
British Standard

Printed wiring boards

Part 8. Method for specifying single and double sided flexible printed wiring boards with through connections

Cartes imprimées

Partie 8. Méthode de spécification des cartes imprimées souples à simple et à double face avec connexions transversales

Schaltkarten

Teil 8. Verfahren zur Spezifizierung von ein- und doppelseitigen biegsamen Schaltkarten mit Querverbindungen

Contents

	Page		Page
National foreword	Inside front cover	Tables	
Cooperating organizations	Back cover	I. Basic characteristics	3
Method		II. Additional characteristics	9
1. Introduction	1	Figures	
2. Scope	1	1a. Composite test pattern for single and double sided flexible printed boards with through connections	12
3. Object	1	1b. Detailed dimensions of specimens shown in figure 1a	13
4. General	2	2. Length of defect	14
5. Test specimens	2	3. Examples of soldered holes	15
6. Relevant specification	2	4. Examples related to access holes	16
7. Characteristics of printed boards	2	5. Examples of delamination	17
8. Composite test pattern	11		

National foreword

This British Standard, published under the direction of the Electronic Components Standards Committee, is identical with Publication 326-8 'Specification for single and double sided flexible printed boards with through connections' published in 1981 by the International Electrotechnical Commission (IEC).

This Part of this standard, together with Parts 4, 5 and 7, supersedes BS 4025 : 1966 which is withdrawn.

Terminology and conventions. The text of the international standard has been approved as suitable for publication as a British Standard without deviation. Some terminology and certain conventions are not identical with those used in British Standards; attention is especially drawn to the following.

The comma has been used in figure 1 as a decimal marker. In British Standards it is current practice to use a full point on the baseline as the decimal marker.

In clause 1 where the words 'IEC Publication 326' appear, they should be read as 'BS 6221'.

References in the text to page numbers relate to IEC page numbers which are given in brackets at the bottom of each page.

Cross-references

International standard	Corresponding British Standard
IEC 68	BS 2011 Basic environmental testing procedures
IEC 97 : 1970	BS 5830 : 1979 Specification for grid system for printed circuits (Identical)
	BS 6221 : Printed wiring boards
IEC 326-2 : 1976 (and IEC 326-2A : 1980)	BS 6221 : Part 2 : 1982 Methods of test (Identical)
IEC 326-3 : 1980	BS 6221 : Part 3 : 1982 Guide for the design and use of printed wiring boards (Identical)
IEC 326-4 : 1980	BS 6221 : Part 4 : 1982 Method for specifying single and double sided printed wiring boards with plain holes (Identical)
IEC 326-5 : 1980	BS 6221 : Part 5 : 1982 Method for specifying single and double sided printed wiring boards with plated-through holes (Identical)
IEC 326-6 : 1980	BS 6221 : Part 6 : 1982 Method for specifying multi-layer printed wiring boards (Identical)
IEC 326-7 : 1981	BS 6221 : Part 7 : 1982 Method for specifying single and double sided printed wiring boards without through connections (Identical)

The Technical Committee has reviewed the provisions of IEC 194 and IEC 249 to which reference is made in 1.2 and has decided that they are acceptable for use in conjunction with this standard. A related British Standard for IEC 249 is BS 4584 'Metal-clad base materials for printed circuits'. IEC 326-1 is in course of preparation and consideration will be given to implementing it as a British Standard when this international standard has been published by IEC.

Compliance with a British Standard does not of itself confer immunity from legal obligations.



Amendment No. 1
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Printed wiring boards
Part 8. Method for specifying
single and double sided flexible
printed wiring boards with
through connections

AMD 6702
[IEC Publication 326-8
Amendment No. 1 : 1989]

Revised text

This Amendment is identical with IEC Publication 326-8 Amendment No. 1 : 1989, which was the first supplement to IEC Publication 326-8 : 1981. It should be noted that the page numbers quoted in the text of the Amendment refer to the page numbers of IEC 326-8.

AMD 6702
April 1991

Page 15

Table 1

In the second column, replace "6a" by "6".

AMD 6702
April 1991

Page 17

In the second column, replace twice "6a" by "6".

British Standard

Printed wiring boards

Part 8. Method for specifying single and double sided flexible printed wiring boards with through connections

1. Introduction

IEC Publication 326 is applicable to printed boards, irrespective of their method of manufacture, when they are ready for mounting of the components.

It is divided into separate parts covering information for the designer, recommendations for the specification writer, test methods and requirements for the various types of printed boards, for example single and double sided, multilayer and flexible printed boards.

