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# INTERNATIONAL STANDARD

# NORME INTERNATIONALE

## Test methods for electrical materials, printed boards and other interconnection structures and assemblies –
## Part 5-601: General test methods for materials and assemblies – Reflow soldering ability test for solder joint, and reflow heat resistance test for printed boards

## Méthodes d'essai pour les matériaux électriques, les cartes imprimées et autres structures d'interconnexion et ensembles –
## Partie 5-601: Méthodes d'essai générales pour les matériaux et les assemblages – Essai d'aptitude au brasage par refusion pour un joint brasé, et essai de résistance à la chaleur de refusion pour les cartes imprimées

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CONTENTS

FOREWORD .... 6
1 Scope .... 8
2 Normative references .... 8
3 Terms and definitions .... 9
4 Grouping of soldering processes and related test severities .... 10
5 Specimens .... 11
5.1 Devices .... 11
5.2 Test substrate .... 13
5.3 Solder paste .... 13
5.4 Solder ball .... 14
6 Apparatus and equipment .... 14
6.1 Constant temperature and humidity testing equipment .... 14
6.2 Device-mounting equipment .... 15
6.3 X-ray transmission equipment .... 15
6.4 Electrical resistance recorder .... 15
6.5 Warpage measurement equipment .... 15
6.6 Temperature cycling chamber .... 16
6.7 Pull strength test equipment .... 16
7 $Tg_1$ Solder joint initial quality after reflow .... 16
7.1 General .... 16
7.2 Specimen preparation .... 16
7.3 Pre-process .... 16
7.3.1 Pre-conditioning .... 16
7.3.2 Initial measurement .... 16
7.3.3 Moistening process (1) .... 17
7.3.4 Baking and warp correction .... 17
7.3.5 Pre-reflow heating .... 17
7.3.6 Moistening process (2) .... 17
7.4 Assembly process .... 17
7.4.1 Solder paste printing .... 17
7.4.2 Device mounting .... 18
7.4.3 Reflow heating .... 21
7.5 Recovery .... 22
7.6 Final measurement .... 22
8 $Tg_2$ warpage of component and printed boards in reflow process .... 22
8.1 General .... 22
8.2 Specimen preparation .... 22
8.3 Assembly process .... 23
8.3.1 Initial measurement .... 23
8.3.2 Baking and warp correction .... 23
8.3.3 Pre-reflow heating .... 23
8.4 Final measurement .... 23
8.4.1 Warpage measurement .... 23
8.4.2 Measurement area .... 23
8.4.3 Gap measurement .... 23

9 $Tg_3$ Resistance to soldering heat of printed boards ........ 25
9.1 General ........ 25
9.2 Specimen preparation ........ 26
9.3 Pre-process ........ 26
9.3.1 Pre-conditioning ........ 26
9.3.2 Initial measurement ........ 26
9.3.3 Moistening process (1) ........ 26
9.3.4 Baking and warp correction ........ 26
9.4 Reflow heating ........ 26
9.5 Final measurement ........ 27
10 $Tg_4$ Wetting and dewetting of a printed-board land ........ 27
10.1 General ........ 27
10.2 Specimen preparation ........ 27
10.3 Pre-process ........ 27
10.3.1 Pre-conditioning ........ 27
10.3.2 Initial measurement ........ 28
10.3.3 Moistening process (1) ........ 28
10.3.4 Pre-baking ........ 28
10.3.5 Pre-reflow heating ........ 28
10.3.6 Moistening process (2) ........ 28
10.4 Assembly process ........ 28
10.4.1 Solder paste printing ........ 28
10.4.2 Reflow heating ........ 28
10.5 Final measurement ........ 29
10.5.1 Measurement ........ 29
10.5.2 Flux removal ........ 30
11 $Tg_5$ Resistance to dissolution of a printed-board land ........ 30
11.1 General ........ 30
11.2 Specimen preparation ........ 31
11.3 Pre-process ........ 31
11.3.1 Pre-conditioning ........ 31
11.3.2 Initial measurement ........ 31
11.4 Assembly process ........ 31
11.4.1 Solder paste printing ........ 31
11.4.2 Reflow heating ........ 31
11.5 Final measurement ........ 31
11.5.1 Observation ........ 31
11.5.2 Observation method ........ 32
11.5.3 Measurement ........ 32
11.5.4 Example of influence upon occurrence of dissolution ........ 33
12 $Tg_6$ Pull strength of the test substrate land ........ 33
12.1 General ........ 33
12.2 Specimen preparation ........ 34
12.3 Pre-process ........ 34
12.3.1 Pre-conditioning ........ 34
12.3.2 Initial measurement ........ 34
12.3.3 Pre-baking ........ 34
12.3.4 Pre-reflow heating ........ 34

