

/ GLOBAL SUPPLIER
QUALITY HANDBOOK

A message from avnet supply chain quality

Welcome to the "Avnet Quality Handbook." This handbook is designed to acquaint potential and existing partners within the Avnet supply chain with our company, culture, and our direction for the future concerning supply chain management. We hope you take some time to review all sections of this hand book in an effort to better understand Avnet as a company, a customer and as a strategic partner for the future.

Avnet has 110,000 customers and 600 suppliers in 125 countries. From idea to design and from prototype to production, Avnet supports customers of all types and sizes at each stage of the product lifecycle, guiding today's ideas into tomorrow's technology. With deep expertise in design and engineering, broad line distribution, integration and services, Avnet is uniquely positioned to meet critical time-to-market needs for customers globally.

The challenge we must face together is to continually improve our integrated supply chain by offering our customers competitive solutions in the area of cost, quality, delivery and our ability to adapt to ever changing customer demands within this competitive global environment. We must respond by offering unparalleled global logistics solutions and strong collaborative partnerships with our supply chain and customers alike as a competitive differentiator and competitive advantage.

As our customers continue to raise the bar on our performance, we call on you as our supply chain partners to share in this commitment to excellence. Much of Avnet's success has been built upon offering our customer's technology and logistics solutions to meet the ever changing demands of today's global markets.

The relationship between Avnet and our supply chain is built on a long history of mutual trust, integrity and a commitment to operational excellence. We are committed to communicating openly and honestly with our supply chain partners and continue to build positive relationships in order to extend and widen our competitive advantage.

Thank you for your commitment to a strong, productive and continually improving partnership.

Avnet Supply Chain Quality

Overview

This Avnet Global Supplier Quality Handbook (Handbook) serves as a guideline – and in some cases a requirement – but does not supersede the Terms & Conditions (T&C's) of existing Supplier contracts. In the event of a conflict between this handbook and a supplier contract, the contract prevails. Any additional, specific requirements or amendments to it may be requested and agreed by any Avnet company placing orders at Suppliers within this Handbook's scope. Please take time to review the content and discuss sections with which you are unfamiliar, or areas where you may have questions, with your Avnet point of contact.

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Note from our executives

Existing and potential suppliers:

This Handbook is designed to inform you about our company, culture, supply chain direction and general expectations for suppliers. Avnet is one of the world's largest distributors of electronic components and embedded solutions. Market needs and trends drive Avnet's product and services strategy, supported by a global infrastructure. Avnet brings a breadth and depth of service capabilities, such as supply-chain and design-chain services, logistics solutions, product assembly, device programming, integration and technical seminars, in addition to our core distribution services.

The relationship between Avnet and our supply base is built on mutual trust, integrity, and a history of world-class performance. We select suppliers that share our commitment to conducting business ethically, socially responsibly and with quality. We will expect that of you, and you can expect the same of us. This Handbook outlines those expectations.

Welcome to Avnet!



OUR PURPOSE STATEMENT

Guiding today's ideas into tomorrow's technology.

Our core values

Core values define who we are as individuals and as a company. Our core values define us to each other, our customers, our shareholders, our suppliers, our competitors and our communities. Our core values are not just words on paper. We expect to demonstrate these core values in our daily work. We expect these core values to guide us to achieving our vision for Avnet.

INTEGRITY

We demonstrate honesty and trustworthiness in all we do with the highest standard of ethical behavior to guide all our actions.

CUSTOMER FOCUS

We strive to exceed expectations in every interaction, focused on agile and innovative solutions that positively impact our global communities by creating sustainable operations today and for the future.

OWNERSHIP

We are personally responsible and accept full accountability for delivering on our commitments.

TEAMWORK

We work together across boundaries to delight our customers, suppliers and employees to help the company win and promote a collaborative culture.

INCLUSIVENESS

We value and respect our people by embracing diversity of backgrounds, learning, experience and thought, creating equal opportunities across our workplace culture.

Corporate social responsibility

Social Responsibility & Ethics

Avnet complies with international ethical and legal standards. Therefore all delivered goods must be produced:

- Lawfully, through fair and honest dealing;
- Without exploiting the people who made them;
- In decent working conditions; and
- Without damaging the environment

Electronic Industry Code of Conduct

The Electronic Industry Code of Conduct (EICC Code) was created by the Electronic Industry Citizenship Coalition and provides additional clarity with regard to our Labor, Health and Safety, Environmental, Ethics and Management Systems expectations for Suppliers. Avnet expects all Suppliers to comply with the EICC Code or other codes or policies with substantially the same terms. The EICC Code is available at the EICC website.

Conflict Minerals

All products supplied to Avnet must comply with the essential requirements of the Dodd-Frank Act (US) Section 1502 and the EICC Code. Avnet expects Suppliers to only source materials from environmentally and socially responsible suppliers.

Ethics AlertLine

Any Supplier observing or suspecting illegal or unethical activities involving Avnet's business may report the same to Avnet either through their Avnet point of contact or through Avnet's Ethics AlertLine available at <https://avnet.alertline.com>

AVNET Quality Policy

Each Avnet employee strives to provide products, services and solutions that fully meet or exceed the established requirements of our internal and external customers and is committed to continual improvement.

