



by Global Electronics Association

## IPC-6012FA

# Automotive Applications Addendum to IPC-6012F

## *Qualification and Performance Specification for Rigid Printed Boards*

If a conflict occurs between the English language and translated versions of this document, the English version will take precedence.

Developed by the IPC-6012 Automotive Addendum Task Group (D-33AA) of the Rigid Printed Board Committee (D-30) of Global Electronics Association.

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

Contact:

Global Electronics Association  
3000 Lakeside Drive, Suite 105N  
Bannockburn, Illinois  
60015-1249  
Tel 847 615.7100  
Fax 847 615.7105

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# Automotive Applications Addendum to IPC-6012F

## Qualification and Performance Specification for Rigid Printed Boards

**0.1 Scope** This addendum provides requirements to be used in addition to, and in some cases, in place of, those published in IPC-6012F to ensure the reliability of printed boards that must survive the environments of electronic interconnects within the automotive industry.

**0.1.1. Purpose** When required by procurement documentation, this addendum replaces specifically identified requirements of IPC-6012F.

**0.1.2. Precedence** The procurement documentation takes precedence over this addendum and referenced standards. In the event of a conflict between this addendum and the applicable documents cited herein, this addendum takes precedence. Where referenced criteria of this addendum differ from the published IPC-6012F, this addendum takes precedence.

**0.1.3. Existing or Previously Approved Designs** This addendum **shall not** constitute the sole cause for the redesign of previously approved designs. When procurement documentation for existing or previously approved designs undergo revision, they should be reviewed and changes made that allow for compliance with the requirements of this addendum.

**0.1.4. Use of this Addendum** This addendum **shall not** be used as a stand-alone document but **shall** be recognized as automotive electronic specific requirements that are in addition to or in place of IPC-6012F Class 3 requirements.

Where criteria are not supplemented, the Class 3 requirements of IPC-6012F **shall** apply. Where IPC-6012F criteria are supplemented or new criteria are added by this addendum, the clause is listed in IPC-6012FA, Table A-1, Automotive Applications Requirements, and the entire IPC-6012F clause and its associated Table 4-3 entry is replaced by this addendum except as specifically noted.

The clauses modified by this addendum do not include subordinate clauses unless specifically stated (i.e., changes made to 3.5 do not affect 3.5.1 unless 3.5.1 is also addressed in this addendum).

**Table A-1 IPC-6012FA Automotive Application Requirements**

IPC-6012F Reference	Automotive Applications Requirement (as changed by this addendum)	Inspection/Test Method	Sample	Test Frequency	
				Remarks	Frequency
3.3	<p><b>Visual Examination</b> Finished printed boards <b>shall</b> be examined in accordance with the following procedure. They <b>shall</b> be of uniform quality and <b>shall</b> conform to 3.3 of IPC-6012F.</p> <p>Visual examination for applicable attributes <b>shall</b> be conducted at 3 diopters (approx.1.75X). 100% automated visual inspection <b>shall</b> be conducted for mass production.</p> <p>Visual examination of microvia features for applicable dimensional or workmanship attributes <b>shall</b> be conducted at 30X minimum.</p> <p>If confirmation of a suspected non-conformance cannot be made at 3 diopters, it <b>shall</b> be verified at progressively higher magnifications (up to the maximum referee magnification power of 40X) to confirm conformance. Dimensional requirements such as spacing or conductor width measurements may require other magnifications and devices with reticles or scales in the instrument, which allow accurate measurements of the specified dimensions. Contract or specification may require other magnifications.</p>	Visual + Automated Visual Inspection (AVI)	Printed Board		100%