12.4 Assembly process ... 34
12.4.1 Solder paste printing ... 34
12.4.2 Solder ball placement ... 34
12.4.3 Reflow heating process ... 35
12.5 Final measurement ... 35
12.5.1 Pull strength measurement ... 35
12.5.2 Pull strength measuring method A – Probe heat bond method ... 35
12.5.3 Pull strength measuring method B – Ball pinch method ... 35
12.5.4 Pull strength measuring method C – Pin pull down method ... 36
12.5.5 Pull strength measuring method D – Lead pull method ... 36
12.5.6 Final observation ... 36
Annex A (informative) Test process items and meaning of processing contents and condition ... 38
A.1 General ... 38
A.2 Meaning of processing contents and condition ... 38
A.3 Test process items ... 38
Bibliography ... 40

Figure 1 – Example of a test circuit for the electrical continuity test of a solder joint ... 12
Figure 2 – Example of area array type packages ... 12
Figure 3 – Example of leaded type devices ... 12
Figure 4 – Example of leadless termination type devices ... 12
Figure 5 – Example of connector for card type devices ... 13
Figure 6 – Example of shielding metal components ... 13
Figure 7 – Recommended solder ball shape ... 14
Figure 8 – Test procedure for $Tg_1$ ... 16
Figure 9 – Example of printed conditions of solder paste ... 18
Figure 10 – Typical reflow soldering profile for Sn63Pb37 solder alloy ... 18
Figure 11 – Typical reflow soldering profile for Sn96,5Ag3Cu,5 solder alloy ... 19
Figure 12 – Reflow temperature profile for soldering ability ... 20
Figure 13 – Temperature measurement of the package device using thermocouples ... 21
Figure 14 – Temperature measurement of other specimen using thermocouples ... 21
Figure 15 – Test procedure for $Tg_2$ ... 22
Figure 16 – Contact point ... 24
Figure 17 – Maximum gap ... 25
Figure 18 – Test procedure for $Tg_3$ ... 26
Figure 19 – Test procedure for $Tg_4$ ... 27
Figure 20 – State of solder wetting ... 30
Figure 21 – Solder contact angle ... 30
Figure 22 – Test procedure for $Tg_5$ ... 31
Figure 23 – Evaluation of resistance to dissolution of land ... 32
Figure 24 – Cross-section observation ... 33
Figure 25 – Test procedure for $Tg_6$ ... 34
Figure 26 – Measuring methods for pull strength ... 35

Figure 27 – Breaking modes in pull strength test ........ 37

Table 1 – Test items defined in this standard ........ 8
Table 2 – Grouping of soldering processes and typical test severities – Overview ........ 11
Table 3 – Stencil design standard for devices ........ 15
Table 4 – Maximum reflow heating conditions ........ 20
Table 5 – Minimum reflow heating conditions ........ 21
Table 6 – Wetting level ........ 29
Table A.1 – Meaning of processing contents and condition ........ 38
Table A.2 – Test process items and clauses ........ 39

INTERNATIONAL ELECTROTECHNICAL COMMISSION

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# TEST METHODS FOR ELECTRICAL MATERIALS, PRINTED BOARDS AND OTHER INTERCONNECTION STRUCTURES AND ASSEMBLIES –

# Part 5-601: General test methods for materials and assemblies – Reflow soldering ability test for solder joint, and reflow heat resistance test for printed boards

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| Draft | Report on voting |
|---|---|
| 91/1601/CDV | 91/1674/RVC |

Full information on the voting for its approval can be found in the report on voting indicated in the above table.

The language used for the development of this International Standard is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/standardsdev/publications.

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# TEST METHODS FOR ELECTRICAL MATERIALS, PRINTED BOARDS AND OTHER INTERCONNECTION STRUCTURES AND ASSEMBLIES –

# Part 5-601: General test methods for materials and assemblies – Reflow soldering ability test for solder joint, and reflow heat resistance test for printed boards

## 1 Scope

This part of IEC 61189 specifies the reflow soldering ability test method for components mounted on organic rigid printed boards, the reflow heat resistance test method for organic rigid printed boards, and the reflow soldering ability test method for the lands of organic rigid printed boards in applications using solder alloys, which are eutectic or near-eutectic tin-lead (Pb), or lead-free alloys.

The printed boards materials for this organic rigid printed boards are epoxide woven E-glass laminated sheets that are specified in IEC 61249-2 (all parts).

The objective of this document is to ensure the soldering ability of the solder joint and of the lands of the printed boards. In addition, test methods are provided to ensure that the printed boards can resist the heat load to which they are exposed during soldering.

This document covers tests $Tg_1$, $Tg_2$, $Tg_3$, $Tg_4$, $Tg_5$, and $Tg_6$ listed in Table 1:

**Table 1 – Test items defined in this document**

| Number of test method | Test | Method |
|---|---|---|
| $Tg_1$ | Solder joint initial quality after reflow | Reflow |
| $Tg_2$ | Warpage of component and printed boards in reflow process | |
| $Tg_3$ | Resistance to soldering heat of printed boards | |
| $Tg_4$ | Wetting and dewetting of printed board land | |
| $Tg_5$ | Resistance to dissolution of printed board land | |
| $Tg_6$ | Pull strength of the test substrate land | |

NOTE The test methods do not apply to the solder bath method.

## 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 60068-2 (all parts), *Environmental testing*

IEC 60068-2-14, *Environmental testing – Part 2-14: Tests – Test N: Change of temperature*