SLOVENSKI STANDARD
SIST EN 62326-4:2001

01-marec-2001

Printed boards - Part 4: Rigid multilayer printed boards with interlayer connections - Sectional specification

Printed boards -- Part 4: Rigid multilayer printed boards with interlayer connections - Sectional specification

Leiterplatten -- Teil 4: Starre Mehrlagen-Leiterplatten mit Durchverbindungen - Rahmenspezifikation

Cartes imprimées -- Partie 4: Cartes imprimées multicouches rigides avec connexions intercouches - Spécification intermédiaire

Ta slovenski standard je istoveten z: **EN 62326-4:1997**

ICS:

31.180	Tiskana vezja (TIV) in tiskane ploģ e	Printed circuits and boards

SIST EN 62326-4:2001 **en**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 62326-4

January 1997

ICS 31.180

Descriptors: Printed boards, rigid multilayer, interlayer connections, capability approval, sectional specification

English version

Printed boards
Part 4: Rigid multilayer printed boards with interlayer connections
Sectional specification
(IEC 2326-4:1996)

Cartes imprimées
Partie 4: Cartes imprimées multicouches rigides avec connexions intercouches
Spécification intermédiaire
(CEI 2326-4:1996)

Leiterplatten
Teil 4: Starre Mehrlagen-Leiterplatten mit Durchverbindungen
Rahmenspezifikation
(IEC 2326-4:1996)

This European Standard was approved by CENELEC on 1996-12-09. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CENELEC member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the Central Secretariat has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

CENELEC

European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

Central Secretariat: rue de Stassart 35, B - 1050 Brussels

Ref. No. EN 62326-4:1997 E

Foreword

The text of document 52/655/FDIS, future edition 1 of IEC 2326-4, prepared by IEC TC 52, Printed circuits, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 62326-4 on 1996-12-09.

The following dates were fixed:

- latest date by which the EN has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 1997-09-01
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) -

This part 4 is to be used in conjunction with EN 62326-1:1997 and EN 62326-4-1:1997.

Annexes designated "normative" are part of the body of the standard.
Annexes designated "informative" are given for information only.
In this standard, annex ZA is normative and annexes A, B and C are informative.
Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 2326-4:1996 was approved by CENELEC as a European Standard without any modification.

Annex ZA (normative)

Normative references to international publications with their corresponding European publications

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

NOTE: When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

Publication	Year	Title	EN/HD	Year
IEC 68-2-3	1969	Basic environmental testing procedures Part 2: Tests - Test Ca: Damp heat, steady state	HD 323.2.3 S2[1)]	1987
IEC 68-2-20	1979	Test T: Soldering	HD 323.2.20 S3[2)]	1988
IEC 68-2-38	1974	Test Z/AD: Composite temperature/humidity cyclic test	HD 323.2.38 S1	1988
IEC 1189-3	[3)]	Test methods for electrical materials, interconnection structures and assemblies Part 3: Test methods for interconnection structures (printed boards)	-	-
IEC 1249-5-1	1995	Materials for interconnection structures Part 5: Sectional specification set for conductive foils and films with and without coatings -- Section 1: Copper foils (for the manufacture of copper-clad base materials)	EN 61249-5-1	1996
IEC 2326-1	1996	Printed boards Part 1: Generic specification	EN 62326-1	1997
IEC 2326-4-1	1996	Part 4: Rigid multilayer printed boards with interlayer connections Sectional specification Section 1: Capability Detail Specification Performance levels A, B and C	EN 62326-4-1	1997
QC 001002	1986	Rules of procedure of the IEC Quality Assessment System for Electronic Components (IECQ)	-	-

1) HD 323.2.3 S2 includes A1:1984 to IEC 68-2-3.

2) HD 323.2.20 S3 includes A2:1987 to IEC 68-2-20.

3) At present under IEC-CENELEC parallel vote (52/627/FDIS).

