Quality Clauses – Flow Down of Requirements to Suppliers

1) **Quality Management System:** The Seller (herein referred to as Supplier) shall have a quality management system that, at minimum, meets the current ISO 9001 standard. It is preferable that Suppliers meet the requirements of AS9100.

2) **Quality/Inspection System**: The supplier shall maintain a quality / inspection system which is in conformance with the requirements of ISO9001 to include: Receiving, In-Process and Final Inspection including Inspection and Test Records shall be supplied to International Rectifier (IR) if requested on the IR purchase order and upon completion and shipment of said order. First Article Inspection may also be invoked in accordance with AS9102 requirements and as necessary.

3) **Calibration System**: Supplier's calibration system shall meet the requirements of: ANSI-Z540 or equivalent. The system shall ensure the timely recall and calibration of all company measurements and test equipment used for product acceptance. Suitable records shall be maintained and be available for review.

4) **Certificate of Conformance**:

   a) The manufacturer and/or the distributor of its products shall provide a Certificate of Conformance (C of C) and/or Certificate of Analysis (C of A) with each shipment of product to IR. Copies shall be maintained by the Supplier as a quality record. Distributors shall include a copy of the manufacturers C of C along with the distributor's C of C with each shipment. In no case shall the manufacturer's certificate be altered or show signs of alteration.

   b) The C of C and/or C of A shall contain a certification statement attesting to the conformance of material and shall be signed and dated by an authorized representative of the Supplier. The C of C shall also contain manufacturer's name; IR part number; IR revision level; Supplier/distributor's name and address; IR name and address; quantity of parts in the shipment; date code and/or lot number (may be omitted for IR's contract manufacturing); and country of origin.

   c) As required, the C of C and/or C of A shall be accompanied with chemical and/or physical reports with "actual" or "typical" values for contractually required results of tests conducted, that verify conformance to a specification referenced on drawings and/or purchase orders and identify outside services performed, hardware, manufacturing, authenticity, etc.

5) **Special Processes**: Any processes for which resulting output(s) cannot be verified after the process without destructive testing and where deficiencies may only become apparent after the product is in use are special processes. To prevent output deficiencies, these special processes must be validated to prove that they can generate planned results.

   a) The Supplier shall identify any special processes and take the measures necessary to assure the process is capable of continually achieving the planned results.

   b) Process controls and or validations shall be established, including the following, where applicable: defined process instructions; defined criteria for process approval/qualification; defined criteria for equipment approval/qualification; defined method for process monitoring (including statistical process controls for key characteristics); defined criteria for the certification/qualification of personnel; defined and scheduled equipment maintenance/calibration; destructive physical analysis or testing; and maintenance of records providing evidence of initial validation/qualifications and ongoing control.

   c) Any special processes contracted with a subcontractor shall be communicated to and approved by IR. A list of IR approved suppliers can be supplied upon request.

6) **Right of Entry**: With appropriate notice, IR, along with IR's customer and regulatory authorities shall be afforded the right of entry to all of the Supplier's premises at any level of the supply chain and the right to verify that the contracted work, all applicable records and material conforms to specified requirements. This clause shall not apply to cases where International Rectifier is procuring a Supplier's standard item.

7) **Certification of Test Data**: Certification of test data shall be traceable to the organization performing the testing, special processing and/or inspection requested via IR's purchase order. All information shall be included to demonstrate conformance of specification and/or purchase order requirements.

8) **Contract Review / Conversion of IR Requirements**: The supplier shall review the purchase order and product manufacturing, processing, and testing requirements prior to its initiation. Any inconsistencies noted with the purchase order, part or other document references by the purchase order shall be communicated to IR or its acting delegation. Suppliers proceeding with work without written approval do so at their own risk. Product will not be accepted by IR unless it is compliant with the purchase order and all referenced documentation. Upon acceptance of the contract Suppliers shall assure contractual requirements are adequately communicated and flowed down internally.

9) **Quality Flow-Down to Sub-Tier Suppliers**: The Supplier's quality system shall ensure all relevant purchase order requirements are flowed down to their sub-tier suppliers. The Supplier's sub-tier suppliers are responsible to comply with the same specifications and requirements specified on the purchase order. This clause shall not apply in cases where International Rectifier is procuring a Supplier's standard item.

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10) **Requirement for the Qualification of Personnel**: The Supplier's quality system shall ensure all applicable processes affecting the final quality of the product in the purchase order were rendered by qualified and trained personnel.

    The Supplier shall include the awareness of each person's contribution to service or product conformity.

    The Supplier shall include the awareness of each person's contribution to product safety.

    The Supplier shall include the awareness of each person's importance of ethical behavior.

