SLOVENSKI STANDARD
SIST EN 62047-14:2012

01-junij-2012

Polprevodniški elementi - Mikroelektromehanski elementi - 14. del: Metoda merjenja omejitev preoblikovanja kovinoplastnih materialov

Semiconductor devices - Microelectromechanical devices - Part 14: Forming limit measuring method of metallic film materials

Halbleiterbauelemente - Bauelemente der Mikrosystemtechnik - Teil 14: Verfahren zur Ermittlung der Grenzformänderung metallischer Dünnschichtwerkstoffe

Dispositifs à semiconducteurs - Dispositifs microélectromécaniques - Partie 14: Méthode de mesure des limites de formage des matériaux à couche métallique

Ta slovenski standard je istoveten z: EN 62047-14:2012

ICS:

31.080.01	Polprevodniški elementi (naprave) na splošno	Semiconductor devices in general

SIST EN 62047-14:2012 en

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 62047-14

April 2012

ICS 31.080.99

English version

Semiconductor devices - Micro-electromechanical devices - Part 14: Forming limit measuring method of metallic film materials
(IEC 62047-14:2012)

Dispositifs à semiconducteurs -
Dispositifs microélectromécaniques -
Partie 14: Méthode de mesure des limites de formage des matériaux à couche métallique
(CEI 62047-14:2012)

Halbleiterbauelemente -
Bauelemente der Mikrosystemtechnik -
Teil 14: Verfahren zur Ermittlung der Grenzformänderung metallischer Dünnschichtwerkstoffe
(IEC 62047-14:2012)

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

Management Centre: Avenue Marnix 17, B - 1000 Brussels

Ref. No. EN 62047-14:2012 E

Foreword

The text of document 47F/108/FDIS, future edition 1 of IEC 62047-14, prepared by SC 47F, "Micro-electromechanical systems", of IEC TC 47, "Semiconductor devices" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 62047-14:2012.

The following dates are fixed:

• latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement	(dop)	2013-01-03
• latest date by which the national standards conflicting with the document have to be withdrawn	(dow)	2015-04-03

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The text of the International Standard IEC 62047-14:2012 was approved by CENELEC as a European Standard without any modification.

Annex ZA
(normative)
Normative references to international publications with their corresponding European publications

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. 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.

Publication	Year	Title	EN/HD	Year
IEC 62047-1	2005	Semiconductor devices - Micro-electromechanical devices - Part 1: Terms and definitions	EN 62047-1	2006

IEC 62047-14

Edition 1.0 2012-02

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Semiconductor devices – Micro-electromechanical devices – Part 14: Forming limit measuring method of metallic film materials

Dispositifs à semiconducteurs – Dispositifs microélectromécaniques – Partie 14: Méthode de mesure des limites de formage des matériaux à couche métallique

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SEMICONDUCTOR DEVICES – MICRO-ELECTROMECHANICAL DEVICES –

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FOREWORD

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International Standard IEC 62047-14 has been prepared by subcommittee 47F: Micro-electromechanical systems, of IEC technical committee 47: Semiconductor devices.

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

FDIS	Report on voting
47F/108/FDIS	47F/118/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 of IEC 62047 series, published under the general title *Semiconductor devices – Micro-electromechanical 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

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

SEMICONDUCTOR DEVICES –
MICRO-ELECTROMECHANICAL DEVICES –

Part 14: Forming limit measuring method of metallic film materials

1 Scope

This part of IEC 62047 describes definitions and procedures for measuring the forming limit of metallic film materials with a thickness range from 0,5 µm to 300 µm. The metallic film materials described herein are typically used in electric components, MEMS and micro-devices.

When metallic film materials used in MEMS (see 2.1.2 of IEC 62047-1:2005) are fabricated by a forming process such as imprinting, it is necessary to predict the material failure in order to increase the reliability of the components. Through this prediction, the effectiveness of manufacturing MEMS components by a forming process can also be improved, because the period of developing a product can be reduced and manufacturing costs can thus be decreased. This standard presents one of the prediction methods for material failure in imprinting process.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 62047-1:2005, *Semiconductor devices – Micro-electromechanical devices – Part 1: Terms and definitions*

3 Terms, definitions and symbols

3.1 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 62047-1 and the following apply.

3.1.1
circular grid
grid used for measuring the localized deformation of the specimens within the circle

3.1.2
grid patterns
pattern marked on the surface of the testing material permitting immediate and direct measurement of the formability for the metallic film materials

Note 1 to entry The grid consists of a pattern of small circles or rectangles.

3.1.3
major axis
longest line of the deformed elliptical shape, which passes through both focuses of the ellipse