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Power Device Corporation Product Assurance Provisions PDC-QF-029 Rev. A

This document contains PDC's Product Assurance Provisions (PA Provisions). These PA Provisions supplement the terms and conditions found in the purchase order, as well as those that are specified in the applicable drawings and specifications provided to the supplier.

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Change History

RECORD OF CHANGES			
Revision	Description of Change	Date	Approved By
DDC-PAF-029 Rev AU	N/A – Document Inherited from sister company Data Device Corporation (DDC).	N/A	N/A
A	Change document number (starting at Rev A). Change Header/Footers to reflect new Doc No. & Rev. Remove References to “Data Device Corporation” and “DDC”. Added Cover Page. Added Change History Log. NOTE: Aside from the removal of DDC’s company name, the contents of each provision is the same as found in document DDC-PAF-029 Rev AU.	03/20/2025	Marie Widmer, Quality Manager

PA Provisions:

1. **GOVERNMENT SOURCE INSPECTION (GSI) REQUIRED** - Government inspection is required prior to each shipment. Upon receipt of this Purchase Order, promptly notify and provide a copy to the Government representative servicing your facility so that this inspection may be scheduled. If no Government representative provides service to your facility, contact the nearest Defense Contract Management Agency (DCMA) office or other appropriate agency, as applicable. Contact the PDC buyer if additional information or assistance is required.
2. **POWER DEVICE CORPORATION OR POWER DEVICE CORPORATION SOURCE INSPECTION REQUIRED**
* - Indicated items covered by this Purchase Order are subject to inspection/test (as indicated below) at your facility by a PDC Quality Control representative. You are to notify the PDC Buyer when material is ready. Two (2) working days advance notice should be given, when practical.

* NOTE: FAILURE TO OBTAIN THE ABOVE SOURCE INSPECTION OR WRITTEN WAIVER THEREOF MAY RESULT IN REJECTION OF DELIVERED MATERIAL.
3. **QUALITY SYSTEM REQUIREMENTS** - The supplier shall have a Quality System, which conforms to:
 - a) AS9100 or ISO 9001 registered Quality System as applicable to your facility.
 - b) Meets the requirements of, and is equivalent to, AS9100 or ISO 9001 as applicable to your facility.
 - c) ANSI/NCSL Z540-3 Calibration system requirements or equivalent.
4. **FIRST ARTICLE APPROVAL** - A first article manufactured against this Purchase Order must be submitted to PDC for inspection and functional approval. PDC disclaim responsibility for any parts delivered prior to this approval. Outsource suppliers shall submit a first article in accordance with PDC Procurement Specification 77459.
5. **ACCEPTANCE TEST PROCEDURE APPROVAL** - An Acceptance Test Procedure must be submitted to PDC for written approval prior to performing any test.
6. **CERTIFICATION OF GOVERNMENT QUALIFIED PARTS LIST (QPL) SOURCE**
 - a) Supplier shall include with each shipment the name of the QPL manufacturer and a certified statement of QPL conformance.
 - b) Manufacturer shall include on the Certificate of Conformance their current QPL number.

7. **CERTIFICATE OF COMPLIANCE (C OF C)** - The supplier shall certify that the materials and processes used in performance of this contract meet all applicable drawing/specification requirements and provide PDC with copies of all applicable Raw Material and or Special Process Certifications. Additionally, other inspection/process control/test data necessary to substantiate the C of C shall remain on file with the supplier and be made available for PDC Quality Engineering review when requested. The Purchase Order Number, Part Number, Manufacturer Name, Lot/Batch number (where applicable), Date Code/Date of Manufacture (where applicable), Serial number(s) (where applicable), expiration date (where applicable), controlling documents and title of the certifying signature must appear on the C of C.
- a) The date of Solderability Test for the lot of devices being supplied shall appear on the Certificate of Compliance.
 - b) **Electronic components purchased from the Original Equipment Manufacturer (OEM) or a Franchised/Authorized Distributor of the OEM** requires a "C of C" from the Franchised Distributor which should include the Original Manufacturer's "C of C" (containing Date Code/Date of Manufacture).
 1. The Franchised/Authorized Distributor is to provide a copy of the Manufacturer's "C of C" for the lot number being supplied along with their Franchised Distributor "C of C".
 2. PDC will accept a Franchised/Authorized Distributor "C of C" identifying the Original Manufacturer; however, a copy of the manufacturer's C of C per Item 1 is preferred.
8. **INSPECTION/TEST DATA** - Inspection measurements and/or electrical test results on designated items on this Purchase Order must be taken and documented as indicated below:
- a) Test Traveler or run sheet showing tests performed, date performed, operator's initials or stamp, quantity tested, quantity failed, and quantity accepted.
 - b) When Element Evaluation is performed by the supplier, certified test data (actual numeric values) is required with each shipment. Data must be keyed to the serial numbers on the parts or test samples as applicable.
 - c) Quality Conformance Inspection data is required.
 - d) Other: _____

