

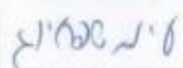
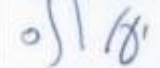
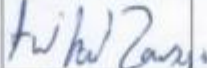


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# QUALITY REQUIREMENTS FOR PCB SUPPLIERS PCB 102/1


Release date: 15/06/2023  
 Authorized copy:   
 Signature: 

	Approver # 1	Check #1	Check #2	Check #3	Authorized by
Position:	Quality Assurance Manager	Quality Assurance Manager	Supplier Quality Leader	NA	VP Supply chain and trade
Name:	Einat Shperling	Yael Laks-Abbou	Avihai Zango-Bar	NA	Michael Digerman
Signature:				NA	
Date:	3/15/23	04.06.2023	01/06/2023	NA	4/6/23


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List of Changes

Released	Details	Date	Authorization
A	New Regulation	April 17, 2014	
B	Update	December 15, 2015	
C	Update	February 04, 2018	
D	Update	January 01, 2020	
E	Update	November 02, 2020	
F	Update	August 16, 2021	
G	Add section of Fraudulent/counterfeit & Add reference to FOD program	April 19, 2023	Einat Shperling
<b>H</b>	<b>Translation update</b>	<b>May 21, 2023</b>	<b>Yael Laks-Abbou &amp; Avihai Zango-Bar</b>

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## 1. SCOPE

- 1.1. This document specifies general quality requirements for PCB TECHNOLOGIES suppliers.
- 1.2. The requirements specified in this document are supplementary requirements to the Purchase Order and/or Statement of Work.

## 2. SUPPLIER CLASSIFICATION

	Suppliers of
Class 1	Laminate, Prepreg, Solder mask, adhesivless, bond ply and cover layer.
Class 2	Special Processes suppliers
Class 3	Manufactured parts
Class 4	Chemicals
Class 5	Distributors (of raw materials Chemicals)
Class 6	Manufacturing Tools


## 3. DELIVERY NOTE AND COC

The supplier/distributor shall supply:

- 3.1. Delivery note containing:
  - PCB TECHNOLOGIES PO Number
  - Product description
  - Part Number (as written on PCB TECHNOLOGIES Purchase order)
  - Batch Number
  - Quantity
- 3.2. Original manufacturer COC

## 4. TEST CERTIFICATION

- 4.1. The COC/COT shall include the following information:
  - 4.1.1. Purchase Order Number.
  - 4.1.2. The identification and revision status of specifications, drawings, process requirements, inspection/verification instructions, and additional relevant technical data.
  - 4.1.3. Product/material details and compliance - IPC, ROHS, Conflict Minerals, REACH, UL, etc.
  - 4.1.4. Certificate of Conformance – COC.
  - 4.1.5. Test Reports (Class 1,2,3,4).
  - 4.1.6. Raw Material Certification (Class 3).
  - 4.1.7. Certificate of Analysis - COA (Class 1,2,3,4).

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## 5. **SUPPLIER CERTIFICATION**

- 5.1. All suppliers (Class 1,2,3,4) must be ISO-9001 or ASE AS9100 certified.
  - 5.1.1. The supplier shall take measures and controls to prevent counterfeit materials. AS6174 should be used as a guideline.
- 5.2. Distributors (Class 5) must be AS9120 or ISO9001 certified.
- 5.3. Special processes suppliers (Class 2) shall be approved by the final customer and NADCAP (if so required) for the applicable process and type.

## 6. **AUDITS AND INSPECTIONS**

PCB TECHNOLOGIES Quality Assurance will carry out periodical audits and inspections at the supplier's sites at PCB TECHNOLOGIES' discretion.

## 7. **SECONDARY SOURCE**

No secondary source shall be used without prior written approval by PCB TECHNOLOGIES.

## 8. **ENVIRONMENTAL PROTECTION COMPLIANCE**

All suppliers shall meet all governmental and local authorities' legal and regulatory requirements pertaining to environmental protection and shall be able to present applicable documentation upon request.

## 9. **SHELF- LIFE CONTROLLED MATERIAL**

Material delivered to PCB TECHNOLOGIES shall have a minimum of 75% of shelf life remaining prior to date code expiration.

## 10. **RIGHT OF ENTRY**


- 10.1. PCB TECHNOLOGIES, its representatives, customers, and customer's government and regulatory agencies shall have the right of entry into the Supplier's facility and the facilities of Supplier subcontractors. The Right of Entry will include access to quality system documentation, quality records as well as the ability to conduct audits, and verify product and processes.
- 10.2. The supplier shall provide the PCB TECHNOLOGIES representatives with all required support to carry out their inspection, including calibrated gauges and fixtures in good working condition.

