|  |  |  |
| --- | --- | --- |
| |  | | --- | | **Quality Manual** | |  | |
| **FOR EDUCATIONAL USE ONLY** |

|  |
| --- |
| **What is a miniPCB?** |
| A miniPCB is a printed circuit board that contains a layout of an electronic circuit. |
| A miniPCB has a mechanical design that is consistent with numerous similar miniPCBs. |
| A miniPCB has an interface connector that is simple and economical. |
| A miniPCB has educational documentation that is approved by an engineer. |
| A miniPCB is sold in minimum-order-quantities determined by the PCB panel size. |
| This document is available for free as a download from the GitHub repository: <https://github.com/miniPCB>  This document is associated with the miniPCB Channel on YouTube:  <https://www.youtube.com/@minipcb> |

TABLE OF CONTENTS

[1. Purpose 4](#_Toc149467897)

[2. Scope 4](#_Toc149467898)

[3. Responsibilities 4](#_Toc149467899)

[4. Terminology and Abbreviations 4](#_Toc149467900)

[5. Quality System 5](#_Toc149467901)

[6. References 8](#_Toc149467902)

[7. Change and Liability Notice 9](#_Toc149467903)

[8. Trademark Notice 9](#_Toc149467904)

[9. Revision History 9](#_Toc149467905)

TABLE OF FIGURES

**TABLE OF TABLES**

[Table 1 – Definitions and Abbreviations 4](#_Toc149467892)

[Table 2 – YouTube Channel 5](#_Toc149467893)

[Table 3 – miniPCB Website 5](#_Toc149467894)

[Table 4 – GitHub Repository 6](#_Toc149467895)

[Table 5 – Approved Vendor List 8](#_Toc149467896)

# Purpose

The purpose of this document is to establish a simple quality system for the miniPCB project.

# Scope

The scope of this document is engineering activities related to the miniPCB project.

# Responsibilities

**Chief Engineer** is responsible for maintaining this manual.

**Engineer** developing a miniPCB is responsible for adhering to this manual.

# Terminology and Abbreviations

Terminology and abbreviations used throughout the miniPCB project are consistent with the definitions presented in this section.

Table – Definitions and Abbreviations

|  |  |
| --- | --- |
| TERM | DEFINITION |
| PCB | Printed Circuit Board, Bare Board |
| PCBA | Printed Circuit Board Assembly, Bare Board + Parts + Assembly |
| SMD | Surface mount device |
| THD | Through hole device |

# Quality System

## Design Standard

Adhere to the **miniPCB™ Design Standard** throughout all project activities.

## Development Procedure

Adhere to the **miniPCB™ Development Procedure** throughout development activities.

## Product Catalog

Maintain the **miniPCB™ Product Catalog** spreadsheet for all idea and product changes.

## Product LifeCycle

Adhere to the **miniPCB™ Product Management Procedure** when creating and revising products.

## Engineering Change Orders

Use **ECObase** to organize and document changes caused by engineering actions.

## Detailed Test Documentation

Use **TESTbase** to organize and document test plans.

## YouTube Channel

Maintain the **miniPCB™ Channel** on YouTube.

Table – YouTube Channel

|  |  |
| --- | --- |
| CHANNEL | LOCATION |
| miniPCB Channel | https://www.youtube.com/@minipcb |

## Website

Maintain the **miniPCB™ Website** on Google Sites.

Table – miniPCB Website

|  |  |
| --- | --- |
| CHANNEL | LOCATION |
| miniPCB Website | www.minipcb.com |

## GitHub Repository

All engineering files and records are opensource and available on the GitHub.

Table – GitHub Repository

|  |  |
| --- | --- |
| REPOSITORY | LOCATION |
| GitHub | https://github.com/miniPCB |

## CAD Tools

Use the following CAD tools to perform engineering work.

|  |  |
| --- | --- |
| CAD TOOL | DESCRIPTION OF USE |
| EAGLE | EE Development |
| FUSION 360 | ME Development |

## Engineering Records

Types of engineering records within the miniPCB project are listed on the table below.

|  |  |
| --- | --- |
| RECORD | DESCRIPTION |
| Source Files | Gerbers, CAD files, Word documents, Excel documents, images, videos, etc. |
| Schematics | PDF documents (from CAD source file) |
| Datasheets | PDF documents (from Word source file) |
| Plans | PDF documents |
| Reports | PDF documents |
| Procedures | PDF documents |
| Engineering Change Orders | PDF documents |

## Document Control

Control miniPCB documentation with each of the following methods.

### Revision History Table

Maintain a revision history table within datasheets and schematic sheets.

### Review and Approval

Review, approve, and sign engineering documentation prior to official release.

### Electronic Signatures

Use one of the following signature formats.

* NM.ddmmmyyyy
* N. MANTEUFEL
* NM

## Purchasing

Purchase boards from any of the approved PCB vendors.

Table – Approved Vendor List

|  |  |
| --- | --- |
| VENDOR NAME | VENDOR WEBSITE |
| SeeedStudio Fusion | <https://www.seeedstudio.com/fusion_pcb.html> |

# References

miniPCB™ Design Standard

miniPCB™ Product Catalog

miniPCB™ Development Procedure

miniPCB™ Product Management Procedure

ECObase Template

TESTbase Template

# Change and Liability Notice

This document is subject to change without notice. While effort has been made to ensure the accuracy of the material contained within this document, Nolan Manteufel shall under no circumstances be liable for incidental or consequential damages or related expenses resulting from the use of this document.

# Trademark Notice

miniPCB is a trademark of Nolan Manteufel.

This specification does not constitute permission to use the miniPCB trademark.

|  |  |  |
| --- | --- | --- |
| WORDMARK | FIGUREMARK | FIGUREMARK |
| miniPCB™ | A picture containing drawing  Description automatically generated™ | Icon  Description automatically generated™ |

# Revision History

|  |  |  |  |
| --- | --- | --- | --- |
| REV | DESCRIPTION | ECO | DATE |
| A | Initial Release | 1014 | 16JAN2023 |
| B | Added Product Management Procedure | 1026 | 29OCT2023 |