



# Flexible Circuits, Inc.

222 Valley Road, Warrington, Pa. 18976-2580 \* Phone ( 215 ) 343-2300 \* FAX ( 215 ) 343-2075

## Supplier Quality Requirements

**Applicability:** This document contains requirements that are applicable when invoked by Flexible Circuits, Inc. (herein referred to as FCI) Purchase Orders. Requirements include the mandatory use of these codes for Supplier Contract Review and Quality Planning activities. Contents shall be reviewed in conjunction with purchase order flow down. This document is controlled electronically on the Flexible Circuits, Inc website. Paper copies and downloaded electronic copies are uncontrolled. Supplier shall visit the website to review updates to this document.

The Flexible Circuits Inc. Purchase Order is the official binding contract in the order of precedence described in the Terms & Conditions. QR number or specific text specifies requirements on the Purchase Order. If conflicts between flow down documents and the Purchase Order are detected, the Supplier shall immediately notify the Buyer.

**Subcontracting Policy:** Flexible Circuits, Inc. suppliers shall ensure flow down to, and compliance with, all applicable Purchase Order requirements to their sub-tier suppliers, including approved Special Process providers as applicable.

**Right of Entry:** Flexible Circuits, Inc., their customers and Regulatory Authorities reserve the right to perform audits and/or inspections at the Supplier's and/or supplier's subcontractor's facility on the manufactured and/or repaired parts. Supplier material, records, process and routing sheets, manufacturing, and test and inspection facilities are subject to review. When on-site verification of Contract / Purchase order conformance is required, the supplier shall provide the equipment, facilities, and personnel necessary for the FCI representatives to verify compliance.

**Configuration Management:** The Supplier shall assure that the current configuration of all drawings, specifications, and instructions required by the Contract / Purchase Order, as well as authorized changes, are used for manufacturing, inspecting, and testing. Current revisions of detail drawings and specifications may be obtained through the Buyer.

Date	Revision	Revision Summary	Approval
7/1/2010	000	Initial release	P. McDowell
11/9/10	001	Add QR014-counterfeit parts prevention	P. McDowell



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## **QR001 Quality System:**

The supplier shall maintain a quality system that meets (as a minimum) the requirements of MIL-I-45208, with a preference to meet ISO9001: 2000 and/or AS9100. Distributors shall maintain a system to ensure the product or services provided meet the requirements of the Purchase Order. Raw material and/or certifications from the manufacturer shall be maintained for a period of no less than 5 years and shall be made available to Flexible Circuits, Inc. upon request.

## **QR002 Change Approval:**

All communication, technical guidance and instructions having contractual impact shall be accomplished directly between the buyer and the supplier's authorized representative. No contract or specification deviations shall be made without the written authorization of the Buyer.

Items furnished under this purchase order shall be identical to product previously accepted by FCI. No changes in materials, processes, procedures, design interfaces or software which might effect the fit, form, function, safety, weight, maintainability, service life, reliability, replaceability, or interchangeability of the supplies to be delivered to Flexible Circuits will be made without prior written approval from the Buyer.

Additionally, the Buyer shall be notified prior to any major plant rearrangement, or plant relocation, request for change, or notification of plant movement.

It is the supplier's responsibility to fully comply with all the instructions listed on the Purchase Order. lack of written approval shall not relieve the supplier of the responsibility to fully comply with all of the requirements of the purchase order. The supplier shall not receive compensation in any form from FCI for unauthorized activity.

Supplier does not have material review authority for materials that do not meet the requirements of the purchase order and must contact the Buyer for approval.

