# INTERNATIONAL STANDARD

IEC 61360-4

Second edition 2005-03

Standard data element types with associated classification scheme for electric components –

Part 4:

IEC reference collection of standard data element types and component classes

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PRICE CODE



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#### INTERNATIONAL ELECTROTECHNICAL COMMISSION

# STANDARD DATA ELEMENT TYPES WITH ASSOCIATED CLASSIFICATION SCHEME FOR ELECTRIC COMPONENTS –

# Part 4: IEC reference collection of standard data element types and component classes

#### **FOREWORD**

- 1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of 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, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). 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. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
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International Standard IEC 61360-4 has been prepared by subcommittee 3D: Data sets for libraries of IEC technical committee 3: Information structures, documentation and graphical symbols.

This second edition cancels and replaces the first edition published in 1997. This second edition contains all data element type and class definitions from the first edition with an updated classification scheme and new definitions in the area of:

- a) the geometrical characteristics of the shapes of components, including figures and drawings;
- b) the characteristics for semiconductor die;
- c) data element types originating from the JEITA dictionary in Japan.

It establishes a classification and coding system of shapes for package outlines of electric and electromechanical components according to key geometrical characteristics.

The object of this addition to the standard is to define the information required on the shapes of components :

- for the design of component lands, footprints and piercing drawings;
- for determining the space occupied;
- for deriving dimensions and tolerances needed for automatic handling by inserters and onserters;
- to provide a classification scheme for the purposes of retrieval, selection and comparison of component shapes;
- to establish a coding system for identification of component package outlines;
- to provide a set of reference drawings for defining shape, size and relative position of the component body, mounting features, terminals and adjusters;
- to provide a set of data element type definitions for geometrical parameters in computersensible form.

This second edition extends the classification scheme and DET definitions with unpackaged and minimally packaged semiconductor die, with or without connection structures. It is a data specification which defines the requirements for

- · product identity;
- product data;
- die mechanical information;
- test, quality and reliability information;
- handling, storage and mounting information;
- thermal data and electrical simulation data.

This second edition extends the classification and DET definitions with new entries originating from the JEITA dictionary, Japan.

https://The text of this standard is based on the following documents://d01-ddb2a5a81d71/iec-61360-4-2005

	FDIS	<b>&gt;</b>	Report on voting
\	3D/134/FI	DIS	3D/136/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.

IEC 61360 consists of the following parts, under the general title *Standard data element types* with associated classification scheme for electric components:

- Part 1: Definitions Principles and methods
- Part 2: EXPRESS Dictionary schema
- Part 3: Maintenance and validation procedures
- Part 4: IEC reference collection of standard data element types and component classes
- Part 5 Extensions to the EXPRESS dictionary schema

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
- · amended.

A bilingual version of this publication may be issued at a later date.



## **INTRODUCTION**

The contents of this docment is in line with the current contents of the IEC online 61360 Component Data Dictionary.

- a) The complete classification scheme is given in Annex A.
- b) The new/amended data element types with their identifier, as listed below, are given in Annex C.

