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# INTERNATIONAL STANDARD



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## Semiconductor devices – Stress migration test standard – Part 1: Copper stress migration test standard

INTERNATIONAL  
ELECTROTECHNICAL  
COMMISSION

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## CONTENTS

FOREWORD.....	3
1 Scope .....	5
2 Normative references .....	5
3 Terms and definitions .....	5
4 Test method .....	7
4.1 Test structures .....	7
4.2 Test equipment .....	11
4.3 Test temperatures .....	11
4.4 Test conditions, sample size and measurements .....	11
4.5 Failure criteria .....	11
4.6 Passing criteria .....	11
5 Data to be reported .....	12
Annex A (informative) Explanation for stress migration, stress induced voiding – Temperature, geometry dependence .....	13
A.1 Stress-induced voids .....	13
A.2 Stress temperature .....	13
A.3 Geometry linewidth dependence of SIV risk .....	14
A.4 VIA size dependence of SIV risk .....	16
A.5 SIV under multiple VIAs .....	17
A.6 Metal thickness dependence of SIV risk .....	17
A.7 SM lifetime model .....	18
A.8 Sensitivity for test structure .....	19
Annex B (informative) Example of geometry dependence for nose pattern .....	21
B.1 General .....	21
B.2 Geometry factor .....	21
Bibliography .....	23
Figure 1 – SM test structure sketches .....	8
Figure 2 – SM test structure sketches – Illustrative sketches of proposed optional SM test structures .....	10
Figure A.1 – Temperature dependent behaviour of SM MTF values of 5 µm VIA chains in the range of 125 °C – 275 °C .....	14
Figure A.2 – Power-law relation of MTF vs linewidth .....	15
Figure A.3 – Median time-to-fail SM data as a function of VIA sizes .....	16
Figure A.4 – Hydrostatic stress gradient at near room temperatures vs VIA size (area) .....	16
Figure A.5 – FA images of two VIA case and MTF vs multiple VIA of SM .....	17
Figure A.6 – Metal thickness versus resistance increase under SM tests .....	18
Figure A.7 – Stress profile of conventional and VIM VIA chains .....	19
Figure A.8 – SM data of conventional and VIM VIA chains .....	20
Figure B.1 – Representation of real product interconnect .....	21
Figure B.2 – Representation of SM nose pattern .....	21
Figure B.3 – Failure rate – Body area dependence with nose pattern .....	22

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STRESS MIGRATION TEST STANDARD –****Part 1: Copper stress migration test standard****FOREWORD**

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

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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 62880 series, published under the general title *Semiconductor devices – Stress migration test standard*, 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 – STRESS MIGRATION TEST STANDARD –**

### **Part 1: Copper stress migration test standard**

#### **1 Scope**

This part of IEC 62880 describes a constant temperature (isothermal) aging method for testing copper (Cu) metallization test structures on microelectronics wafers for susceptibility to stress-induced voiding (SIV). This method is to be conducted primarily at the wafer level of production during technology development, and the results are to be used for lifetime prediction and failure analysis. Under some conditions, the method can be applied to package-level testing. This method is not intended to check production lots for shipment, because of the long test time.

Dual damascene Cu metallization systems usually have liners, such as tantalum (Ta) or tantalum nitride (Ta<sub>2</sub>N<sub>5</sub>) on the bottom and sides of trenches etched into dielectric layers. Hence, for structures in which a single via contacts a wide line below it, a void under the via can cause an open circuit at almost the same time as any percentage resistance shift that would satisfy a failure criterion.

#### **2 Normative references**

There are no normative references in this document.

NOTE Related documents are listed in the Bibliography.