11) **Change Approval**: Except for first time purchases, items furnished under the purchase order to an IR source control drawings shall be identical in form, fit and function to a product previously accepted by IR. Any changes or deviations from the design shall be approved by a completing form HBF-18-03 - Supplier Request for Product or Process Change (SRFPPC). This clause shall not apply in cases where International Rectifier is procuring a Supplier's standard item. In this case, the Supplier shall have a defined method or format (PCN) for notifying customers of product changes.

12) **Component Substitution**: No component substitution is allowed without IR approval. Alternate or equivalent parts shall be approved by IR Quality and Purchasing Departments and documented via purchase order amendment prior to shipment.

13) **Notification of Obsolescence**: The supplier shall notify IR of any planned material or component obsolescence prior to the acceptance of any Purchase Order. In addition, the supplier shall notify IR of any plans to obsolete material on all existing orders with sufficient notice to facilitate, when applicable, an option for last time buy.

14) **Prohibited Materials**: Unless otherwise specified, the use of pure Tin, Cadmium or Zinc is not allowed. 4% Pb (Lead) by weight minimum is required on any Tin/Lead Finish.

15) **Electrostatic Discharge (ESD) Control Program**: For electrical and electronic parts susceptible to damage from Electrostatic Discharge (ESD), the Supplier is responsible for establishing and implementing an ESD Control Program per the latest revision of MIL-STD-1686, EIA-625, ANSI/ESD 20.20 or equivalent. The Supplier 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.

16) **Age Sensitive Materials**: In cases where materials are being provided with a limited life, the remaining shelf life shall be a minimum of 75% of the total shelf life, as defined in the source control drawing, for the material at the time of delivery. The following requirements apply:

    a) The material shall be labeled with the batch number, and the manufacturing date / expiration date.

    b) When applicable, any special handling or storage requirements shall be defined.

    c) An MSDS sheet is to be provided with each shipment of product.

    d) In addition to a C of C and MSDS, the following age sensitive materials also require a C of A: thick film pastes, polymeric adhesives, solder preform and wire, solder pastes, bonding wire, and lids with Au/Sn solder preforms.

17) **Traceability**: The Supplier shall maintain a method of traceability that ensures tracking of the supply chain back to the manufacturer of all Items included in the product being supplied. This traceability method shall clearly identify the name and location of all supply chain intermediaries from the manufacturer to the direct source of each Item for the Supplier and shall include the manufacturer's batch identification for the Item such as but not limited to date codes, lot codes, serializations, or other batch identifications.

18) **Conflict Mineral Requirements:** Suppliers shall not supply any parts to IR that are not DRC (Democratic Republic of Congo) Conflict Free. Under the Act, those minerals include tantalum, tin, gold, or tungsten. If any of the designated minerals are used, then Supplier must conduct a reasonable 'country of origin' inquiry that must be performed in good faith and be designed to determine whether any of its minerals originated in the covered countries or are from scrap or recycled sources.

    a) Suppliers, upon request, shall provide written evidence that mineral content from parts supplied to IR is not from mines or smelters in the Conflict Region per Rule 13p-1 under the Securities Exchange Act of 1934.

    b) Suppliers shall immediately notify IR if they become aware of any relevant warning signs in its supply chain indicating that any parts may not be DRC Conflict Free, including but not limited to "red flags" described in the OECD Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas)

Quality Clauses – Flow Down of Requirements to Suppliers

19) Corrective Action Request: When a quality problem exists, IR may request corrective action from the Supplier. Such requests require timely responses and shall be recorded on the IR form or equivalent. The Supplier is encouraged to use the 8D problem solving format. Failure to comply could result in disqualification and removal from the IR Approved Supplier List.

20) Nonconforming Material: The Supplier shall maintain a documented system to ensure nonconforming products are immediately identified and segregated from conforming products and with held in a designated and controlled area for review and disposition. Any departures from drawings, specifications or other procurement requirements shall be submitted to IR Purchasing for review and disposition. Any deviations from the design data shall be approved by a completed HBF-18-03. This may be obtained through IR Supplier Quality or Purchasing.

21) FOD (Foreign Object Debris) Prevention:

a) The Supplier shall establish the requirements for the prevention of contamination or foreign objects from becoming entrapped in the Supplier's product during manufacturing, assembly, testing or handling and is applicable to all design and manufacturing processes, training, material handling and parts protection, housekeeping, tool accountability, hardware accountability, lost items, and physical entry into FOD critical areas. FOD prevention may include clean room disciplines, housekeeping disciplines such as a 5S program, proper storage, and handling disciplines, FOD awareness training, tool accountability, performance metrics, control of food and drink in work areas, etc.

b) Foreign Object Debris (FOD) is a substance, debris or article alien to a vehicle or system which would potentially cause damage. Foreign Object damage is any damage or incident attributed to a foreign object that may result in a degradation of the product's required safety and/or performance characteristics.

