

SOLID STATE DEVICES INC.
PURCHASE ORDER & QUALITY PROVISIONS

THE PURCHASE ORDER AND QUALITY PROVISIONS AS INDICATED HEREON ARE AN INTEGRAL PART OF THIS PURCHASE ORDER. MATERIALS RECEIVED, WHICH DO NOT CONFORM TO THE PROVISIONS AS INDICATED, WILL BE SUBJECT TO REJECTION, OR SUCH OTHER MEASURES AS MAY BE DEEMED NECESSARY BY QUALITY ASSURANCE MANAGER OR HIS DELEGATE. MILITARY SPECIFICATIONS REFERENCED IN THIS DOCUMENT SHALL BE THE REVISION IN EFFECT ON THE DATE OF SOLICITATION.

SSDI INTERNAL REQUIREMENTS – Not applicable to SSDI vendors

A1 – A4, Q07

GENERAL PROVISIONS

- Q00 This order shall be processed to the current revision of referenced/applicable specifications unless specifically indicated by the purchase order.
- Q01 Devices must be free from defects that preclude their acceptance to MIL-STD-750, MIL-PRF-19500, MIL-STD-883 & MIL-M-38510 as specified by the SSDI procurement document/drawing.
- Q02 ESD handling iaw Mil-STD-1686, or equivalent.
- Q03 Plating thickness report is required. Report shall accompany each shipment and must include a reference to the plating specification(s) and/or standard(s) used, including the type and/or grade as appropriate. For Alloy plating the composition shall be measured and reported.
- Q04 Analysis of material is required. Report shall accompany shipment. Analysis must list applicable limits. Distributors may provide a copy of the Original Manufacturer's signed C of C, the Manufacturer's C of C shall indicate conformance to the applicable military or industry standards, or the specific data for the analysis of the material.
- Q07 SSDI has the right to perform a lot evaluation upon receipt for product acceptance.
- Q08 SSDI Source Inspection is required prior to shipment from your plant. When in process inspection points are required they will be indicated in the body of the Purchase Order.
- Q09 Government inspection is required prior to shipment from your plant. Upon receipt of this order, promptly furnish a copy of the purchase order to the Government representative who normally services your plant or, if none, to the nearest Army, Navy, Air Force, or Defense Supply Agency inspection office so that appropriate planning for the Government inspection can be accomplished. If no Government representative or office cannot be located, our purchasing agent should be notified immediately
- Q10 Devices shall be returned to SSDI in their original ESDS packaging.
- Q11 SSDI will perform inspection and test to the requirements. Material is subject to return if yield less than 90%.
- Q13 Material Safety Data Sheet is required to accompany shipment of products.
- Q14 Supplier shall have as a minimum, an established MIL-I-45208A Inspection system or equivalent.
- Q15 Supplier shall have as a minimum, a compliant ISO 9001 Quality System.
- Q16 Supplier shall have an established equipment Calibration System IAW ANSI Z540-1 or equivalent.
- Q17 Signed Certificate of Compliance by authorized quality personnel is required with each shipment.
- Q19 Machine Shop Workmanship Criteria
- Cleanliness - Parts shall be free from contamination including cutting oils, water, & particles when examined at 7x magnification.

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Burrs – Burrs and sharp edges shall be removed and de-burred, with a maximum radius of .010". There shall be no burrs visible at 7x magnification. Burrs are absolutely prohibited if the measurement of the device including the burr causes a dimensional failure. Wax buffing to remove burrs is prohibited – parts may require plating

Surface Roughness – The surface roughness shall be 63 u" maximum unless otherwise indicated in the detail specification. For non critical surfaces, SSDI will consider a 125u" surface finish, please notify SSDI of cost impact of a 63u" vs. a 125u" finish, if applicable.

Threads –Internal and external threads shall be free of burrs and roll over, when examined at 7x magnification.

Angular Tolerance – Shall be +/- 1° unless otherwise indicated in the detail specification. The Angular tolerance (including surfaces shown perpendicular and in the same plane as the primary plane) shall be within the general tolerance specified in the detail specification.

Warped Parts – The parts shall be free from bending and warping at 1x magnification. For tight tolerance product SSDI will indicate a flatness specification on the detail specification.

- Q20 This calibration must be performed to the requirements of the ANSI/NCSL Z540-1-1994 calibration standard or equivalent and requirements "a" through "e" below:
- a. SSDI must be immediately notified in the event equipment exhibits an out of tolerance condition.
 - b. Any repair costs must be authorized by SSDI prior to the work being done.
 - c. The calibration certificate MUST state that the equipment used has a 4:1 ratio or better
 - d. SSDI must have a current eye exam on file for each technician performing calibration work on SSDI equipment.
 - e. The document number for the procedure used to calibrate SSDI equipment must be recorded on the calibration certificate. When the manufacturer's procedure is not used for the calibration, this must be clearly stated on the calibration certificate.
 - f. Any M&TE found during calibration with a reading that is greater than +/-75% of the tolerance, that condition must be adjusted back to the nominal value. The items calibration certification must indicate that an adjustment was made.
- Q21 A minimum of 50% of the product's shelf life must be in effect upon receipt.
- Q22 If supplier is sub-contracting parts or services, supplier must flow down to sub-tier suppliers the applicable requirements of the purchase order including key characteristics where required.
- Q23 The supplier must notify SSDI Purchasing or Quality contact of any non-conforming product prior to shipment to SSDI. Once SSDI is notified the supplier must hold for documented approval from SSDI via purchase order change.
- Q24 The supplier must notify, in writing, SSDI Purchasing or Quality contact of any changes/exceptions in product/raw material prior to shipment to SSDI. Once SSDI is notified the supplier must hold for documented approval from SSDI via purchase order change.
- Q25 The supplier must notify SSDI Purchasing or Quality contact of any process or process definition change prior to shipment to SSDI. Once SSDI is notified supplier must hold for documented approval from SSDI via purchase order change.

