IEC 61760-3

Edition 1.0 2010-03

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Surface mounting technology – Part 3: Standard method for the specification of components for through hole reflow (THR) soldering

iTeh STANDARD PREVIEW
(standards.iteh.ai)
IEC 61760-3:2010
https://standards.iteh.ai/catalog/standards/sist/c6359db9-a672-4b9b-ac75-

Technique du montage en surface – Partie 3: Méthode normalisée relative à la spécification des composants pour le brasage par refusion à trous traversants (THR, Through Hole Reflow)

IEC 61760-3:2010

THIS PUBLICATION IS COPYRIGHT PROTECTED

Copyright © 2010 IEC, Geneva, Switzerland

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either IEC or IEC's member National Committee in the country of the requester.
If you have any questions about IEC copyright or have an enquiry about obtaining additional rights to this publication, please contact the address below or your local IEC member National Committee for further information.

Droits de reproduction réservés. Sauf indication contraire, aucune partie de cette publication ne peut être reproduite ni utilisée sous quelque forme que ce soit et par aucun procédé, électronique ou mécanique, y compris la photocopie et les microfilms, sans l'accord écrit de la CEI ou du Comité national de la CEI du pays du demandeur.
Si vous avez des questions sur le copyright de la CEI ou si vous désirez obtenir des droits supplémentaires sur cette publication, utilisez les coordonnées ci-après ou contactez le Comité national de la CEI de votre pays de résidence.

IEC Central Office
3, rue de Varembé
CH-1211 Geneva 20
Switzerland
Email: inmail@iec.ch
Web: www.iec.ch

About the IEC

The International Electrotechnical Commission (IEC) is the leading global organization that prepares and publishes International Standards for all electrical, electronic and related technologies.

About IEC publications

The technical content of IEC publications is kept under constant review by the IEC. Please make sure that you have the latest edition, a corrigenda or an amendment might have been published.

- Catalogue of IEC publications: www.iec.ch/searchpub

The IEC on-line Catalogue enables you to search by a variety of criteria (reference number, text, technical committee,…). It also gives information on projects, withdrawn and replaced publications.

- IEC Just Published: www.iec.ch/online_news/justpub

Stay up to date on all new IEC publications. Just Published details twice a month all new publications released. Available on-line and also by email.

- Electropedia: www.electropedia.org

The world's leading online dictionary of electronic and electrical terms containing more than 20 000 terms and definitions in English and French, with equivalent terms in additional languages. Also known as the International Electrotechnical Vocabulary online.

- Customer Service Centre: www.iec.ch/webstore/custserv

If you wish to give us your feedback on this publication or need further assistance, please visit the Customer Service Centre FAQ or contact us:
Email: csc@iec.ch
Tel.: +41 22 919 02 11
Fax: +41 22 919 03 00

iTeh STANDARD PREVIEW
(standards.iteh.ai)
IEC 61760-3:2010
https://standards.iteh.ai/catalog/standards/sist/c6359db9-a672-4b9b-ac75-
05d210c35d27/iec-61760-3-2010

A propos de la CEI

La Commission Electrotechnique Internationale (CEI) est la première organisation mondiale qui élabore et publie des normes internationales pour tout ce qui a trait à l'électricité, à l'électronique et aux technologies apparentées.

A propos des publications CEI

Le contenu technique des publications de la CEI est constamment revu. Veuillez vous assurer que vous possédez l'édition la plus récente, un corrigendum ou amendement peut avoir été publié.

- Catalogue des publications de la CEI: www.iec.ch/searchpub/cur_fut-f.htm

Le Catalogue en-ligne de la CEI vous permet d'effectuer des recherches en utilisant différents critères (numéro de référence, texte, comité d'études,…). Il donne aussi des informations sur les projets et les publications retirées ou remplacées.

- Just Published CEI: www.iec.ch/online_news/justpub

Restez informé sur les nouvelles publications de la CEI. Just Published détaille deux fois par mois les nouvelles publications parues. Disponible en-ligne et aussi par email.

- Electropedia: www.electropedia.org

Le premier dictionnaire en ligne au monde de termes électroniques et électriques. Il contient plus de 20 000 termes et définitions en anglais et en français, ainsi que les termes équivalents dans les langues additionnelles. Egalement appelé Vocabulaire Electrotechnique International en ligne.