AAD001-001	AAD089-001	AAE000-001	AAG026-001	AAG074-001
AAD002-001	AAD090-001	AAE002-006	AAG027-001	AAG075-001
AAD003-001	AAD091-001	AAE003-006	AAG028-001	AAG076-001
AAD004-001	AAD093-001	AAE004-007	AAG029-001	AAG077-001
AAD005-001	AAD095-001	AAE060-006	AAG030-001	AAG078-001
AAD006-001	AAD115-001	AAE349-006	AAG031-001	AAG079-001
AAD007-001	AAD116-001	AAE351-006	AAG032-001	AAG080-001
AAD008-001	AAD117-001	AAE545-006	AAG033-001	AAG081-001
AAD009-001	AAD118-001	AAE618-005	AAG034-091	AAG082-001
AAD010-001	AAD119-001	AAE635-001	AAG035-001	AAG083-001
AAD011-001	AAD120-001	AAE878-005 (	AAG036-001	AAG084-001
AAD012-001	AAD121-001	7.0.207.0 000	AAG037-001	AAG085-001
AAD013-001	AAD122-001	AAF101-006	AAG038-001	AAG086-001
AAD014-001	AAD123-001	AAF311-007	AAG039-001	AAG087-001
AAD015-001	AAD124-001	AAF390-Q02	AAG040-001	AAG088-001
AAD016-001	AAD125-001	AAF464-001	AAG041-001	AAG089-001
AAD017-001	AAD126-001	AAF465-001	AAG042-001	AAG090-001
AAD018-001	AAD127-001	AAF466,001	AAG043-001	AAG091-001
AAD010-001	AAD127-001 AAD129-001	AAF467-001	AAG043-001	AAG091-001
AAD019-001 AAD020-001	AAD180-001	AAF468-001	AAG044-001 AAG045-001	AAG092-001 AAG093-002
AAD020-001 AAD021-001	AAD 130-001 AAD 131-001	AAF469-001	AAG045-001 AAG046-001	AAG093-002 AAG094-002
AAD021-001 AAD022-001	AAD131-001 AAD132-001	AAI 409-001	AAG040-001 AAG047-001	AAG094-002 AAG095-001
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AAD023-001 AAD024-001	AAD134-001	AAG000-001 AAG001-001	AAG048-001 AAG049-001	AAG090-001
AAD024-001 AAD025-001	AAD137-001 AAD137-001	AAG001-001 AAG002-001	AAG049-001 AAG050-001	
AAD025-001 AAD026-001	AAD140-001		AAG050-001 AAG051-001	AAG098-001 AAG099-001
		AAG003-001		
AAD027-001 AAD028-001	AAD141-001	AAG004-001	AAG052-001	AAG100-001
	AAD142-001	AAG005-001	AAG053-001	AAG101-001
AAD029-001	AAD143-001	AAG006-001	AAG054-001	AAG102-001
AAD030-001	AAD144-001	AAG007-001	AAG055-001	AAG103-001
AAD031-001	AAD145-001	AAG008-001	AAG056-001	AAG104-001
AAD032-001	AAD146-001	AAG009-001	AAG057-001	AAG105-001
AAD033-001	AAD147-001	AAG010-001	AAG058-001	AAG107-001
AAD049-001	AAD148-001	AAG011-001	AAG059-001	AAG108-001
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AAD056-001	AAD151-001	AAG014-001	AAG062-001	AAG111-001
AAD060-001	AAD153-001	AAG015-001	AAG063-001	AAG112-001
AAD070-001	AAD154-001	AAG016-001	AAG064-001	AAG113-001
AAD071-001	AAD155-001	AAG017-001	AAG065-001	AAG114-001
AAD072-001	AAD156-001	AAG018-001	AAG066-001	AAG115-001
AAD078-001	AAD157-001	AAG019-001	AAG067-001	AAG116-001
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AAD082-001	AAD159-001	AAG021-001	AAG069-001	AAG118-001
AAD085-001	AAD160-001	AAG022-001	AAG070-001	AAG119-001
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AAD087-001	AAD162-001	AAG024-001	AAG072-001	AAG121-001
AAD088-001		AAG025-001	AAG073-001	AAG122-001

AAG123-001	AAJ020-001	AAJ046-001	AAJ073-001	AAJ100-001
AAG124-001	AAJ021-001	AAJ047-001	AAJ074-001	AAJ101-001
AAG125-001	AAJ022-001	AAJ048-001	AAJ075-001	AAJ102-001
AAG129-001	AAJ023-001	AAJ049-001	AAJ076-001	AAJ103-001
AAG130-001	AAJ024-001	AAJ051-001	AAJ077-001	AAJ104-001
AAG131-002	AAJ025-001	AAJ052-001	AAJ078-001	AAJ105-001
AAG133-002	AAJ026-001	AAJ053-001	AAJ079-001	AAJ106-001
AAH005-001	AAJ027-001	AAJ054-001	AAJ080-001	AAJ107-001
	AAJ028-001	AAJ055-001	AAJ081-001	AAJ108-001
AAJ001-001	AAJ029-001	AAJ056-001	AAJ082-001	AAJ109-001
AAJ002-001	AAJ030-001	AAJ057-001	AAJ083-001	AAJ110-001
AAJ003-001	AAJ031-001	AAJ058-001	AAJ084-001	AAJ111-001
AAJ004-001	AAJ032-001	AAJ059-001	AAJ085-001	AAJ112-001
AAJ006-002	AAJ033-001	AAJ060-001	AAJ086-001	AAJ113-001
AAJ007-001	AAJ034-001	AAJ061-001	AAJ087-001	AAJ114-001
AAJ008-001	AAJ035-001	AAJ062-001	AAJ088-001	AAJ115-001
AAJ009-001	AAJ036-001	AAJ063-001	AAJ089-001	AAJ116-001
AAJ011-001	AAJ037-001	AAJ064-001	AAJ090-001	AAJ117-001
AAJ012-002	AAJ038-001	AAJ065-001	AAJ091-Q01 (	AAJ118-001
AAJ013-001	AAJ039-001	AAJ066-001	AAJ092-001	AAJ119-001
AAJ014-001	AAJ040-001	AAJ067-001	AAJ093-001	AAJ120-001
AAJ015-001	AAJ041-001	AAJ068-001	AAJ094-001	AAJ121-001
AAJ016-001	AAJ042-001	AAJ069-001	AAJ095-001	✓ AAJ122-001
AAJ017-001	AAJ043-001	AAJ070-001	AAJ096-001 \	AAJ123-001
AAJ018-001	AAJ044-001	AAJ071-001	AAJ098-001	AAJ124-001
AAJ019-001	AAJ045-001	AAJ072-001 /	AAJQ99-001	