We achieve this through the process of defining and understanding our customer and key stakeholder requirements. Measurable objectives are established and reviewed at various points within the organization. Avnet is committed to practicing environmentally responsible business processes in the spirit of continual improvement.

AVNET Environmental Policy

Avnet is committed to practicing environmentally responsible business processes. Our goal is continual improvement, prevention of pollution, and compliance with applicable legal and other requirements relating to our environmental aspects.

Supply chain expectations

Avnet expects its supply base to have a quality management system in place that complies with ISO 9001 as a minimum; or as defined by specific purchase order and/or contract. A core component in any quality system must be the knowledge, monitoring and continual improvement of key processes. These efforts toward continual improvement and Lean Initiatives must result in improved product / process quality, delivery, and overall efficiency and effectiveness that will result in price reductions and the cost of doing business.

Avnet Supply Chain Code of Conduct

Avnet expects our supply chain to be responsible global citizens and adhere to laws and regulations not only within the US, but in all countries to which Avnet operates. In addition, to our minimum expectations, our supply chain is encouraged to adhere to the Electronic Industry Citizenship Coalition; EICC Code of Conduct, for the fair treatment of workers, their health and safety in their work environment, for the protection of the environment, and for excellent business ethics.

Avnet Corporate Citizenship

At Avnet, our commitment is to be responsible corporate citizens in our global communities and to our four critically important stakeholders; our employees, our customers, our suppliers, and our shareholders. That commitment is ever expanding in the way we conduct day to day business.

Avnet encourages our employees to volunteer in their communities and we demonstrate that commitment with paid days off to our employees who volunteer to help make a difference. We encourage our suppliers to demonstrate similar commitments to the communities they live and serve.

We have a strong commitment and demonstrated actions which have reduced Avnet's environmental footprint in our facilities by means of power generation and conservation, recycling, and smart supply chain practices.

Avnet works with our suppliers who are committed to being responsible corporate citizens by means of on-going environmental health and safety programs. It is preferred suppliers to Avnet demonstrate this commitment by establishing ISO 14001 registration at a minimum.

Avnet Policy on Conflict Minerals

It is Avnet's policy to avoid purchasing components that contain minerals from conflict sources. Avnet takes great care in partnering with supplier partners within franchise distribution agreements to ensure confidence in all the aspects of the supply chain cycle and who are in compliance with the US Dodd-Frank Act.

Counterfeit Mitigation

A strategic advantage in doing business with Avnet is our counterfeit mitigation processes are an intricate integral part of our everyday business. By having detailed distribution agreements with our supplier partners, there is an unbroken chain of custody with the Original Component Manufacturers and OEM's that ensures products delivered to Avnet and to our customers, are authentic and eliminate the concern of counterfeit parts.

Customer directed purchase of parts or components from independent non-franchise distributors falls outside of the scope of our Counterfeit Mitigation system.

Non-Disclosure Agreements

Suppliers and/or sub-contractors to Avnet may be asked to enter into a non-disclosure agreement with Avnet concerning information provided to our supply chain such as drawings, specifications, procedures, forecasts, pricing and Avnet terms and conditions. This information shall be considered intellectual property, proprietary and confidential to Avnet and our customers. Suppliers and/or sub-contractors shall not use and/or transmit this information to 3rd parties outside the terms of this agreement.

General expectations – Avnet’s customer requirements

Avnet’s customers, ranging from individuals to large multinational corporations, have chosen Avnet as a supplier because of the value and quality of its people, the relationships we have with our suppliers, the speed and flexibility of our service and the reliability of the products we supply. This level of customer commitment requires that Avnet only work with those suppliers that demonstrate the same commitment to Avnet.

Customer Requirements

The customer is defined as Avnet’s external customer, to whom Avnet delivers products and services. Avnet’s customers’ requirements vary and are subject to change based on market conditions, competitive pressure, government regulations, technological change, and organizational needs, strategies and goals.

Key Metrics important to both Avnet and its customers;

- Product Quality
- On Time Delivery
- Accurate Shipment/Invoicing
- Inventory Availability
- Business Contingency plan
- Professional Service and Support
- Continuous Product Cost Reduction
- Counterfeit Mitigation

Avnet also promotes and encourages the use of “Lean tools” and strategies in our supply chain as a means of achieving best overall value to Avnet and its customers.

DPAS Rated Purchase Orders

When an Avnet Purchase order has an identified DPAS rating; such as DO-A3, DX-A1, please refer to the Defense Priorities and Allocations System (DPAS) regulation, 15 C.F.R. Part 700.

Because these military rated orders regulations apply to both military and commercial product, it is imperative for all of our Suppliers to fully understand and comply with the requirements of the DPAS regulation.

Avnet Identification / Labels

In order to maintain Avnet identification and traceability information, Avnet labels and/or bar codes must be maintained and transferred to any new packaging. This chain of custody must be maintained to ensure there is no cross contamination with non-Avnet product potentially leading to concerns of counterfeit parts.

Our goal, operational excellence

As a global leader, Avnet not only faces the daily challenges supporting our customers in an ever-changing and competitive global manufacturing landscape, but also continually improving the way we conduct business in order to maintain a competitive advantage to better serve our customers. By providing our customers with a dynamic, strategically accessible, world-class supply chain to our customers, we see our supply chain as a key component of that competitive advantage.

