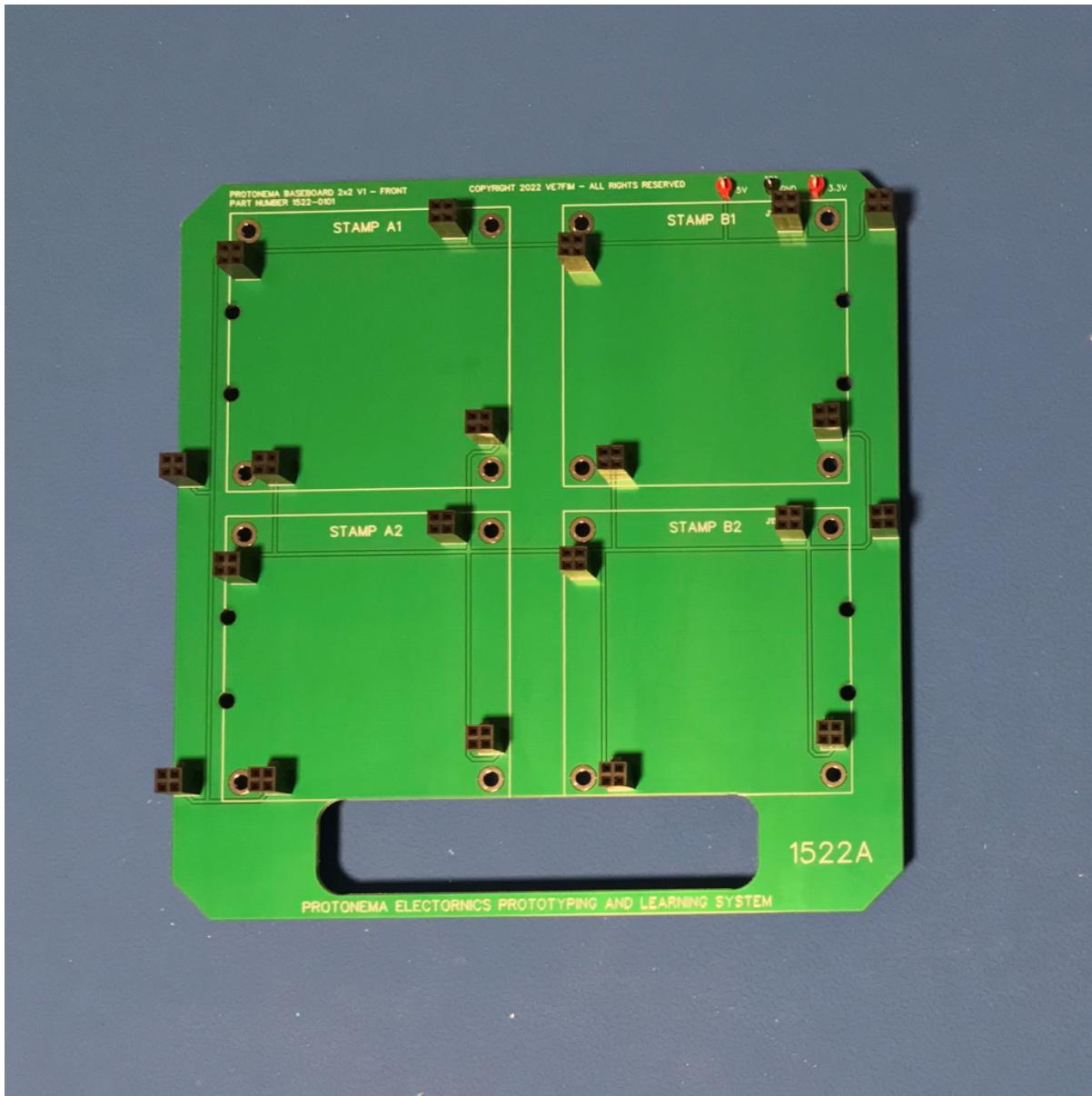


1

ASSEMBLY INSTRUCTIONS

2

3
1522A Protonema 2x2 Baseboard



Document control number: 1522-8010

6 Document date: 2022-12-23

7 Document revision: 1.0.0-draft.1

8 ABSTRACT: This document provides instructions on how to assemble and test a 1522A Protonema 2x2
9 baseboard. A complete bill of materials is included as an annex.

10 Suggestions and corrections should be directed to <http://www.github.com/dslik/protonema/issues>

11 Serial number: Assembly date: Assembled by:

12 USAGE

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21 Source location: <https://github.com/dslik/protonema/tree/main/baseboards/1522A>

22 As per CERN-OHL-S v2 section 4, the following notice shall be displayed on product packaging and in the product
23 documentation:

24 "Based on the Protonema Electronics Prototyping and Learning System by David Slik -
25 <https://www.github.com/dslik/protonema/>"

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51 Revision history

Table 1: Document Revisions

Version	Date	Change	Approver
1.0.0-draft.1	2022-12-23	Initial draft for internal review	D. Slik

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171

Part I

172

1522A assembly instructions

173 Section 1

174 Overview

175 This document describes the materials, processes, outcomes and verifications required to successfully assem-
176 ble and test a 1522A Protonema 2x2 baseboard, a sub-component of the Protonema electronics prototyping and
177 learning system.

178 A first-time reader should carefully review section 2 - prerequisites, and section 3 - preparation before beginning
179 the assembly process.

180 This document serves both as instructions and as a record of the assembly of the product. When you finish each
181 step in this document, sign your name (or apply your stamp) in the "Signature/Stamp" box on the right to provide a
182 record of completion.

183 When things go wrong, this document provides guidance for common issues that have been encountered in the
184 past. When this document does not provide guidance, please contact your quality management representative,
185 who will help you fill out an exception report. These reports help improve process quality and product quality, and
186 these reports are incorporated into future revisions of this document.

187 Always remember: If you are unable to successfully complete these instructions, that means the processes sup-
188 porting you (including this document) have failed you. Our processes are built for your success, and by improving
189 our processes, we help everyone succeed.

¹⁹⁰ **Section 2**

¹⁹¹ **Prerequisites**

¹⁹² **2.1 Required safety training**

- ¹⁹³ The following safety training units must be completed before assembling this product.
- ¹⁹⁴ By signing (or applying your stamp) on the right, you indicate that you have completed the following training:

Table 2: Safety training

Item #	Description	Signature/Stamp
2.1.1	0102-0100 - Safety reporting policies and procedures training Key topics: Understanding policies and procedures around how to identify, contain and report a safety-related issue in the workplace, including damaged or malfunctioning equipment, leaks, spills, and other occupational hazards.	 Stamp or sign here
2.1.2	0102-0101 - Material safety data sheets training Key topics: Understanding how to read material safety data sheets (MSDS) for materials you will be handling during product assembly, how they can affect your health and the health of the environment, how to safely handle and dispose of them, and what to do if there is a spill or accidental exposure.	 Stamp or sign here
2.1.3	0102-0102 - Solder handling and disposal policies and procedures training Key topics: Understanding policies and procedures related to handling solder and solder paste, stencil cleaning, and solder disposal.	 Stamp or sign here
2.1.4	0102-0105 - Electro-static discharge controls policies and procedures training Key topics: Understanding policies and procedures related to protecting equipment and components from electro-static discharge, including clothing, protective equipment, material handling and labelling.	 Stamp or sign here

