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Handbook for Press-fit Standard for Automotive Requirements and other High-Reliability Applications

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

Developed by the Cold Joining Press-fit Handbook Task Group (5-21n) of the Assembly & Joining Committee (5-20) of Global Electronics Association.

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Tables

Handbook for Press-fit Standard for Automotive Requirements and other High-Reliability Applications

1 SCOPE

This document provides guidelines and supporting information for manufacturing electronic assemblies using compliant press-fit technology. The intent is to explain the “how-to” and “why” information, and fundamentals for these processes.

Additional detailed information can be found in documents referenced within each individual section. Users are encouraged to use those referenced documents to better understand the applicable subject areas.

This handbook is supporting the IPC-9797 standard.

1.1 Purpose

This document is for guidance only. The design concepts, guidelines and procedures presented in this document are not requirements, and this document is not binding, unless separately and specifically included by the applicable contract, approved drawing(s) or purchase order.

1.2 Measurement Units

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

Note: This document 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 10³ mm becomes 3.6 m).

1.2.1 Verification of Dimensions

When an inspection is done on an assembly, measuring dimensions and determining percentages listed in the document 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 document. For determining conformance to the specifications in this document, 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 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.

1.3 Use of “Lead”

For readability and translation, this document uses the noun lead only to describe leads of a component. The metallic element lead is always written as Pb.

1.4 Abbreviations and Acronyms

Periodic table elements are abbreviated in the document. See Appendix A for abbreviations, including elements and acronyms used in this document.

1.5 Terms and Definitions

Other than those terms listed in IPC-9797, the definitions of terms used in this document are in accordance with IPC-T-50.