

Mechanical standardization of semiconductor devices —

Part 4: Coding system and classification into forms of package outlines for semiconductor device packages

The European Standard EN 60191-4:1999, with the incorporation of A1:2002 and A2:2002, has the status of a British Standard

ICS 31.080.01

National foreword

This British Standard is the official English language version of EN 60191-4:1999, including amendments A1:2002 and A2:2002. It is identical with IEC 60191-4:1999, including amendments 1:2001 and 2:2002. It supersedes BS 3934-4:1992 which is withdrawn.

The UK participation in its preparation was entrusted by Technical Committee EPL/47, Semiconductors, to Subcommittee EPL/47/4, Mechanical standardization, which has the responsibility to:

- aid enquirers to understand the text;
- present to the responsible international/European committee any enquiries on the interpretation, or proposals for change, and keep the UK interests informed;
- monitor related international and European developments and promulgate them in the UK.

A list of organizations represented on this subcommittee can be obtained on request to its secretary.

Cross-references

The British Standards which implement international or European publications referred to in this document may be found in the *BSI Catalogue* under the section entitled “International Standards Correspondence Index”, or by using the “Search” facility of the *BSI Electronic Catalogue* or of British Standards Online.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

Compliance with a British Standard does not of itself confer immunity from legal obligations.

This British Standard, having been prepared under the direction of the Electrotechnical Sector Committee, was published under the authority of the Standards Committee and comes into effect on 15 June 2000

Summary of pages

This document comprises a front cover, an inside front cover, the EN title page, pages 2 to 22, an inside back cover and a back cover.

The BSI copyright date displayed in this document indicates when the document was last issued.

Amendments issued since publication

Amd. No.	Date	Comments
13846	14 October 2002	Replacement of Table 4 and Figure 2
14233	19 February 2003	Addition of Annex B

© BSI 19 February 2003

ISBN 0 580 34915 2

EUROPEAN STANDARD

EN 60191-4

NORME EUROPÉENNE

October 1999

EUROPÄISCHE NORM

+A1

+A2

February 2002

October 2002

ICS 31.080

English version

**Mechanical standardization of semiconductor devices —
Part 4: Coding system and classification into forms of package outlines
for semiconductor device packages**
(including amendments A1:2002 + A2:2002)
(IEC 60191-4:1999 + A1:2001 + A2:2002)

Normalisation mécanique des dispositifs
à semiconducteurs —
Partie 4: Système de codification et
classification en formes des boîtiers
pour dispositifs à semiconducteurs
(inclut les amendements A1:2002
+A2:2002)
(CEI 60191-4:1999 + A1:2001 + A2:2002)

Mechanische Normung von
Halbleiterbauelementen —
Teil 4: Kodierungssystem für Gehäuse
und Eingruppierung der Gehäuse nach
der Gehäuseform für
Halbleiterbauelemente
(enthält Änderungen A1:2002 + A2:2002)
(IEC 60191-4:1999 + A1:2001 + A2:2002)

This European Standard was approved by CENELEC on 1999-10-01. Amendment A1 was approved by CENELEC on 2002-02-01 and amendment A2 was approved by CENELEC on 2002-10-01. 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, Malta, 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

© 2002 CENELEC - All rights of exploitation in any form and by any means reserved worldwide for CENELEC members.

Ref. No. EN 60191-4:1999 + A1:2002 + A2:2002 E



Documents

Document Sharing Hub

Foreword

The text of document 47D/298/FDIS, future edition 2 of IEC 60191-4, prepared by SC 47D, Mechanical standardization of semiconductor devices, of IEC TC 47, Semiconductor devices, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 60191-4 on 1999-10-01.

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) 2000-07-01
- latest date by which the national standards conflicting
with the EN have to be withdrawn (dow) 2002-10-01

Endorsement notice

The text of the International Standard IEC 60191-4:1999 was approved by CENELEC as a European Standard without any modification.

Foreword to amendment A1

The text of document 47D/461/FDIS, future amendment 1 to IEC 60191-4:1999, prepared by SC 47D, Mechanical standardization of semiconductor devices, of IEC TC 47, Semiconductor devices, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as amendment A1 to EN 60191-4:1999 on 2002-02-01.