195 2.2 Required skills training

- 196 The following skills training units must be completed before assembling this product.
- 197 By signing (or applying your stamp) on the right, you indicate that you have completed the following training:

Table 3: Skills training

Item #	Description	Signature/Stamp
2.2.1	0103-0202 - ANSI/ESD S20.20 Electro-static discharge controls Key topics: Understanding of ESD safety, the ESD control program, equipment and personnel grounding, EPAs, packaging and marking.	Stamp or sign here
2.2.2	0103-0203 - General components handling Key topics: Understanding of safe component handling, including reeled components, components in JEDEC trays, and loose components. Includes avoiding contamination, moisture control, and component inventory management.	Stamp or sign here
2.2.3	0103-0414 - 5040-XTS reflow station Key topics: Safe and effective use of the 5040-XTS reflow station, including use of the pre-heater, the hot air system, and the soldering iron. Covers inspection and verification, cleaning, preferred settings and best practice techniques.	Stamp or sign here
2.2.4	0103-0301 - IPC-A-610G - Acceptability of electronic assemblies Key topics: Covers visual acceptability requirements for electronic assemblies, including handling considerations, hardware installation, component placement, soldering, terminal connections, wiring, marking and cleanliness.	Stamp or sign here
2.2.5	0103-0302 - IPC-J-STD-001F - Soldered electrical connections Key topics: Covers soldering materials, general soldering and assembly requirements, wire and terminal connections, through-hole mounting, surface mounting of components, cleaning process requirements, PCB requirements, coatings and product assurance.	Stamp or sign here

198

Section 3

199

Preparation

200

3.1 Workspace

201
202

- Before starting assembly, check out an assembly desk for a minimum of one hour. A single unit can be assembled in half an hour, with an additional ten minutes per additional unit.

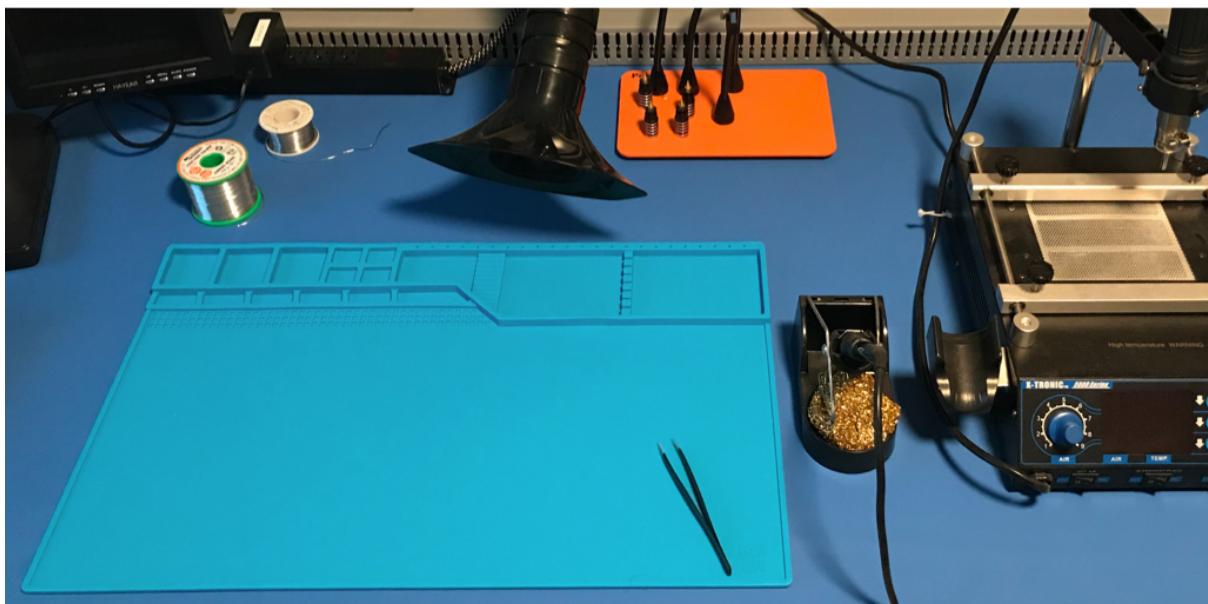


Fig. 1: Assembly Desk

Table 4: Prepare workspace

Step	Description	Signature/Stamp
3.1.1	Verify that the workspace has a clean assembly mat and anti-static mat, and that the cleaning record has been signed since last use.	Stamp or sign here
3.1.2	Verify that the HEPA fume extractor turns on, and you can feel air suction from the nozzle.	Stamp or sign here

continues on next page

Table 4 – continued from previous page

Step	Description	Signature/Stamp
3.1.3	Verify that the 5040-XTS rework station soldering iron tip is not worn down. If it is worn down, obtain a new 900M-T-I tip from the stores department.	Stamp or sign here

203 3.2 Project consumables

- 204 Obtain each of the below consumable items from the stores department:

Table 5: Assembly consumables

Item #	Description	Signature/Stamp
3.2.1	 <p>Fig. 2: 1 pair ESD gloves If you prefer to use your own pair of ESD gloves, make sure they are tested before use.</p>	Stamp or sign here
3.2.2	 <p>Fig. 3: 1 spool MG Chemicals 4900 Lead Free No-Clean Wire Solder Sn96.2Ag2.8Cu0.4 (96.2/2.8/0.4) 20 AWG</p>	Stamp or sign here

205 3.3 Project tools

- 206 Obtain a tools container labelled “1XXX Assembly Tools” from the 1XXX section of the stores supply shelf. At your
207 assembly desk, use [Table 6](#) to verify that all the required tools are present.
- 208 If any required tools are missing, return all tools and the tools container to the stores department, and obtain another
209 tools container.



