Semiconductor devices - Micro-electromechanical devices - Part 26: Description and measurement methods for micro trench and needle structures

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NATIONAL FOREWORD

See Eesti standard EVS-EN 62047-26:2016 sisaldab Euroopa standardi EN 62047-26:2016 ingliskeelset teksti.	This Estonian standard EVS-EN 62047-26:2016 consists of the English text of the European standard EN 62047-26:2016.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 22.04.2016.	Date of Availability of the European standard is 22.04.2016.
Standard on kättesaadav Eesti Standardikeskusest.	The standard is available from the Estonian Centre for Standardisation.

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile standardiosakond@evs.ee.

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English Version

Semiconductor devices - Micro-electromechanical devices – Part 6: Description and measurement methods for micro trench and needle structures (IEC 62047-26:2016)

Dispositifs à semiconducteurs - Dispositifs microélectromécaniques - Partie 26: Description et méthodes de mesure pour structures de microtranchées et de microaiguille (IEC 62047-26:2016)

Halbleiterbauelemente - Bauelemente der Mikrosystemtechnik - Teil 26: Beschreibung und Messverfahren für Mikro-Rillen und Nadelstrukturen (IEC 62047-26:2016)

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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

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European foreword

The text of document 47F/233/FDIS, future edition 1 of IEC 62047-26, 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 62047-26:2016.

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) 2016-11-11
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2019-02-11

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Endorsement notice

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In the official version, for Bibliography, the following note has to be added for the standard indicated :

ISO 3274:1996	NOTE	Harmonized as EN ISO 3274:1997 (not modified).

CONTENTS

SEMICONDUCTOR DEVICES – MICRO-ELECTROMECHANICAL DEVICES –

Part 26: Description and measurement methods for micro trench and needle structures

1 Scope

This part of IEC 62047 specifies descriptions of trench structure and needle structure in a micrometer scale. In addition, it provides examples of measurement for the geometry of both structures. For trench structures, this standard applies to structures with a depth of 1 μm to 100 μm; walls and trenches with respective widths of 5 μm to 150 μm; and aspect ratio of 0,006 7 to 20. For needle structures, the standard applies to structures with three or four faces with a height, horizontal width and vertical width of 2 μm or larger, and with dimensions that fit inside a cube with sides of 100 μm.

This standard is applicable to the structural design of MEMS and geometrical evaluation after MEMS processes.

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.

None.

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1
trench structure
one or more rectangular structures engraved in a planar substrate, with a constant trapezoidal cross section profile

3.2
needle structure
projecting structures with a pointed tip formed of three or more faces, formed on a planar substrate with the plane of symmetry in the vertical plane

3.3
wall and trench
two or more of the trench structures arranged in parallel at regular intervals

3.4
scallop
irregularity formed cyclically in the side walls after a deep-reactive ion etching (DRIE) process with repeated deposition and selective etching of polymeric passivation layer and then etching of a silicon substrate