## **QR003 Certificate of Compliance:**

Material supplied on this purchase order shall be accompanied by a C of C, which must include the following information as a minimum:

1. Original manufacturer's and/or distributor's (or Service Provider's) name and address
2. Purchase order number
3. FCI and/or manufacturers Part number, revision, and quantity (if applicable)
4. Drawing or specification number and revision if different than the FCI part number and revision.
5. Serial number(s) or date code(s) or lot/batch/heat number(s) (as applicable)
6. Authorized agent's signature, title and date
7. Statement of conformance to all requirements
8. Shelf Life date (if applicable)

The supplier or distributor shall provide a certificate of conformance with each shipment of items delivered to FCI. The certificate shall state that the manufacturer has performed all required inspections and that the delivered items meet all of the requirements stated. If a distributor, OEM certificates of compliance must be maintained on site and available upon request. Upon completion of shipments against the purchase order, the supplier shall also retain the C of C and all relevant supporting data on file for a period of five years.

## **QR004 First Article:**

An independent First Article Inspection conforming to the requirements of AS9102 is required for items manufactured, assembled and tested to controlled drawings and specifications unless otherwise specified in



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documentation attached to this Purchase Order. Common commercial (e.g. parts from distributors or catalogs) MIL-spec / DESC parts are exempt from this requirement. Note: As specified in AS9102, items out of manufacture for a period greater than 2 years based on the supplier's records must receive a new FAI. AS9100 certification of the Seller's facility or AS9102 specific forms are not required unless otherwise specified.

## **QR005 Foreign Object Debris/Damage:**

The Seller shall establish and maintain an effective Foreign Object Damage (FOD) Prevention Program to reduce FOD using NAS412 as a guideline. The Seller's program shall utilize effective FOD prevention practices. The program shall be proportional to the sensitivity of the design of the product(s) to FOD, as well as, to the FOD generating potential of the manufacturing methods.

## **QR006 Electrostatic Discharge (ESD)Control:**

For electrical and electronic parts, assemblies, and equipment, susceptible to damage from Electrostatic Discharge (ESD), the seller is responsible to establish and implement an ESD Control Program compliant with the latest revision of MIL-STD-1686 and/or ANSI 20.20. The seller shall take the necessary precautions to ensure that static susceptible devices are adequately protected from ESD damage during manufacturing, test, inspection, packaging and shipping. Packaging shall be marked with an ESD cautionary note or symbol.

Anti-Static and Static Dissipative packing material (pink-poly formulations must comply with the Contact Corrosivity Testing (to determine the corrosive tendencies of packaging materials when in intimate contact with other materials) in accordance with MIL-STD-3010 Method 3005 (formerly Federal Standard 101, Method 3005). This anti-static and static dissipative packing material may not be used in direct contact with Optics and Polycarbonates.

## **QR007 No Pure Tin:**

Unless otherwise specified, electronic, electrical, electromechanical, and mechanical piece parts and assemblies, including the internal fabrication of hardware, delivered to FCI under the provisions of this Purchase Order shall not have pure tin finishes. Additionally, any tin-lead (SnPb) plating or solder process/processing shall result in a finish of no less than 3% lead composition.

Note: This applies to component leads and terminations, carriers, bodies, cages, brackets, housings, mechanical items, hardware (nuts, screws, and bolts), etc. This does not apply to MIL-SPEC Parts or Drawings that allow the use of Tin (Sn) with less than 3% Lead (Pb).

Seller shall provide a Certificate of Conformance (C of C) with each shipment. The C of C shall mean that the Seller or Seller's agent has verified that delivered product meets the above listed composition requirements.

a. Seller or Seller's agent has contacted the Original Equipment Manufacturer (OEM) and verified that the specific Mfr / Lot Date Code of delivered product meets the specified minimum lead (Pb) requirement if Tin (Sn) is present in the product.

## **QR 007A Plating Verification:**

Seller or Seller's Subcontractor shall verify by actual sample testing (X-ray Fluorescence testing is preferred) or other industry acceptable method that a minimum of 3% lead (Pb) is present in any process that uses tin (Sn), and a certification/report to this effect shall accompany the material provided.