 - e) An additional sample (3 pcs.) shall be temperature aged, and then solder dipped, prior to performing solderability testing. Reference MIL-PRF-38534. Evidence of this test shall be supplied with the parts.
 - f) The Supplier is required to perform or supply MIL-PRF-38534 Class H Element Evaluation. Screening attributes documenting all testing performed are required to be delivered with the components.
9. **CHEMICAL AND PHYSICAL ANALYSIS REPORT** - The following Chemical and/or Physical Analysis reports and special requirements are applicable to indicated items on this order:
- a) Batch Viscosity data required.
 - b) A Material Safety Data sheet (MSDS) must be supplied with the initial shipment of this material or if the MSDS has been revised since the previous shipment. Packages/Certifications must be clearly marked with identification of material or substance and handling/usage precautions.
 - c) Other: _____

10. **RADIOGRAPHIC INSPECTION** - Radiographic inspection is required. Radiographs plus inspection reports are to be submitted with each shipment.
11. **LIMITED SHELF LIFE MATERIALS** - Expiration date to be permanently marked on the container and referenced on the C of C. All materials received in accordance with this provision shall have at least 80% of useable shelf life remaining at time of shipment.
12. **BOEING - APPLICATION OF ACCEPTANCE AUTHORITY MEDIA (AAM):** Supplier shall comply with the AS/EN/JISQ 9100 requirements and 14CFR Part 21.2 regarding the application of the Acceptance Authority Media (AAM) requirements. Supplier, along with its supply chain, shall ensure that the use of AAM is clearly defined within its Quality Management System (QMS). Seller shall maintain compliance to the AAM requirements by assessing its process and supply chain as part of its internal audit activities. The areas of focus of this assessment shall include but not limited to:
 1. Build records shall contain no omissions and must be legible
 2. All build records shall be stamped/signed as you go.
 3. There shall be no falsification of documentation of build records.
 4. Training records shall be maintained for this process.
13. **WORKMANSHIP CRITERIA**
 - a) IPC-A-610, Class 2
 - b) IPC-A-610, Class 3
 - c) IPC-WHMA-A-620A, Class 3
 - d) Other: _____
14. **RIGHT OF ACCESS** – Right of access shall be provided to PDC, our customer, regulatory authorities and Government Representatives to all facilities involved in the order and to all applicable records at any part of the supply chain.
15. **SPECIAL PACKAGING REQUIREMENTS** - All parts to be packaged and handled to preclude physical and/or electrical damage.
 - a) Bulk packaging is NOT acceptable; individual packaging is required.
 - b) These devices are considered static sensitive and must be packaged in antistatic and/or conductive material only.
 - c) Ceramic Capacitors are required to be packaged in plastic vials. Each vial shall not contain more than 1,000 capacitors. As a minimum, each vial shall be marked with the following:
 1. Manufacturer Part Number
 2. Manufacturer's Name
 3. Lot No./Date Code
 4. PDC Part Number
 5. Quantity

- d) All surface mount plastic integrated circuit (I.C.) shipments shall be packaged and labeled [Moisture Sensitivity Level identification label] in accordance with Table 2 of IPC/JEDEC Specification J-STD-020.

Plastic package I.C.s with a moisture sensitivity classification level of "2" or higher per J-STD-020, shall be supplied in carriers capable of withstanding a temperature of 130 Deg C (bake) without degradation.
- e) Silver backed die must be packaged with Silver Saver paper, ULine Part Number S-16689, or equivalent.

16. **MATERIAL REVIEW BOARD (MRB) AUTHORITY** - Material review authority is not delegated. Parts which do not conform to all applicable specifications must be adequately controlled. Such non-conforming supplies can be shipped only through PDC's review, accomplished by written waiver. Upon request, the buyer will supply the appropriate instructions and form. The waiver must be approved and returned to the supplier before shipment is authorized by PDC.

17. **PRINTED CIRCUIT BOARD (PCB) CRITERIA** - The following Power Device Corporation Specifications and special requirements are applicable to this order:

- a) Plated thru hole microsection(s) and report, representative of each plating batch, or lot processed, is required for this Purchase Order and shall accompany the shipment.
- b) Specification Number 19003 "Procurement Specification for High Reliability Printed Circuit Boards" - DSCC QPL MIL-PRF-55110 and/or MIL-PRF-31032 manufacturer.
- c) Specification Number 21050 "Procurement Specification for Industrial Grade Printed Circuit Boards"
- d) One Hundred percent (100%) testing for opens and shorts required, with objective evidence (i.e., board stamped).
- e) Test coupon for solderability evaluation required by PDC.
- f) Perform comparison of Gerber data to PDC-supplied netlist.
- g) All boards shall be packaged and sealed in MMB's (Moisture Barrier bags) free from contaminants which may induce corrosion, deterioration or other damage to the board(s). Each bag shall contain a suitable non-corrosive packaged desiccant and percent RH Indicator and shall provide a barrier preventing the desiccant from coming in contact with the board(s).
- h) Other: _____

18. **DESTRUCTIVE ANALYSIS SPECIMEN** - A specimen of suitable size and configuration for destructive analysis shall accompany each shipment made against this order. The specimen shall have been processed with the lot it represents through all special processes.

