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Press-Fit Standard for Automotive Requirements and Other High-Reliability Applications

An international standard developed by IPC

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- 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

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- Increase time-to-market
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Press-Fit Standard for Automotive Requirements and Other High-Reliability Applications

Developed by the Cold Joining Press-Fit Task Group (5-21m) of the Assembly and Joining Committee (5-20) of IPC

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

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Press-Fit Standard for Automotive Requirements and Other High-Reliability Applications

1 Scope This standard prescribes practices for the characterization, qualification and acceptance requirements of compliant press-fit technology for printed boards that cover the manufacturability and reliability needs for high reliability applications intended for use in harsh environments such as automotive and aerospace.

Additional requirements for aerospace applications in Appendix B may apply.

1.1 Purpose This standard prescribes practices for the characterization, qualification and acceptance requirements of compliant press-fit technology for printed boards.

Standards may be updated at any time, including with the use of amendments. The use of an amendment or newer revision is not automatically required. The revision in effect **shall** be as specified by the user.

1.2 Classification

CLASS 1 General Electronic Products
Includes products suitable for applications where the major requirement is function of the completed assembly.

CLASS 2 Dedicated Service Electronic Products
Includes products where continued performance and extended life is required, and for which uninterrupted service is desired but not critical. Typically, the end-use environment would not cause failures.

CLASS 3 High Performance/Harsh Environment Electronic Products
Includes products where continued high performance or performance on demand is critical, equipment downtime cannot be tolerated, end-use environment may be uncommonly harsh, and the equipment must function when required, such as life support or other critical systems.

All requirements in this standard pertain to IPC Class 3. When this standard is contractually required, IPC Class 3 requirements **shall** be adopted for all other contractually required standards.

1.3 Measurement Units This standard uses International System of Units (SI units) per ASTM SI10, IEEE/ASTM SI 10, Section 3 [Imperial English equivalent units are in brackets for convenience]. The SI units used in this standard are millimeters (mm) [in] for dimensions and dimensional tolerances, Celsius (°C) [°F] for temperature and temperature tolerances, grams (g) [oz] for weight, and lumens (lm) [footcandles] for illuminance.

Note: This standard uses other SI prefixes (ASTM SI10, Section 3.2) to eliminate leading zeroes (for example, 0.0012 mm becomes 1.2 µm) or as an alternative to powers-of-ten (3.6 x 10^3 mm becomes 3.6 m).

1.3.1 Verification of Dimensions When an inspection is done on an assembly, measuring dimensions and determining percentages listed in the standard are not required unless there is a doubt or a question is raised about the acceptance of the product. When there is a doubt or a question is raised, then a referee determination should be implemented, at which time measurements should be made or percentages calculated using the referee magnifications defined in the Standard. For determining conformance to the specifications in this standard, round all observed or calculated values ''to the nearest unit'' in the last right-hand digit used in expressing the specification limit, in accordance with the rounding method of ASTM Practice E29. For example, specifications of 2.5 mm max, 2.50 mm max, or 2.500 mm max, round the measured value to the nearest 0.1 mm, 0.01 mm, or 0.001 mm, respectively, and then compare to the specification number cited.

1.4 Definition of Requirements The words ''**shall**'' or ''**shall not**'' are used in the text of this document wherever there is a requirement for materials, preparation, process control or acceptance.

The word ''should'' reflects recommendations and is used to reflect general industry practices and procedures for guidance only.

Line drawings and illustrations are depicted herein to assist in the interpretation of the written requirements of this standard. The text takes precedence over the figures.