



IPC-9592B

Requirements for Power Conversion Devices for the Computer and Telecommunications Industries

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

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Requirements for Power Conversion Devices for the Computer and Telecommunications Industries

1 SCOPE

1.1 Statement of Scope This document standardizes the requirements for power conversion devices (PCDs) for the computer and telecommunications industries. The phrase “power conversion devices” refers to ac to dc and dc to dc modules, converters and power supplies. This specification sets the requirements for design; qualification testing; conformance testing and manufacturing quality/reliability processes, but does not include the functional requirements of the specific equipment.

1.2 Description Power Conversion Devices (PCDs) addressed in this document are used in the electronics industry to provide conversion of main power sources, usually ac, to lower dc voltages either for direct use of electronic circuits, or as a secondary source for additional dc to dc PCDs to provide several dc voltage levels for various electronic devices in a product. Any deviations due to applicable regulatory standard updates take precedence over this document.

Performance Parameters are comprised of mechanical, electrical, environmental, quality/reliability and regulatory requirements:

Mechanical requirements include form and size, connector and wiring configurations and cooling needs.

Electrical requirements define the electrical interface, including power source (ac or dc), input voltage, frequency and current needs, output voltages and current capabilities and, where applicable, logic controls.

Environmental requirements entail both operating and shipping temperatures, humidity, shock and vibration limits.

Quality/Reliability Assurance requirements include definitions and requirements for the design and testing of the quality and reliability of PCDs.

Regulatory requirements are international standards for safety, electronic interference and environmental impact of PCDs.

Methods This document describes specific methods to meet the defined performance parameters. These methods are *Design for Reliability*, *Design Qualification Testing*, *Manufacturing Conformance Testing*, and *Quality Processes*. In addition, this document provides guidance to improve corrosion resistance of PCDs used in harsh environments and specifies key *Regulatory Requirements* pertaining to PCDs.

1.3 Purpose The purpose of this document is to create a set of consistent specifications and methods to assure suitability, quality, safety and reliability of PCDs for the electronics industry. These specifications will apply to suppliers of PCDs, including their design and testing, and will provide guidelines for the end user to ensure adequate specifications for use in their products. All of the specifications and requirements defined in this document are intended to be part of suppliers' PCDs certifications outlined by the customers and will ship with first article and any design changes to the PCD, on request by the user.

1.4 Order of Precedence When Purchasing In the event of conflict when this document is utilized for purchasing a product addressed by this IPC standard, the following order of precedence **shall** apply:

- a. Purchase order.
- b. Master drawing.
- c. This standard.
- d. Applicable documents (see Section 2).