The following dates were fixed:

- latest date by which the amendment has to be implemented
at national level by publication of an identical
national standard or by endorsement (dop) 2002-11-01
- latest date by which the national standards conflicting
with the amendment have to be withdrawn (dow) 2005-02-01

Endorsement notice

The text of amendment 1:2001 to the International Standard IEC 60191-4:1999 was approved by CENELEC as an amendment to the European Standard without any modification.

Foreword to amendment 2

The text of document 47D/505/FDIS, future amendment 2 to IEC 60191-4:1999, prepared by SC 47D, Mechanical standardization of semiconductor devices, of IEC TC 47, Semiconductor devices, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as amendment A2 to EN 60191-4:1999 on 2002-10-01.

The following dates were fixed:

- latest date by which the amendment has to be implemented
at national level by publication of an identical
national standard or by endorsement (dop) 2003-07-01
- latest date by which the national standards conflicting
with the amendment have to be withdrawn (dow) 2005-10-01

Annexes designated "informative" are given for information only.
In this standard, Annex B is informative.

Endorsement notice

The text of amendment 2:2002 to the International Standard IEC 60191-4:1999 was approved by CENELEC as an amendment to the European Standard without any modification.

CONTENTS

	Page
Clause	
1 Scope	5
2 Coding system of package outlines for semiconductor devices	5
3 Classification into forms of package outlines for semiconductor devices	5
4 Coding systems for semiconductor-device packages	6
5 Coding system of package-outline styles	12
Annex A (informative) Examples of descriptive coding system applications.....	14
Annex B (informative) Derivation and application of the descriptive coding system — Common package names.....	21

MECHANICAL STANDARDIZATION OF SEMICONDUCTOR DEVICES –

Part 4: Coding system and classification into forms of package outlines for semiconductor device packages

1 Scope

This International Standard describes a method for the designation of package outlines and for the classification of forms of package outlines for semiconductor devices and a systematic method for generating universal descriptive designators for semiconductor device packages.

The descriptive designator provides a useful communication tool but has no implied control for assuring package interchangeability.

2 Coding system of package outlines for semiconductor devices

The following coding system will be used in the publications concerning mechanical standardization:

- first: a three-digit serial number (000 to 999);
- second: a single reference letter indicating the form as shown in table 1;
- third: a two-digit serial number (00 to 99) to indicate a variant of an outline drawing. The use of prefix P to indicate a provisional drawing remains unchanged.

EXAMPLES

- 101A00
- 050G13
- P 101F01

3 Classification into forms of package outlines for semiconductor devices

The package outline drawings for semiconductor devices are classified into forms according to the following scheme:

- form A: single-ended
- form B: heat-sink-mounted
- form C: stud-mounted
- form D: axial-leaded
- form E: surface-mounted
- form F: single-ended, heat-sink-mounted
- form G: dual and quad in-line
- form H: axial lead-less.

4 Coding system for semiconductor-device packages

4.1 General

The standard coding system is a method for identifying the physical features of an electronic device package family. The system is predicated upon a minimum two-character designator, which indicates the package outline style. This designator can be extended, through the use of optional, user-selected fields, to provide additional package information such as terminal position and count, terminal form, package shape, and predominant body material.

4.2 New descriptive codes

If a new package that does not conform to one of the designated field character codes is being proposed, a new code may be recommended for standardization.

4.3 Descriptive designators

The package outline style code is the only compulsory field within this descriptive designation system. Additional information may be provided using optional prefixes and suffixes described by the system. In general, these fields are independent of one another. Unless otherwise indicated herein, the users of this system may pick and choose which of these fields they wish to implement for their specific application (see figure 1). The descriptive designator may be extended with additional information, provided this information is separated from the descriptive designator by a slash (/) (see 4.3.6).

4.3.1 Minimum descriptive designator

The minimum descriptive designator is a two-letter code that classifies device packages into standard package outline styles. These styles identify general external physical features. Common two-letter descriptive codes or abbreviations are included, such as CC, FP, SO, GA.

Figure A.1 shows two-letter codes for various device package outline styles and depicts examples of each. Table 1 lists the two-letter package-outline-style codes described in clause 5.