

# INTERNATIONAL STANDARD

# NORME INTERNATIONALE



Printed board design, manufacture and assembly – Terms and definitions

Conception, fabrication et assemblage des cartes imprimées – Termes et définitions

[IEC 60194:2015](#)

<https://standards.iteh.ai/catalog/standards/sist/41f9c71d-27d2-4c6c-821a-58e165b4e747/iec-60194-2015>



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## CONTENTS

FOREWORD.....	6
INTRODUCTION.....	8
1 Scope.....	9
2 Normative references .....	9
3 Terms and definitions .....	9
4 A.....	9
5 B.....	23
6 C.....	41
7 D.....	71
8 E.....	83
9 F.....	93
10 G.....	106
11 H.....	109
12 I.....	117
13 J.....	122
14 K.....	123
15 L.....	125
16 M.....	134
17 N.....	145
18 O.....	149
19 P.....	154
20 Q.....	175
21 R.....	176
22 S.....	188
23 T.....	213
24 U.....	225
25 V.....	228
26 W.....	232
27 X.....	237
28 Y.....	237
29 Z.....	238
Annex A (informative) Principles and use of the classification code .....	239
A.1 General.....	239
A.2 Background.....	239
A.3 List of codes .....	240
Annex B (informative) Abbreviations .....	243
B.1 – A –.....	243
B.2 – B –.....	243
B.3 – C –.....	244
B.4 – D –.....	246
B.5 – E –.....	247
B.6 – F –.....	248

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B.7	– G –	248
B.8	– H –	248
B.9	– I –	249
B.10	– J –	249
B.11	– K –	249
B.12	– L –	249
B.13	– M –	250
B.14	– N –	251
B.15	– O –	252
B.16	– P –	252
B.17	– Q –	253
B.18	– R –	253
B.19	– S –	254
B.20	– T –	255
B.21	– U –	256
B.22	– V –	256
B.23	– W –	256
B.24	– Z –	256
Bibliography		257

Figure 1	– Access hole	11
Figure 2	– Alignment mark	14
Figure 3	– Lands with anchoring spurs	17
Figure 4	– Annular ring (annular width)	18
Figure 5	– Area array	19
Figure 6	– Simplified flow chart of printed board design/fabrication sequence	20
Figure 7	– Aspect ratio (hole)	21
Figure 8	– Asymmetric stripline	22
Figure 9	– Axial lead	23
Figure 10	– Back bonding	24
Figure 11	– Back-bared land	24
Figure 12	– Ball grid array (BGA)	26
Figure 13	– Barrel crack	27
Figure 14	– Example of feature location using baseline dimensions	28
Figure 15	– Bathtub curve	29
Figure 16	– Beam-lead device	30
Figure 17	– Bifurcated solder terminal	31
Figure 18	– Buried via and blind via	33
Figure 19	– Bow	36
Figure 20	– Breakaway	37
Figure 21	– Bumped die	39
Figure 22	– But plating joint (wrap plating)	41
Figure 23	– Button plating	41
Figure 24	– Castellated	44
Figure 25	– Centre to centre spacing (pitch)	44

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Figure 26 – Typical characteristic curve .....	46
Figure 27 – Chip on board (COB).....	49
Figure 28 – Clearance hole .....	51
Figure 29 – Clinched-wire through connection.....	51
Figure 30 – Comb pattern .....	53
Figure 31 – Conductor base spacing .....	58
Figure 32 – Conductor spacing .....	59
Figure 33 – Contact angle (soldering) .....	61
Figure 34 – Crosshatching .....	68
Figure 35 – Cup solder terminal .....	69
Figure 36 – Dewetting .....	76
Figure 37 – Example of an embedded component.....	87
Figure 38 – Embedded passive component (device) .....	88
Figure 39 – Etch factor .....	90
Figure 40 – Etchback .....	90
Figure 41 – Etching indicator .....	91
Figure 42 – Fillet (adhesive) .....	96
Figure 43 – Flag .....	99
Figure 44 – Flare .....	100
Figure 45 – Flip chip .....	102
Figure 46 – Ground plane clearance .....	109
Figure 47 – Heel fillet.....	111
Figure 48 – Histogram .....	112
Figure 49 – Hole, knee.....	113
Figure 50 – Hole breakout.....	113
Figure 51 – Hole void.....	114
Figure 52 – Hook .....	115
Figure 53 – Hook solder terminal .....	115
Figure 54 – Layer-to-layer spacing.....	128
Figure 55 – Leaded surface-mount component – Gull wing shaped lead .....	129
Figure 56 – Magnification power parameters.....	135
Figure 57 – Meniscus.....	137
Figure 58 – Microstrip .....	139
Figure 59 – Mirrored pattern .....	141
Figure 60 – Nail heading.....	145
Figure 61 – Negative etchback.....	145
Figure 62 – Nonfunctional interfacial connection .....	147
Figure 63 – Nonwetting .....	148
Figure 64 – Normal distribution .....	148
Figure 65 – Open point .....	151
Figure 66 – Outgrowth, overhang and undercut.....	152
Figure 67 – Outgrowth, overhang and undercut.....	153
Figure 68 – Overlap (drill) .....	153