## 11. **NONCONFORMING PRODUCTS**

- 11.1. A non-conformance is any disruption created by Supplier which impacts PCB TECHNOLOGIES or PCB TECHNOLOGIES' customers' process. Common examples of non-conformance include but are not limited to non-conformance to the component specification or a delivery delay or error which causes disruption in PCB TECHNOLOGIES manufacturing plant. Non-conforming material shall not be reworked and sold to PCB TECHNOLOGIES as new product unless prior written authorization has been granted.

## 12. **STORAGE CONDITIONS (FOR DISTRIBUTOR)**

- 12.1. The distributor is responsible for ensuring any products stored before their delivery to PCB TECHNOLOGIES are stored at the required temperature, humidity, and environmental conditions in accordance with the manufacturer's recommendation. The Distributor shall provide PCB TECHNOLOGIES with all records as per PCB TECHNOLOGIES' requirements.
- 12.2. The Distributor is responsible for ensuring products that are transported to the Distributor's facility at the required temperature, humidity, and environmental conditions as per the manufacturer recommendation.

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**13. PACKAGING AND FOREIGN OBJECT DAMAGE (FOD)**

- 13.1. The manufacturer must ensure no foreign objects contaminate production and product packaging.
- 13.2. The supplier shall maintain an FOD prevention program and shall be able to present documentation upon request.
- 13.3. The Supplier shall ensure the FOD requirements are aligned with standard AS9146

**14. SAMPLE INSPECTION**

- 14.1. Sample inspection shall be performed according to final customer requirements and applicable specification requirements.
- 14.2. Unless otherwise specified (Class 1,2,3) sample inspection for drawing characteristics shall be performed according to C=0 Sampling plan AQL=2.5% (Appendix A), Visual inspection shall be performed on 100% of the supplied products.

**15. LOT REJECTION:**

- 15.1. Any rejection identified by the supplier should be reported to PCB TECHNOLOGIES.

**16. RECORD RETENTION:**

- 16.1. The Record retention period shall be defined by the final customer requirements.
- 16.2. Supplier’s quality control records related to PCB TECHNOLOGIES purchased product shall be retained and available to PCB TECHNOLOGIES for a minimum of 10 years after the last delivery unless otherwise specified.

**17. FLOW DOWN REQUIREMENT TO SUB-CONTRACTORS:**

- 17.1. Outsourcing of processes and activities is not allowed without PCB TECHNOLOGIES’ prior written approval.
- 17.2. The Supplier is responsible to ensure all applicable requirements determined by PCB TECHNOLOGIES and the final customer are communicated to its subcontractors and suppliers and that its subcontractors and suppliers comply with these requirements.

**18. SPECIAL REQUIREMENTS:**

- 18.1. Special requirements, Critical Items and Key characteristics specified in the procurement documents such as purchase order, statement of work, drawings, special requirements appendix (SRA) etc. shall be controlled and managed as required using the applicable document.


**19. CONTROL OF WORK TRANSFERS AND PRODUCTION/PROCESS CHANGES:**

- 19.1. Temporary or permanent transfer of work related to the purchase order requires approval of PCB TECHNOLOGIES.
- 19.2. The control of work transfer shall be monitored and managed as per PCB TECHNOLOGIES’ requirements.

**20. CHANGE MANAGEMENT**

The supplier shall notify PCB TECHNOLOGIES of any changes which include but are not limited to products, manufacturing processes, materials, suppliers, subcontractors, manufacturing facility locations and ownership.

- 20.1. Product Discontinuance -In case of Product Discontinuance, the Supplier shall provide written notice of planned Product Discontinuation 18 months minimum prior to the product discontinuance date.

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## 21. TRACEABILITY

- 21.1. Materials and Products shall be supplied from the manufacturing lot traceable to the Test certification.
- 21.2. The supplier must maintain a complete traceability system for all raw materials used for production.

## 22. PROCESS SPECIFICATION:

- 22.1. The supplier shall follow the latest revision of the applicable specification published by the specification publisher.

## 23. COUNTERFEIT COMPONENTS


The Supplier shall take measures and controls to prevent counterfeit components. A counterfeit component control plan should address the following major topics, as applicable (consult AS6174 for more information):

- 23.1. Authentic and Conforming Materiel Availability
- 23.2. Personnel Training
- 23.3. Parts Availability
- 23.4. Purchasing
- 23.5. Purchasing Information
- 23.6. Verification of Purchased/Returned Part(s)
- 23.7. In-Process Investigation
- 23.8. Failure Analysis
- 23.9. Material Control
- 23.10. Reporting
- 23.11. Post Delivery Support

Should the Supplier suspect counterfeit materials were supplied, a written notice of this suspicion must be reported to PCB-T within 24 hours.