Fig. 4: Tools Container

- 210 Remove each of the following tools from the tools container, and place them on the anti-static mat of the assembly
211 desk:

Table 6: Assembly tools

Item #	Description	Signature/Stamp
3.3.1		<div style="text-align: center;">Stamp or sign here</div>

Fig. 5: Hozan F-23 components tray

continues on next page

Table 6 – continued from previous page

Item #	Description	Signature/Stamp
3.3.2	 Fig. 6: Digital multimeter	 Stamp or sign here
3.3.3	 Fig. 7: Fine-tipped Sharpie marker	 Stamp or sign here
3.3.4	 Fig. 8: 1510-0111 v0.3 fixture	 Stamp or sign here

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Table 6 – continued from previous page

Item #	Description	Signature/Stamp
3.3.5	 Fig. 9: Scissors	Stamp or sign here

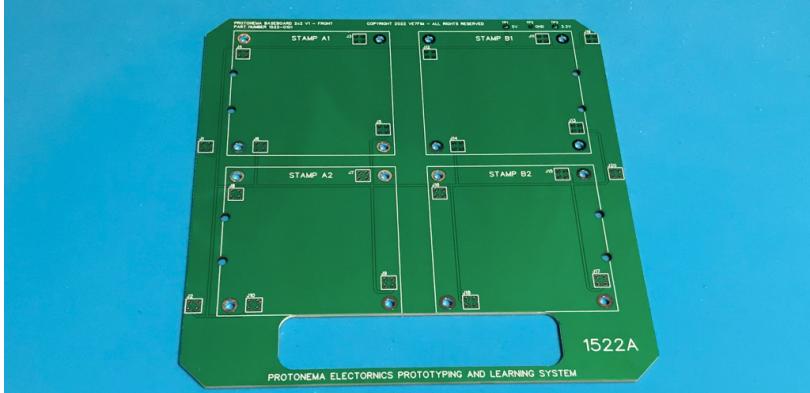
212 3.4 Parts preparation

213 3.4.1 PCBs and PCBAs

214 NOTICE: All PCBs and PCBAs must be handled with gloves to prevent marking with skin oils.

215 NOTICE: PCBs are removed from manufacturer packaging only when needed.

Table 7: PCBs and PCBAs

Item #	Description	Signature/Stamp
3.4.1.1	No marking required  Fig. 10: 1x 1522-0101 v1 - Baseboard PCB	Stamp or sign here

216 3.4.2 Loose components

217 All loose components are stored on the shelf labelled "1XXX Components". Take the components tray and obtain
 218 the following quantities of the following parts:

Table 8: Loose components

Item #	Description	Signature/Stamp
3.4.2.1	No marking required  Fig. 11: 57x DS1023-2*2SF11 - 2.54mm by 2.54mm Straight 2x2P Female Headers	Stamp or sign here
3.4.2.2	No marking required  Fig. 12: 2x TP-104-13-02 - Red Test Points	Stamp or sign here
3.4.2.3	No marking required  Fig. 13: 1x TP-105-01-00 - Black Test Point	Stamp or sign here

continues on next page

Table 8 – continued from previous page

Item #	Description	Signature/Stamp
3.4.2.4	No marking required  Fig. 14: 6x VSQBC35 - Clear Rubber Feet	Stamp or sign here

219 3.4.3 Packaging materials

- 220** All packaging materials are stored on the shelf labelled “15XX Components”. Take the packaging box and obtain
221 the following quantities of the following materials:

Table 9: Packaging materials

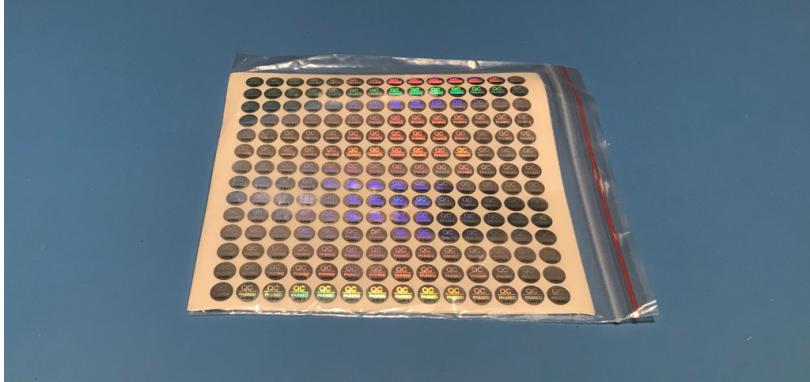
Item #	Description	Signature/Stamp
3.4.3.1	No marking required 	Stamp or sign here
3.4.3.2	No marking required 	Stamp or sign here
3.4.3.3	No marking required 	Stamp or sign here

Fig. 15: 1x QC Sticker

continues on next page

Table 9 – continued from previous page

Item #	Description	Signature/Stamp
3.4.3.4	No marking required 	Stamp or sign here
3.4.3.5	No marking required 	Stamp or sign here

²²² Section 4

²²³ Assembly

²²⁴ 4.1 1522A assembly

²²⁵ This assembly step takes 20 minutes.

Table 10: 1522A assembly steps

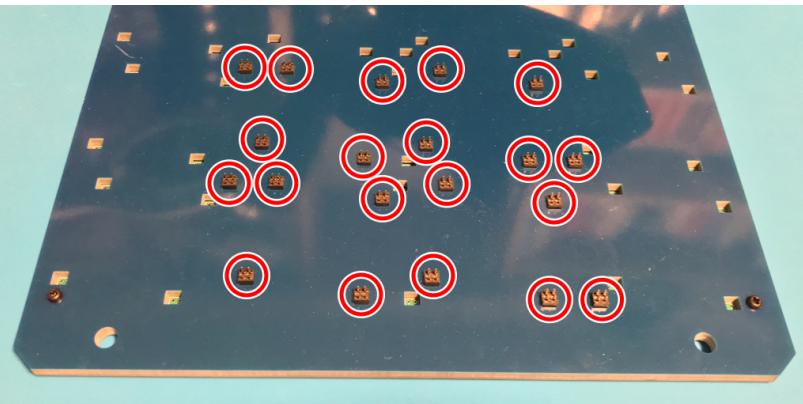
Step #	Description	Signature/Stamp
4.1.1	<p>Take the 1510-0111 v0.3 fixture and align it on the assembly mat</p> 	<input type="text"/> Stamp or sign here
4.1.2	<p>Place the 20x 2x2 female sockets pins-up in the slots in the fixture illustrated below. Only the shown holes should be filled.</p> 	<input type="text"/> Stamp or sign here

Fig. 20: Aligned 1510-0111 fixture

Fig. 21: Fixtures with placed 2x2 female sockets

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Table 10 – continued from previous page