- Service Clients: www.iec.ch/webstore/custserv/custserv_entry-f.htm

Si vous désirez nous donner des commentaires sur cette publication ou si vous avez des questions, visitez le FAQ du Service clients ou contactez-nous:
Email: csc@iec.ch
Tél.: +41 22 919 02 11
Fax: +41 22 919 03 00

IEC 61760-3

Edition 1.0 2010-03

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Surface mounting technology – Part 3: Standard method for the specification of components for through hole reflow (THR) soldering

iTeh STANDARD PREVIEW
(standards.iteh.ai)
IEC 61760-3:2010
https://standards.iteh.ai/catalog/standards/sist/c6359db9-a672-4b9b-ac75-03d28b25d27/iec-61760-3-2010

Technique du montage en surface – Partie 3: Méthode normalisée relative à la spécification des composants pour le brasage par refusion à trous traversants (THR, Through Hole Reflow)

INTERNATIONAL ELECTROTECHNICAL COMMISSION

COMMISSION ELECTROTECHNIQUE INTERNATIONALE

PRICE CODE
CODE PRIX S

ICS 31.190

ISBN 978-2-88910-572-4

® Registered trademark of the International Electrotechnical Commission
Marque déposée de la Commission Electrotechnique Internationale

CONTENTS

FOREWORD 4
1 Scope and object 6
2 Normative references 6
3 Terms and definitions 7
4 Requirements to component design and component specifications 8
4.1 General requirement 8
4.2 Packaging 8
4.3 Labelling of product packaging 9
4.4 Component marking 9
4.5 Storage and transportation 10
4.6 Component outline and design 10
4.6.1 Drawing and specification 10
4.6.2 Pick-up area requirements 10
4.6.3 Bottom surface requirements 10
4.6.4 Requirements to terminals 10
4.6.5 Component height 14
4.6.6 Component weight 14
4.7 Mechanical stress 14
4.8 Component reliability 14
4.9 Additional requirements for compatibility with lead-free soldering 15
5 Specification of assembly process conditions 15
5.1 Mounting by soldering 15
5.2 Reflow soldering methods (recommended) 16
5.2.1 Vapour phase reflow soldering 16
5.2.2 Forced air convection reflow soldering 16
5.3 Cleaning (where applicable) 17
5.3.1 General 17
5.3.2 Fluid 17
5.3.3 Ultrasonic cleaning 17
5.3.4 Vapour 17
5.3.5 Spray 17
5.3.6 Plasma cleaning 17
5.4 Removal and/or replacement 17
5.4.1 Removal and/or replacement of soldered components 17
6 Typical process conditions 18
6.1 Printing of solder paste 18
6.2 Component insertion 18
6.3 Soldering processes, temperature/time profiles 18
6.3.1 Vapour phase soldering 19
6.3.2 Forced gas convection reflow soldering 20
6.4 Typical cleaning conditions for assemblies 21
6.5 Inspection of solder joints 21
7 Requirements for components and component specifications for THR soldering processes 21
7.1 General 21
7.2 Wettability 21

iTeh STANDARD PREVIEW
(standards.iteh.ai)
IEC 61760-3:2010
https://standards.iteh.ai/catalog/standards/sist/c6359db9-a672-4b9b-ac75-03d2f0c35d27/iec-61760-3-2010

7.3 Dewetting ... 22
7.4 Resistance to soldering heat ... 22
7.5 Resistance to cleaning solvent ... 22
7.5.1 Solvent resistance of component ... 22
7.5.2 Solvent resistance of marking ... 22
7.6 Soldering profiles ... 22
7.7 Moisture sensitivity level (MSL) ... 22

Figure 1 – Example of a component with marked specific orientation put in tape and tray ... 9
Figure 2 – Example of components in a tape ... 9
Figure 3 – Examples for clearances (stand-off) ... 10
Figure 4 – Examples for terminal shapes and position tolerances ... 12
Figure 5 – Schematic example of contrast of bottom surface – terminals underneath component body ... 13
Figure 6 – Schematic example of contrast of bottom surface – terminals outside component body ... 13
Figure 7 – Component weight / pipette suction strength ... 14
Figure 8 – Process steps for soldering ... 15
Figure 9 – Examples for printing of solder paste ... 18
Figure 10 – SnPb Vapour phase soldering – temperature/time profile (terminal temperature) ... 19
Figure 11 – Lead-free SnAgCu Vapour phase soldering – temperature/time profile (terminal temperature) ... 19
Figure 12 – Forced gas convection reflow soldering – temperature/time profile for SnPb solders ... 20
Figure 13 – Forced gas convection reflow soldering – temperature/time profile for lead-free SnAgCu solders ... 20