AAA000-001	AAA307-001	AAA349-001	AAA384-001	AAA420-001
AAA002-003	AAA308-001	AAA350-001	AAA385-001	AAA421-001
AAA021-003	AAA309-001	AAA351-Q01	AAA386-001	AAA422-001
AAA026-002	AAA311-001	AAA352-001	AAA387-001	AAA423-001
AAA031-002	AAA312-001	AAA353\001	<ul><li>AAA388-001</li></ul>	AAA424-001
AAA056-002	AAA313-Q01	AAA354-001	AAA389-001	AAA426-001
AAA074-002	AAA3/14-001	AAA355-001	AAA390-001	AAA427-001
AAA077-002	AAA318-001	AAA356-001	AAA391-001	AAA428-001
AAA089-002	AAA319-001	AAA357-001	AAA392-001	AAA429-002
AAA092-001	AAA320-001	AAA358-001 34-45	d AAA393-001a81d	AAA430-002
AAA093-002	AAA322-001	AAA359-001	AAA394-001	AAA431-002
AAA096-002	AA323-001	AAA360-001	AAA395-001	AAA432-002
AAA098-002	AAA324-001	✓ AAA361-001	AAA396-001	AAA433-002
AAA100-003	AAA325-001	AAA362-001	AAA397-001	AAA434-002
AAA102-002	AAA326-001	AAA363-001	AAA398-001	AAA435-001
AAA115-002 /	AAA327-001	AAA364-001	AAA399-001	AAA436-001
AAA147-003	AAA328-001	AAA365-001	AAA400-001	AAA437-001
AAA148-002	AAA329-001	AAA366-001	AAA401-001	AAA438-001
AAA149-002	AAA330-001	AAA367-001	AAA402-001	AAA439-001
AAA174-002	AAA332-001	AAA368-001	AAA403-001	AAA440-001
AAA218-002	AAA333-001	AAA369-001	AAA404-001	AAA441-001
AAA229-001	AAA334-001	AAA370-001	AAA405-001	AAA442-001
AAA230-001	AAA335-001	AAA371-001	AAA406-001	AAA443-001
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AAA232-001	AAA337-001	AAA373-001	AAA408-001	AAA445-001
AAA295-001	AAA339-001	AAA374-001	AAA409-001	AAA446-001
AAA296-001	AAA340-001	AAA375-001	AAA410-001	AAA447-001
AAA297-001	AAA341-001	AAA376-001	AAA411-001	AAA448-001
AAA298-001	AAA342-001	AAA377-001	AAA412-001	AAA449-001
AAA299-001	AAA343-001	AAA378-001	AAA413-001	AAA450-001
AAA301-001	AAA344-001	AAA379-001	AAA414-001	AAA451-002
AAA302-001	AAA345-001	AAA380-001	AAA415-001	AAA452-001
AAA303-001	AAA346-001	AAA381-001	AAA417-001	AAA453-002
AAA304-001	AAA347-001	AAA382-001	AAA418-001	AAA454-001
AAA305-001	AAA348-001	AAA383-001	AAA419-001	AAA455-001

AAA456-001	AAA525-001	AAA550-001	AAA579-001	AAA597-001
AAA501-001	AAA526-001	AAA551-001	AAA580-001	AAA601-001
AAA502-001	AAA527-001	AAA554-001	AAA581-001	AAA602-001
AAA503-001	AAA528-001	AAA555-001	AAA582-001	AAA603-001
AAA504-001	AAA536-001	AAA556-001	AAA583-001	AAA604-001
AAA505-001	AAA537-001	AAA557-001	AAA584-001	AAA605-001
AAA509-001	AAA538-001	AAA561-001	AAA585-001	AAA606-001
AAA510-001	AAA539-001	AAA562-001	AAA586-001	AAA607-001
AAA511-001	AAA540-001	AAA563-001	AAA587-001	AAA608-001
AAA512-001	AAA541-001	AAA564-001	AAA588-001	AAA609-001
AAA513-001	AAA542-001	AAA565-001	AAA589-001	AAA610-001
AAA514-001	AAA543-001	AAA566-001	AAA590-001	AAA611-001
AAA516-002	AAA544-001	AAA569-001	AAA591-001	AAA612-001
AAA517-001	AAA545-001	AAA572-001	AAA592-001	AAA613-001
AAA518-001	AAA546-001	AAA573-001	AAA593-001	
AAA522-001	AAA547-001	AAA575-001	AAA594-001	
AAA523-001	AAA548-001	AAA576-001	AAA595-001	
AAA524-001	AAA549-001	AAA578-001	AAA596-001	
			$\langle \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \$	

