



**NSAI**  
Standards

Irish Standard  
I.S. EN 60191-6-12:2011

Mechanical standardization of  
semiconductor devices -- Part 6-12:  
General rules for the preparation of  
outline drawings of surface mounted  
semiconductor device packages -  
Design guidelines for fine-pitch land  
grid array (FLGA) (IEC 60191-6-12:2011  
(EQV))

## I.S. EN 60191-6-12:2011

*Incorporating amendments/corrigenda issued since publication:*

The National Standards Authority of Ireland (NSAI) produces the following categories of formal documents:

I.S. xxx: Irish Standard – national specification based on the consensus of an expert panel and subject to public consultation.

S.R. xxx: Standard Recommendation - recommendation based on the consensus of an expert panel and subject to public consultation.

SWiFT xxx: A rapidly developed recommendatory document based on the consensus of the participants of an NSAI workshop.

<i>This document replaces:</i> EN 60191-6-12:2002	<i>This document is based on:</i> EN 60191-6-12:2011 EN 60191-6-12:2002	<i>Published:</i> 5 August, 2011 19 July, 2002
This document was published under the authority of the NSAI and comes into effect on:  11 August, 2011		ICS number: 31.080.01
<b>NSAI</b> 1 Swift Square, Northwood, Santry Dublin 9	T +353 1 807 3800 F +353 1 807 3838 E standards@nsai.ie  W NSAI.ie	<b>Sales:</b> T +353 1 857 6730 F +353 1 857 6729 W standards.ie
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EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**EN 60191-6-12**

August 2011

ICS 31.080.01

Supersedes EN 60191-6-12:2002

English version

**Mechanical standardization of semiconductor devices -  
Part 6-12: General rules for the preparation of outline drawings of surface  
mounted semiconductor device packages -  
Design guidelines for fine-pitch land grid array (FLGA)  
(IEC 60191-6-12:2011)**

Normalisation mécanique des dispositifs à  
semiconducteurs -  
Partie 6-12: Règles générales pour la  
préparation des dessins d'encombrement  
des boîtiers des dispositifs à  
semiconducteurs à montage en surface -  
Lignes directrices de conception pour les  
boîtiers matriciels à plots et à pas fins  
(FLGA)  
(CEI 60191-6-12:2011)

Mechanische Normung von  
Halbleiterbauelementen -  
Teil 6-12: Allgemeine Regeln für die  
Erstellung von Gehäusezeichnungen von  
SMD-Halbleitergehäusen -  
Konstruktionsleitfaden für Feinraster-  
Land-Grid-Array (FLGA)  
(IEC 60191-6-12:2011)

This European Standard was approved by CENELEC on 2011-07-13. 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.

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European Committee for Electrotechnical Standardization  
Comité Européen de Normalisation Electrotechnique  
Europäisches Komitee für Elektrotechnische Normung

**Management Centre: Avenue Marnix 17, B - 1000 Brussels**

**I.S. EN 60191-6-12:2011**

EN 60191-6-12:2011

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## **Foreword**

The text of document 47D/784/CDV, future edition 2 of IEC 60191-6-12, prepared by SC 47D, Mechanical standardization for semiconductor devices, of IEC TC 47, Semiconductor devices, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 60191-6-12 on 2011-07-13.

This European Standard supersedes EN 60191-6-12:2002.

EN 60191-6-12:2011 includes the following significant changes with respect to EN 60191-6-12:2002:

- a) scope is expanded so that this standard include the square type FLGA. The title of this standard has been changed accordingly: "Rectangular type" has been deleted from the title;
- b) ball pitch of 0,3 mm has been added;
- c) datum is changed from the body datum to the ball datum;
- d) combination lists of  $D$ ,  $E$ ,  $M_D$ , and  $M_E$  have been revised.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN and CENELEC shall not be held responsible for identifying any or all such patent rights.

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) | 2012-04-13 |
| – latest date by which the national standards conflicting with the EN have to be withdrawn   | (dow) | 2014-07-13 |

Annex ZA has been added by CENELEC.

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## **Endorsement notice**

The text of the International Standard IEC 60191-6-12:2011 was approved by CENELEC as a European Standard without any modification.

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## **Annex ZA**

(normative)

### **Normative references to international publications with their corresponding European publications**

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.

NOTE When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60191	Series	Mechanical standardization of semiconductor devices	EN 60191	Series
IEC 60191-6	-	Mechanical standardization of semiconductor devices - Part 6: General rules for the preparation of outline drawings of surface mounted semiconductor device packages	EN 60191-6	-

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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

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### MECHANICAL STANDARDIZATION OF SEMICONDUCTOR DEVICES –

#### **Part 6-12: General rules for the preparation of outline drawings of surface mounted semiconductor device packages – Design guidelines for fine-pitch land grid array (FLGA)**

### FOREWORD

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International Standard IEC 60191-6-12 has been prepared by subcommittee 47D: Mechanical standardization of semiconductor devices, of IEC technical committee 47: Semiconductor devices.

This second edition of IEC 60191-6-12 cancels and replaces the first edition, published in 2002 and constitutes a technical revision. This edition includes the following significant changes with respect to the previous edition:

- a) scope is expanded so that this standard include the square type FLGA. The title of this standard has been changed accordingly: “Rectangular type” has been deleted from the title.
- b) ball pitch of 0,3 mm has been added;
- c) datum is changed from the body datum to the ball datum;
- d) combination lists of  $D$ ,  $E$ ,  $M_D$ , and  $M_E$  have been revised.



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

CDV	Report on voting
47D/784/CDV	47D/795/RVC

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 in the IEC 60191 series, under the general title *Mechanical standardization of semiconductor devices*, can be found on the IEC website.

The committee has decided that the contents of this publication will remain unchanged until the stability 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

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- replaced by a revised edition, or
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