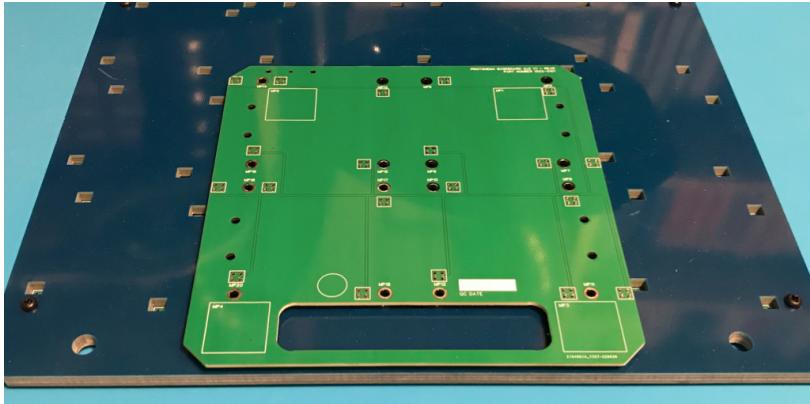
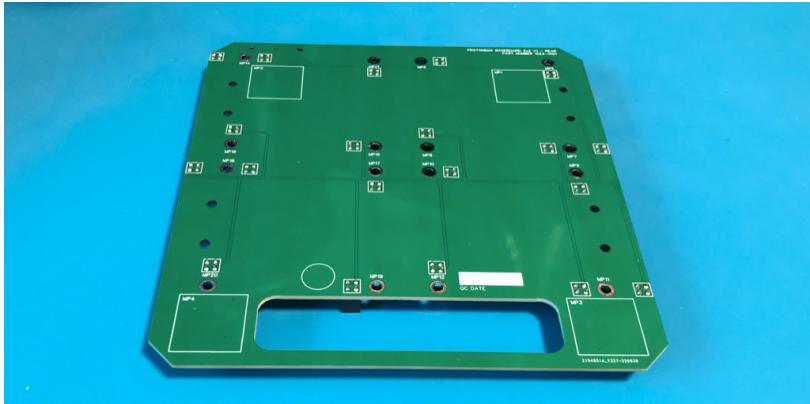
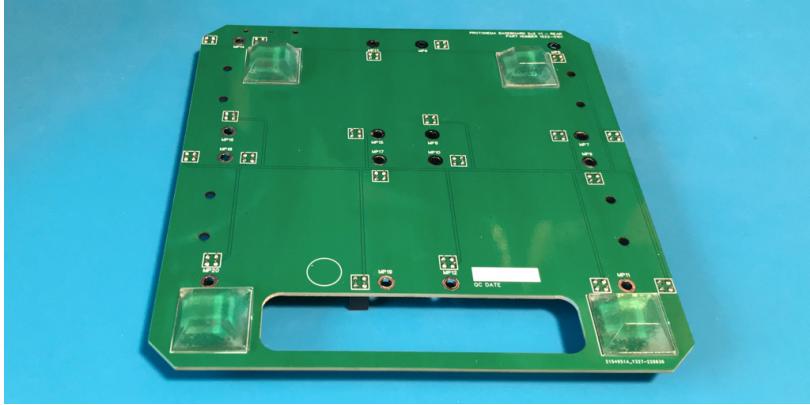
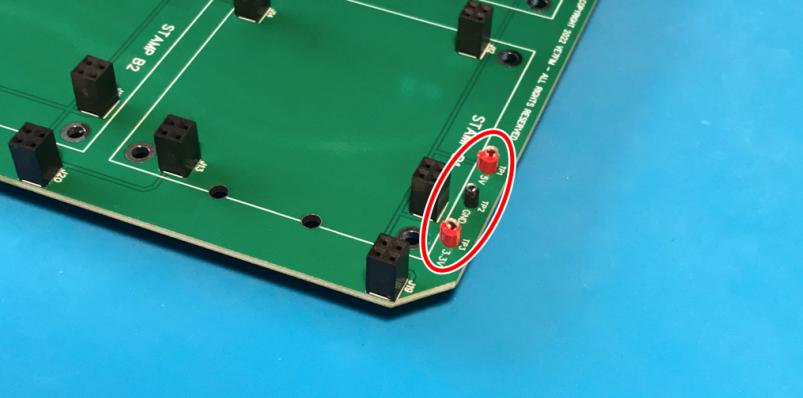
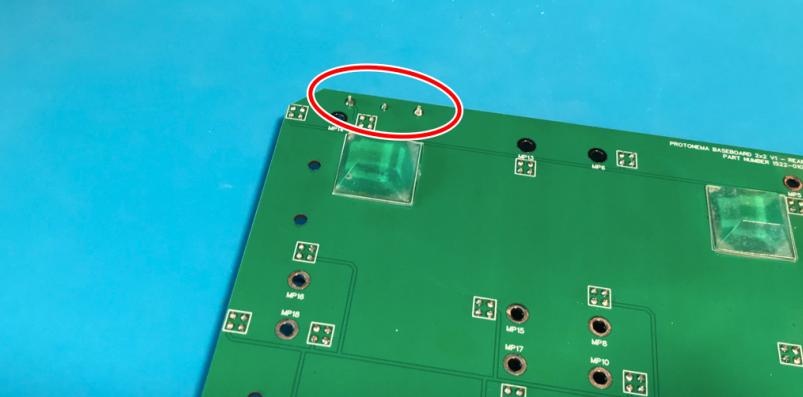
Step #	Description	Signature/Stamp
4.1.3	<p>Take the 1522-0101 PCB and rotate it upside-down, with the handle facing you. Carefully align and lower the PCB onto the upwards-facing pins of the 2x2 female sockets.</p> 	<input type="button" value="Stamp or sign here"/>
4.1.4	<p>Solder the 20x sockets to the 1522-0101 PCB.</p> <p>CAUTION: The 1522-0101 PCB will often have a slight warp. To ensure that the 2x2 female sockets are aligned flush with the PCB, it is necessary to push down on the PCB while soldering the sockets.</p> 	<input type="button" value="Stamp or sign here"/>
4.1.5	<p>Remove the 1522-0101 PCB from fixture, and move the fixture to the side.</p> <p>Remove the protective paper from the clear rubber feet, and attach them to positions MP1 - MP4</p> 	<input type="button" value="Stamp or sign here"/>

Fig. 22: Rear of 1522-0101 PCB aligned with sockets

continues on next page

Table 10 – continued from previous page

Step #	Description	Signature/Stamp
4.1.6	Flip the 1522-0101 PCB over to the front. Insert the three test points into TP1 - TP3 at the top-right, making sure that the black test point is used for GND.	Stamp or sign here
4.1.7	<p>Fig. 25: Front of 1522-0101 PCB with test points inserted</p>  <p>Solder the three test points to the 1522-0101 PCB.</p>  <p>Fig. 26: 1522-0101 PCB with test points soldered down</p>	Stamp or sign here

²²⁶ Section 5

²²⁷ Test

²²⁸ 5.1 Visual inspection

²²⁹ This test process takes 2 minutes.

Table 11: 1522A visual inspection

Step #	Description	Signature/Stamp
5.1.1	Verify that there are no loose parts.	Stamp or sign here
5.1.2	Verify that there are no visible fingerprints.	Stamp or sign here

