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Semiconductor devices - Micro-electromechanical devices - Part 16: Test methods for determining residual stresses of MEMS films
Wafer curvature and cantilever beam deflection methods

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. 11/15

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EUROPEAN STANDARD

EN 62047-16

NORME EUROPÉENNE

EUROPÄISCHE NORM

July 2015

ICS 31.080.99

English Version

**Semiconductor devices - Micro-electromechanical devices - Part
16: Test methods for determining residual stresses of MEMS
films - Wafer curvature and cantilever beam deflection methods
(IEC 62047-16:2015)**

Dispositifs à semiconducteurs - Dispositifs
microélectromécaniques - Partie 16: Méthodes d'essai pour
déterminer les contraintes résiduelles des films de MEMS -
Méthodes de la courbure de la plaquette et de déviation de
poutre en porte-à-faux
(IEC 62047-16:2015)

Halbleiterbauelemente - Bauelemente der
Mikrosystemtechnik - Teil 16: Messverfahren zur Ermittlung
der Eigenspannungen in Dünnschichten von MEMS-
Bauteilen - Substratkrümmungs- und Biegebalken-
Verfahren
(IEC 62047-16:2015)

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The text of document 47F/209/FDIS, future edition 1 of IEC 62047-16, 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 62047-16:2015.

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<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 62047-21	-	Semiconductor devices -- Micro-electromechanical devices -- Part 21: Test method for Poisson's ratio of thin film MEMS materials	EN 62047-21	-



INTERNATIONAL STANDARD

NORME INTERNATIONALE



**Semiconductor devices – Micro-electromechanical devices –
Part 16: Test methods for determining residual stresses of MEMS films – Wafer
curvature and cantilever beam deflection methods**

**Dispositifs à semiconducteurs – Dispositifs microélectromécaniques –
Partie 16: Méthodes d'essai pour déterminer les contraintes résiduelles des
films de MEMS – Méthodes de la courbure de la plaquette et de déviation de
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INTERNATIONAL STANDARD

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**SEMICONDUCTOR DEVICES –
MICRO-ELECTROMECHANICAL DEVICES –**
**Part 16: Test methods for determining residual stresses of MEMS films –
Wafer curvature and cantilever beam deflection methods**
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International Standard IEC 62047-16 has been prepared by subcommittee 47F: Micro-electromechanical systems, of IEC technical committee 47: Semiconductor devices.

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FDIS	Report on voting
47F/209/FDIS	47F/214/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 16: Test methods for determining residual stresses of MEMS films – Wafer curvature and cantilever beam deflection methods

1 Scope

This part of IEC 62047 specifies the test methods to measure the residual stresses of films with thickness in the range of 0,01 μm to 10 μm in MEMS structures fabricated by wafer curvature or cantilever beam deflection methods. The films should be deposited onto a substrate of known mechanical properties of Young's modulus and Poisson's ratio. These methods are used to determine the residual stresses within thin films deposited on substrate [1]¹.

2 Normative references

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IEC 62047-21, *Semiconductor devices – Micro-electromechanical devices – Part 21: Test method for Poisson's ratio of thin film MEMS materials*

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