d) The new/amended drawings with their identifier, as listed below, are given in Annex D.

DAA001-001	DAA012-001	DAA023-001	DAA034-001	DAA045-001
DAA002-001	DAA013-001	DAA024-001	DAA035-801	DAA046-002
DAA003-001	DAA014-001	DAA025-002	DAA036-001	DAA047-001
DAA004-001	DAA015-001	DAA026-002/	QAA037-001	DAA048-002
DAA005-001	DAA016-001	DAA027-002	DAA038-001	DAA049-001
DAA006-001	DAA017-001	DAA028-002 /	DAA039-001	DAA050-001
DAA007-001	DAA018-001	DAA029-002	DAA040-001	DAA051-001
DAA008-001	DAA019-001	QAA030-002	DAA041-001	
DAA009-001	DAA020-001	DAA031-001	DAA042-001	
DAA010-001	DAA021-001	DAA032-001	DAA043-001	
DAA011-001	DAA022-001	DAA033-001	DAA044-001	

e) The new/amended figures with their identifier, as listed below, are given in Annex E.

DAE001-001	DAE004-001	DAE012-001	DAE042-001	
uttis://stamoards.it	en a K. X.	ec/FXXX42EU=4434-43	1	
DAE002-001	DAE005-001	DAE021-001	DAE092-001	
DAE003-001	DAE009-001	DAE040-001	DAE119-001	

# STANDARD DATA ELEMENT TYPES WITH ASSOCIATED CLASSIFICATION SCHEME FOR ELECTRIC COMPONENTS –

# Part 4: IEC reference collection of standard data element types and component classes

#### 1 General

#### 1.1 Scope and object

This part of IEC 61360 specifies within two dictionaries:

- the definitions of data element types for electric components and materials used in electrotechnical equipment and systems;
- the definitions of the component classes with associated classification scheme.

These definitions are related to electric components including electronic and electromechanical components and materials used in electrotechnical equipment and systems.

The object of this standard is to provide a set of uniquely-identified data element types with

- an unambiguously defined meaning;
- · a defined value format, and
- a prescribed value domain for the non-quantitative data element types.

The classification scheme for components, the component class definitions (whereby the relevant and the valid characteristic properties by specific data element types are assigned to each class of components) are used to define the data element types unambiguously and to make the entire set of data element types manageable.

The collection of data element types from this standard are meant for use in computerized systems for component selection and component management, parts list processing and computer-aided design, manufacturing and -testing

#### 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 60050(702): 1992, International Electrotechnical Vocabulary – Chapter 702: Oscillations, signals and related devices

IEC 60191-4:1999, Mechanical standardization of semiconductor devices – Part 4: Coding system and classification into forms of package outlines for semiconductor device packages

IEC 61360-1: 2002, Standard data element types with associated classification scheme for electric components – Part 1: Definitions – Principles and methods

ES 59008-1, Data requirements for semiconductor die – Part 1: General requirements

ES 59008-2, Data requirements for semiconductor die – Part 2: Vocabulary

ES 59008-3, Data requirements for semiconductor die – Mechanical, material and connectivity requirements

ES 59008-4 (all parts), Data requirements for semiconductor die – Specific requirements and recommendations

ES 59008-5 (all parts), Data requirements for semiconductor die – Particular requirements and recommendations for die types

ES 59008-6-1, Data requirements for semiconductor die – Part 6-1: Exchange data formats and data dictionary – Data exchange – DDX file format

#### 2 Terms and definitions

For the purposes of this document, the terms and definitions as given in clause 2 of IEC 61360-1, the terms and definitions of ES 59008-2 as well as the following apply.

#### 2.1

## shape

external form of a component package as given by the set of data element types

#### 2.2

#### seating plane

theoretical plane of an electric component that coincides with the surface of the board if the component rests in its intended mounted position on the board.

NOTE 1 This is often used as the reference plane.