230 5.2 QC final check

231 This test process takes 2 minutes.

Table 12: 1522A QC final check

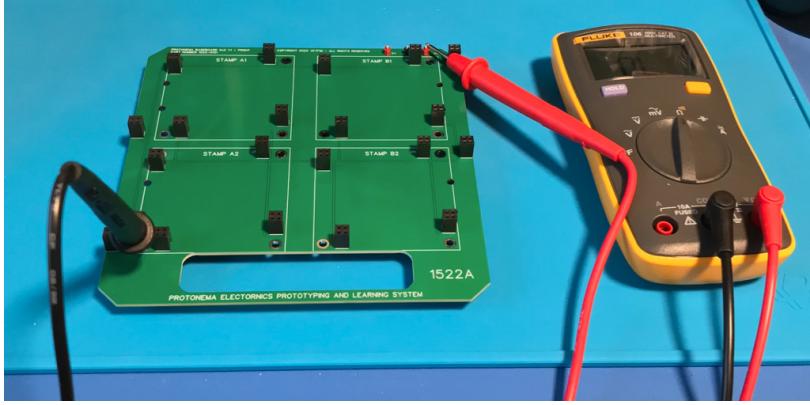
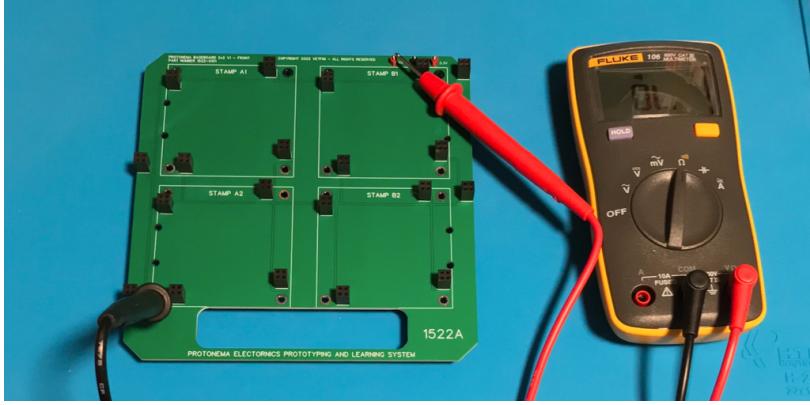
Step #	Description	Signature/Stamp
5.2.1	<p>Using the multimeter, verify that there are no shorts between ground and the 3.3 power rail.</p> <p>If test does not pass, write down the unexpected behaviour in the "Signature/Stamp" column on the right.</p> 	Stamp or sign here
5.2.2	<p>Using the multimeter, verify that there are no shorts between ground and the 5V power rail.</p> <p>If test does not pass, write down the unexpected behaviour in the "Signature/Stamp" column on the right.</p> 	Stamp or sign here

Fig. 27: Resistance measurement

Fig. 28: Resistance measurement

continues on next page

Table 12 – continued from previous page

Step #	Description	Signature/Stamp
5.2.3	<p>Using the multimeter, verify that there are no shorts between the 3.3 and 5V power rails.</p> <p>If test does not pass, write down the unexpected behaviour in the "Signature/Stamp" column on the right.</p> 	Stamp or sign here

Fig. 29: Resistance measurement

232 5.3 QC PASS

233 Only perform these steps if all QC checks have passed.

234 This test process takes 1 minutes.

Table 13: 1522A QC approval

Step #	Description	Signature/Stamp
5.3.1	Using the tweezers, affix QC Passed sticker in location shown below, then write down the serial number from the QC sticker below the "Signature/Stamp" in the column to the right.	 Stamp or sign here Serial Number:
Fig. 30:	1522A with QC Passed sticker	
5.3.2	Using the sharpie pen, write down the serial number from the QC sticker, and QC date, on the rear of the PCB. Wait for five minutes for the ink to dry.	 Stamp or sign here
Fig. 31:	1522A with SN and QC Date	
5.3.3	Take two photographs, one of the front of the 1522A, and one of the back of the 1522A.	 Stamp or sign here

235 5.4 QC FAIL

- 236 Only perform these steps if any QC check have failed.
 237 This test process takes 2 minutes.

Table 14: 1522A QC fail

Step #	Description	Signature/Stamp
5.4.1	<p>Place the 1522A module in the anti-static bag.</p> 	<div style="text-align: center;">Stamp or sign here</div>
5.4.2	<p>Take an A4 plastic bag, and place the 1522A, along with this document, in the "QC Fail" bin</p> <div style="text-align: center; border: 1px solid black; padding: 10px; margin-top: 10px;"> FPO </div>	<div style="text-align: center;">Stamp or sign here</div>

Fig. 32: 1522A in anti-static bag.

FPO

238 Section 6

239 Packaging

240 6.1 1522A packing

- 241 This packaging process takes 3 minutes.

Table 15: 1522A packaging

Step #	Description	Signature/Stamp
6.1.1	<p>Place the 1522A module in the anti-static bag.</p> 	Stamp or sign here
6.1.2	<p>Seal the anti-static bag with a 1522A sticker.</p> <p>FPO</p>	Stamp or sign here

Fig. 34: 1522A in anti-static bag.

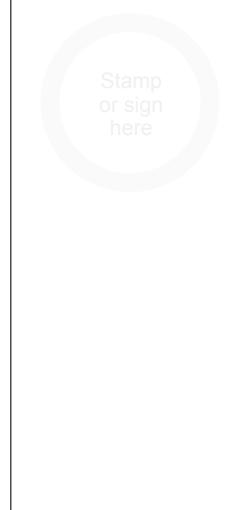
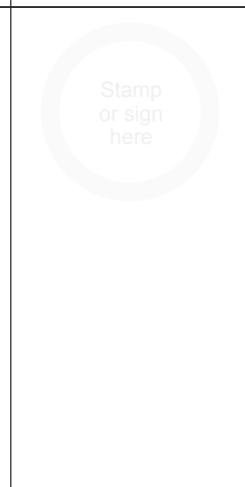
continues on next page

Table 15 – continued from previous page

Step #	Description	Signature/Stamp
6.1.3	<p>Using the Sharpie pen, Write down the serial number of the 1522A on the sticker, at the end of the line listing the 1522A.</p> 	
	Fig. 36: Example photographs of the sealed box	
6.1.4	<p>Place 1522A bag in the box on top of the bottom foam padding.</p> 	
	Fig. 37: 1522A in box.	
6.1.5	<p>Take a photograph of the 1522A in the box.</p>	
6.1.6	<p>Close the box and Affix a 1522A sticker to the lid of the box.</p> 	
	Fig. 38: 1522A in box with sticker.	

continues on next page

Table 15 – continued from previous page

Step #	Description	Signature/Stamp
6.1.7	<p>Using the Sharpie pen, Write down the serial number of the 1522A on the sticker, at the end of the line listing the 1522A.</p>  <p style="text-align: center;">FPO</p>	 <p>Stamp or sign here</p>
6.1.8	<p>Using the ESD tape, seal the lid of the box.</p>  <p style="text-align: center;">FPO</p>	 <p>Stamp or sign here</p>
6.1.9	<p>Take a photograph of the sealed 1522A box.</p>	 <p>Stamp or sign here</p>

²⁴² Section 7

²⁴³ Clean-up

²⁴⁴ 7.1 Consumables

²⁴⁵ This packaging process takes 5 minutes.

Table 16: Consumables cleanup

Step #	Description	Signature/Stamp
7.1.1	If the ESD gloves have contacted solder paste, or are soiled, they shall be disposed of in the standard waste bin.	
7.1.2	If there is unused solder wire on the spool, it shall be returned to stores.	
7.1.3	Loose component packaging shall be disposed of in the standard waste bin.	

²⁴⁶ 7.2 Tools

²⁴⁷ This cleanup process takes 5 minutes.

