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Specification for Flexible Base Dielectrics for Use in Flexible Printed Boards

Supersedes IPC-4202B
December 2016

An international standard developed by IPC

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- Focus on end product performance
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Developed by the Flexible Circuits Base Materials Subcommittee (D-13) of the Flexible Circuits Committee (D-10) of IPC

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Users of this publication are encouraged to participate in the development of future revisions.

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Specification for Flexible Base Dielectrics for Use in Flexible Printed Boards

1 SCOPE

This standard establishes the classification system, the qualification and quality conformance requirements for flexible base dielectric materials to be used for the fabrication of flexible printed boards.

1.1 Nomenclature Designation System The system described in 1.1.1 through 1.1.2.4 identifies flexible base dielectrics.

1.1.1 Nonspecific Designation A nonspecific designation is intended for use by ***designers*** on master drawings to designate their material choice. At the end of this standard is a series of material specification sheets identified by specification sheet numbers. Each sheet outlines engineering and performance data for a flexible base dielectric, indicating base material type and method of reinforcement.

Example of nonspecific designation: ***IPC-4202/1,*** *Where ''1'' refers to the specification sheet detailing unsupported polyimide flexible base dielectrics.*

If further material specification details (such as dielectric thickness) are required, they should be highlighted in cross sectional views or notes on the master drawing.

1.1.2 Specific Designation The specific designation should be in the form shown in the following example, and is intended for use on material purchase orders by printed board manufacturers (see 6.1). The specific designation should not be used by designers on master drawings to indicate their material selection. Master drawings **shall** indicate the material design by designers on master drawings to indicate their material selection, as the designation is lengthy and requires fabricator level knowledge in making the detailed selections.

Example of specific designation:

IPC-4202/1 – E1E2

Where:

IPC-4202/1 – Nonspecific Designation (see 1.1.1), for unsupported polyimide flexible base dielectrics.

E *– Base Dielectric Material Type Designation (see 1.1.2.1), specifying polyimide.*

1 *– Reinforcement Method Designation (see 1.1.2.2), specifying nonreinforced.*

E *– Reinforcement Type Designation (see 1.1.2.3), specifying nonreinforced film.*

2 *– Base Dielectric Material Thickness Designation (see 1.1.2.4), specifying 50 µm [1970 µin] thickness.*

1.1.2.1 Base Dielectric Material Type

The type of dielectric material **shall** be designated per Table 1-1.

Table 1-1 Base Dielectric Type Designation

Designation	Base Dielectric Type
A	Polyvinyl fluoride (PVF)
B	Polyethylene Terephthalate Polyester (PET)
C	Fluorinated Ethylene-Propylene Copolymer (FEP)
D	Polytetrafluoroethylene (PTFE)
E	Polyimide
F	Aramid
G	Polyamide-imide
H	Epoxy
J	Polyetherimide
K	Polysulfone
L	Polyethylene Naphthalate (PEN)
M	Thermotropic Liquid Crystal Polymer