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Figure 69 – Passive array .....	157
Figure 70 – Perforated (pierced) solder terminal .....	159
Figure 71 – Pin grid array .....	162
Figure 72 – Plated through-hole (PTH).....	164
Figure 73 – Primary flare .....	170
Figure 74 – Primary taper .....	170
Figure 75 – Resin recession .....	181
Figure 76 – Printed board viewing orientations.....	185
Figure 77 – Shadowing .....	192
Figure 78 – Tape automated bonding.....	214
Figure 79 – Tombstoned component .....	221
Figure 80 – Turret solder terminal.....	225
Figure 81 – Via planarization .....	230
Figure 82 – Wrap plating.....	237

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**PRINTED BOARD DESIGN, MANUFACTURE AND ASSEMBLY –  
TERMS AND DEFINITIONS**

FOREWORD

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International Standard IEC 60194 has been prepared by subcommittee 91: Electronics assembly technology.

This sixth edition cancels and replaces the fifth edition, published in 2006 and constitutes a technical revision.

The main changes with respect to the previous edition are the following: Some two hundred terms and definitions have been updated, where applicable, and another two hundred new terms and definitions have been added.

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

FDIS	Report on voting
91/1236/FDIS	91/1253/RVD

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.

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

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## INTRODUCTION

This International Standard has been structured in such a way that for each letter of the alphabet a new clause has been created. For the sake of comparison, the French version is aligned to the English sequence and thus follows the alphabetical order of the English version.

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# PRINTED BOARD DESIGN, MANUFACTURE AND ASSEMBLY – TERMS AND DEFINITIONS

## 1 Scope

This International Standard defines the terminology used in the field of printed circuit boards and printed circuit board assembly products.

## 2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 60050-541:1990, *International Electrotechnical Vocabulary – Chapter 541: Printed circuits*

## 3 Terms and definitions

For the purposes of electronics assembly technology, the terms and definitions from IEC 60050-541 as well as the following apply.

The terms have been classified according to the decimal classification code (DCC) as explained in Annex A.

## 4 A

### 54.1821

#### **abrasion resistance**

ability of a material to withstand surface wear

### 54.1318

#### **abrasive trimming**

adjusting the value of a film component by notching it with a finely adjusted stream of an abrasive material against the resistor surface

### 40.1727

#### **absorption coefficient**

for a parallel beam of specified radiation in a given substance, the quantity  $\mu_{\text{abs}}$  describes the fraction of energy absorbed in passing through a thin layer of thickness  $\Delta x$

Note 1 to entry: The absorption coefficient is primarily energy dependent.

Note 2 to entry: According to whether the thickness  $\Delta x$  is expressed in terms of length, mass per unit area, moles per unit area or atoms per unit area, it is called the linear, mass, molar or atomic absorption coefficient.

Note 3 to entry: This entry was numbered 393-14-46 in IEC 60050-393:2003.

[SOURCE: IEC 60050-395:2014, 395-01-26]

**40.0087**

**absorptivity**

<infrared> ratio (or percentage) of the amount of energy absorbed by a substrate as compared with the total amount of incident energy

**93.0001**

**accelerated ageing**

**accelerated life test**

test in which the parameters such as voltage and temperature are increased above normal operating values to obtain observable or measurable deterioration in a relatively short period of time

**92.0011**

**accelerated equivalent soak**

<plastic encapsulated SMDs> environmental soak of a component at a higher temperature for a shorter time (compared to the standard soak), to provide roughly the same amount of moisture absorption

Note 1 to entry: See also "soak".

**93.0216**

**accelerated test**

test to check the life expectancy of an electronic component or electronic assembly in a short period of time by applying physically severe condition(s) to the unit under test

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**93.0260**

**acceleration factor**

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**AF**

ratio of stress in reliability testing to the normal operating condition

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Note 1 to entry: This note applies to the French language only.

**92.0288**

**acceptance inspection**

<criterion> inspection that determines conformance of a product to design specifications as the basis for acceptance

**90.0003**

**acceptance quality level**

**AQL**

number of defects within a population (lot) at which the lot has the chance to be accepted with an acceptance probability of about 90 % when testing a sample

Note 1 to entry: The number of defects is given in percent.

**92.0004**

**acceptance tests**

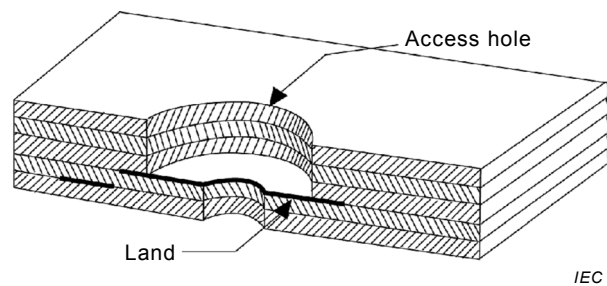
tests deemed necessary to determine the acceptability of a product as agreed to by both buyer and vendor

**60.1319**

**access hole**

series of holes in successive layers of a multilayer board, each set having their centres on the same axis

SEE: Figure 1.