Table 17: Tools cleanup

Step #	Description	Signature/Stamp
7.2.1	All tools shall be returned to the assembly tools container, and returned to the stores supply shelf. If any tools are damaged or worn, return the container to stores, and let the manager know which tool is damaged or worn.	

continues on next page

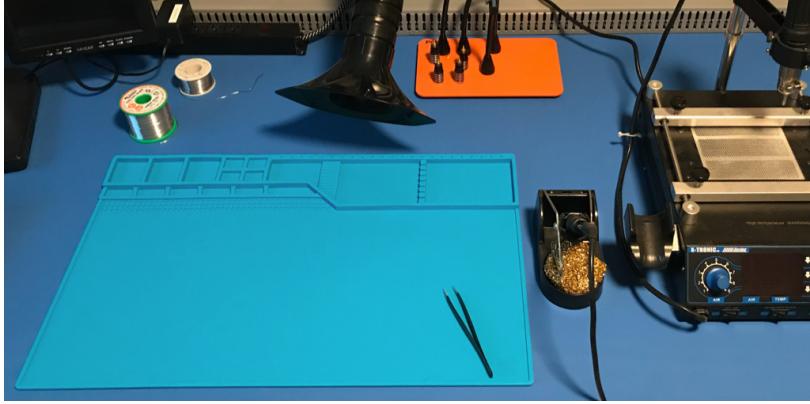
Table 17 – continued from previous page

Step #	Description	Signature/Stamp
7.2.2	Remove this document from the springback binder.	Stamp or sign here
7.2.3	Print a new copy of this document, and insert it into the springback binder that this document was originally in.	Stamp or sign here
7.2.4	Return the springback binder with the newly printed document to the 1522A section of the store supply shelf.	Stamp or sign here

248 7.3 Workspace

249 This packaging process takes 5 minutes.

Table 18: Workspace cleanup

Step #	Description	Signature/Stamp
7.3.1	Make sure that the workspace is clean and as it was when you started the assembly.  Fig. 41: Clean assembly workstation	Stamp or sign here

250 Section 8

251 Record keeping

252 8.1 1522A record keeping

253 This packaging process takes 5 minutes.

Table 19: 1522A record keeping

Step #	Description	Signature/Stamp
8.1.1	<p>Write the serial number, the date, and your first and last name in large print on the bottom of the front cover of this document.</p> <div style="text-align: center; border: 1px solid black; padding: 10px; margin-top: 10px;"> FPO </div>	 Stamp or sign here
8.1.2	Create a new folder under the 1522A folder, named with the serial number.	 Stamp or sign here
8.1.3	Copy all photos taken during the assembly process into the newly created folder in step #2.	 Stamp or sign here
8.1.4	Remove this document from the binding clamps, scan the document, and save the scanned PDF into the newly created folder in step #2, with the name "1522A-SNAAAAAA.pdf", where AAAAAA is replaced with the serial number.	 Stamp or sign here

continues on next page

Table 19 – continued from previous page

Step #	Description	Signature/Stamp
8.1.5	Three-hole punch the document, then file it at the end of the current month's assembly records binder.	 Stamp or sign here
8.1.6	Add an entry to the assembly records binder, "<Date> - 1522A - SN# AAAAAAA - <Your Name>", where <Date> is replaced with today's date in ISO-8601 YYYY-MM-DD, where AAAAAAA is replaced with the serial number of the 1522A, and where <Your Name> is replaced with your first and last name.	 Stamp or sign here

254 **Section 9**

255 **Process improvement**

256 **9.1 Feedback**

257 Please submit an issue to the [Protonema Issue Repository](http://www.github.com/dslik/protonema/issues) (<http://www.github.com/dslik/protonema/issues>) if you
258 encounter any of the below situations:

- 259 • Error in this document
260 • Unclear directions
261 • Suggested process improvements
262 • Results of QC failure investigations
263 • Tool change suggestions

264 Qualtiy processes and documentation is a team effort. This document would not exist without the participation and
265 contributions of the entire assebly team.

