



JAPANESE
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STANDARD

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Japanese Standards Association

JIS C 6494 : 1999

**Base materials for printed circuits—
Thin bismaleimide/triazine modified
epoxide woven glass fabric
copper-clad laminated sheet
of defined flammability for use
in the fabrication of multilayer
printed boards**

ICS 31.180

Descriptors : printed-circuit boards, printed wiring, laminates, glass fibres, epoxy resins, plastics, copper, textile glass, cloth, epoxides

Reference number : JIS C 6494 : 1999 (E)

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Foreword

This translation has been made based on the original Japanese Industrial Standard revised by the Minister of International Trade and Industry through deliberations at the Japanese Industrial Standards Committee in accordance with the Industrial Standardization Law. Consequently **JIS C 6494 : 1994** is replaced with **JIS C 6494 : 1999**.

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In the event of any doubts arising as to the contents,
the original JIS is to be the final authority.

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**Base materials for printed circuits—
Thin bismaleimide/triazine modified
epoxide woven glass fabric copper-clad
laminated sheet of defined flammability
for use in the fabrication of
multilayer printed boards**

Introduction This Japanese Industrial Standard has been prepared based on the first edition of *IEC 60249-2-19 Base materials for printed circuits—Part 2 : Specifications—Specification No. 19 : Thin bismaleimide/triazine modified epoxide woven glass fabric copper-clad laminated sheet of defined flammability for use in the fabrication of multilayer printed boards* published in 1992 without modifying the technical contents. However, a partial modification has been given in accordance with the actual condition in Japan. The amendment to the said International Standard has been integrated into the text.

Portions underlined with dots are the matters not stated in the original International Standard.

The IEC Standard number is based on the new numbering system of IEC Standards put in force on January 1st 1997, and the Standard published before the said date is numbered by adding 60000 to the former number. This is only the change in the numbering system and the contents remain unchanged.

1 Scope This specification gives requirements for properties of thin bismaleimide/triazine modified epoxide woven glass fabric copper-clad laminated sheet of defined flammability (vertical fire resistance) for use in the fabrication of multilayer printed boards (hereafter referred to as “copper-clad laminated sheet”).

Laminated sheets covered by this specification have thicknesses (of the base laminate, excluding the copper foil) not greater than 0.8 mm. Although primarily intended for multilayer boards, the materials may be used for single-sided or double-sided printed boards.

Remarks 1 To designate this material, the reference: 60249-2-19-FV1-IEC-BTE-GC-Cu* may be used; if there is no risk of confusion, the type designation may be abbreviated to read IEC-60249-2-19-FV1*.

Note * Only when applying FV1 (see 7.3)

2 The International Standard corresponding to this Standard is given below.

IEC 60249-2-19 : 1992 *Base materials for printed circuits—Part 2 : Specifications—Specification No. 19 : Thin bismaleimide/triazine modified epoxide woven glass fabric copper-clad laminated sheet of defined flammability for use in the fabrication of multilayer printed boards*

2 Normative references The following standards contain provisions which, through reference in this Standard, constitute provisions of this Standard. The most recent editions of the standard indicated below shall be applied.

JIS C 6481 *Test methods of copper-clad laminates for printed wiring boards*

JIS C 6515 *Copper foil for printed wiring boards*

Remarks : IEC 61249-5-1 : 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)* is identical with the said standard.

IEC 60249-1 : 1982 *Base materials for printed circuits. Part 1 : Test methods. Amendment No. 3 (1991)*

IEC 61189-2 : 1997 *Test methods for electrical materials, interconnection structures and assemblies—Part 2 : Test methods for materials for interconnection structures*

3 Materials and construction The sheet consists of an insulating base with metal foil bonded to one or both sides.

3.1 Insulating base Bismaleimide and/or triazine modified epoxide resin bonded woven glass fabric laminate. Its flame resistance is defined in terms of the flammability requirements of 7.3.

3.2 Metal foil Copper as specified in JIS C 6515.

The preferred foils are type E (electro-deposited copper) of standard ductility.

4 Internal marking Not specified.

5 Electrical properties