Table 1 – Basic cleaning processes ... 21

iTeh STANDARD PREVIEW
(standards.iteh.ai)
IEC 61760-3:2010
https://standards.iteh.ai/catalog/standards/sist/c6359db9-a672-4b9b-ac75-03d2f0c35d27/iec-61760-3-2010

INTERNATIONAL ELECTROTECHNICAL COMMISSION

____

SURFACE MOUNTING TECHNOLOGY –

Part 3: Standard method for the specification of components for through hole reflow (THR) soldering

FOREWORD

1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.
3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.
6) All users should ensure that they have the latest edition of this publication.
7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

iTeh STANDARD PREVIEW
(standards.iteh.ai)
IEC 61760-3:2010
https://standards.iteh.ai/catalog/standards/sist/c6359db9-a672-4b9b-ac75-
03d2f0c35d27/iec-61760-3-2010

International Standard IEC 61760-3 has been prepared by IEC technical committee 91: Electronics assembly technology.

The text of this standard is based on the following documents:

CDV	Report on voting
91/856/CDV	91/898/RVC

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

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

A list of all parts of the IEC 61760 series, under the general title *Surface mounting technology* can be found on the IEC website.

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

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

IMPORTANT – The 'colour inside' logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.

iTeh STANDARD PREVIEW
(standards.iteh.ai)
IEC 61760-3:2010
https://standards.iteh.ai/catalog/standards/sist/c6359db9-a672-4b9b-ac75-03d2f0c35d27/iec-61760-3-2010

SURFACE MOUNTING TECHNOLOGY –

Part 3: Standard method for the specification of components for through hole reflow (THR) soldering

1 Scope and object

This part of IEC 61760 gives a reference set of requirements, process conditions and related test conditions to be used when compiling specifications of electronic components that are intended for usage in through hole reflow soldering technology.

The object of this standard is to ensure that components with leads intended for through hole reflow and surface mounting components can be subjected to the same placement and mounting processes. Hereto, this standard defines test and requirements that need to be part of any component generic, sectional or detail specification, when through hole reflow soldering is intended. Further this standard provides component users and manufacturers with a reference set of typical process conditions used in through hole reflow soldering technology.

2 Normative references

iTeh STANDARD PREVIEW
(standards.iteh.ai)

The following referenced documents are indispensable for the application 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 61760-3:2010
https://standards.iteh.ai/catalog/standards/sist/c8359db9-a672-4b9b-ac75-03d2f0c35d27/iec-61760-3-2010

IEC 60062, *Marking codes for resistors and capacitors*

IEC 60068 (all parts), *Environmental testing*

IEC 60068-2-20, *Environmental testing – Part 2-20: Tests – Test T: Test methods for solderability and resistance to soldering heat of devices with leads*

IEC 60068-2-21, *Environmental testing – Part 2-21: Tests – Test U: Robustness of terminations and integral mounting devices*

IEC 60068-2-45:1980, *Basic environmental testing procedures – Part 2-45: Tests – Test XA and guidance: Immersion in cleaning solvents*
Amendment 1:1993

IEC 60068-2-58, *Environmental testing – Part 2-58: Tests – Test Td: Test methods for solderability resistance to dissolution of metallization and to soldering heat of surface mounting devices (SMD)*

IEC 60068-2-77, *Environmental testing – Part 2-77: Tests – Body strength and impact shock*

IEC 60068-2-82, *Environmental testing – Part 2-82: Tests – Test XW_1: Whisker test methods for electronic and electric components*

IEC 60194, *Printed board design, manufacture and assembly – Terms and definitions*

IEC 60286 (all parts), *Packaging of components for automatic handling*

IEC 60286-3, *Packaging of components for automatic handling – Part 3: Packaging of surface mount components on continuous tapes*

IEC 60286-4, *Packaging of components for automatic handling – Part 4: Stick magazines for electronic components encapsulated in packages of form E and G*

IEC 60286-5, *Packaging of components for automatic handling – Part 5: Matrix trays*

IEC 60749-20, *Semiconductor devices – Mechanical and climatic test methods – Part 20: Resistance of plastic encapsulated SMDs to the combined effect of moisture and soldering heat*

IEC 61760-2, *Surface mounting technology – Part 2: Transportation and storage conditions of surface mounting devices (SMD) – Application guide*

IEC 62090, *Product package labels for electronic components using bar code and two-dimensional symbologies*

ISO 8601, *Data elements and interchange formats – Information interchange – Representation of dates and times*

3 Terms and definitions

iTeh STANDARD PREVIEW
(standards.iteh.ai)

For the purposes of this document, the terms and definitions given in IEC 60194 and the following apply.

