be used with the quantity followed by two alphanumeric characters representing the unit of measurement code defined in Annex D of ANSI MH10.8.2.

It is recommended to use the quantity with a unit of measure only if the unit is different from “piece”.

Print only the significant digits for the human-readable quantity. Do not print leading zeros.

4.2.5 Traceability identification – DI “S” and “25S”, “1T” and “25T”

4.2.5.1 General

The traceability identification shall be assigned by the manufacturer. This category of identification includes serial numbers and lot/batch numbers.

Traceability identification should be either a serial number (using data identifier “S” or “25S”) or a lot/batch number (using data identifier “1T” or “25T”).

In certain circumstances, both the serial number and the lot/batch number may be shown on the label. In this case, at least one of the two shall be encoded in a linear bar code and both shall be included in the 2D symbol.

4.2.5.2 Serial number – DI “S” and “25S”

A serial number is a unique code assigned by the supplier to an entity for its lifetime. The format for the serial number is to be defined by the manufacturer.

4.2.5.3 Lot/batch number – DI “1T” and “25T”

A lot/batch number is a code assigned by the supplier to identify or trace a unique group of entities (e.g. manufacturing lot, batch, inspection lot). The format for the lot/batch number is to be defined by the manufacturer.

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4.2.6 Country of origin – DI “4L”

The country of origin shall be shown in human-readable information using the full country name.

This shall be in addition to the two-character country codes as per ISO 3166 data being encoded in a machine-readable symbol.

4.2.7 Production date – DI “16D”

Date code shall be in accordance with ISO 8601. When encoded in a machine-readable symbol, either the data identifiers “10D”, “11D” or “16D” shall be used. Preference should be given to “16D”.

The production date is determined by the manufacturer in an appropriate manner for the specific product.

NOTE ISO 22742 recommends the format “16D” for the production date.

4.2.8 Package identification – DI “J” and “3S”

Unique package identification (i.e. licence plate) shall be in accordance with the ISO/IEC 15459 series.

A licence plate with data identifier “J” is the recommended format.