Avnet's continuous improvement mindset is central to everything we do; including our relationships with our supply chain. Our supply chain strategy has evolved over the years from one of just managing transaction to forming stronger business relationships with an emphasis on communication, shared goals and collaboration.

With collaboration, we encourage our supply chain; both suppliers and sub-contractors, in partnership with us, to jointly identify, develop and implement ideas that improve, strengthen and advance our supply chain relationships. Together we'll use our best thinking and practices to foster change, improve performance and grow our collective businesses. Whether it is providing better technology, using innovative design concepts, improving your manufacturing processes or applying "Lean" strategies to better your business, everybody benefits when suppliers share their best practices.

Supplier Communication

It is critical to the overall success of both our organizations that our supply chain fully understands the requirements and expectations of Avnet by means of this handbook, contractual flow downs, purchase order requirements, quality clauses, supply chain qualification questionnaire's, supplier scorecards and/or business reviews.

Currently, Avnet is in the process of taking its supply chain quality organization to the next level by establishing and defining key processes that will help us standardize the way we conduct business; enabling supplier communication, partnerships and overall operational excellence.

Contractual Flow Down / Terms and Conditions

As a Franchise-Agreement Partner, Non-Franchise Vendor or Sub-Contractor providing value-add services to Avnet, it is your responsibility to ensure a clear understanding of standard contractual flow downs originating from our customers and Avnet Terms and Conditions prior to acceptance of the purchase order. A link to Flow Down requirements is on every Avnet Purchase Order, and can be found here:

<https://products.avnet.com/wps/portal/ema/about-us/purchase-order-flowdowns/>

Classifying our Supply Chain:

Avnet has classified our supply chain into 3 categories; Franchise partner supplier, Non-Franchise suppliers and Sub-Contractors.

Franchise Partners: Franchise Partners are OEM manufacturers of electronic parts with whom Avnet has entered into established distribution agreements. Avnet Franchise Partners are represented by the "line card" demonstrating the OEM suppliers that have been partnered with in accordance with established policies and procedures.

Non-Franchise Supplier: Non-Franchise suppliers are OEMs or other sources within distribution with whom Avnet does not have an established distribution agreement. Non-Franchise suppliers are often customer-specified sources where customers have already qualified the design and the associated parts and we simply act as the distributor of customer-specified product.

Sub-Contractors; Value Add Services: To better serve our customer needs, Avnet has established relationships with special process / value add services sub-contractors for additional value add processing prior to customer delivery. Sub-Contractor Value Add services range from testing, screening, environmental testing, lead forming, and tape and reel. Sub-contractors are customer identified and/or customer requested by means of source control drawings, specification control, flow down requirements, and/or are already approved and qualified via the customer's sub-contractor management program.

Supply Chain Approval Status

Avnet Supply Chain Quality has established approval levels of its supply chain in order to identify current approval status and to identify procurement options as to which supply chain source is approved.

In the case of Franchise Partners to which Avnet has established a distribution agreement with, upon completion of the on-boarding process and assessing the "Risk" evaluation, franchise partners will appear on the Avnet Line Card describing products available for purchase.

Non-Franchise Vendors supplying parts to Avnet; to which there is no distribution agreement, may not be monitored nor measured as these are customer specified distribution vendors outside the controls of Avnet.

Value Add Sub-Contractors is where the majority of the controls and support processes will be applied. While these sub-contractors will be monitored and measured in accordance with established Avnet performance expectations

Definitions: Primarily associated with Value Add Sub-Contractors, the following definitions apply to identification of current approval status.

Approved: The sub-contractor has demonstrated a level of minimal conformance to Avnet requirements upon initial assessment and qualification and/or has demonstrated ongoing approval based on established performance metrics on a quarterly basis.

Conditional Approval: The sub-contractor has not performed to the minimum performance expectations set by Avnet. Once established as an approved sub-contractor, if the performance level drops below the performance level expected by Avnet for one quarter, the sub-contractor will be placed on "conditional approval" status. The sub-contractor will be issued a request for corrective action; process improvement plan, and will be expected to recover and improve overall performance by the following quarter to be taken off conditional status.

Restricted: A sub-contractor is placed in "restricted" status as a result of deficiencies from two different paths. If a sub-contractor fails to meet the requirements and expectations of Avnet upon initial assessment / qualification, the sub-contractor will be identified as "restricted" for use only by the customer that specified the sub-contractor. The other path is as a result of a sub-contractor failing to recover from "conditional" status for the 2nd consecutive month and status will be changed to "restricted" for use only by the customer that specified the sub-contractor originally.

Supply Chain Performance

Avnet has recently established a comprehensive supply chain management program in order to effectively identify, qualify, monitor, manage and communicate to its supply chain. Sub-Contractor performance scorecards and Supplier performance data processes have been created in order to effectively communicate to the supply chain their current quality performance and approval status.

Each method of communication will be detailed within each classification section herein.

Performance reviews

Supplier may need to participate in performance reviews, the frequency of which will be mutually agreed upon. In addition to Performance to sales and Supplier quality goals, these reviews will assess conformance to mutually agreed upon requirements.