NORME INTERNATIONALE

INTERNATIONAL STANDARD

CEI
IEC
2326-4

QC 230500

Première édition
First edition
1996-12

Cartes imprimées –

Partie 4:
Cartes imprimées multicouches rigides avec connexions intercouches – Spécification intermédiaire

Printed boards –

Part 4:
Rigid multilayer printed boards with interlayer connections – Sectional specification

Bureau central de la Commission Electrotechnique Internationale 3, rue de Varembé Genève, Suisse

Commission Electrotechnique Internationale
International Electrotechnical Commission
Международная Электротехническая Комиссия

CODE PRIX
PRICE CODE
W

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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FOREWORD

1) The IEC (International Electrotechnical Commission) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of the 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, the IEC publishes International Standards. 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. The 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 the 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 National Committees.

3) The documents produced have the form of recommendations for international use and are published in the form of standards, technical reports or guides and they are accepted by the National Committees in that sense.

4) In order to promote international unification, IEC National Committees undertake to apply IEC International Standards transparently to the maximum extent possible in their national and regional standards. Any divergence between the IEC Standard and the corresponding national or regional standard shall be clearly indicated in the latter.

5) The IEC provides no marking procedure to indicate its approval and cannot be rendered responsible for any equipment declared to be in conformity with one of its standards.

6) Attention is drawn to the possiblity that some of the elements of this International Standard may be the subject of patent rights. The IEC shall not be held responsible for identifying any or all such patent rights.

International Standard IEC 2326-4 has been prepared by IEC technical committee 52: Printed circuits.

This standard cancels and replaces IEC 326-6.

This standard should be read in conjunction with IEC 2326-1 and IEC 2326-4-1.

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

FDIS	Report on voting
52/655/FDIS	52/679/RVD

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

Annexes A, B and C are for information only.

The QC number that appears on the front cover of this publication is the specification number in the IEC Quality Assessment System for Electronic Components (IECQ).

INTRODUCTION

IEC 2326 is applicable to printed boards, irrespective of their method of manufacture, when they are ready for the mounting of components.

IEC 2326 is composed of separate parts covering information for the designer, generic, sectional and capability detail specifications for IEC Quality Assessment System for Electronic Components (IECQ) and requirements for the various types of printed boards.

PRINTED BOARDS –

Part 4: Rigid multilayer printed boards with interlayer connections – Sectional specification

1 Scope

This part of IEC 2326 is applicable to rigid multilayer printed boards irrespective of their method of manufacture. It is the basis on which agreements between manufacturer and user are to be made.

This standard provides additional information necessary to supplement the requirements of the Generic Specification, IEC 2326-1, for the printed boards intended to be accepted under the IEC Quality Assessment System for Electronic Components (IECQ).

This standard establishes uniform requirements, specifies the characteristics to be assessed and the test methods to be used for quality conformance (whether by lot-by-lot inspection, process control, or periodic inspection).

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this part of IEC 2326. At the time of publication, the editions indicated were valid. All normative documents are subject to revision, and parties to agreements based on this part of IEC 2326 are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

IEC 68-2-3: 1969, *Environmental testing – Part 2: Tests – Test Ca: Damp heat, steady state*

IEC 68-2-20: 1979, *Environmental testing – Part 2: Tests – Test T: Soldering*

IEC 68-2-38: 1974, *Environmental testing – Part 2: Tests – Test Z/AD: Composite temperature/humidity cyclic tests*

IEC/FDIS 1189-3, *Test methods for electrical materials, interconnections structures and assemblies – Part 3: Test methods for interconnection structures* [1)]

IEC 1249-5-1: 1995, *Materials for interconnection structures – Part 5: Sectional specification set for conductive foils and films with and without coatings – Section 1: Copper foils (for the manufacture of copper-clad base materials)*

IEC 2326-1: 1995, *Printed boards – Part 1: Generic Specification*

IEC 2326-4-1, *Printed boards – Part 4: Rigid multilayer printed boards with interlayer connections – Section 1: Capability detail specification: Performance levels A, B and C*

QC 001002: 1986, *Rules of Procedure of the IEC Quality Assessment System for Electronic Components (IECQ)*

[1)] At present at the stage of Final Draft International Standard.

