



APPLICATION NOTE

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APPLICATION NOTE
Design & Installation of El Ochito PCB Connectors

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APPLICATION NOTE

Design & Installation of El Ochito PCB Connectors

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REVISION HISTORY

REVISION	DATE	REVISED PAGES	REVISIONS
A	08/19/2019		Initial Release
B	02/01/2021	4, 5, 6	HiPer-D PCB connectors added to Table 1 Anti-pad radius corrected to R.031 min, Ground PTH redefined, Ground solder pad grown to Ø.070, Board material section added, Class 3 note added to other considerations
C	05/06/2021	6	"Signal Plated Through Holes" added as section 4.5 "Other Considerations" now section 4.6

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1.0 Purpose

This document describes the proper way to design and install El Ochito PCB connectors & contacts onto a PCB in order to achieve optimal signal integrity.

2.0 Referenced Documents

Document Number/Name	Description
233-218 & similar	SuperNine El Ochito PCB Connectors
280-090, 280-091, & similar	HiPer-D El Ochito PCB Connectors
792-007/008, 792-009/010, & similar	Series 792 PCB Connectors
801-120 & similar	Mighty Mouse 801 El Ochito PCB Connectors
805-126 & similar	Mighty Mouse 805 El Ochito PCB Connectors
806-039/040 & similar	Mighty Mouse 806 El Ochito PCB Connectors
858-011, 858-034, 858-036, & similar	ARINC 600 El Ochito PCB Contact
858-025 & similar	El Ochito Transition Adaptor
882-005, 882-008, 882-017, & similar	SuperFly DataLink PCB Connectors

Table 1. Reference Documents

3.0 Responsibility

This document is the responsibility of the Engineering team.

4.0 Methods of Performance Optimization

4.1 PCB Layout & Design

To achieve optimal impedance matching at the PC tail/PCB transition, we recommend the follow layout:

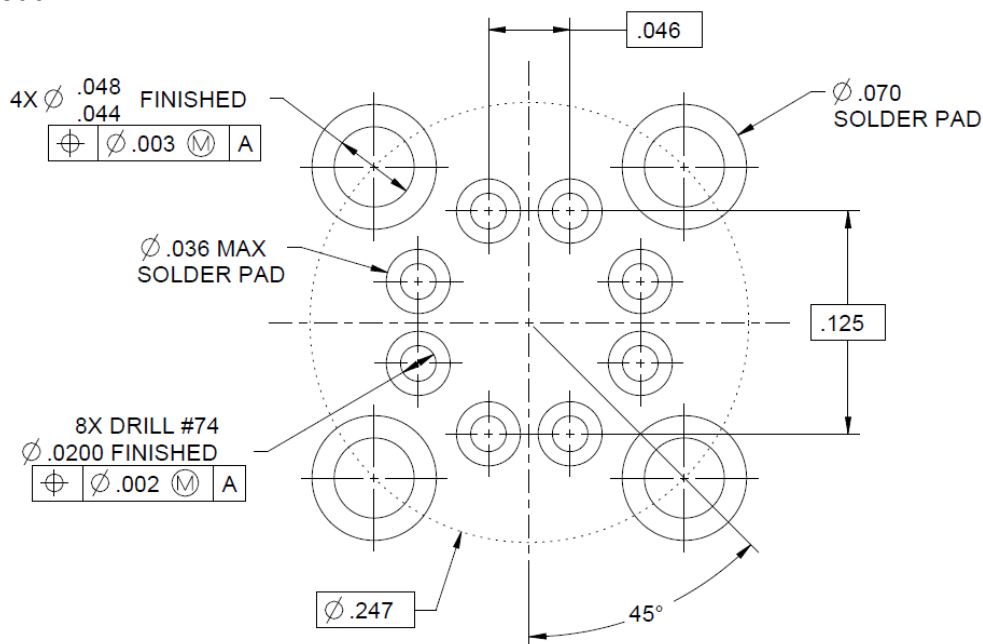


Figure 1 – Optimized PCB Layout

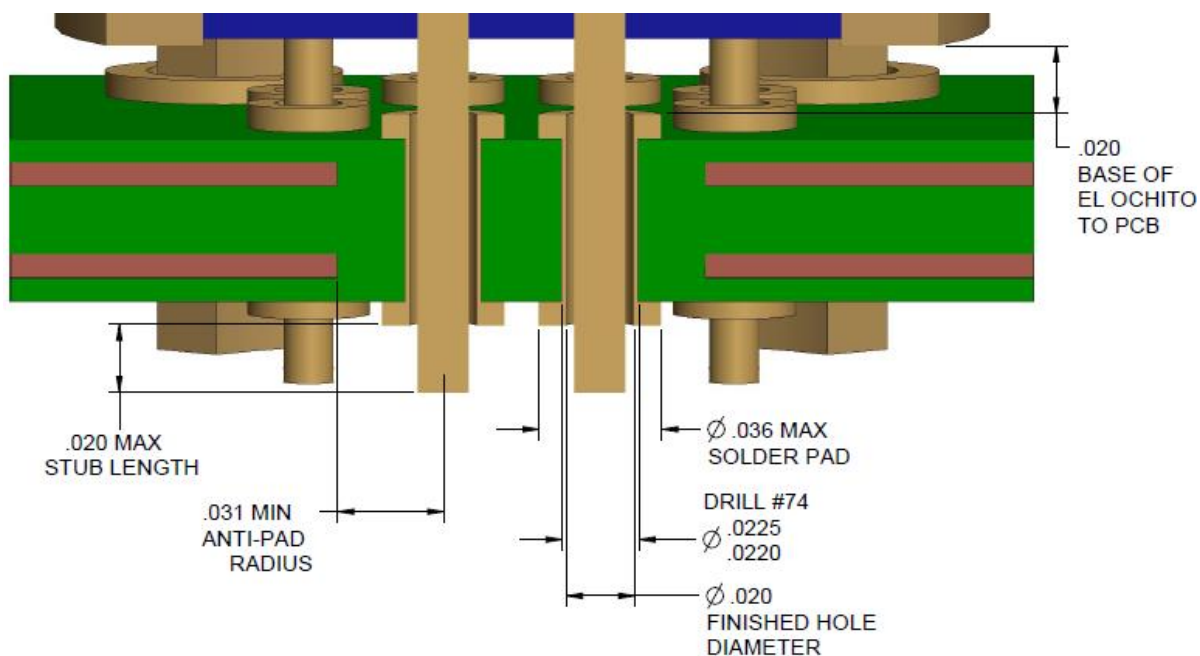


Figure 2 – Optimized PCB Cross Section

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4.2 Installation onto Board

Trim the PC tails to a length of .020 inches or less per figure 2. This minimizes the length of capacitive stubs, which lower impedance and cause the signal to resonate.

4.3 Trace Routing

Route the traces for the high-speed lines on the opposite side of the PCB from the connector. This will further reduce the length of capacitive stubs.

The signal trace width needed for the desired impedance is dependent on the PCB Stack-up, PCB material, and whether the traces are routed as differential pairs or single-ended lines.

4.4 Board Material

The dimensions provided are based on using a board material with a Dk value of 3.00.

4.5 Signal Plated Through Holes

For the \varnothing .0200 PTH – The important part of this is for the hole to be drilled with a #74 drill, resulting in a .0225 starting hole diameter, which controls the gap between the PTHs. The final hole can be as small as \varnothing .017 inches.

4.6 Other Considerations

When being used in a connector that does not have PCB stand-offs, design for the PCB to be .020 inches from the base of the El Ochito PCB per figure 2.

The board design described by this document does not meet the requirements of IPC-A-610 Class 3 due to the size of the signal solder pads.