Supplier Corrective Action Requests (SCAR)

Upon identification and validation of non-conforming parts, material and/or services by Avnet as non-conforming to stated requirements, a request for corrective action with detailed information will be forwarded to the supplier and/or sub-contractor in order to assess the identified non-conformance and determine root cause and appropriate corrective action that are required to correct the issue.

Avnet expectations are that the suppliers and/or sub-contractor go into adequate depth in the root cause investigation to ensure this non-conformance or any similar non-conformances from occurring in the future. Please include enough detail in the corrective action response for not just a containment statement or a root cause description, but also what actions were taken to prevent re-occurrence, what processes were modified to address the issue, and who was trained on the process / procedure changes. The SCAR form that Avnet will send will identify what objective evidence is required to support the action taken; such as a list of procedures / processes modified w/document numbers and revisions and electronic copies of the training records; as our customer require this objective evidence when Avnet is evaluated.

SCAR responses are required within 15 business days of receipt.

Process Improvement Program

When a suppliers and/or sub-contractors performance falls below the minimum requirements as set by Avnet, a request for corrective action will be requested from Avnet Supply Chain Quality in an effort to identify the root cause(s) for the deficiencies and to implement corrective actions to improve; as reflected in quarterly score cards and/or severe isolated performance issues. Score Cards shall be issued quarterly. Sub-contractors and/or suppliers falling below the minimum performance requirements for quarter will be notified of the declining performance by means of a SCAR.

The SCAR will identify the specific areas for improvement required in order to improve the sub-contractors / suppliers overall performance; as reflected by the scorecard, and a defined time period for objective evidence of improvement. If you receive a process improvement oriented SCAR, suppliers are expected to develop a comprehensive program for improvement that represents sustainability. Once the performance improvement has been reflected in the next quarter's score card, the improvement will be noted in the SCAR as part of the objective evidence.

In-Process Failures

Subcontractors shall communicate all in-process failures of Avnet supplied product within forty-eight (48) hours of recorded failure, at which point Avnet will instruct Subcontractor how to process failed product. Failure notification will include the following information as a minimum:

- Manufacturer
- Part number
- Quantity
- Purchase Order received against
- Serial number (if applicable)
- Description of failure

If Avnet requests product be returned, Avnet will provide information as to where to ship the product and what information is to be referenced on the paperwork and shipping label.

If Avnet authorizes the Subcontractor to destroy the Product, the Subcontractor shall issue to contractor a certificate of destruction that complies with all government rules and regulations and that lists each serial number from each destroyed component.

Sub-Contracting

Avnet sub-contractors conducting value add process and/or special processes shall not sub-contract out any processes without Avnet approval.

Hold Harmless Agreement

When a sub-contractor fails to meet the minimum performance requirements identified for 2 consecutive months, the customer that specified the sub-contractor will be required to sign a "hold harmless" agreement stating that since the sub-contractor has failed to meet the performance expectations of Avnet, the customer holds Avnet harmless to any actions as a result of continuing to use the sub-contractor.

The "hold harmless" agreement would also apply during initial assessment / qualification whereas the sub-contractor does not meet the initial baseline requirements in order to be "approved".

The intent would be to encourage all Avnet sub-contractors to gain and maintain "approved" status whereas that sub-contractor may be used for services required for all Avnet customers.

NCM Value Add Processing

In-Process Failures

Subcontractors shall communicate all in-process failures, of Avnet supplied product, within forty-eight (48) hours of recorded failure, at which point Avnet will instruct Subcontractor how to process failed product. Failure notification should include the following information as a minimum:

- Manufacturer
- Part number
- Quantity
- Purchase Order received against
- Serial number (if applicable)
- Description of failure

If Avnet requests product be returned, Avnet will provide an RMA with information as to where to ship the product and what information is to be referenced on the paperwork and shipping label.

If Avnet authorizes the Subcontractor to destroy the Product, the Subcontractor will issue to contractor a certificate of destruction that complies with all government rules and regulations and that lists each serial number from each destroyed component.

Business Interruption Plan

Avnet expects Suppliers to maintain an effective business interruption/disaster recovery plan throughout the term of the relationship. Supplier should notify Avnet of "at risk" products/components/services. This plan is especially important for single-sourced product/components. "At risk" is defined as products or components that are single or sole-sourced at Supplier or are at risk in the Suppliers' supply chain.

Corrective Action

Avnet may reject incoming material that does not conform to the specifications outlined in this document and may issue a Supplier Corrective Action Request (SCAR). See Supplier Corrective Action section above.

Military-Rated Orders

Suppliers will handle military related orders according to the Defense Priorities and Allocations System (DPAS) regulation, 15 C.F.R. Part 700. Because these military rated orders regulations apply to both military and commercial product, it is imperative for all of our Suppliers to fully understand and comply with the requirements of the DPAS regulation.

End-of-Life (EOL)/Product Change Notice (PCN) Process

Providing our organization with critical component changes that may affect our customers' product design, production and procurement is an important piece to providing comprehensive Customer support.

The EOL/PCN process begins with our Suppliers.