3 General

Unless otherwise specified all clauses and tables given in this standard are applicable to printed boards in compliance with the IECQ system. The procedure and requirements shall be in accordance with IEC 2326-1.

3.1 *Printed boards fully compliant with the requirements for standard performance levels (level A, B, or C)*

This Sectional Specification (SS) applies to rigid multilayer printed boards and is intended as a basis for the preparation of

- Capability Detail Specifications (Cap DS) applying to performance levels (i.e. level A, level B or level C), used in capability approval procedures. It is usually necessary to have a Cap DS describing all the performance levels. A Cap DS is prepared by the IEC.

- Customer Detail Specifications (CDS) for printed boards as required by 7.2 of IEC 2326-1. The CDS shall specify the selected performance level according to table 1 of this standard. The CDS data shall be provided by the customer and allocated a number within his own system.

Printed boards materials for printed board fabrication may be any combination of base materials according to IEC 1249-2-7, or IEC 1249-2-11, or IEC 1249-2-9, with prepreg according to IEC 1249-4-1 and/or copper foil according to IEC 1249-5-1 and/or permanent polymer coating according to IEC 1249-8-5.

Table 1 contains the characteristics that are used in the performance requirements important for rigid multilayer printed boards with interlayer connections and makes reference to the appropriate tests to verify these characteristics. The CDS data shall specify characteristics and tests from this table.

Where additional details for a test have to be specified in the CDS data, an asterisk is shown in the relevant column. These details shall then be specified in accordance with IEC 1189-3.

Clause 6 prescribes the test sequence.

3.2 *Printed boards with non-standard requirements (performance level X)*

This Sectional Specification (SS) applies to rigid multilayer printed boards and is intended as a basis for the preparation of Customer Detail Specifications (CDS) for printed boards as required by 7.2 of IEC 2326-1.

The CDS shall be provided by the customer and he shall allocate a number within his own system.

The customer has the responsibility for establishing the requirements using table 1 of this standard but in no case the performance level will be lower than performance level A. When another Risk Management Factor (RMF) is chosen the CDS data shall specify one of the more severe RMFs of table 1 of IEC 2326-1.

Printed board materials used for printed board fabrication shall be specified in the CDS.

Where additional details for a test have to be specified in the CDS data, an asterisk is shown in the relevant column of table 1. These details shall then be specified in accordance with IEC 1189-3.

Clause 6 prescribes the test sequence.

4 Capability approval and maintenance of capability approval

In order to be a participant in the IECQ system the printed board manufacturer shall obtain capability approval in accordance with clause 5 of IEC 2326-1.

4.1 *Product capability*

In order to obtain product capability approval the manufacturer shall complete the test requirements detailed in the Cap DS for which approval is sought. Approval to level A is limited only to performance level A. Approval to level B is limited to performance levels A and B. Approval to level C extends to three registered performance levels (levels A, B or C).

4.2 *Process capability*

For process capability 5.5.3 of IEC 2326-1 shall apply.

4.3 *Maintenance of capability approval*

The manufacturer shall maintain the status of approved capability by successful completion of quality conformance or equivalent inspections of the product defined by CDS data for the level of the original capability approval. In the event of failure to meet the requirements of the CDS data, remedial action shall be taken to correct the discrepancy.

To maintain capability approval, the manufacturing performance shall be verified as defined above and in 5.8 of IEC 2326-1.

5 Test specimens

5.1 *Printed boards fully compliant with the requirements for standard performance levels (level A, B or C)*

The specimens to be used as Capability Qualifying Component (CQC) shall be the Capability Test Board (CTB) or multiple arrangements of the CTB given in clause 6 of IEC 2326-4-1, or a Production Panel (PP) that has similar specimens available for testing. For the definitions of level A, B and C see 3.2 of IEC 2326-1

5.2 *Printed boards with non-standard requirements (performance level X)*

The specimens shall be production panels that have suitable patterns available for testing. If additional patterns are necessary, they shall be fully defined in the CDS data.