## 24. TEST CERTIFICATION:

- 24.1. The COC/COT shall include the following information:
  - 24.1.1. Purchase order Number.
  - 24.1.2. The identification and revision status of specifications, drawings, process requirements, inspection/verification instructions, and other relevant technical data.
  - 24.1.3. Product/material details and compliance- IPC, ROHS, Conflict Minerals, REACH, UL, etc.
  - 24.1.4. Certificate of Conformance – COC.
  - 24.1.5. Test Reports (Class 1,2,3,4).
  - 24.1.6. Raw materials Certification (Class 3).
  - 24.1.7. Certificate of Analysis - COA (Class 1,2,3,4).

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## 25. DELIVERY NOTE AND COC

The supplier/distributor shall supply:

25.1. Delivery note, which contains:

- PCB TECHNOLOGIES PO Number
- Product description
- Part Number (as written on PCB TECHNOLOGIES Purchase order)
- Batch Number
- Quantity

25.2. Original COC of the manufacturer

## 26. ADDITIONAL REQUIREMENTS FOR CLASS 1,3 SUPPLIERS:

26.1. First item (FAI) and process changes:

- 26.1.1. First article inspection must be performed for each first production lot according to final customer specific requirements.
- 26.1.2. Unless otherwise specified FAI shall be performed according to AS 9102 requirements.
- 26.1.3. First Article Inspection items must be identified.

26.2. Should the supplier wish to make one or more changes in the product or processes, PCB TECHNOLOGIES must be notified in writing in advance to allow examination of the need for renewed approval of First Article inspection (Full or partial).

## 27. REQUIREMENTS FOR HEAT SINK PRODUCTION/PROCESS:

27.1. The HEAT SINK manufacturing will be performed according to the drawing and the statement of work attached to the purchase order.

27.2. The supplier must supply a plate containing a minimum of 4 samples for each production lot (witness test samples).

Sample dimensions are to correspond with Picture No. 1 (see page 11). The witness test samples should be made from the same material and with the same coating as the HEAT SINK.

## 28. REQUIREMENTS FOR HEAT SINK COATING PROCESS:

28.1. The HEAT SINK shall be coated according to the drawing/specification and the statement of work attached to the purchase order.


28.2. If the coating sub-contractor is supplied with coupons (witness test samples), with the heat sinks, the same coating must be applied to the heat sinks and the coupons.

## 29. FAILURE ANALYSIS

29.1. Should a product failure be discovered, a comprehensive failure analysis must be performed (including root cause and corrective action). The failure analysis shall include, but is not limited to:

- 29.1.1. Audit findings.
- 29.1.2. Complaints.
- 29.1.3. Non-conformances.
- 29.1.4. CAPA.
- 29.1.5. Field Action.
- 29.1.6. Similar products and processes.



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29.2. Failure analysis must be conducted and documented using the **8D method**.

29.2.1. In case of a complaint the supplier shall complete and submit the first D1, D2, D3 paragraphs of the **8D report** to PCB TECHNOLOGIES' QA representative within **48 hours**.

The following D3 questions must be addressed:

No.	Questions	Findings
1	Check stock item	
2	Check stock at supplier	
3	Check WIP at supplier	
4	Check boards in transit	
5	Check customer documentation versus production documentation	

29.2.2. Rejected product verified as supplier-caused that is returned to the supplier requires the supplier to investigate, complete and submit a full D4, D5, D6 report to PCB TECHNOLOGIES' QA representative within **6 business** days from receipt of the products.

29.2.3. Should PCB TECHNOLOGIES decide to issue the supplier a complaint without returning the products, the supplier shall investigate, complete, and submit a full 8D report to PCB Technologies' suppliers QA representative within **5 business** days since receipt of the complaint.

### 30. **SUPPLIER CONFIRMATION:**


I hereby confirm that I have read, understood, and accept the general quality requirements depicted in this document and in the specific quality requirements.

\_\_\_\_\_  
Supplier signature

\_\_\_\_\_  
Company name

Full Name \_\_\_\_\_ Position \_\_\_\_\_

Date \_\_\_\_\_

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### Appendix A

#### Sampling Plan C=0 (SQUEGLIA 4<sup>TH</sup> Ed)

Lot Size	Sample size AQL 2.5% * **
2-8	5
9-15	5
16-25	5
26-50	5
51-90	7
91-150	11
151-280	13
281-500	16
501-1200	19
1201-3200	23
3201-10000	29
10001-35000	35

(\*) one or more non-conforming characteristics shall lead to lot rejection (C=0)

(\*\*) Following rejected lot, the supplier shall perform 100% inspection on 3 consecutive inspection lots.

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**Picture No. 1**  
**Sample Dimensions:**