All end-of-life notification (EOL) and product change notices (PCN) shall be sent to the following e-mail addresses:

Suppliers: End-of-Life@Avnet.com

All EOL notifications should be provided in an Excel format and are required to include the following information:

- Avnet complete part number and/or Supplier part number (if different)
- End buy date
- End return date
- End ship date
- Order non-cancelable date
- Original notification date and revision date (if applicable)
- Last date the factory will accept returns
- Manufacturer replacement part, if available
- This data can also be incorporated into the Supplier's price file feed
- New P/N and/or revision level (if applicable)
- Description of change
- Reason for change
- Date of change
- ECN/PCN reference
- Effect of change

Avnet will attempt to process EOL notifications provided in other formats, but delays may occur if information is missing from the list above.

Finished Product Shipments

Subcontractors shall ship all products to the Ship-To company and address, via the appropriate carrier, as specified on the Purchase order. Any freight charges incurred as a result of shipments tendered contrary to our instructions will be debited back to the subcontractor.

In order for us to complete our invoicing to the Customer, on the day a shipment is made the following shipment information is required at a minimum is to be sent to Avnet via email or fax:

- Copy of invoice
- Purchase order number
- Carrier
- Tracking or waybill number
- Number of pallets or containers
- Copy of CoC if one is required
- In the case of partial shipments, the Subcontractor will notify the applicable material representative. Partial shipments require authorization from an Avnet materials representative
- Additional Consideration for Military/High Reliability Product

Avnet purchase order requirements will not supersede military specifications or government regulatory agencies requirements.

Suppliers' shipments of military product or Established Reliability (E/R) product will include Certificate of Compliance (C of C) documentation and the Supplier will maintain traceability documentation. Any military specification governing content of Certificate of Compliance requirements always takes precedence.

Suppliers must include all required documentation (Certificate of Conformance, data, reports, etc.) as specified by military specification and/or Avnet purchase order in the shipments of military devices. Avnet should not receive more product than is listed on your Certificate of Conformance.

All product received will comply with the appropriate governing military specification and/or the Avnet purchase order. Supplier C of C'S (Certificate of Conformance) must be legible and include the following information:

- Supplier name and address
- Avnet Customer's name and address
- Avnet Customer's part number
- Avnet Customer's purchase order number
- Quantity
- Date/lot code
- Statement of certification to the applicable manufacturer, military, government, and/or industry specification
- Signature of duly authorized Supplier personnel

Audits

Avnet requests a minimum of thirty (30) days' notice prior to performing an audit of our military warehouse facilities.

Product and Packing Material Compliance

Avnet is committed to protecting the natural environment in the communities where it does business.

Avnet will proactively promote the preservation and renewal of resources and will consistently practice socio-ecological responsibility in all of its corporate operations with a focus on continuous improvement in the interests of current and future generations.

Avnet's desire to identify lead-free / RoHS conforming components is in response to legislative mandates to ban lead from electronic products and to meet the growing needs of our valued Customers to supply environmentally friendly products. As a result, we have identified how we would like you to handle this and what kind of communication needs to occur.

Suppliers will:

- Notify Avnet, by part number and EU-RoHS Level.
- Notify Avnet, by part number, if EU-REACH SVHC contained
- Create two (2) unique part numbers if providing parts which are both non-lead-free and that meet the lead-free requirements.
- Provide Avnet with part number attribute data, including but not limited to HAZMAT content by percent.

AVNET'S LEAD-FREE/ROHS DISCLAIMER

"ANY CERTIFICATION, REPRESENTATION, WARRANTY OR DETERMINATION THAT PRODUCTS SOLD BY AVNET ARE IN COMPLIANCE WITH THE RoHS OR WEEE DIRECTIVES OF THE EUROPEAN UNION OR OTHER REGULATORY REQUIREMENTS MUST BE OBTAINED FROM THE MANUFACTURERS OF THOSE PRODUCTS. AVNET IS MAKING EFFORTS TO OBTAIN THAT INFORMATION FROM ITS SUPPLIERS BUT AVNET MAKES NO CERTIFICATION, REPRESENTATION OR WARRANTY THAT THE PRODUCTS SOLD BY AVNET ARE LEAD-FREE, "GREEN", OR OTHERWISE IN COMPLIANCE WITH THE RoHS, REACH OR WEEE DIRECTIVES OF THE EUROPEAN UNION OR OTHER REGULATORY REQUIREMENTS."

Please contact Avnet Quality Assurance, or Environmental department, with questions about the above RoHS and REACH compliance requirements.

Environmental requirements

Avnet Logistics initiative to identify RoHS and REACH compliant / conforming and Lead-Free components is in response to possible legislative mandates to ban lead from electronic products and to meet the growing needs of our valued Customers to supply environmentally friendly products.

As a result, Avnet Logistics has identified how its Suppliers should handle this transition and what kind of communication needs to occur when doing so.