IEC 61760-3:2010
https://standards.iteh.ai/catalog/standards/sist/c6359db9-a672-4b9b-ac75-03d2f0c35d27/iec-61760-3-2010

3.1
terminal pitch
distance between the terminals of the component, either uniformly distributed or specifically defined

3.2
dewetting
condition that results when molten solder coats a surface and then recedes to leave irregularly-shaped mounds of solder that are separated by areas that are covered with a thin film of solder and with the basis metal not exposed

3.3
dissolution of metallization
process of dissolving metal or a plated metal alloy, usually by introduction of chemicals

NOTE For the purpose of this document standard, the dissolution of metallization also includes dissolution by exposure to molten solder.

3.4
pick-up force
dynamic force exerted on the body of a component – generally from above – and its seating plane during the pick-up of the component (e.g. from a tape or tray)

NOTE The maximum level is normally taken into account.

3.5
placement force
dynamic force exerted on the component body – generally from above – and its seating plane occurring during the period between the component’s first contact with the substrate (or the soldering paste or adhesive, etc.) and its coming to rest

NOTE The maximum level is normally taken into account.

3.6
resistance to soldering heat
ability of a component to withstand the effects of the heat generated by the soldering process

3.7
seating plane
surface on which a component rests

3.8
solderability
ability of a metal to be wetted by molten solder

3.9
solder meniscus
contour of a solder shape that is the result of the surface tension forces that take place during wetting

3.10
stand off
distance between the component side of the substrate and the bottom of the component body

3.11
substrate
basic material, forming the support structure of an electronic circuit

iTeh STANDARD PREVIEW
(standards.iteh.ai)

3.12
terminal
solder pins of a THR component to be soldered into the through holes of a printed circuit board

IEC 61760-3:2010
https://standards.iteh.ai/catalog/standards/sist/c6359db9-a672-4b9b-ac75-03d2f0c35d27/iec-61760-3-2010

3.13
wetting
physical phenomenon in which surface tension of a liquid, usually when in contact with solids, is reduced to the point where the liquid diffuses and makes intimate contact with the entire substrate surface in the form of a thin layer

4 Requirements to component design and component specifications

4.1 General requirement

A component specification for THR components shall, in addition to the requirements listed in 4.2 to 4.9 below, contain specifications of the relevant tests and requirements in Clause 7.

4.2 Packaging

Information about the packaging form including packaging dimensions, data on clearances within the packaging shall be included in the component specification according to IEC 60286-3, IEC 60286-4 and IEC 60286-5.

Packaging type and geometry shall be specified in such a way that mechanical stress on component pins is avoided.

Moisture sensitive components need special packaging in line with IEC 60749-20.

Components with specific orientation or polarity shall be placed in the packaging with a fixed orientation (see Figure 1 and Figure 2).

