



Q-CODE Q22F QUALITY REQUIREMENTS

FOR ACCEPTANCE OF PRINTED CIRCUIT BOARDS/PRINTED WIRING BOARDS

The following are the quality requirements for product purchased under Q-code Q22F. This includes but is not limited to granting the right of access to the supplier's facilities and all applicable records to Plexus, their customer and regulatory authorities with the acceptance of this Purchase Order, flow down all applicable requirements to sub-tier suppliers including key characteristics and length of retention of all records as specified in the PO Message Header (all documentation and cross sections) or, if not listed in the PO Message Header, a minimum of 7 years that support the manufacturing or material per the requirements of Plexus and our customer. This product is controlled by the SAE standard, AS9100 and unless a written waiver is received from Plexus, the supplier agrees to abide by the quality requirements below.

ALL SHIPMENTS:

Shipments and handling of Export Controlled Items, Data, or Services - Supplier will be required to meet the documentation and quality requirements as follows:

The Supplier agrees to comply with The Arms Export Control Act, 22 U.S.C 2751-2794, the International Traffic in Arms Regulation (ITAR), 22 C. F. R. 120 - 130, the Export Administration Act, 50 U.S.C. app 2401-2420, and the Export Administration Regulations, 15 C.F.R. 730-774 for this product, all specifications, and associated documentation. This includes, but is not limited to:

- Export controlled items, data, or services, or any element thereof, will not be exported from the United States without U.S. Government authority and the express written authorization of a Plexus ITAR Empowered Official.
- Export controlled items, data, or any element thereof, will not be transferred or disclosed to foreign persons including transfer to foreign persons employed by or associated with, under contract to Sub-tier suppliers including transportation carriers.
- Import Licenses will be provided with all shipments where applicable.

ALL SHIPMENTS:

As per the table below and referencing the last three numbers of the part number listed on the PO, the requirements listed in the row next to those three numbers must be included.

-032,-838	Tooling/Equipment Certificates - Must include copies of the actual calibration certificates of the tooling/equipment used. Must also include XRF report for PCB finish.
-550	Bow and Twist - 100% of PCB's shall be verified for bow and twist requirements as laminated and results included on Certificate of Compliance. No rework allowed. Fabricator to retain all coupons and Microsections. Details of requirements can be found on the customer drawings

FIRST PRODUCTION RUN (1ST SHIPMENT)/CHANGE TO PRODUCT/2 YEARS OR MORE SINCE LAST

BUILT - BEFORE A PRODUCT CAN BE RELEASED FOR PRODUCTION THE SUPPLIER WILL BE REQUIRED TO MEET THE DOCUMENTATION AND QUALITY REQUIREMENTS AS FOLLOWS:

- A. **First Article Inspection Requirement** - Supplier will execute the Aerospace First Article Inspection requirements of the SAE standard, AS9102, and provide the results to Plexus with each shipment in which the requirement is to be executed. PCB's will comply with IPC-A-600 unless otherwise specified and will default to Class 3 if class is not otherwise specified.



- Special processes utilized by the supplier will require written approval from Plexus prior to performing for review and approval. If approved, a certificate of conformance is required that includes the applicable name of, specification number, type and class of material or process used.
 - Only one part or assembly will be selected and inspected as part of the First Article Inspection.
 - Raw materials must have direct traceability with the chemical and physical properties submitted.
 - All dimensions and specifications on drawing must be verified and be within print tolerance. Plexus must be contacted and approve any dimension that is not within print specification in writing before product/parts can be shipped. The FAIR must also include all the applicable tooling/equipment numbers and the expiration dates for the tools and equipment used.
 - A bubble diagram indicating all applicable features, characteristics and notes must be provided as part of the FAIR submission.
- B. Cross-Section, PCB Test Coupon and Cross-Section Report** - A cross section must be supplied from every manufacturing panel regardless of layer count. A coupon must be supplied from every manufacturing panel. The Report must include inspection data, per IPC-6012 section 3.6.2.
- C. Hyper-corrosion Test Report** - For ENIG boards, process controls shall be implemented as per Plexus PCB specification G9000-3. Results and applicable cross-sections shall be retained by the supplier and provide to Plexus on request.
- D. Contamination Test Report.**
- E. PCB for Solderability Sample** - Complete and physically intact PCB or Array as supplied for the Part Number. This should be segregated and boldly identified. The box containing the solderability sample must also be identified as such.
- F. Material Certificates** - Include all applicable material certifications.
- G. 100% Electrical Testing Certificate** - Including an Impedance Report on Impedance Designs.
- H. Certificate of Compliance** - Must state compliance to all applicable specifications (drawing, PO, customer specifications, Plexus G9000-3, IPC specifications, etc. . .). The statement of compliance **Must** include the name and location of the facility that manufactured the Printed Circuit Board/Printed Wiring Board.
1. The minimum-required date code format shall identify the 2-digit workweek, 2-digit year (WWYY). If the part marking contains a lot and date code, those markings must be traceable to the COC.
 2. If the product has a shelf life, the manufacturer or cure date, batch number, the shelf life and expiration date must be included (note: the remaining shelf life must be as specified in the PO Message Header). Any special handling and/or storage requirements must also be included.