- Suppliers are required to notify Avnet when product is changed to Lead Free/ RoHS conforming/ Green.
- Suppliers are recommended to change the Part Number when product is converted to Lead Free/ RoHS conforming/ Green
- Suppliers are to identify outer containers with a RoHS conformance / Lead Free Indicator (Symbol Ref. J-STD-609 or "Lead Free" / "RoHS conforming" verbiage, Intermediate containers will also be identified with a RoHS conformance / Lead Free Indicator (Symbol Ref. J-STD-609 or "Lead Free" / "RoHS conforming" verbiage or IAC 1066))
- Suppliers are required to provide Avnet with Part Number attribute data, including but not limited to HAZMAT and EU-REACHSVHC content by percent by weight (%).
- Suppliers are required to separate Lead Free / RoHS conforming product from leaded / non-RoHS conforming products

Appendix

Standard C of C Requirements

Supplier C of C's (Certificate of Conformance) will be legible and include the following information:

- Your name and address
- Avnet's name and address
- Avnet's part number
- Avnet's purchase order number
- Quantity
- Date/lot code
- Optional: Other important product specific data (MSL/PBT, luminosity, Serial No. etc.)
- Statement of certification to the applicable manufacturer, military, government, and/or industry specification
- Signature of duly authorized Supplier personnel

Label Requirements

Avnet Suppliers will develop shipping container labels similar to code 128, PDF 417 or ECC-200 bar code technology. All bar coded and human readable information must be on the outer container or packing slip. Dock-to-stock packages are not opened for inspection. Packing Slips must be attached to each order.

Each shipment and where applicable each smallest packing unit (MPQ) should be marked with barcode labels as specified in this Annex.

All data should be provided in human readable text and bar-coded (code type 39 or 128)

This Annex outlines labeling requirements for 1D bar-coded information and is required on all inbound products received by Avnet Logistic Service Centre locations.

The Annex contains detailed information that defines Avnet LSC (Logistics Service Centre) shipment and labeling requirements for:

- Order and Packing Slip content
- Shipping Method & Product Packaging definitions for:
 - Shipping carton labels
 - Intermediate packaging labels
 - Product packaging labels
 - RoHS Identification
 - REACH SVHC identification
- Human readable and bar coded data requirements
- Bar Code label and data content requirements for:
 - Consolidated shipments
 - Individual box shipments
 - Product packaging and bar code information

Avnet Logistics 1D Labeling Requirements for Inbound Products

The following criteria must be followed for all inbound orders to all Avnet LSC locations:

- Only one purchase order line item may be shipped per packing slip.
- Each line item must have its own packing slip.
- For each line item in a purchase order where multiple boxes of the same part number are shipped, the packing slip will be affixed to Box #1 of xx.
- All boxes in a single line item must be consolidated (grouped) together in the same external carton or on the same pallet.
- Only one lot code and/or date code will be shipped per packing slip.
- Country of Origin must be present and bar-coded on internal labeling, packing slip as well as on all product packaging.
- System generated RoHS or Pb-Free product status must be identified using JESD 97. All elements bar coded in Label 1 must be bar coded in code 39 or 128 and human readable. Code 128 is preferred.
- "RoHS Comp" or "RoHS Compliant" terminology is acceptable should it apply directly. Product that is RoHS compliant under exemption should be identified as "RoHS Comp. by Exemption" followed by number of exemption.
- "REACH SVHC contained" followed by name of contained SVHC in human readable format
- All Date format requirements, excluding Manufacturer Date Code will be defined by the regional Avnet LSC (YYYY-MM-DD or MM-DD-YYYY are preferred).

Shipping Label Requirements for Product Packaging

Product Packaging & Shipping Method Definitions:

External Packaging:

Outer shipping boxes used for carrier transporting of product from the supplier to Avnet. Multiple orders shipped to Avnet that are not normally consolidated in larger shipping containers.

Internal Packaging:

Packages usually inside the shipping box containing single or multi-box orders which are consolidated for shipping.

Individual Box Shipments:

These orders are separate line item orders shipped separately on the carrier and not consolidated. The packing slip must be affixed to each order or box #1 of multi-box orders. All multi-box orders must be placed together on a shipping pallet. Orders shipped in this manner are considered to be in external packaging and must be labeled per Label 1.




Consolidated Orders:

These orders are separate line item orders that are placed in a larger (external) container for shipping purposes. The larger external container must be labeled per Label 2.

When consolidating orders, packing slips must be affixed to each single internal box order or box # 1 on multiple box orders. Individual boxes packed in consolidated shipments should be labeled per Label 1. Label layout is flexible.

Product Packaging:

A single unit defined by the supplier that provides means of protection for transportation, storage and identification. Typical examples are: Single reels, rails, trays or bulk packaged components. This product should be labeled per Label 3. Tape & Reel product must be labeled on the reel and the individual reel box.

SUPPLIER NAME		AVNET LSC 60 SOUTH MCKEMY CHANDLER, AZ USA 85226	
(K) PURCHASE ORDER NUMBER		H0504309722	
			
(3S) PACKLIST NUMBER		OPJ002F	
			
(P) PART NUMBER		12345654321-1	
			
(1P) MANF. PART NUMBER		XLX25986-FPG144H	
			
(Q) QUANTITY		55000	
		(4L) C00 CN	
(1T) LOT NUMBER		123456254	
		(9D) D/C 0515	
			
MSL: XX		TEMP: 260C	
		REV: XXX	
SEAL DATE: YYYY-MM-DD			
RoHS Compliant			
BOX COUNT		PACKAGE WEIGHT	
17 OF 19		11.4 KG 25.0 LB	

