

Printed wiring boards —

**Part 12: Specification for mass
lamination panels (semi-manufactured
multilayer printed boards)**

Committees responsible for this British Standard

The preparation of this British Standard was entrusted by the Electronic Components Standards Policy Committee (ECL/-) to Technical Committee ECL/19, upon which the following bodies were represented:

- British Telecommunications plc
- EEA (the Association of Electronics, Telecommunications and Business Equipment Industries)
- Electrical and Electronic Insulation Association (BEAMA Ltd.)
- Electronic Components Industry Federation
- GAMBICA (BEAMA Ltd.)
- Institute of Metal Finishing
- Ministry of Defence
- National Supervising Inspectorate
- Printed Circuit Interconnection Federation
- Surface Mount and Related Technologies (Smart Group) Ltd.

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National foreword

This Part of BS 6221 has been prepared under the direction of the Electronic Components Standards Policy Committee. It is identical with IEC 326-12:1992 *Printed boards — Part 12: Specification for mass lamination panels (semi-manufactured multilayer printed boards)* published by the International Electrotechnical Commission (IEC).

Cross-references

International Standard	Corresponding British Standard
IEC 249-2-5:1987	BS 4584 <i>Metal-clad base materials for printed wiring boards</i> Section 102.5:1990 <i>Specification for epoxide woven glass fabric copper-clad laminated sheet of defined flammability (vertical burning test)</i> (Identical) BS 6221 <i>Printed wiring boards</i>
IEC 321-3:1990	Part 24:1992 <i>Guide for the production of artwork</i> (Identical)
IEC 326-2:1990	Part 2:1991 <i>Methods of test</i> (Identical)
IEC 326-3:1991	Part 3:1991 <i>Guide for the design and use of printed wiring boards</i> (Identical)
IEC 326-6:1980	Part 6:1982 <i>Specification for multilayer printed wiring boards</i> (Identical)
IEC 326-9:1991	Part 9:1991 <i>Specification for flexible multilayer boards with through connections</i> (Identical)
IEC 326-11:1991	Part 11:1991 <i>Specification for flex-rigid multilayer printed boards with through connections</i> (Identical)

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Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 to 10, an inside back cover and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

Introduction

IEC 326 relates to printed boards irrespective of their method of manufacture.

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-sided, double-sided, multilayer and flexible printed boards.

1 Scope

This part of IEC 326 relates to mass lamination panels. It specifies the characteristics of mass lamination panels, 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 to such agreements.

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this part of IEC 326. 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 326 are encouraged to investigate the possibility of applying the most recent editions of the normative documents listed below. Members of IEC and ISO maintain registers of currently valid International Standards.

IEC 249-2-5:1987, *Base materials for printed circuits — Part 2: Specifications — Specification No. 5: Epoxide woven glass fabric copper-clad laminated sheet of defined flammability (vertical burning test).*

IEC 321-3:1990, *Auxiliary printed board information — Part 3: Guidelines for artwork.*

IEC 326-2:1990, *Printed boards — Part 2: Test methods.*

IEC 326-3:1991, *Printed boards — Part 3: Design and use of printed boards.*

IEC 326-6:1980, *Printed boards — Part 6: Specification for multilayer printed boards.*

IEC 326-9:1991, *Printed boards — Part 9: Specification for flexible multilayer printed boards with through connections.*

IEC 326-11:1991, *Printed boards — Part 11: Specification for flex-rigid multilayer printed boards with through connections.*

3 General

3.1 Mass lamination panels

The board is the individual printed circuit used by the end purchaser. A panel is made of one or more boards and is the product ordered from the mass laminator. The mass laminator may use manufactured sheets configured with more than one panel to save money. This part refers to the panels.

A mass laminated multilayer panel is a multilayer printed board at an intermediate stage of production, where inner layers have been processed and laminated to produce a panel containing alternate layers of conductive and insulating materials. The two outside conductive layers have not been processed by the mass laminator but are ready for drilling and final processing by the user.

Mass lamination panels are semi-manufactured products which are used to make multilayer printed boards. They:

- are made up of exactly registered internal conductive layers, etched according to the data given by the purchaser, corresponding to one or several boards and of insulating layers and of two external unetched copper-clad layers;
- are made by laminating a stack of thin layers of copper-clad base material etched on one or two sides, of prepregs, and of copper foils;
- include a locating system, which permits the drilling to be done in proper registration with the internal conductive layer;
- may have through connections between conductive internal layers, without connections with the external conductive layer (buried plated-through holes).

3.2 Constituting a mass lamination panel

Generally, the panel, the boards and the conductive patterns have the same reference axes with the same directions; the datum points of the boards and of their conductive patterns are the same. The mass lamination panel is defined, in this case, by:

- the references of the conductive patterns of each etched layer, given in the relevant specification;
- the place of each board on the panel, given by the co-ordinates of its datum points and indicated in the drawing of the relevant specification (see Figure A.4).