NOTE: *If there are any prior agreed to exceptions, deviations and/or concessions, please include copies.*

- I. All cartons, packing slips, reports and certificates must have Plexus Part Number, EC level or Revision, quantity and PO Number listed on them.

SUBSEQUENT SHIPMENTS - THE DOCUMENTATION AND QUALITY REQUIREMENTS FOR ALL SUBSEQUENT SHIPMENTS WILL BE AS FOLLOWS AND NEED TO INCLUDE ALL DATE CODES INCLUDED IN SHIPMENT, EVEN IF PREVIOUSLY SHIPPED:

A. First Article Inspection Report - Supplier will execute **First Production Run** requirements and provide the results to Plexus with each shipment following any subsequent change that invalidates the previous



First Article Inspection result per AS9102. In addition, products/parts held in inventory by the supplier for 2 or more years or not received by Plexus in 2 or more years **Must** have the **First Production Run requirements** performed to assure no revision change or product/part deterioration during storage. All dimensions and specifications on drawing must be verified and be within print tolerance. Plexus must approve any dimension that is not within print specification in writing before product/parts can be shipped. The FAIR must also include all the applicable tooling/equipment numbers and the expiration dates for the tools and equipment used.

B. PCB for Solderability Sample - Complete and physically intact PCB or Array as supplied for the Part Number if A. directly above is applicable. This should be segregated and boldly identified. The box containing the solderability sample must also be identified as such.

C. Cross-Section, PCB Test Coupon and Cross-Section Report - Same requirements as B above.

D. Hyper-corrosion Test Report - Same requirements as C above.

E. Contamination Test Report - Same requirements as D above.

F. Material Certificates - Same requirements as F above.

G. 100% Electrical Testing Certificate - Same requirements as G above.

H. Certificate of Compliance - Same requirements as H above.

NOTE: If there are any prior agreed to exceptions, deviations and/or concessions, please include copies.

I. In addition to all other requirements listed, all required documentation, labels, packaging and packing slips must have Plexus part number, EC level or Revision, quantity and PO number listed on them.

*When the revision of the product/part changes, **First Production Run requirements** Must be completed as a new part Before the shipment of product/part to Plexus.*

The above listed required documentation must be submitted with each shipment. Shipments received without the completion and proper execution of these Quality Requirements is considered non-conforming and Plexus reserves the right to return to the supplier at the supplier's expense.

PRODUCT CHANGE NOTIFICATION

Product or Process change notification requests (PCNs) shall be submitted to pcns@plexus.com, please reference the details of our PCN policy and requirements in the Plexus Supplier Quality Manual [DCS 10503](#).

REVISION HISTORY

REV	RELEASE DATE	ORIGINATOR	DESCRIPTION OF CHANGE(S)	REASON FOR CHANGE(S)
A	27Feb19	Rachel Perry	New	Needed for new customers

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B	02Aug19	Rachel Perry	Updated requirement for -032, -838 for XRF Report for PCB Finish	Needed to clarify requirements
C	13Aug21	Rachel Perry	Updated requirement for -550 for Fabricator to retain coupons and microsections. Removed -035 customer requirements. Also updated to new Plexus format.	Needed to clarify requirements