

PBA Design-for-Manufacturing Guideline

EDM-D-008 Technology and Manufacturing Capability Mapping of PBA Designs

V1.3
August 2026

Contact

Geert Willems

Phone: +32 16 288962

Mobile: +32 498 919464

Geert.Willems@imec.be

IMEC

Kapeldreef 75

B3001 Heverlee

Verantwoordelijke uitgevers

Peter Vandenameele - IMEC

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The Design-for-eXcellence Guidelines principles

The PBA Design-for-eXcellence (DfX) Guidelines are designed to provide all electronic supply chain actors involved in the design, qualification, industrialization and production of Printed Board Assemblies practical guidelines to master the multi-disciplinary hardware aspects of electronic module realization and operation in a cost-effective way. The PBA DfX Guidelines are not electrical design guidelines. The PBA DfX guidelines provide the electrical designer the boundary conditions of industrial electronic manufacturing technology and operational reliability. It is intended to support the development of cost-effective, reliable PBA with a short time-to-market requiring a minimum number of design iterations.

Some of the characteristics of the PBA DfX Guidelines are:

- The PBA DfX Guidelines are oriented towards the overall optimization of the physical design of the final PBA based product.
- The guidelines refer to the relevant industry standards that are predominantly used in the international electronics industry such as those published by organizations as IPC and JEDEC. The guidelines do not replace industrial standards but define or recommend what options in the standards to use and will fill-in gaps if necessary. They provide the basis on which a company/product/product-line or application specific approach for design, industrialization and/or realization can be defined.
- Scientific argumentation and physical models form the basis of a large part of the guidelines and of the associated tools. This allows the use of the guidelines beyond the boundary of the users' experience domain. Therefore, it provides a powerful product and process innovation aid.
- The PBA DfX Guidelines will not specify, recommend or exclude specific brands of materials, components, suppliers or products. They will put forward minimal requirements on quality, physical and chemical properties and testing. They define and provide the DfManufacturing window for PBA realization.
- The PBA DfX Guidelines are based on verifiable physical models, standards and empirical data.

PBA DfX Guidelines Scope

- The PBA DfX guidelines cover lead-free SnAgCu and SnPb solder based assembly.
- The PBA DfX guidelines include: Design-for-Manufacturing, Design-for-Assembly, Design-for-Test, Design-for-Reliability, Design-for-RoHS, etc.

Acknowledgement

This document was realized in collaboration with the industrial and academic partners of imec's Center of Electronics Design & Manufacturing.

Funding organizations

IWT is acknowledged for funding the VIS projects - especially the Collective Research project CO-PBA-DfX and the VIS-trajectory PROSPERITA - that have provided the scientific background for the PBA DfX Guidelines and gained the necessary industry support.

imec contributors

Geert Willems, Ph.D.
Boris Leekens

Contributors

Barco, Kortrijk

Table of Contents

The Design-for-eXcellence Guidelines principles2

PBA DfX Guidelines Scope2

Acknowledgement.....3

1. Applicable Documents5

2. Applicability of the PBA DfX Guideline EDM-D-0085

3. Technology and manufacturing capability mapping.....6

 3.1. Principle and goal.....6

 3.2. Identification and mapping tools6

4. PBA Passport8

5. PCB Manufacturer Capability List9

6. PBA Supplier Capability List10

7. Design-to-Manufacturing mapping12

8. To be acknowledged.....15

9. Revisions15

1. Applicable Documents

This PBA DfX Guideline refers as part of the guideline to the most recent versions of the following documents and standards including their amendments.

EDM-D-001	PCB Specification
EDM-D-003	PBA Assembly Material Specification
EDM-D-005	Rigid PCB Build-Up and Density Classification
EDM-D-006	Layout Solutions

2. Applicability of the PBA DfX Guideline EDM-D-008

- Specification recommendations given in the guideline are intended to help the user in making choices that improve the manufacturability, reliability, testability, etc., of the final PBA. These recommendations are of a generic nature. Therefore, in specific cases more optimal solutions may exist.
- Design specification takes precedence over this guideline.