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Standards

Irish Standard  
I.S. EN 60749-34:2010

# Semiconductor devices - Mechanical and climatic test methods -- Part 34: Power cycling (IEC 60749-34:2010 (EQV))

## I.S. EN 60749-34:2010

*Incorporating amendments/corrigenda issued since publication:*

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EUROPEAN STANDARD  
NORME EUROPÉENNE  
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**EN 60749-34**

December 2010

ICS 31.080.01

Supersedes EN 60749-34:2004

English version

**Semiconductor devices -  
Mechanical and climatic test methods -  
Part 34: Power cycling  
(IEC 60749-34:2010)**

Dispositifs à semiconducteurs -  
Méthodes d'essais mécaniques et  
climatiques -  
Partie 34: Cycles en puissance  
(CEI 60749-34:2010)

Halbleiterbauelemente -  
Mechanische und klimatische  
Prüfverfahren -  
Teil 34: Lastwechselprüfung  
(IEC 60749-34:2010)

This European Standard was approved by CENELEC on 2010-12-01. 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, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

**CENELEC**

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

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

## **Foreword**

The text of document 47/2068/FDIS, future edition 2 of IEC 60749-34, prepared by IEC TC 47, Semiconductor devices, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 60749-34 on 2010-12-01.

This European Standard supersedes EN 60749-34:2004.

The significant changes with respect from EN 60749-34:2004 include:

- the specification of tighter conditions for more accelerated power cycling in the wire bond fatigue mode;
- information that under harsh power cycling conditions high current densities in a thin die metalization might initiate electromigration effects close to wire bonds.

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) | 2011-09-01 |
| – latest date by which the national standards conflicting with the EN have to be withdrawn   | (dow) | 2013-12-01 |

Annex ZA has been added by CENELEC.

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## **Endorsement notice**

The text of the International Standard IEC 60749-34:2010 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 60747-1	2006	Semiconductor devices - Part 1: General	-	-
IEC 60747-2	2000	Semiconductor devices - Discrete devices and- integrated circuits - Part 2: Rectifier diodes		-
IEC 60747-6	2000	Semi conductor devices - Part 6: Thyristors	-	-
IEC 60749-3	-	Semiconductor devices - Mechanical and climatic test methods - Part 3: External visual examination	EN 60749-3	-
IEC 60749-23	-	Semiconductor devices - Mechanical and climatic test methods - Part 23: High temperature operating life	EN 60749-23	-

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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

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### **SEMICONDUCTOR DEVICES – MECHANICAL AND CLIMATIC TEST METHODS –**

#### **Part 34: Power cycling**

#### **FOREWORD**

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International Standard IEC 60749-34 has been prepared by IEC technical committee 47: Semiconductor devices.

This second edition cancels and replaces the first edition published in 2004 and constitutes a technical revision. The significant changes with respect from the previous edition include:

- the specification of tighter conditions for more accelerated power cycling in the wire bond fatigue mode;
- information that under harsh power cycling conditions high current densities in a thin die metalization might initiate electromigration effects close to wire bonds.



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

FDIS	Report on voting
47/2068/FDIS	47/2079/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 parts in the IEC 60749 series, under the general title *Semiconductor devices – Mechanical and climatic test methods*, 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

- reconfirmed,
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