22) Source Inspection: If IR inspection is required at the source of manufacture (source inspection) as noted on the IR Purchase Order, the following activities shall take place:

a) Upon completion of manufacturing of product, the Supplier shall contact the Purchasing Agent to schedule source inspection. The Supplier shall allow 48 hours for coordination and other paperwork.

b) The Suppliers shall make available any required drawings, specifications, or other related documents as well as any tools, gages, or other inspection instruments necessary to establish conformance of the articles including personnel with the requisite skills to operate such devices. The Supplier shall provide reasonable assistance and facilities to IR representatives engaged in the activities related to IR procurement.

23) Record Retention: All records of test and inspection results, and administrative quality documentation required by contract or subordinate specifications (quality records) shall be retained by the Supplier for a period of not less than 12 years after the creation of the record unless a longer period is specified on the IR purchase order. If the Supplier subcontracts the record creation (for example: the Supplier sending a part out for radiography), the Supplier shall impose the same record retention on their subcontractor. This clause shall not apply in cases where International Rectifier is procuring a Supplier's standard item.

24) Element Evaluation (EE): When element evaluation per MIL-PRF-38534 is specified on the purchase order the following requirements apply except as otherwise specified in the applicable source control drawings and/or general component specifications or if excluded below.

a) The Supplier shall verify that all products on this purchase order meet the requirements of element evaluation per MIL-PRF-38534. Tests reports, certifications and test samples shall accompany each shipment.

b) Exclusions to EE requirements

i. Conventional EE is not required when elements are purchased as QML or QPL certified parts.

ii. Passive Elements – EE is not required when the elements are acquired from the Established Reliability series of military specifications and is listed on the QPL.

iii. Microcircuits and Semiconductor Devices – Class H EE is not required for JANHC or JANKC discrete semiconductors, MIL-PRF-19500 qualified die or MIL-PRF-38535 Class V qualified die. Class K EE is not required for JANKC discrete semiconductors, MIL-PRF-19500 qualified die or MIL-PRF-38535 Class Q qualified die.

c) Attributes data confirming successful LAT must accompany the shipment.

d) The original manufacturers C of C shall be provided with each shipment of die.

25) Rework Limitations:

a) Production travelers or similar documentation such as the complete manufacturing history, including rework, shall be recorded. The term rework includes any deviation to the standard process, procedure, product, service, documentation, training, etc.

b) Rework qualification. Devices containing rework shall not be shipped to IR unless previously qualified by IR. Suppliers shall notify IR of rework and provide documentation and qualification plan. The purpose of such qualification is to ensure that the next stage assembly at IR is not impacted, and the performance of high reliability processes is not degraded.

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c) Qualification of rework. All reworked items are to be qualified by IR before use. The manufacturer shall build a qualification lot (per the approved qualification plan) of reworked devices. Qualification of rework by this method shall require IR approval of the completed qualification test plan (results) and submission of rework samples for evaluation.

26) Counterfeit Product Prevention: (Applicable to distributors)

It is International Rectifier's policy to purchase Product(s) only directly from the Manufacturer or from their authorized distributors. Purchasing product(s) from brokers or Independent Distributors is prohibited.

a) Definitions:

i. "Counterfeit Product" means product that is an unlawful or unauthorized reproduction, substitution, or alteration that has been knowingly mismarked, misidentified, or otherwise misrepresented to be authentic, unmodified product from the original Manufacturer, or provided by a source without the express written authority of the original Manufacturer or current design activity, including an unauthorized aftermarket Manufacturer. Included is used product represented as unused or falsely identified by grade, serial number, lot number, date code, or performance characteristics.

ii. "Independent Distributors" are persons and businesses that are not part of the Manufacturer's authorized distribution chain. These also may be referred to as non-franchised distributors, unauthorized distributors, or brokers.

iii. "Suspect Counterfeit Product" means product for which credible evidence (including, but not limited to, visual inspection or testing) provides reasonable doubt that the product is authentic.

b) Requirements

i. The Supplier warrants they are authorized by the product Manufacturer(s) to distribute the product(s) provided to International Rectifier.

ii. The Supplier shall include a copy of the Manufacturer's Certificate of Compliance and/or Certificate of Analysis along with the Supplier's Certificate of Compliance with each shipment.

iii. The Supplier warrants that product(s) supplied to International Rectifier are new, unused, authentic, genuine, and legitimate.

27) Disaster Recovery: IR has a responsibility to our customers to maintain a continuity of operations and services that consider disaster recovery. Suppliers should develop a plan that will protect and restore vital business processes in the event of an unanticipated disruption. Sub-suppliers should also establish such plans to minimize disruptions.