Inbound Shipping Label Requirements for External Packaging

LABEL 1

- Human Readable & Bar Code 128 format is required for:
- (K) Purchase Order
- (3S) Pack List Number
- (P) Customer Part Number
- (1P) MFG Part Number
- (Q) Quantity (4L) Country of Origin
- (1T) Lot Code (where applicable)
- (9D) Date Code (YYWW)







Human readable information only:

- Ship From
- Ship to
- MSL
- Peak Body Temperature
- Rev. (Part Revision)
- Seal Date
- RoHS Status Level or Pb Free ID
- CE Mark (if applicable)
- REACH SVHC contained (if contained)
- Package Weight (LBS. & Metric Required)
- Box Count

Explanation: (Label 1)

- (K) Purchase Order: Avnet Purchase Order Number must be bar-coded as shown without spaces or hyphen.
- (3S) Packing List Number: Unique Identification number assigned by the supplier that allows traceability for receipt discrepancies related to purchase orders and inbound quality issues (3S, 4S, 11K are acceptable options).
- (1P) MFG. Part Number: Required and must be bar coded and match part number ordered exactly for scanning purposes if Avnet part number is not available.
- (Q) Quantity: All quantity labels must only reflect actual box quantity. Total line item/packing slip quantity can be noted on Label 1 but must be identified as Pack Slip Qty. Only!
- (4L) Country of Origin: 2 Character ISO format required. Reference document: ISO 3166
- (1T) Lot Code/Number: Only one lot code and date code per line item and part number.
- (9D) or (D) Date Code - YYWW Product creation date: Device manufacturing date required not product ship date. Supplier date codes not in the YYWW format must be converted and placed on the label in human readable and bar-coded form.
- MSL: Moisture Sensitive Level (according to JEDEC 033) where applicable.
- TEMP: Peak Body / reflow temperature.
- REV: Device Assembly revision or Grouping, where applicable.
- Seal Date: Moisture Barrier Bag Seal Date (YYYYMMDD or MMDDYYYY, region specific format defined locally).

Ship From Address	Ship To Address
BURLINGTON AIR EXP W/B#: 54520712	
(35) PKG. ID: 0033317+7388081	
	
MIXED	
LOAD	
(Q) QUANTITY:	122
	
(Z) OPTIONAL:	
DESC.: Z.5V BA SVEN EDR, VERT	
PACKAGE COUNT	PACKAGE WT.
1 OF 1	16.00 LBS 7.25 KGS
SIB: 0004269610 BX#:7388081	

SUPPLIER NAME		
(P)PART P/N: 12345654321 - 1		
		
(1P)MFR P/N:12345654321 - 1		
		
(Q)QTY: 5500	(4L)COO: CN	MPQ: XXX
		
(9D)D/C: 0515	(1T)LOT CODE: 1234567890	
		
MSL: XX	TEMP: XXXX	REV:XXX
Seal Date: YYYY - MM - DD		
RoHS Compliant		

SHIP FROM:	SHIP TO:
SUPPLIER NAME	AUNET INC.
60 S. MCKENY AVE.	SUPPLIER ADDRESS
CHANDLER, AZ 85226	
W/B: STD WAYBILL #	
	
(4S) PACKING LIST #: 123456789	
	
(K)PURCHASE ORDER:	H0503596548
	
(1P)P/N: 5962-8762501EA	
	
(Q)QUANTITY: 3000	
	
(9D) DATE CODE: YYMM	(1T) LOT CODE: XXXX
	
	
ROHS COMPLIANT	
CARTON COUNT:	SHIP DATE
1 OF 1	10/13/2011



SUPPLIER NAME		
(P)PART P/N: 12345654321 – 1 		
(1P)MFR P/N:12345654321 – 1 		
(Q)QTY: 5500 	(4L)COO: CN 	MPQ: XXX
(9D)D/C: 0515 	(1T)LOT CODE: 1234567890 	
MSL: XX	TEMP: XXXX	REV:XXX
Seal Date: YYYY – MM – DD		
RoHS Compliant		

LABEL 3

All product labels that affix directly to product packaging i.e. rail bags, dry pack packaging, reels and reel boxes etc. must have the following elements bar coded and in human readable form.

Human Readable & Bar Code 128 format is required for:

(P) Customer/Avnet Part Number
(1P) Supplier Part Number
(Q) Quantity (4L) Country of Origin
(9D) Date Code (YYWW)
(1T) Lot Code (where applicable)

Human readable information only:

Supplier name
MPQ
MSL – TEMP (peak body / reflow temperature) – Rev. (Part Revision)
Bag Seal Date
RoHS Level or Pb Free ID
CE Mark (if applicable)
REACH SVHC contained (if contained)

Explanation: (Label 3)

- (P); (1P): Customer/Avnet and Supplier Part Number are required. When Avnet p/n is not available, supplier p/n is required. The bar coded part number must match part number ordered by Avnet exactly.
- (Q) Quantity: Quantity in single bag or reel.
- MPQ: Minimum Package Quantity - Quantity of product in a single reel, tray or rail for each part number.
- (9D) or (D) Date Code: Format YYWW required.
- (1T) Lot Code: where applicable.
- (4L) COO: Country of Origin in ISO3166 two Character standard.
- MSL: Moisture-Sensitive Level when required
- TEMP: Peak Body or Solder Temperature
- REV: Device Assembly revision, Grouping or Stepping
- Seal Date:Moisture Barrier Bag seal date from the supplier.
- Format: MM/DD/YY or (ISO) YYYYMMDD (preferred). Regional Logistic Service Center to define date format required.
- RoHS or Lead Free IdentificationText or Symbol.
- Preferred Formats:
 - RoHS Comp, RoHS Compliant, RoHS Comp by Exemption followed by number of exemption, Pb Free.

