



# IPC-HDBK-9798

2022 - April

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

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

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

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Figure 6-6	Blister Packaging . . . . .	15
Figure 6-7	Tube Packaging . . . . .	16
Figure 6-8	Tray Packaging . . . . .	16
Figure 7-1	Contact Resistance Measurement Schematic . . . . .	17
Figure 7-2	Using an Adjacent PPTH for Contacting . . . . .	17
Figure 7-3	Using an Adjacent Via for Contacting . . . . .	18
Figure 7-4	Using Adjacent Vias for Contacting in a Daisy Chain . . . . .	18
Figure 7-5	Using the PPTH for Contacting in a Daisy Chain . . . . .	18
Figure 7-6	Principle of the Spring Force Measurement (SFM) of Compliant Press-Fit Zones . . . . .	19
Figure 7-7	Typical Spring-Force Measurement Characteristics (the corrective curve needs to be subtracted from the measured curves for the complete measurement) . . . . .	19
Figure 7-8	Schematic of Spring Force Measurement Tool . . . . .	20
Figure 7-9	Example for the Spring Force Measurement Preparation of a Triple Pin . . . . .	21
Figure 7-10	Slow Speed Push-In Equipment (A) and a Typical Push-In Force Curve (B) . . . . .	21
Figure 7-11	High Speed Push-In Equipment (A) and a Typical Push-In Force Curve (B) . . . . .	22
Figure 7-12	Different PB Surface Finishes (push-in force vs depth) . . . . .	22
Figure 7-13	Push-In Forces for Different Press-Fit Designs . . . . .	23
Figure 7-14	Push-In Forces: Various Plating Options on the Same Pin with the Same PB Finish . . . . .	23

## Tables

Table 3-1	Advantages and Common Challenges of Press-Fit Technology with Reference to Selective Soldering . . . . .	3
Table 4-1	Mechanical and Electrical Tests in IPC-9797 . . . . .	4
Table 4-2	Optical and Cross-Sectional Inspections in IPC-9797 . . . . .	5
Table 4-3	Requirements for PB, Compliant Press-Fit Zone and Related Tests in IPC-9797 . . . . .	6
Table 5-1	Typically Applied Copper Alloys for Press-Fit Connectors and Their Properties . . . . .	8
Table 5-2	Example for a Typically Observed PPTH Definition . . . . .	13
Table 6-1	Packaging Levels . . . . .	16

# 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 Applicability** This handbook 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 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 lux (lx) [footcandles] for illuminance.

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

**1.3 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 standard. See Appendix A for abbreviations, including elements and acronyms used in this standard.

**1.5 Terms and Definitions** Other than those terms listed in IPC-9797, the definitions of terms used in this handbook are in accordance with IPC-T-50.

## 2 APPLICABLE DOCUMENTS

### 2.1 IPC Documents<sup>1</sup>

**IPC-T-50** Terms and Definitions for Interconnecting and Packaging Electronic Circuits

**IPC-6012** Qualification and Performance Specification for Rigid Printed Boards

**IPC-6012EA** Automotive Applications Addendum to IPC-6012E, Qualification and Performance Specification for Rigid Printed Boards

**IPC-9797** Press-fit Standard for Automotive Requirements and other High-Reliability Applications

**IPC-A-600** Acceptability of Printed Boards

**IPC-4552** Specification for Electroless Nickel/Immersion Gold (ENIG) Plating for Printed Boards

**IPC-4553** Specification for Immersion Silver Plating for Printed Boards

<sup>1</sup> www.ipc.org

<sup>2</sup> www.iec.ch

<sup>3</sup> www.astm.org