

INTERNATIONAL STANDARD



**Semiconductor devices – Flexible and stretchable semiconductor devices –
Part 3: Evaluation of thin film transistor characteristics on flexible substrates
under bulging**



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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**SEMICONDUCTOR DEVICES –
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**Part 3: Evaluation of thin film transistor characteristics
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The text of this International Standard is based on the following documents:

FDIS	Report on voting
47/2492/FDIS	47/2511/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.

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INTRODUCTION

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SEMICONDUCTOR DEVICES – FLEXIBLE AND STRECHABLE SEMICONDUCTOR DEVICES –

Part 3: Evaluation of thin film transistor characteristics on flexible substrates under bulging

1 Scope

This part of IEC 62951 specifies the method for evaluating thin film transistor characteristics on flexible substrates under bulging. The thin film transistor is fabricated on flexible substrates, including polyethylene terephthalate (PET), polyimide (PI), elastomer and others. The stress is applied by applying a uniformly-distributed pressure to the flexible substrate using the equipment.

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 62047-17, *Semiconductor devices – Micro-electromechanical devices – Part 17: Bulge test method for measuring mechanical properties of thin films*

IEC 60747-8, *Semiconductor devices – Discrete devices – Part 8: Field-effect transistors*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 62047-17, in IEC 60747-8 and the following apply.

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- IEC Electropedia: available at <http://www.electropedia.org/>
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3.1

flexible substrate

substrate with flexibility onto which a thin film transistor is fabricated

4 Test piece

4.1 General

The test piece shall be prepared using the thin film transistor fabrication process on flexible substrates. The mechanical and electrical properties of thin film transistors may depend on the fabrication processes. Thin film transistors shall be prepared to prevent formation of cracks or flaws and delamination from the substrate.