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Q26 Plating lot definition: A lot shall consist of items processed continuously and sequentially through the same plating bath where no equipment maintenance or repair interrupts the process or the plating bath is reconditioned or replaced due to an out of specification condition.

Q27 Pure Tin Prohibition: Tin based finish must not exceed 97% of total composition.

Q28 SSDI, their customer or regulatory agencies shall be afforded right of access to perform inspection and record verification.

Q29 FIRST ARTICLE INSPECTION – Shipment of the production lot is conditional on the SSDI first article approval

a. Artwork First Article; SSDI approval of artwork is required prior to running production.

b. Mechanical dimensions First Article Inspection using AS 9102 form #3 or equivalent.

c. Lot First Article sample of _____ pcs. required.

Note: Clause 29c quantity will be defined on the PO.

Q30 NADCAP CERTIFICATION: The vendor performing this work must have a current NADCAP Certification.

Q31 QMS Records are to be maintained by the SSDI vendor for a minimum of 10 years. The types of records related to this are: Training, Calibration, Approved Vendor, Internal Audits, Corrective & Preventive Action, etc.

Q32 X-Ray: Part orientation defined in Mil-Std-750, general section, para 4.2 Figures 1 or 2 as applicable to the product type. X-ray films must be supplied in duplicate. Failures shall be indicted on the film. Any abnormality on the film determined by the x-ray lab to be external and subsequently acceptable must have x-ray film evidence of device acceptability. X-Ray fixtures shall not utilize glue, tape, or other sticky substances.

Note: Clause 32 When parts are Serialized the parts must be X-Ray'd in serial number order. The PO will state "Ser # ____ to ____". Missing serial numbers must appear as such on the X-Ray films.

Q33 Lead / Body Grinding: Devices may be shipped back to SSDI in bags. However when applicable, SSDI shipping trays shall be returned to SSDI. For Lead Grinding, the grinding wheel must come between 20 to 50 mils of the body and the minor diameter (after grinding) must gradually transition into the major diameter (pre-grinding dimension).

Q34 Counterfeit avoidance program – The supplier shall have an established counterfeit prevention program to ensure the integrity and traceability of product provided to SSDI.

DELIVERY PROVISIONS

D01 Shipment per delivery schedule, do not ship more than 14 days early.

LOT SIZE REQUIREMENTS

L01 Single Lot Identification is required per shipment.

L02 Multiple Lots are allowed. Each part must be identifiable by LOT#.

L03 Minimum quantity per shipment is _____ pcs.

Note: Clause L03 quantity will be defined on the PO.

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THE FOLLOWING INFORMATION DEFINES THE ELECTRONIC COMPONENT TRACEABILITY REQUIREMENTS

L09 Traceability documentation requirement for product used in Space level product. The traceability documentation shall demonstrate traceability from the Original Manufacturer. The documentation shall either be delivered to SSDI with the product or provided to SSDI prior to the delivery. Documentation/Information Required

- a. Copies of Original Manufacturer C of C
- b. Die/Wafer shall be identified by Wafer Lot#.
- c. Glass frit Axial lead assembled devices shall be identified by Assembly Lot ID, Date Code.
- d. Assembled devices shall be identified by Wafer Lot#, Date Code, Assembly Lot ID
- e. Precap inspection certificate

L18 Product country of origin information must be provided with the product shipped

L19 Date code restriction: Product provided must have a date code that is less than _____ years old.

Note: Clause L19 time frame restriction will be defined on the PO.

L20 Traceability documentation requirement. The traceability documentation shall demonstrate traceability from the Original Manufacturer. The documentation shall either be delivered to SSDI with the product or provided to SSDI prior to the delivery.

PACKAGING REQUIREMENTS

P01 ESD Packaging shall be applied.

P02 Product must be package individually or compartmentalized to prevent bending or damage.

P03 Parts shall be packaged in vials.

P09 SPECIAL PACKAGING:

Product on this order has a surface finish that requires a unique packaging material to prevent contamination, corrosion, i.e. silver saver paper, etc. Parts packaging shall be constructed so that parts can be readily inspected and resealed.

P10 Best Commercial practice for packaging to prevent damage

P11 Tape and Reel – Return balance of parts to SSDI. For Axial Lead components EIA-296 applies, and for Surface Mount or Radial Lead components EIA-481 applies, unless otherwise indicated.

SSDI INSPECTION CODES (SSDI internal requirements – do not apply to SSDI vendors)

A1 All material shall be inspected by Receiving Inspection. It is required on all materials that become an integral part of the products.

A2 No inspection is necessary. This inspection is commonly used for furniture, maintenance, supplies, stationery, and other indirect material consumed in the factory.

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- A3 The requester will personally check the material upon receipt. Type A3 is used for R&D material not to become a part of saleable product without written approval from Quality and Engineering. Additionally, all chemicals shall be labeled IAW SSDI procedure# 30-1001.

- A4 Approval must be obtained from the department manager of the person requesting the material and a QC inspector.