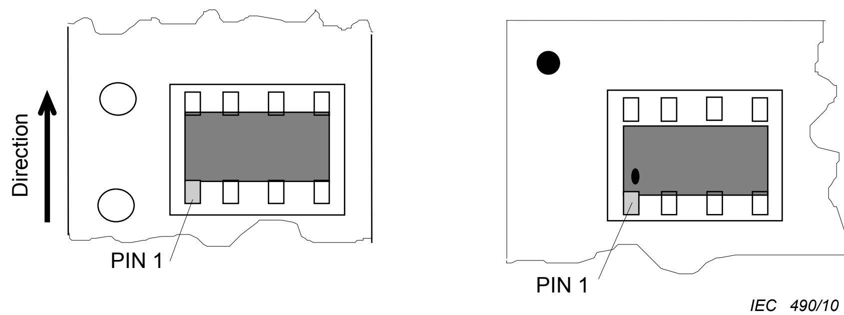
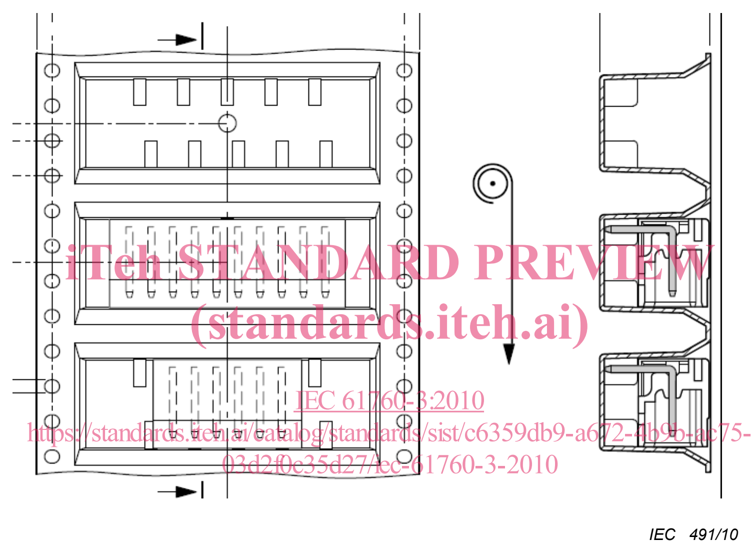


Figure 1 – Example of a component with marked specific orientation put in tape and tray



iTeh STANDARD PREVIEW
(standards.iteh.ai)
IEC 61760-3:2010
https://standards.iteh.ai/catalog/standards/sist/c6359db9-a672-4b9b-ac75-03d2f0e35d27/iec-61760-3-2010

Figure 2 – Example of components in a tape

4.3 Labelling of product packaging

Labelling of the product packaging shall comply with IEC 62090.

According to IEC 62090 the product packaging shall include the following:

– item identification (e.g. customer part number or manufacturer part number or both);
– traceability identification (e.g. batch number or serial number);
– quantity.

Additional to the requirements of IEC 62090, this standard recommends that the product packaging should include the following:

– moisture sensitivity level (MSL) according to IEC 60749-20;
– date code (ISO 8601 and IEC 60062);
– identification code for the manufacturer;
– description of the polarity of the component, if applicable.

4.4 Component marking

Information about marking shall be given by the relevant detail specification.

4.5 Storage and transportation

Component specifications shall refer to storage and transportation conditions of IEC 61760-2.

The component specification shall contain information of the maximum period for storage. Within this period the component shall comply with its specification.

4.6 Component outline and design

4.6.1 Drawing and specification

The drawing and specification shall contain all dimensions and tolerances relevant for the THR process according to 4.6.2 to 4.6.6 as minimum information.

4.6.2 Pick-up area requirements

Design of the component shall be in such a way, that it is possible to grip the component by suction or mechanical grippers and transport it to the exact placement position on the substrate. It shall be possible to create a vacuum or mechanical force strong enough to fix the component in its position under the pipette or gripper. During the total transport process, which may include optical inspection, the component shall remain exactly in its position under the pipette or gripper, until the component is placed.

The centre of the suction area shall match the centre of gravity (major requirement) and the geometrical centre (minor requirement).

4.6.3 Bottom surface requirements

iTeh STANDARD PREVIEW
(standards.iteh.ai)

To avoid solder balls and bridging, the bottom surface of the component shall not be wettable by solder.

4.6.4 Requirements to terminals

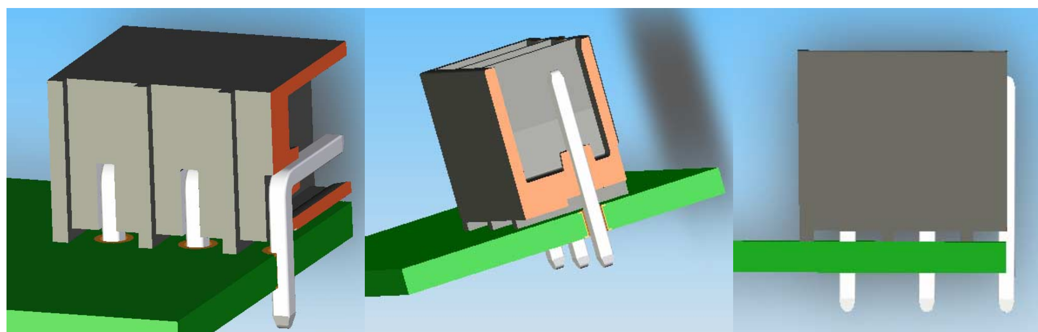
IEC 61760-3:2010
https://standards.iteh.ai/catalog/standards/sist/c6359db9-a672-4b9b-ac75-03d2f0c35d27/iec-61760-3-2010

4.6.4.1 Clearances

Sufficient clearances have to be considered to avoid contact between component body and solder paste and to ensure sufficient heat transfer to solder joints (see Figure 3).