19. **NON-ENCAPSULATED ACTIVE/PASSIVE COMPONENTS** - The following Power Device Corporation Specifications and special requirements are applicable to this order:
- a) Specification Number 19483 "Procurement Specification for Hybrid Uncased Silicon Semiconductor Die."
 - b) Specification Number 22788 "General Specification for Procurement of Hybrid Passive Elements" (Thick/Thin film Resistor Networks, Chip Resistors and Substrates).
 - c) Specification Number 32768 "General Procurement Specification for Custom Monolithic Silicon Wafers."
 - d) Specification Number 36133 "General Procurement Specification for Semi-Custom Monolithic Silicon Die."
20. **DATE CODE** - Devices supplied against this order must include the manufacturer's date code(s) on the Certificate of Compliance (C of C).

Military compliant semiconductor devices, ICs, and hybrids supplied in accordance with MIL-PRF-19500, MIL-PRF-38535 or MIL-PRF-38534 (i.e., QPL, QML, JAN, JANTX, Slash Sheet, 883 Screened, etc.) must have evidence of the manufacturer's date code. Parts must be capable of passing a solderability test in accordance with TM2003 of MIL-STD-883 upon receipt at PDC.

21. **PLATING REQUIREMENT** -
- a) **Plating Thickness** - The supplier must provide the actual data of measured plating thickness on samples taken from all delivered lots against this order.
 - b) **Tin Plating** – The use of pure unalloyed tin is prohibited in the construction and surface finish of goods required to be deliverable to PDC under this Purchase Contract without prior written approval from PDC.

Construction and finish include solders and plating. Tin is considered to be pure if it contains greater than 97% tin and less than 3% alloying elements.

22. **OTHER** - Refer to specific purchase order requirements.
23. **NO CHANGE CLAUSE** – The supplier shall make no change in design, materials, manufacturing location, manufacturing processes, or sources of supply, without the prior written approval from the PDC buyer.

The supplier shall flow down to their suppliers the applicable requirements of this purchase order clause.

24. **SUPPLIER CHANGE NOTIFICATION/FLOW DOWN OF REQUIREMENTS** - The supplier shall make no documentation, material, process, manufacturer, or 3rd party supplier changes without notifying the appropriate PDC Buyer. This applies to Printed Circuit Boards and all components/mechanical items that specify a manufacturer and manufacturer's part number. Passive and mechanical components, (e.g. Resistors, Capacitors, Bus Bars, Base Plates, Potting Cases, Molded Cases, Stiffeners, etc.) that do not specify a specific manufacturer and manufacturer's part number are excluded from the requirement for customer notification. The Supplier shall flow down this requirement to any of its secondary and/or subcontracted suppliers as a condition of this Purchase Order.

25. **CONTROL OF RECORDS** – Records must be maintained to provide evidence of conformity to the requirements of this Purchase Order and of the effective operation of the Supplier's Quality Management System. Records must remain legible, readily identifiable and retrievable. In addition, the records must be available for review by PDC, our customers, regulatory authorities and government agencies. These records must be retained by PDC's supplier for a minimum of 7 years unless otherwise stated on this Purchase Order.

Records may only be disposed of after the minimum retention period (or retention period required by contract – whichever is longer) is satisfied or as directed by PDC.

26. **COUNTERFEIT PART PREVENTION** - The supplier shall have a Counterfeit Parts Prevention Program in place that is designed to meet the requirements of Aerospace Standard SAE AS5553 (Counterfeit Electronics Parts, Avoidance, Detection, Mitigation and Disposition).
27. **CONFLICT MINERALS** - Material provided in accordance with this purchase order shall be validated by supplier as DRC 'conflict-free' using the most recent EICC-GeSI Conflict-Free Smelter list.
28. **FOD FOREIGN OBJECT DEBRIS / DAMAGE PROGRAM** - The supplier shall develop and maintain a Foreign Object Debris/Damage FOD prevention program to prevent introduction of foreign objects into any item delivered under this purchase order.
29. **Supplier Quality Awareness** - The supplier shall ensure that persons are aware of:
- Their contribution to product or service conformity
 - Their contribution to product safety
 - Their importance of ethical behavior
30. **Supplier of Special Processes** - The supplier shall ensure that any special process services are performed by a NADCAP certified supplier, as defined by PRI-SAE QPL listing (ref: www.eauditnet.com), for the process being performed. A special process is a process whose integrity cannot be assured by typical inspection and verification methods but rather by process controls. Examples of special processes include, but are not limited to; painting, anodizing, chemical films, plating, soldering, non-destructive testing, welding, brazing, and heat treating. Suppliers that are not NADCAP approved must be submitted to PDC for approval.