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STN	**Polovodičové súčiastky. Elektromechanické mikrosúčiastky. Časť 25: Výrobná technológia silikónových MEMS materiálov. Metódy merania ťažnej a tlakovej pevnosti a pevnosti v strihu spájaných mikroplôch.**	**STN EN 62047-25** 35 8792

Semiconductor devices - Micro-electromechanical devices - Part 25: Silicon based MEMS fabrication technology - Measurement method of pull-press and shearing strength of micro bonding area

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 03/17

Obsahuje: EN 62047-25:2016, IEC 62047-25:2016

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 62047-25

November 2016

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English Version

Semiconductor devices - Micro-electromechanical devices - Part 25: Silicon based MEMS fabrication technology - Measurement method of pull-press and shearing strength of micro bonding area (IEC 62047-25:2016)

Dispositifs à semiconducteurs - Dispositifs microélectromécaniques - Partie 25: Technologie de fabrication de MEMS à base de silicium - Méthode de mesure de la résistance à la traction-compression et au cisaillement d'une micro zone de brasure (IEC 62047-25:2016)

Halbleiterbauelemente - Bauelemente der Mikrosystemtechnik - Teil 25: Siliziumbasierte MEMS-Herstellungstechnologie - Messverfahren zur Zug-Druck- und Scherfestigkeit gebondeter Flächen im Mikrometerbereich (IEC 62047-25:2016)

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Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

Ref. No. EN 62047-25:2016 E

EN 62047-25:2016

European foreword

The text of document 47F/249/FDIS, future edition 1 of IEC 62047-25, prepared by SC 47F “Microelectromechanical systems” of IEC/TC 47 “Semiconductor devices" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 62047-25:2016.

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)	2017-07-03
• latest date by which the national standards conflicting with the document have to be withdrawn	(dow)	2019-10-03

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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 1 When an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: www.cenelec.eu

Publication	Year	Title	EN/HD	Year
IEC 62047-1	-	Semiconductor devices - Micro-electromechanical devices - Part 1: Terms and definitions	EN 62047-1	-
ISO 10012	-	Measurement management systems - Requirements for measurement processes and measuring equipment	EN ISO 10012	-

IEC 62047-25

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SEMICONDUCTOR DEVICES – MICRO-ELECTROMECHANICAL DEVICES –

Part 25: Silicon based MEMS fabrication technology – Measurement method of pull-press and shearing strength of micro bonding area

FOREWORD

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International Standard IEC 62047-25 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/249/FDIS	47F/252/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.

The committee has decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC website 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.

IMPORTANT – The 'colour inside' logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.

SEMICONDUCTOR DEVICES – MICRO-ELECTROMECHANICAL DEVICES –

Part 25: Silicon based MEMS fabrication technology – Measurement method of pull-press and shearing strength of micro bonding area

1 Scope

This part of IEC 62047 specifies the in-situ testing method to measure the bonding strength of micro bonding area which is fabricated by micromachining technologies used in silicon-based micro-electromechanical system (MEMS).

This document is applicable to the in-situ pull-press and shearing strength measurement of the micro bonding area fabricated by microelectronic technology process and other micromachining technology.

Micro anchor, fixed on the substrate through the micro bonding area, provides mechanical support of the movable sensing/actuating functional components in MEMS devices. With the devices scaling, the bonding strength degradation, induced by defects, contaminations and thermal mismatch stress on bonding surface, becomes severer. This standard specifies an in-situ testing method of the pull-press and shearing strength based on a patterned technique. This document does not need intricate instruments (such as scanning probe microscopy and nanoindenter) and to prepare the test specimen specially.

Since the testing structure in this standard can be implanted in device fabrication as a standard detection pattern, this document can provide a bridge, by which the fabrication foundry can give some quantitative reference for the designer.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 62047-1, *Semiconductor devices – Micro-electromechanical devices – Part 1: Terms and definitions*

ISO 10012, *Measurement management systems – Requirements for measurement processes and measuring equipment*