Spacer(s) shall be arranged in a suitable way on the components bottom side to ensure

- a suitable stand-off (e.g. 0,5 mm) in the solder joint area and solder paste overprinting area to avoid contact of the solder paste with the component body,
- a stable seating of the components on the printed circuit board surface,
- a coplanarity of the spacers better than 0,15 mm,
- a sufficient clearance to printed solder paste depot, and
- if possible, an inspection of the outer terminals solder joints.



IEC 492/10

NOTE Enough clearance to printed solder paste depot, good accessibility of heat to the solder pins

Figure 3 – Examples for clearances (stand-off)

4.6.4.2 Terminal length

The terminal length shall enable the optical inspection of the solder joint at the bottom side of the printed circuit board (visibility of the leads). The thickness of the printed circuit board, the soldering process and solder material has to be taken into consideration.

Recommended terminal protrusion is 0,5 mm minimum. In case of terminals ending in the printed circuit board the optical inspection has to be specified by the user (manufacturer of the printed circuit board assembly).

4.6.4.3 Arrangement of terminals

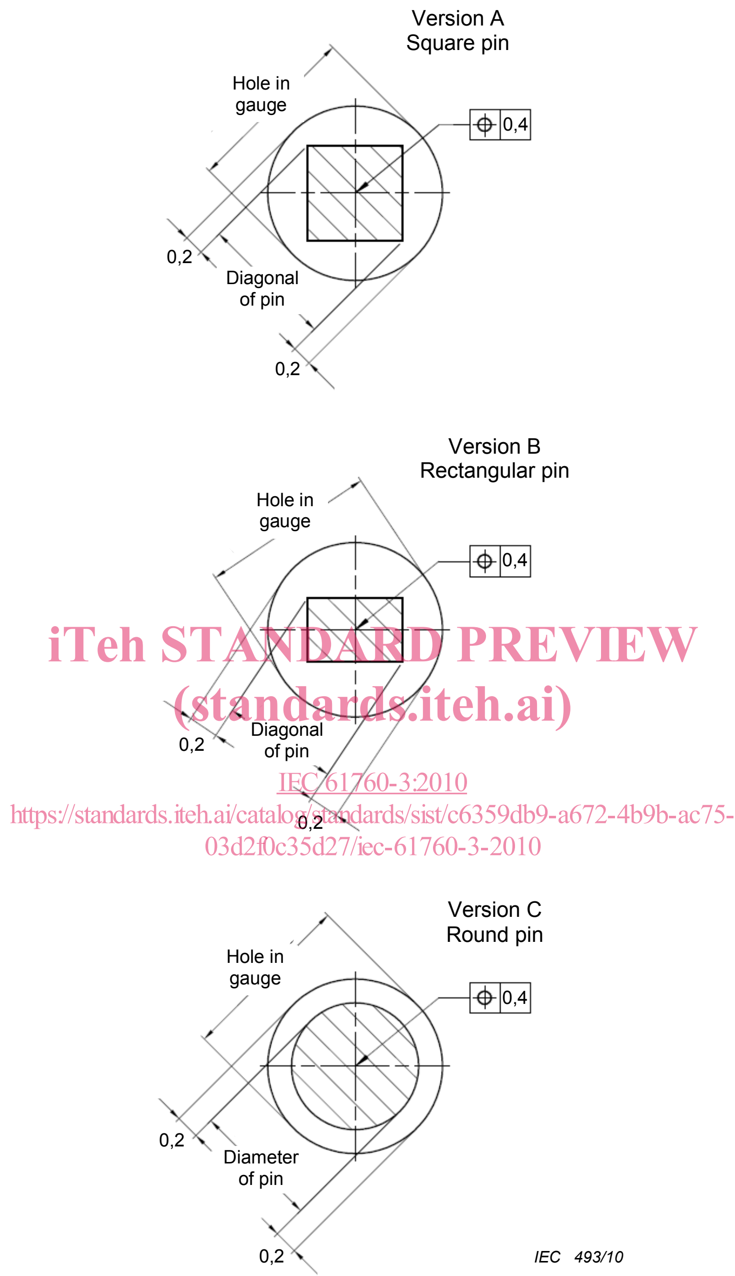
Terminals shall be arranged

- in a suitable minimum distance to each other and to the spacer(s) to avoid solder shorts and to make overprinting of solder paste possible, and
- preferably along the outer edges of the component (for optical inspection purposes).