Seller shall be responsible for managing the compliance with this requirement with subcontractors or sub-tier suppliers, and provide evidence of the appropriate flow-down and management of this requirement to the satisfaction of the Buyer or designate. Unless otherwise specified, all exceptions must be authorized in writing by the FCI Buyer.



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## **QR008 Shelf Life Materials**

Supplier shall identify each item, package, or container of limited shelf life material with the current date or date of manufacture, storage, temperature, and special handling conditions in addition to the normal identification requirements. No less than 80% of the product's limited life will remain at the time of receipt by the Buyer, unless a lesser period is authorized by FCI.

## **QR009 Supplier Corrective Actions**

All requests for Supplier Correction Action shall be responded to. These notices reflect Quality/Inspection concerns, and responses must properly address "containment actions", "root cause" by means of the five why's, "corrective actions", "verification", and "actions to prevent recurrence" that are instituted at the Supplier's facility. The response must be returned within thirty days. Failure to respond to these requests may jeopardize continuation of business.

## **QR010 Solderability Compliance (J-STD)**

Materials furnished under this purchase order must meet the requirements for solderability, processing, and/or compliance to J-STD-001, J-STD-002, and/or J-STD-006 as applicable.

## **QR011 DFARS Requirement (Preference for Domestic Specialty Metals)**

This purchase order incorporates Flexible Circuits, Inc.'s General Terms and Conditions of Purchase, which impose requirements with which you must comply when filling this purchase order. Also, this purchase order incorporates either the contract clause at:

DFARS 252.225-7014 Alt. I; or DFARS 252.225-7014 Alt.I (Deviation); or

DFARS 252.225-7014 (Deviation No. 2006-O0004); or

DFARS 252.225-7014 Alt.I (Deviation No. 2006-O0004); or

DFARS 252.225-7014 (Deviation No. 2007-O0011); or

DFARS 252.225-7014 Alt.I (Deviation No. 2007-O0011); or

DFARS 252.225.7014 (Deviation No. 2008-O0002); or

DFARS 252.225-7014 Alt.I (Deviation No. 2008-O0002);

whichever is applicable. You must flow down the applicable clause above, to all of your vendors that supply any articles delivered under this purchase order that include specialty metals. All such clauses provide the same definition of specialty metals and prohibit Flexible Circuits and all of its suppliers at every tier from incorporating specialty metals into military parts, components and/or end item deliverables unless the specialty metals have been smelted (the Deviation clauses add "or produced") in the United States, its outlying areas, or a qualifying country listed in DFARS 225.872-1.

Exemptions to requirements of the above clauses may exist, as outlined in the clauses themselves or by operation of applicable Department of Defense Domestic Non-Availability Determinations (DNADs) posted on its public web site for that purpose. If you believe an exemption(s) apply, please specify the specifics and provide FCI with documents and information sufficient to demonstrate your entitlement thereto.

## **QR012 DPAS Rating**

This is a rated order certified for National Defense use. Seller is required to follow all the provisions of the Defense Priorities and Allocation System (15 CFR 700). A written or electronic acceptance or rejection of this order with (10 for DX, 15 for DO) workdays after receipt of the order is required. If this order rejected, a reason in writing must be given for the rejection.



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## **QR013 Special Flow Down Requirement**

The requirements of Honeywell SPOC (Special Purchase Order Clause) 002 apply to this purchase order. Specific requirements of SPOC 002 include but are not limited to an AS9102 first article for all products manufactured to a Honeywell Source Control Drawing, and the use of only those companies listed in the Honeywell Approved Process Supplier List (APSL) for manufacture of the product. A complete list of SPOC 002 requirements can be found on the Honeywell Supplier Portal or by request through the FCI Buyer.

## **QR014 Counterfeit Parts Prevention Control Plan**

The Seller is not authorized to deliver any item procured from sources other than OEMs or OCMs, or their Authorized Distributors without prior written authorization from the Buyer. Seller shall flow down to, and ensure compliance with the requirements of this Q-Note by, lower tier suppliers providing items for delivery to FCI under this order.