NOTE 2 Not all components have a seating plane

#### 2.3

#### terminal

conductor that serves to connect a device electrically and/or mechanically with its environment

#### 2.4

#### terminal form

form of a terminal of a package

#### 2.5

#### terminal position

alignment of the physical position of the ends of the terminals of a component package

## 2.6

# outline style

physical information enclosing the apparently plane figure presented by any object in sight, contour and/or external boundary of a component

#### 2.7

#### true

qualifies the ideal value which characterises a quantity perfectly defined in the conditions which exist at the moment at which that quantity is observed, or the subject of a determinal

NOTE This value could be arrived at only if all causes of measurement error were eliminated and the population was infinite. In the case of a finite population, the complete population must be considered.

## 2.8

#### true value

value which characterises a quantity perfectly defined, in the conditions which exist when that value is examined

NOTE The true value of a quantity is an ideal concept and, in general, it cannot be known.

#### 2.9

#### package

enclosure for one or more chips, film elements or other components, that allows electrical connection and provides mechanical and environmental protection

#### 2.10

#### case

enclosure for one or more chips, film elements or other components, that allows mechanical connection and provides mechanical and environmental protection

#### 2.11

#### mounting hole

hole in a mounting structure for mechanical connection and support

#### 2.12

#### mounting socket

connector which intends to provide electrical and mechanical support for a component inserted into it

## 3 Maintenance and validation methodology

The collection of entities as defined in this standard is a dynamic collection which needs actively to be maintained.

IEC 61360-3 specifies the procedures that shall be followed by the validation agency and the maintenance agency of the IEC vocabulary of standard technical data element types with associated classification scheme and component classes as defined by this classification scheme.

## 4 How to read the annexes

#### 4.1 Classification tree

In Annex A, the complete classification tree is given. Under the header 'Class', the identifier of the class at that specific line is given, while under the header 'Class. DET', on that line the identifier of the classifying data element type is given that has been used to define that class.

If relevant, under the header 'Drawing' the identifier of the drawing related to the indicated 'Class' is given.

#### 4.2 Classes

For the classification of components<sup>2</sup> the principle of dividing the whole set of components into parts has been applied repeatedly, thereby creating a hierarchical tree of several levels of classes.

The goal of this classification scheme of components is to arrange the data element types in an unambiguous-structured way. A detailed description of the classification principles and the various attributes of the component class definitions are given in IEC 61360-1.

The various attributes of the component classes and the layout as used in this standard are explained with the aid of Figure 1a and Figure 1b. The class definitions are given in Annex B.

<sup>&</sup>lt;sup>2</sup> The classification principles are also applicable to other entities like materials, packages, geometries, etc.

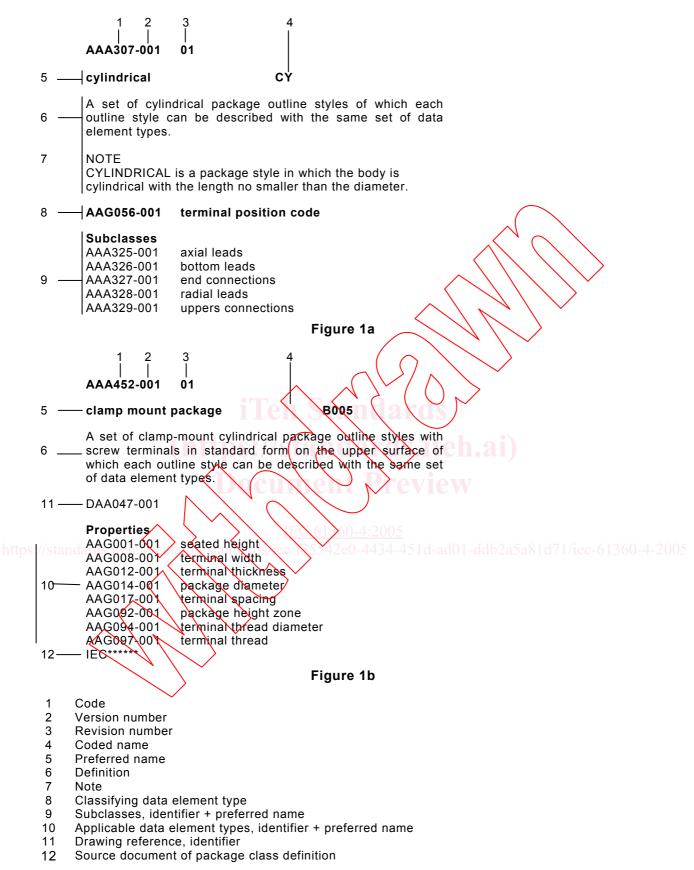


Figure 1 - Component package class specification attributes