The position tolerance of each pin tip should not be more than 0,4 mm in diameter, related to the specified position, pin to pin and first to last pin of the component (see Figure 4).

iTeh STANDARD PREVIEW
(standards.iteh.ai)
IEC 61760-3:2010
https://standards.iteh.ai/catalog/standards/sist/c6359db9-a672-4b9b-ac75-03d2f0c35d27/iec-61760-3-2010

Dimensions in millimetres



iTeh STANDARD PREVIEW
(standards.iteh.ai)
IEC 61760-3:2010
https://standards.iteh.ai/catalog/standards/sist/c6359db9-a672-4b9b-ac75-03d2f0c35d27/iec-61760-3-2010

Figure 4 – Examples for terminal shapes and position tolerances

4.6.4.4 Relation between terminal diameter and through hole diameter in printed circuit board

The minimum through hole diameter in the printed circuit board is typically 0,2 mm to 0,4 mm larger than the diagonal or diameter of the terminal.

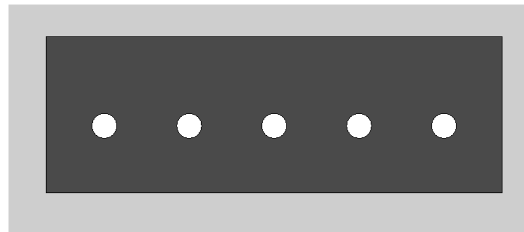
The minimum through hole diameter in the printed circuit board, that could be filled with solder paste correctly as specified in 6.1, relates to the thickness of the board, the solder paste and the manufacturers equipment and process. This shall be specified by the manufacturer.

NOTE At the time of writing this standard there seems to be a technical limit of 1,0 mm below which no appropriate solder paste protrusion is possible using printed circuit boards of 1,5 mm thickness.

4.6.4.5 Optical recognition

The optical contrast between the terminal bottom surface and the component bottom surface around the terminals shall be high enough (until assembling) to enable optical recognition of the position of the terminals, seen from the bottom side. Preferably at the bottom side the terminal pin at the final stages shall be reflecting (see Figure 5 and Figure 6).

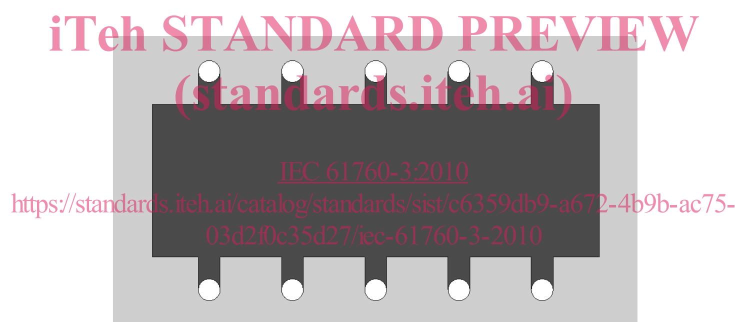
NOTE Not applicable to right angle terminals outside the components body.



IEC 494/10

Figure 5 – Schematic example of contrast of bottom surface – terminals underneath component body

iTeh STANDARD PREVIEW
(standards.iteh.ai)
IEC 61760-3:2010
https://standards.iteh.ai/catalog/standards/sist/c6359db9-a672-4b9b-ac75-03d2f0c35d27/iec-61760-3-2010



IEC 495/10

Figure 6 – Schematic example of contrast of bottom surface – terminals outside component body

4.6.4.6 Shape of the terminals

The preferred style is square or circular (if rectangular the aspect-ratio should be less than 2:1).

Preferably the tip of terminals should be chamfered.

4.6.4.7 Hardness of the terminals

The terminal shall be hard enough to ensure that its shape remains unchanged during placement.

4.6.4.8 Wettable surface

The wettable surface of the terminals should allow that a visible solder fillet on component side can be formed. Taking the stand-off of the component into consideration, at least 0,2 mm of the terminal above the printed circuit board level on component side should be wettable.