



ASSOCIATION CONNECTING
ELECTRONICS INDUSTRIES®

IPC-4101B

Amendment 1

Specification for Base
Materials for Rigid and
Multilayer Printed Boards

IPC-4101B
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January 2007

A standard developed by IPC

The Principles of Standardization

In May 1995 the IPC's Technical Activities Executive Committee (TAEC) adopted Principles of Standardization as a guiding principle of IPC's standardization efforts.

Standards Should:

- Show relationship to Design for Manufacturability (DFM) and Design for the Environment (DFE)
- Minimize time to market
- Contain simple (simplified) language
- Just include spec information
- Focus on end product performance
- Include a feedback system on use and problems for future improvement

Standards Should Not:

- Inhibit innovation
- Increase time-to-market
- Keep people out
- Increase cycle time
- Tell you how to make something
- Contain anything that cannot be defended with data

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Specification for Base Materials for Rigid and Multilayer Printed Boards

2.1 IPC

IPC-TM-650 Test Methods

Append the following to 2.1 IPC

IPC-TM-650 Test Methods:

- 2.5.5.5 Stripline Test for Permittivity and Loss Tangent (Dielectric Constant and Dissipation Factor) at X-Band

7.2 Segmented Keyword Search Terms and All Specification Sheets that Use the Specific Keywords for Searching

Append /129 to CAF Resistance as follows:

Material Property Keywords	All Appropriate Specification Sheets
CAF Resistance	/29, /30, /70, /71, /126, /129

7.3 Keyword Search Terms for All Specification Sheets

Append CAF Resistance to Keywords as follows:

IPC-4101 Specification Sheet Number	KEYWORDS - For Search Only - NOT GRADE REQUIREMENTS
/129	Epoxy / Woven Glass Lead-Free FR-4 Low Z-axis CTE High Decomposition Temperature CAF Resistance

Summary Information for Specification Sheets for Laminates and Prepregs

Specification Sheet IPC-4101/129

Append CAF Resistance to Keywords as follows:

Epoxy / Woven Glass
Lead-Free FR-4
Low Z-axis CTE
High Decomposition Temperature
CAF Resistance

Specification Sheets /29, /30, /70, and /71

Remove footnote: † Pass or Fail are determined by Fail being ≥ 1 decade drop in the sample's initial insulation resistance value.

Additionally remove † from Pass/Fail.

14. CAF Resistance	–	AABUS	Pass/Fail	2.6.25	3.12.1.4
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Specification Sheet /126

Remove footnote: † Pass or Fail are determined by Fail being ≥ 1 decade drop in the sample's initial insulation resistance value.

Additionally remove † from Pass/Fail.

18. CAF Resistance	–	AABUS	Pass/Fail	2.6.25	3.12.1.4
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Specification Sheets /126 and /129

Replace 6. and 7. to read as follows:

6. Permittivity at Frequency, maximum (Laminate & prepreg as laminated)* 1 MHz	5.4	5.4	–	2.5.5.2/ 2.5.5.3	3.11.1.1 3.11.2.1
	1 GHz	5.2		2.5.5.9	
	10 GHz	AABUS		2.5.5.5	
7. Loss Tangent at Frequency, maximum (Laminate & prepreg as laminated)* 1 MHz	0.035	0.035	–	2.5.5.2/ 2.5.5.3	3.11.1.2 3.11.2.2
	1 GHz			2.5.5.9	
	10 GHz			2.5.5.5	

Specification Sheet /129

Replace 18. and 19. to read as follows:

18. CAF Resistance	–	AABUS	Pass/Fail	2.6.25	3.12.1.4
19. Other	–	–			



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ELECTRONICS INDUSTRIES®

3000 Lakeside Drive, Suite 309S, Bannockburn, IL 60015-1249
Tel. 847.615.7100 Fax 847.615.7105
www.ipc.org