Pb

- EU-RoHS compliant as of
- xxxx/xx/EC
- CE Mark if product is conforming to CE requirements. Format: (at least 5mm by 5mm)
- REACH SVHC(s) information: "REACH SVHC(s) contained: (listing of the SVHC(s) name)

Approved 2D Labels:

- The format for the 2D bar code includes requirements for 1D back up information in the event the 2D is damaged or not readable.
- The data structure used to create the 2D data string is based on the selected scanning hardware and current Avnet system guidelines.
- Different field separator characters and data identifiers are utilized for compatibility with the scanning hardware used by Avnet.
- PDF417 and Data Matrix ECC-200 are the accepted format options for 2D product labels.
- Data Matrix ECC-200 PDF417 Format

2D External Labeling Specifications

- K – Purchase Order Number – H050XXXXXX This specific, fixed format must be used without the addition of spaces or dashes. "H050" identifies the Avnet destination location. Avnet Purchase Order must be 11 digits with 4 for H050 and 7 digit P.O. numbers.
- 11K – Packing List # - Unique identification number assigned by the Supplier that allows traceability for receipt discrepancies related to purchase orders and in-bound quality issues. 3S, 4S, 11K are acceptable options.
- M – Manufacturer code 0 This 3 character code identifies each Supplier within Avnet systems and is created by Avnet and is available upon request.
- P – Part Number – Orderable part number that matches the packing list part number.
- Q – Quantity– This must be the packing slip quantity for the total line item. The linear (1D) quantity must only reflect the quantity in the individual boxes. Total order quantity must be referenced on the packing slip or delivery note.
- Important Note: Supplier must be able to add Date Code and Lot Code to the 2D bar code upon request.

Overview about Barcode / Human readable Features: Document Requirements

- FEATURE/ATTRIBUTE Labeling Intermediate & Unit Container Packing Slip
- Slip Bill To Address
- Country of Origin H H
- Date Code BH BH
- Established Reliability (E/R) identification – When applicable H
- RoHS Indicator – Symbol Ref. J-STD-609 or “Lead Free” / “RoHS conforming” verbiage H H
- REACH SVHC information H H
- CE Mark H
- Battery containment information H
- Lithium Battery H
- Moisture Sensitive Level – When applicable per J-STD-033 H H
- Package Count – e.g. 1 of 2, 2 of 2 H H
- Packing Slip Number BH BH
- Part Number BH BH BH
- Product Date Code – Packages with multiple date codes on one line item must identify each date code or list the oldest date code immediately followed by an “M” designating multiple date codes inside BH
- Product Lot Code – Military receipts BH BH BH
- Purchase Order Number BH BH
- Quantity BH BH BH
- Serial Number – When applicable BH BH
- Ship from Address H H
- Ship to Address H
- Waybill Number H
- Weight (followed by UoM (unit of measurement)) H H

Annex 2: Packing Requirements

Introduction

- The constant improvement of business processes is a significant strategy of Avnet. This includes not only our products but also logistic methods for the material flow, the packaging, the transport and the handling of the goods.
- The target of Avnet is to reduce material handling. To achieve this, all packaging and transport methods have to meet the established regulations.
- With this regulation, the suppliers will be informed about the packaging requirements of Avnet. The following regulations are necessary to ensure a rational and accurate material flow between the suppliers and Avnet Logistics.
- Avnet reserves the right to charge the costs of proceedings to the suppliers in case of divergence to these regulations, exception allowed in case of divergences due to a bilateral agreement.
- Delivery Dates
- The delivery dates are indicated on the purchase order and have to be taken into account. In case of non-compliance with these dates, the goods cannot be accepted on time because the necessary capacities cannot be supplied in the required extent.
- The possible consequences of this situation might be that the heavy goods vehicle could not be unloaded or only with delay.
- Please co-ordinate any divergences from that regulation with the affected business unit or contact the receiving logistics location directly.

Delivery Documents – General

- Only one purchase order will be shipped per container with one packing slip
- The delivery documents (delivery note, packing list, etc.) are to be attached to the goods on the outside of the box or pallet and should be in a protective envelope marked "Packing Slip"
- Before unloading the freight forwarder documents have to be handed over to the receiving operator in the goods receiving area
- For deliveries on pallet the freight forwarder document must state the total weight of the pallet and the number of boxes on the pallet
- In case of multiple pallet delivery for the same product each pallet should be marked with number of the pallet and total pallet delivery (e. g. Pallet 1 of n pallets)
- When multiple containers of the same P.O. are shipped, the packing slip should be attached on Box 1. Copies of the pack slip should be placed inside of each of the additional containers

Content

- The delivery documents have to contain the following information:
- Purchase Order number & Purchase Order line
- Article number
- Article description
- Avnet Article number
- Document number (delivery note number / order number)
- Quantities
- In addition, the delivery documents can contain internal supplier statements.