**Figure 1 – Access hole**

Note 1 to entry: These holes provide access to the surface of the land on one of the layers of the board.

**21.0005  
access protocol**

protocol, used at the user-network interface, to enable the user to employ the services and/or facilities of a telecommunication network

[SOURCE: IEC 60050-716:1995, 716-04-18]

**36.0006  
accordion contact**

type of connector contact that consists of a flat spring formed into a "Z" shape in order to permit high deflection without overstress

**90.0007  
accuracy**

degree to which the result of a measurement or calculation agrees with the true value

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**46.0009  
acid flux**

solution of an acid and an inorganic, organic, or water soluble organic flux

Note 1 to entry: See also inorganic flux, organic flux, and water soluble organic flux.

**54.0010  
acid number  
acid value**

number of milligrams of potassium hydroxide (KOH) required to neutralize the acid components present in one gram of a liquid, under standardized conditions

[SOURCE: IEC 60050-212:2010, 212-18-15, modified – Instead of the term "neutralization value", the term "acid value" has been used.]

**46.0008  
acid-core solder**

wire solder with a self-contained acid flux

**92.0021  
acoustic microscope**

<plastic encapsulated SMDs> equipment that creates an image using ultrasound to view a specimen's surface or subsurface features, including defects and damage

**52.0011  
actinic radiation**

light energy that reacts with a photosensitive material in order to produce an image

**46.0012**

**activated rosin flux**

mixture of rosin and small amounts of organic-halide or organic-acid activators

Note 1 to entry: See also "synthetic activated flux".

**53.0013**

**activating**

catalysing

initiating

seeding

sensitizing

treatment that renders nonconductive material receptive to electroless deposition

**53.0014**

**activating layer**

seed layer

layer of material that renders a nonconductive material receptive to electroless deposition

**46.0015**

**activator**

substance that improves the ability of a flux to remove surface oxides from the surfaces being joined

**30.0397**

**active desiccant**

desiccant that is either fresh (new) or has been baked according to the manufacturer's recommendations to renew it to original specifications

**30.0016**

**active device**

electronic component whose basic character changes while operating on an applied signal

Note 1 to entry: This includes diodes, transistors, thyristors, and integrated circuits that are used for the rectification, amplification, switching, etc., of analog or digital circuits in either monolithic or hybrid form.

**36.0017**

**active metal**

metal that has a very high electromotive force

**54.1321**

**active trimming**

adjusting the value of a film circuit element in order to obtain a specified functional output from the circuit while it is electrically activated

**90.0018**

**actual size**

measured size

**53.1322**

**additive process**

chemically-deposited printed circuit

chemically-deposited printed wiring

process for obtaining conductive patterns by the selective deposition of conductive material on unclad base material

Note 1 to entry: See also "semi-additive process" and "fully-additive process".

[SOURCE: IEC 60050-541:1990, 541-04-03, modified – Two admitted terms "chemically-deposited printed circuit" and "chemically-deposited printed wiring", as well as a note to entry have been added.]

**30.0019****add-on component**

discrete or integrated packaged or chip components that are attached to a film circuit in order to complete the circuit's function

**42.2038****adhesion**

<pressure sensitive tape> bond produced by contact between pressure-sensitive adhesive and a surface

**46.1728****adhesive**

non-metallic materials that can join solids by surface bonding and internal strength (adhesion and cohesion)

Note 1 to entry: In surface mounting, an epoxy adhesive is used to adhere SMDs to the substrate.

[SOURCE: IEC 60050-212:2010, 212-15-44, modified – A note to entry has been added.]

**96.0020****adhesion failure**

rupture of an adhesive bond such that the separation appears to be at the adhesive-adherent interface

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**74.0021****adhesion layer**

metal layer that adheres a barrier metal to a metal land on the surface of an integrated circuit

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**53.0022****adhesion promotion**

chemical process of preparing a surface to enhance its ability to be bonded to another surface or to accept an over-plate

**41.0438****adhesive coated substrate**

base material upon which an adhesive coating is applied, for the purpose of retaining the conductive material (either additively applied or attached as foil for subtractive processing), that becomes part of a metal-clad dielectric

**41.1320****adhesive-coated catalyzed laminate**

base material with a thin polymer coating, that contains a plating catalyst, that is subsequently treated in order to obtain a microporous surface

**41.1323****adhesive-coated uncatalyzed laminate**

base material with a thin polymer coating, that does not contain a plating catalyst, and is subsequently treated in order to obtain a micro-porous surface

**75.0558****adhesive transfer**

<pressure sensitive tape> transfer of adhesive from its normal position on the pressure sensitive tape to the surface to which the tape was attached, either during unwind or removal