266 Thank you for reading this assembly instructions document.

267 End of document.

268

Part II

269

1522A Annexes

270 Section 10

271 Printed Circuit Boards

272 10.1 1522-0101 PCB

Table 20: 1522-0101 PCB

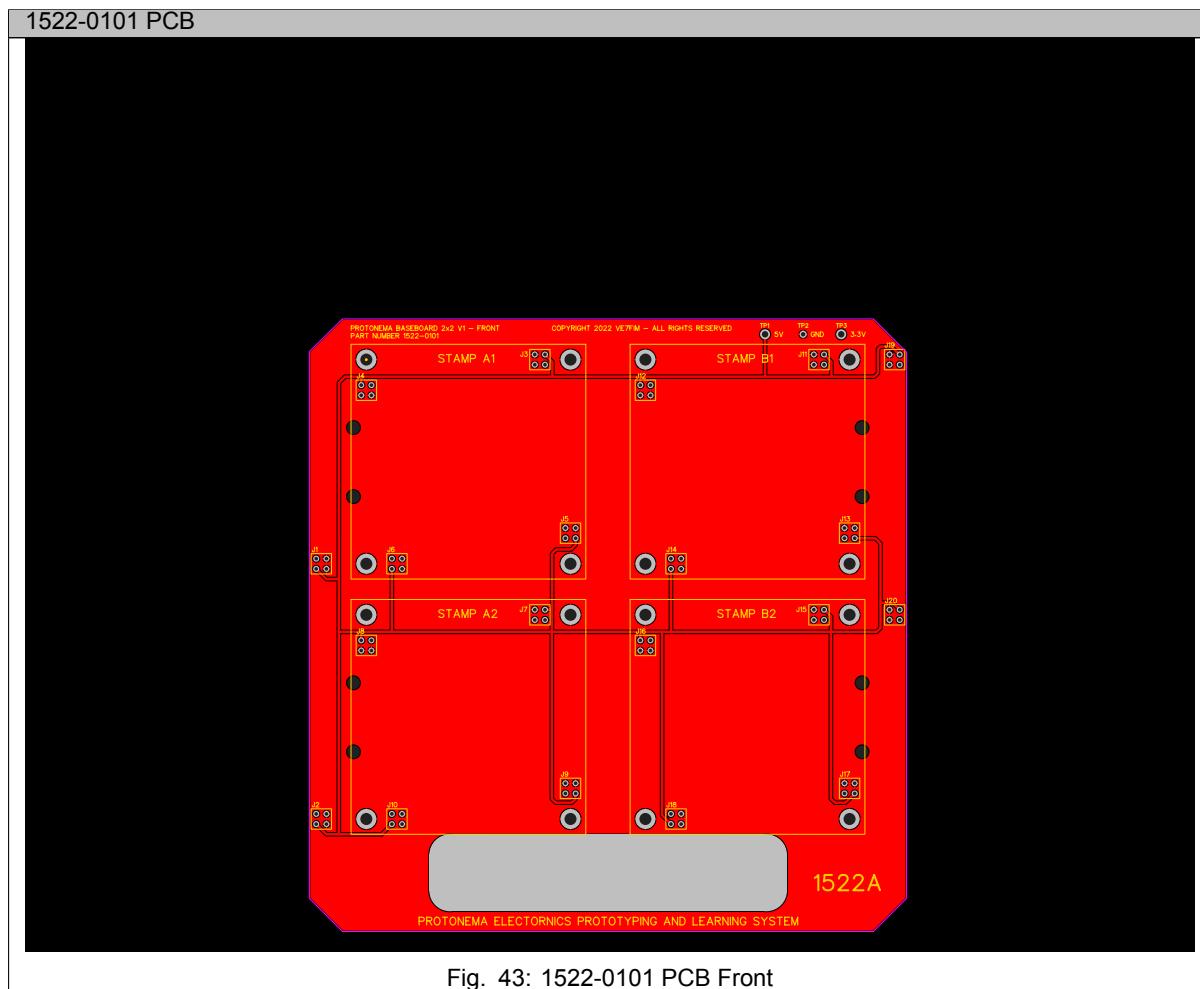


Fig. 43: 1522-0101 PCB Front

continues on next page

Table 20 – continued from previous page

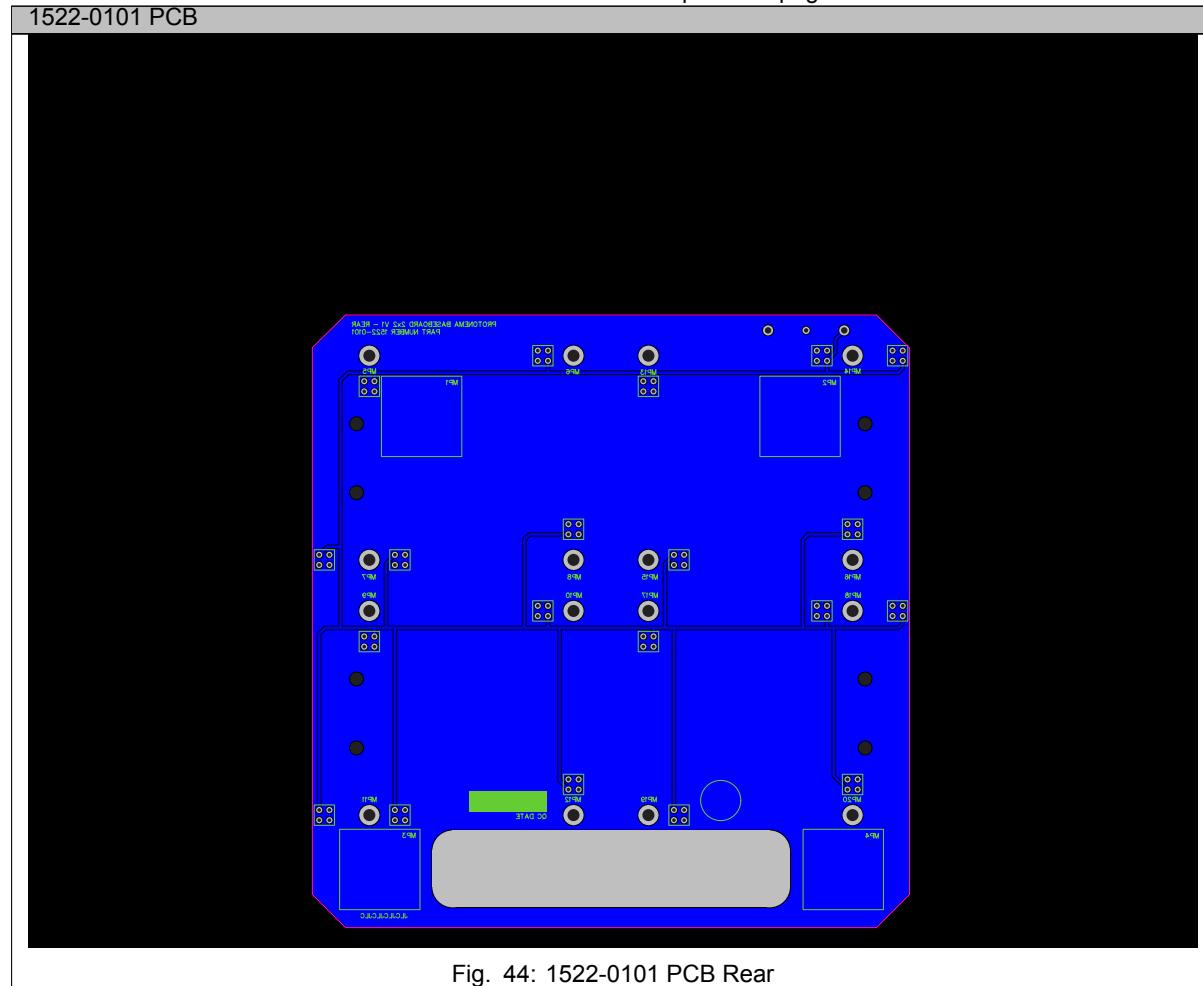


Fig. 44: 1522-0101 PCB Rear

²⁷³ Section 11

²⁷⁴ Bill of materials

²⁷⁵ 11.1 1522A Protonema 2x2 Baseboard

²⁷⁶ The parts required to assemble a 1522A are listed in [Table 21](#).

Table 21: 1522A parts

Reference Designation	Qty	Description	Manufacturer	Manufacturer Part Number	Supplier	Cost
1522-0101	1	Baseboard PCB	JLCPCB	Y327-2154951A	JLCPCB	\$2.88 CAD
J1 - J20	20	2.54mm by 2.54mm Straight 2x2P Female Header	CONNFLY Elec	DS1023-2*2SF11	LCSC	\$2.33 CAD
TP1, TP3	2	Red Test Point	Bisco Industries	TP-104-13-02	Bisco	\$0.32 CAD
TP2	1	Black Test Point	Bisco Industries	TP-105-01-00	Bisco	\$0.21 CAD
MP1 - MP4	4	Clear Rubber Feet	Cloverdale Supply	VSQBC35	Amazon	\$1.61 CAD
SK1	1	QC Sticker	Order by Description			\$0.0094 CAD
Total						\$7.36 CAD

²⁷⁷ 11.2 1522A Packaging

²⁷⁸ The parts required to package a 1522A are listed in [Table 22](#).

Table 22: 1522A packing parts

Reference Designation	Qty	Description	Manufacturer	Manufacturer Part Number	Supplier	Cost
N/A	1	Static Shielding Bag 10" x 14"	Botron Company Inc.	B131014	Digikey	\$0.48 CAD
N/A	1	CORREC-PAK SHIPPER 4 X 4 X 2" ID	Conductive Containers, Inc.	3180-3	Digikey	\$11.83 CAD
1522-7001	2	1522A ESD Sticker	Jukebox Print			\$4.00 CAD
Total						\$16.31 CAD

²⁷⁹ **Section 12**

²⁸⁰ **Reduction of Hazardous Materials**

²⁸¹ Compliance declarations, in BOM order.

282 **12.1 MG Chemicals 4900**

Table 23: MG Chemicals 4900 RoHS Compliance

Declaration for MG Chemicals 4900 -
<https://www.mgchemicals.com/downloads/msds/01%20English%20Can-USA%20SDS/sds-4900-4917.pdf>



ISO 9001:2015 Quality Management System
 SAI Global File #004008
 Burlington, Ontario, Canada

SAC305 NO CLEAN SOLDER WIRE **4900-4917**

California Proposition 65 (Chemicals known to cause cancer or reproductive toxicity, USA)

This product does not contain any of the listed substances.

