IEC 62951-2

Edition 1.0 2019-04

INTERNATIONAL STANDARD

NORME INTERNATIONALE

colour inside

Semiconductor devices – Flexible and stretchable semiconductor devices – Part 2: Evaluation method for electron mobility, sub threshold swing, and threshold voltage of flexible devices

Dispositifs à semiconducteurs – Dispositifs à semiconducteurs souples et extensibles – Partie 2: Méthode d'évaluation pour la mobilité des électrons, la pente en régime de sous-seuil et la tension de seuil des dispositifs souples

IEC 62951-2:2019-04

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

COMMISSION ELECTROTECHNIQUE INTERNATIONALE

ICS 31.080.99

ISBN 978-2-8322-6817-9

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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Part 2: Evaluation method for electron mobility, sub-threshold swing, and threshold voltage of flexible devices

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The text of this International Standard is based on the following documents:

FDIS	Report on voting
47/2541/FDIS	47/2564/RVD

Full information on the voting for the approval of this International Standard can be found in the report on voting indicated in the above table.

This document has been drafted in accordance with the ISO/IEC Directives, Part 2.

A list of all parts in the IEC 62951 series, published under the general title *Semiconductor devices – Flexible and stretchable semiconductor devices*, can be found on the IEC website.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under "http://webstore.iec.ch" in the data related to the specific document. At this date, the document will be

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- withdrawn,
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SEMICONDUCTOR DEVICES – FLEXIBLE AND STRETCHABLE SEMICONDUCTOR DEVICES –

Part 2: Evaluation method for electron mobility, sub-threshold swing, and threshold voltage of flexible devices

1 Scope

This part of IEC 62951 specifies terms, definitions, symbols, configurations and evaluation methods that can be used to evaluate and determine the performance characteristics of flexible thin-film transistor (TFT) devices. This document specifies test methods and characteristic parameters for accurately evaluating the performance and reliability in practical use of flexible TFT devices under the bending status.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

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

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- • IEC Electropedia: available at http://www.electropedia.org/
- • ISO Online browsing platform: available at http://www.iso.org/obp

3.1
flexible thin-film transistor
flexible TFT
thin-film transistor fabricated on mechanically flexible substrates such as polymers and metal foils

Note 1 to entry: This note applies to the French language only.

3.2
mobility
<of an electron> quantity equal to the quotient of the modulus of the mean velocity of a charge carrier (electron) in the direction of an electric field by the modulus of the field strength

[SOURCE: IEC 60050-521:2002, 521-02-58, modified — "electron" has been added.]

3.3
sub-threshold swing
S
parameter for quantifying how sharply the transistor is turned off by the gate voltage, defined by the following formula

$$s = \ln(10)\frac{kT}{q}\left(1+\frac{C_d}{C_{ox}}\right)$$