



Supplier Quality Requirements

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Approvals and Revision History

*Approvals:**

Name	Title	Signature	Date
Mark Jackson	Director Quality		
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Revision History

Version	Date	Author	Remarks
A	3/4/2015	Mark Jackson	Initial Release
B	5/1/2015	Mark Jackson	Added 6.2.7 for PCB First Article Report
C	2/16/16	Mark Jackson	Updated to reflect Ingenu format
D	5/11/16	Mark Jackson	Added 6.3.1.1 for PCB packaging.

**See Ingenu Agile system for final approvals and revisions*

1 Purpose

This document describes the quality requirements for purchased materials used in Ingenu product.

2 Scope

This document applies to all Ingenu suppliers and is intended to establish common language for supplier quality requirements related to Ingenu generated purchase orders.

3 Referenced Documentation

None

4 Definitions

None

5 Responsibilities and Authority

Ingenu Quality Assurance

Ingenu Purchasing

Ingenu Suppliers

6 Procedure

6.1 General

6.1.1. **Responsibility:** It's the responsibility of the supplier to review all requirements in this document and ensure compliance to the specified requirements. When there is any confusion or conflicts between identified clauses or other Ingenu documentation, then it is the supplier's responsibility to contact the Ingenu buyer to resolve those conflicts prior to initiating work.

6.1.2. **Notification Responsibility:** The Supplier shall inform Ingenu immediately where there is a reason to suspect that products previously supplied to Ingenu may not be in accordance with the Ingenu drawing, specification or purchase order requirement.

6.1.2.1. The Supplier shall promptly inform Ingenu of any circumstance related to materials, manufacturing, processing methods, including design (Ingenu or Supplier), etc. which may make a product susceptible to premature failure or otherwise place the safe operation of that product at risk.

6.1.2.2. The notification shall describe the nature of the discovered anomaly, its applicability to Ingenu part number(s), quantities affected and the probable impact to the proper function/performance of the item supplied.

6.2 Quality Management Requirements

6.2.1. **Quality Management System:** The seller shall maintain a Quality Management System that complies with the requirements of ISO 9001 or a Quality Management System approved by Ingenu. Suppliers that are registered by an accredited registrar are preferred.

6.2.2. **Measuring & Test Equipment:** It is the seller's responsibility to ensure all equipment, including Customer Furnished Equipment and Government Furnished Equipment, used to test and

inspect Ingenu supplied parts are maintained and traceable to the National Institute of Standards and Technology (NIST) requirements. A calibration system in accordance with ISO 10012-1, ANSI/NC SL Z540-1, or equivalent will be used by the supplier.

- 6.2.3. **Control of Quality Records:** All records related to the manufacturing, testing and inspection of parts supplied to an Ingenu purchase order will be maintained for a minimum of 3-years unless otherwise specified by Ingenu.
- 6.2.4. **Supplier Material Review Board (MRB) Authority:** The Supplier does not have MRB authority to accept or repair non-conforming product. Any non-conformances on final deliverable product to the purchase order, drawing, specifications or applicable documents must be submitted to Ingenu for approval prior to shipment.
- 6.2.5. **Supplier Corrective Action Request:** A Supplier Corrective Action will be forwarded by Ingenu to a Supplier when corrective action is required. Upon notification of the non-conformance, the supplier shall take immediate containment action and complete the analysis of cause and proposed corrective action within 21 days. Failure to respond in a timely manner may result in the removal of Supplier from the Approved Suppliers Listing. Upon notification of the non-conformance, shipments may be suspended until containment processes are enacted.
- 6.2.6. **First Article Inspection (General):** A first article inspection is required for Ingenu custom products (does not apply to off the shelf and distributor parts) if one of the following apply:
- (1) First time submission (part or new supplier)
 - (2) Revision change affecting form, fit, or function
 - (3) A process change used to manufacture the part
 - (4) Change in manufacturing location (facility)
 - (5) More than 24 months have passed since the supplier last produced part
 - (6) As requested by Ingenu

All first article inspections performed by the seller will be accompanied with a First Article Inspection Report (FAIR) showing conformance to all drawing or performance requirements specified by Ingenu.

- 6.2.7. **First Article Report (PCBs only):** A first article report is required from the supplier for all PCBs and includes the following:
- Coupons
 - Dimensional and Electrical Test Reports
 - Micro Cross-Section including PTH vias
 - Solderability Test Report
 - Thermal Stress Test Report
 - Ionic Contamination Test Report
 - Impedance Test Results
 - Certificate of Conformance (includes material certs)

- 6.2.8. **Source Inspection:** Parts and materials supplied to this purchase order may require source inspection by Ingenu prior to shipment. The supplier will notify Ingenu in advance when parts and materials will be ready for source inspection. It is the supplier's responsibility to ensure part conformance to specified requirements prior to requesting source inspection.
- 6.2.9. **Review and Audits:** Ingenu reserves the right to perform periodic Supplier performance reviews and audits; measuring and providing feedback to Supplier in terms of quality, performance, delivery, cost, responsiveness, and communication. These reviews shall be performed as part of continuous improvement strategies. Supplier is expected to participate in these reviews, in scheduled quality meetings and when necessary provide corrective action plans to improve performance, as required and at its expense.

6.3 Material and Packaging Requirements

- 6.3.1. **Identification, Preservation, Packaging, and Packing:** All shipments to Ingenu must be packaged to avoid damage and deterioration and must be shipped to the address specified on the PO unless otherwise noted. Packaging and packing shall be in accordance with good commercial practices unless otherwise specified on the PO. Each box or container shall be labeled and have as a minimum the following information: (1) MFG Part number and Ingenu Part Number (if applicable) and revision, (2) PO number and (3) Quantity.
 - 6.3.1.1. NOTE: PCBs shall be packaged per IPC- 1601, vacuumed sealed, moisture barrier bags with desiccants.
- 6.3.2. **Proposed Material Changes:** Supplier shall notify Ingenu of all proposed changes that impact the form, fit, function, quality, reliability or status of the material, including end of life (EOL) notifications.
- 6.3.3. **Certificate of Compliance (C of C):** All parts supplied to this purchase order will be accompanied by a C of C. The C of C will be dated and signed by the responsible company representative certifying the supplied parts meet all purchase order, specification, and drawing requirements from the buyer.
- 6.3.4. **Source of Supply:** Suppliers are responsible to ensure compliance for materials used to manufacture parts supplied to Ingenu. Suppliers will only purchase materials from Original Equipment Manufacturer's (OEM's), standard catalogues, or the OEM authorized distributors. Purchasing from independent brokers or other sources is not authorized unless approved in writing by Ingenu.
- 6.3.5. **Moisture Sensitive Devices:** Moisture Sensitive Devices as identified by Supplier shall be labeled and packaged in an ESD Moisture Barrier Bag (MBB) and comply with JEDEC standards J-STD-033A and J-STD-020C.
- 6.3.6. **Shelf Life:** No materials with a shelf-life date will be shipped to a Ingenu purchase order with less than 80% of the full shelf-life as determined by the original manufacturer unless previously approved in writing by Ingenu. The expiration dates shall be clearly recorded on the packaging and the shipping documents.

- 6.3.7. **Temperature Sensitive Material:** The Seller must identify each shipment of temperature sensitive material with the manufacture date, storage temperature and recommended shelf life, in addition to the normal identification requirements of Name, Type, Size, Lot Clause and Quantity. Identification and special handling conditions must be recorded on the shipping document.
- 6.3.8. **Electrostatic Discharge Control (ESD):** All electrostatic sensitive devices shall be packaged, marked and handled in compliance with ANSI/ESD S20.20 (or equivalent).