Europe

RoHS (Restriction of Hazardous Substances Directive)

This product does not contain any lead, cadmium, mercury, hexavalent chromium, PBB's, PBDE's, DEHP, BBP, DBP, or DIBP and complies with European RoHS regulations.

WEEE (Waste Electrical and Electronic Equipment Directive)

This product is not a piece of electrical or electronics equipment, and is therefore not governed by this regulation.

Section 16: Other Information

SDS Prepared by MG Chemical's Regulatory Department

Date of Review 06 March 2020

Supersedes 09 July 2019

Reason for Changes: Update to the emergency phone number information.

Reference

1) ACGIH 2017 TLVs and BEIs: Based on the documentation of the threshold limit values for chemical substances and physical agents & biological exposure indices, American Conference of Governmental of Industrial Hygienist Cincinnati, OH (2017).

2) All toxicological data were checked against the RTECS (Registry of Toxic Effects of Chemical Substances®)

Section continued on the next page

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Date of Revision: 06 March 2020 / Ver. 3.01

283 12.2 JLC lead-free PCB

Table 24: JLC PCB RoHS Compliance

Declaration for JLCPBCB lead-free PCBs - <https://s3.amazonaws.com/helpscout.net/docs/assets/59f1de7804286313cffbb22c/images/5d4d09562c7d3a036965d6a3/ROHS-Certificate-of-Compliance.jpg>

ROHS-Certificate-of-Compliance.jpg 566x800 pixels 2022-08-16, 23:45



<https://s3.amazonaws.com/helpscout.net/docs/assets/59f1de7804286313cffbb22c/images/5d4d09562c7d3a036965d6a3/ROHS-Certificate-of-Compliance.jpg>

Page 1 of 1

284 **12.3 Connfly DS1023-2*2SF11**

Table 25: Connfly DS1023-2*2SF11 Compliance

Declaration for Connfly DS1023-2*2SF11 -
<http://en.connfly.group/static/upload/image/ico/RoHS□□□Connectors□.jpg>



285 12.4 Bisco TP-104-13-02

Table 26: Bisco TP-104-13-02 RoHS Compliance

Declaration for Bisco TP-104-13-02 - <https://www.toby.co.uk/uploads/publications/1500.pdf>

Ordering Information

Example:

TP-104 - 30 - 01

Series Designation:	TP-104
Number of Positions:	1 through 30
Color:	00 = Black 05 = Green 01 = Brown 06 = Blue 02 = Red 07 = Purple 03 = Orange 08 = Gray 04 = Yellow 09 = White

Product Description

The new TP-104 Series takes Components Corporations highly-efficient and economical loop configured test point design one step further, by adding a plastic standoff that boosts visibility and allows for easy polarization and identification. The TP-104 incorporates all of the design features of all Component's test points - solid non-slip grip of test clips and probes, low profile, single hole wave-solderable mounting, and the elimination of skin punctures suffered by users of wrap posts as substitute test points.

The TP-104 is furnished in 30-position breakaway strips with 0.125" centers that make storage, handling and even tandem installations a snap. Component's special hand tool #1040 further enhances board mounting with test point separating, gripping and positioning functions accomplished in one easy motion. Standard TP-104 colors are red and black, with special colors available on order.

The TP-104 can be ordered pre-cut to any number of positions up to 30. Individual and tandem units hold securely when inserted in .062" diameter holes for soldering operation. The rectangular passage in the TP-104's molded standoff maintains wire form alignment, important in tandem installations.

Certificate of Compliance with Directive 2011/65/EU RoHS and EU Regulation EC 1907/2006

This is to certify that Components Corporation designs, manufactures and supplies products to our customers that are in compliance with Directive 2011/65/EU RoHS and EU Regulation EC 1907/2006. This also pertains to procurement of raw material, component parts and processes.

the vital
component

286 12.5 Bisco TP-105-01-00

Table 27: Bisco TP-105-01-00 RoHS Compliance

Declaration for Bisco TP-105-01-00 - <https://www.toby.co.uk/uploads/publications/1502.pdf>

Ordering Information

Example:

TP-105 - 40 - 02

<input checked="" type="radio"/>	Series Designation:	TP-105
<input checked="" type="radio"/>	Number of Positions:	01 through 40
<input checked="" type="radio"/>	Color:	00 = Black 05 = Green 01 = Brown 06 = Blue 02 = Red 07 = Purple 03 = Orange 08 = Gray 04 = Yellow 09 = White

Product Description

The TP-105 series test point offers a functionally superior alternative to other means of board level trouble shooting, particularly .025" square header posts. While featuring a loop profile for positive test probe retention, this product is available in any combination of positions, from one to forty, at .100" centers and fits in the popular .035" diameter hole size. The above board profile is substantially below that of headers and other devices used as test points. Thus, a re-fit can be accomplished without any printed circuit board layout re-design costs, while significantly reducing test point height and improving function.

Visibility and identification are significantly enhanced by the choice of ten standard colors for the TP-105 series, representing all of the variations of the industry color code. The TP-105 may be purchased pre-cut to any specified number of positions from one to forty. Mounting leg design insures positive retention in the circuit board during soldering operations.

Certificate of Compliance with Directive 2011/65/EU RoHS and EU Regulation EC 1907/2006

This is to certify that Components Corporation designs, manufactures and supplies products to our customers that are in compliance with Directive 2011/65/EU RoHS and EU Regulation EC 1907/2006, 84 SVH. This also pertains to procurement of raw material, component parts and processes.

the **vital**
component

²⁸⁷ **12.6 Cloverdale VSQBC35**

Table 28: Cloverdale VSQBC35 Compliance

Declaration for Cloverdale VSQBC35 - N/A



1607 Imperial Way, West Deptford, New Jersey 08066, USA
 Phone: (856) 345-7650 • Fax: (856) 345-7690
 Website: www.bumperspecialties.com • Email: info@bumperspecialties.com

March 10, 2022

Compliance - EU Directive 2015/863 (RoHS 3), PAH, Phthalates and Nonylphenol

Please be advised that based on the information available to us from our raw material suppliers, the products manufactured by us do not contain, as intentional additives, any of the below referenced materials as referenced in the subject EU directive.

Further note that none of these materials are generated during production. We have confirmed this through a Certified Independent Laboratory who tested a representative sample of our bumper products.

- Hexavalent chromium compounds
- Cadmium and its compounds
- Mercury and its compounds
- Lead and its compounds
- Polybrominated diphenyl ethers (PBDEs)
- Polybrominated biphenyls (PBBs)
- Polycyclic Aromatic Hydrocarbons (PAH)
- Phthalates (DEHP, DBP, DINP, DIDP, DIBP, DNOP, BBP)
- Nonylphenol

Best Regards,

Joseph Ribinsky

Joseph Ribinsky
 Director of Manufacturing
 Bumper Specialties, Inc.