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TECHNICAL REPORT

Surface mounting technology –
Part 5-1: Surface strain on circuit boards – Strain gauge measurement applied to chip components

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CONTENTS

FOREWORD 4
INTRODUCTION 6
1 Scope 7
2 Normative references 7
3 Terms and definitions 7
4 Damaging mechanisms of chip type ceramic components 7
4.1 Surface strain by board bending 7
4.2 Typical cracking modes 8
4.3 Measurement of local strain 9
5 Crack prevention 9
5.1 Strain control 9
5.2 Critical board design factors 9
5.2.1 Distance from circuit board cutting position 9
5.2.2 Distance from screw clamping position 9
5.2.3 Mounting direction 10
5.2.4 Warpage 10
5.2.5 Orientation of the component related with the loading point 10
5.3 Critical assembly process factors 10
5.3.1 General 10
5.3.2 Circuit board singulation 10
5.3.3 Circuit board fitting into the housing 10
5.3.4 Screw clamp 10
5.3.5 Manual handling 11
5.3.6 ICT (In-Circuit Test) / FT (Functional Test) / Programming on assembly level 11
6 Example of an instruction on board preparation for strain measurement 11
6.1 General 11
6.1.1 Introductory statement 11
6.1.2 Theory of strain gauge measurement 11
6.1.3 3-axes strain measurement 12
6.2 Position of strain gauges (example) 13
6.2.1 General 13
6.2.2 Determination of critical positions on a circuit board 13
6.2.3 Rules for determination of sample size for performing the investigations 13
6.3 Attachment of strain gauges (example) 13
6.3.1 Step 1 – Remove components 13
6.3.2 Step 2 – Polish the attachment area 14
6.3.3 Step 3 – Indication of attachment point 14
6.3.4 Step 4 – Application of instant glue 15
6.3.5 Step 5 – Attachment of strain gauge 16
7 Typical mistakes and faults occurring in practice 16
7.1 Strain gauge attachment 16
7.2 Wrong type of strain gauge used 16
7.3 Circuit board without components is used 16
7.4 Irregular stress is not considered 16
7.5 Insufficient measurement settings 17

8 Evaluation of data and report 17
9 Assembly process control 18
9.1 Machine/Process capability 18
9.2 Machine maintenance 18
Annex A (informative) Examples and relevant processes 19
A.1 Typical measurement results – Press-fit operation, Example 1 19
A.2 Typical measurement results – Press-fit operation, Example 2 20
A.3 Typical measurement results – Housing assembly by screwing 22
A.4 Typical critical processes 23
Bibliography 24

Figure 1 – Mechanical stress by board bending 8
Figure 2 – Strain simulation 8
Figure 3 – Typical bending crack at a ceramic capacitor 8
Figure 4 – Longitudinal stress 8
Figure 5 – Diagonal stress 9
Figure 6 – Strain control and bending strength 9
Figure 7 – Strain during screwing 11
Figure 8 – Resistor bridge for strain measurement 12
Figure 9 – 3-axes strain gauge and maximum principle strain 12
Figure 10 – De-soldering of components 14
Figure 11 – Polishing the attachment area 14
Figure 12 – Marking of the attachment point 14
Figure 13 – Application of glue by transfer from polyethylene sheet 15
Figure 14 – Direct application of glue 15
Figure A.1 – Dosing control unit for exhaust treatment system equipped with a connector using compliant press-fit technology 19
Figure A.2 – Top and bottom side of circuit assembly of dosing control unit with strain gauges replacing passive multilayer chip capacitors 19
Figure A.3 – Strain measurement evolution for the different strain gauges during the press-in process 20
Figure A.4 – Press fit – Strain measurements using different strain gauges and positions 21
Figure A.5 – Screwing – Strain measurements using different strain gauges and positions 22

Table A.1 – Strain measurement results with different gauges and placements 21
Table A.2 – Strain measurement results with different gauges and placements 22

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IEC TR 61760-5-1 has been prepared by IEC technical committee 91: Electronics assembly technology. It is a Technical Report.

The text of this Technical Report is based on the following documents:

Draft	Report on voting
91/1915/DTR	91/1927/RVDTR

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 Technical Report 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.

A list of all parts in the IEC 61760 series, published under the general title *Surface mounting technology*, 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 webstore.iec.ch in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn, or
- revised.

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INTRODUCTION

This Technical Report applies to electronic and electromechanical circuit board assemblies and describes current best-practices for dealing with mechanical stress induced cracks in the body of surface-mount ceramic components soldered onto circuit boards.

Circuit boards are becoming smaller and thinner, design margins are decreasing, and components are becoming more sensitive to mechanical stresses. In consequence in-depth strain control on a circuit board is getting more and more important to prevent mechanical damage to components.

This Technical Report is an informative document which serves to illustrate the technically feasible options and provides a basis for customer and supplier discussions and agreements. It is based on many years of experience of component manufacturers and users in measuring surface strain on circuit board surfaces during various assembly processes. It is not intended to be regarded as a specification or standard. Formulations and data expressed in the form of provision such as requirements or recommendations do not claim to be provisions and are just suggested as the results of the discussion.

Related standards are gathered in the bibliography.

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1 Scope

This document describes examples of methods using electrical strain gauges for determination of critical mechanical stresses in assembly processes. These stresses can damage chip type ceramic components, causing so called “bending cracks”. Area-array components are excluded from the scope of this document.

2 Normative references

There are no normative references in this document.