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Standards

Irish Standard
I.S. EN 62047-25:2016

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

I.S. EN 62047-25:2016

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National Foreword

I.S. EN 62047-25:2016 is the adopted Irish version of the European Document EN 62047-25:2016, Semiconductor devices - Micro-electromechanical devices - Part 25: Silicon based MEMS fabrication technology - Measurement method of pull-press and shearing strength of micro bonding area

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EUROPEAN STANDARD
NORME EUROPÉENNE
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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
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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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European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

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

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.

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publication of an identical national
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Annex ZA

(normative)

Normative references to international publications with their corresponding European publications

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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

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
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	-

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Edition 1.0 2016-08

INTERNATIONAL STANDARD

NORME INTERNATIONALE



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INTERNATIONAL STANDARD

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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.

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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

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*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 62047-1 and ISO 10012 and the following apply.

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