1.1 *Purpose of Part 8*

This part contains fundamental information on characteristics to be assessed and requirements for single and double sided flexible printed boards with through connections. The through connections may be plated-through holes or eyelets.

1.2 *Associated IEC publications*

This standard shall be used in conjunction with the following IEC publications:

- 68: Basic Environmental Testing Procedures.
- 97: Grid System for Printed Circuits.
- 194: Terms and Definitions for Printed Circuits.
- 249: Metal-clad Base Materials for Printed Circuits.
- 326-1: Printed Boards, Part 1: Instructions for the Specification Writer (under consideration).
- 326-2: Part 2: Test Methods.
- 326-3: Part 3: Design and Use of Printed Boards.
- 326-4: Part 4: Specification for Single and Double Sided Printed Boards with Plain Holes.
- 326-5: Part 5: Specification for Single and Double Sided Printed Boards with Plated-through Holes.
- 326-6: Part 6: Specification for Multilayer Printed Boards.
- 326-7: Part 7: Specification for Single and Double Sided Flexible Printed Boards without Through Connections.

2. Scope

This standard is applicable to single and double sided flexible printed boards with through connections irrespective of their method of manufacture. It is intended as a basis on which agreements between purchaser and vendor can be made. The term “relevant specification” used herein refers then to such agreements. This specification is not applicable to flat cables.

3. Object

To define the characteristics to be assessed, the test methods to be used and to establish uniform requirements for judging properties and dimensions.

4. General

The following tables contain all important characteristics and make reference to the appropriate tests to verify these characteristics.

Unless otherwise specified, all of the tests listed in Table I, page 11, shall be carried out. Where the relevant specification specifically claims additional characteristics which require additional tests, the relevant tests shall be selected from Table II, page 23.

Where additional details for a test must be specified in the relevant specification, this is indicated by an asterisk in the relevant column. These details shall then be specified in accordance with IEC Publication 326-2.

The tables are not intended to prescribe a test sequence, the tests may be carried out in any sequence, unless otherwise specified.

The sample quantity shall also be specified by the relevant specification.

5. Test specimens

The tests shall preferably be carried out on production boards.

Where the use of test coupons is agreed, they shall be prepared in accordance with Sub-clause 4.2 of IEC Publication 326-2. A suitable test pattern is shown in Figure 1, page 28.

6. Relevant specification

The relevant specification shall contain all information necessary to define the printed board clearly and completely. The recommendations given in IEC Publication 326-3 shall be followed.

Care should be taken to avoid unnecessary requirements. Permissible deviations shall be stated where necessary and nominal values without tolerance or simple maxima or minima shall be given where sufficient. Where precise specifications are necessary for certain areas or parts of the printed board only, they shall be applied and restricted to those areas or parts.

If there are several possibilities of presentation, of tolerance classes, etc., the selections given in IEC Publication 326-3 shall be applied.

7. Characteristics of printed boards

(Tables I and II).

TABLE I

Basic characteristics

Characteristics	Test No. IEC Publication 326-2	Additional test details to be specified in the relevant specification	Specimen of composite test pattern	Requirements	Remarks
<i>General examination</i> <i>Visual examination</i>					
Conformity and identification	1	*	Complete composite test pattern	Pattern, marking, identification and material finishes shall comply with the relevant specification. There shall be no apparent defects	
Appearance and workmanship	1a			The boards shall appear to have been processed in a careful and workman-like manner, in accordance with good current practice	
Plated-through holes				Plated-through holes shall be clean and free from inclusions of any sort that could affect component insertion and solderability. There shall be no voids and no apparent defects of the plating as evident by cracks or separation from the walls	
Board edges				The edges of the board and internal cut-outs shall be clean cut without tears or nicks	
Eyelets			A	Eyelets shall be firmly secured. Flanges of eyelets may be soldered to the pattern. There shall be no damage to conductors or substrate around the eyelet	
Bonding conductor to substrate				There shall be no separation of the conductors from the substrate by apparent blisters or wrinkles other than those permitted in the material specification	
Bonding coverlayer to substrate and pattern	1a		Complete composite test pattern	The bonding shall appear to be complete and uniform. Minor delaminations are permitted in the following positions: a) At random locations away from the conductors. Such delaminations shall have an area not exceeding 5 mm² each, and shall be more than 0.5 mm from the edges b) Along the conductor edges. Such delaminations shall not infringe upon the design spacing between the conductors by more than 20% of the design width by visual estimation	Examples of delaminations are shown in Figure 5, page 33

*See the third paragraph of Clause 4.