

Avnet, Inc.

Global Supplier Quality Handbook



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1 Overview

This document serves as a guideline – and in some cases references our requirements – but does not supersede the Terms & Conditions (T&C's) of existing Supplier contracts. If the handbook and mutually agreed upon Supplier contract, conflict, the contract controls.

All products and brand names are trademarks or registered trademarks of their respective companies. All logos are the property of their respective owners.



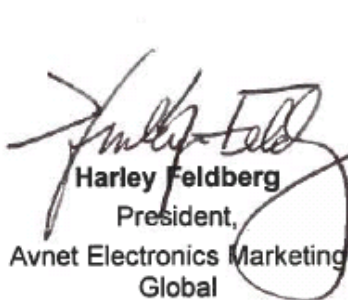
2 Letter of our Executives

The Avnet Supplier Quality Handbook is designed to acquaint potential and existing suppliers with our company, culture, and supply chain direction. The relationship between Avnet and our supply base is built on mutual trust, integrity, and a commitment to world-class performance.

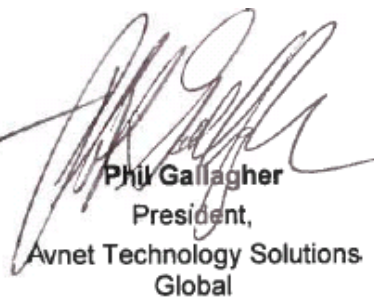
Avnet is one of the world's largest distributors of electronic parts, enterprise computing and storage products and embedded subsystems, providing a vital link in the technology supply chain.

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, computer system configuration and integration, and technical seminars - all in addition to its core distribution services.

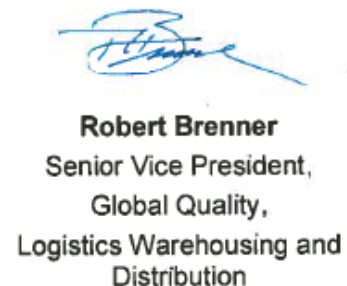
This document serves as a guideline and in some cases an Avnet requirement, but does not supersede the Terms & Conditions (T&Cs) of existing Supplier Contracts. In the event of a conflict between this handbook and a supplier contract, the contract prevails. Serving as a guideline any additional, specific 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.



Harley Feldberg
President,
Avnet Electronics Marketing
Global



Phil Gallagher
President,
Avnet Technology Solutions
Global



Robert Brenner
Senior Vice President,
Global Quality,
Logistics Warehousing and
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3 General

3.1 About Avnet – Core Values

Avnet, Inc. (NYSE: AVT) enables success from the center of the technology industry, providing cost-effective services and solutions vital to a broad base of more than 100,000 customers and over 450 suppliers. The company markets, distributes and adds value to a wide variety of electronic components, enterprise computer products and embedded subsystems. Through its premier market position, Avnet brings a breadth and depth of capabilities that help its trading partners accelerate growth and realize cost efficiencies.

Avnet is composed of two operating groups, a global logistics operation and a corporate services organization. Each group operates globally, with locations in the Americas, Europe, the Middle East and Africa (EMEA) and Asia. Avnet's Corporate Services Group provides back-office support.

- Avnet Electronics Marketing (EM) serves OEM and EMS Customers in 73 countries. Through focused business divisions, EM markets, distributes and adds value to the products of the world's leading electronic component manufacturers and provides supply-chain and design-chain services.
- As a global IT solutions distributor, Avnet Technology Solutions (TS) collaborates with its customers and suppliers to create and deliver effective solutions that address the business challenges of their end-user customers locally and around the world. TS serves customers in more than 70 countries.
- Avnet Logistics was launched as a separate business unit of Avnet Inc. in October 2004 to offer our partners in the technology industry a competitive advantage through specialized supply-chain solutions and operational excellence. Avnet Logistics has been created from more than 80 years of industry knowledge and experience that Avnet has gained as a leading distributor. Deliver cost-effective global fulfillment to your worldwide Customers with Avnet's global logistics, value-added services, fulfillment, warehousing and distribution, transportation management and supply-chain solutions.

1. Integrity: We demonstrate honesty, respect for others and trustworthiness in all we do. We demonstrate ethical behavior in all of our interactions with Customers, Suppliers and colleagues.

2. Customer Service: We continuously seek to improve each Customer's experience by listening and striving to exceed our commitments. To achieve premier Customer service we must also exceed our Customers' expectations, delight them, and be appreciative of their business and passionate about making them successful.

3. Accountability: We each take personal responsibility for our commitments, actions and results. We accept ownership, and accept the consequences, of our decisions.



4. Teamwork: We work together to accelerate Avnet's, our Customers' and Suppliers' success. We embrace cooperation, diversity of thought and culture, and we enable team mates by granting and respecting authority and providing resources and support

5. Innovation: We adapt to and create change in pursuit of Avnet's, our Customers' and Suppliers' success by engaging in entrepreneurial thinking, remaining open to new ideas, looking for ways to improve processes and seeking creative solutions for our Customers.

3.2 General Expectations – Avnet’s Customer Requirements

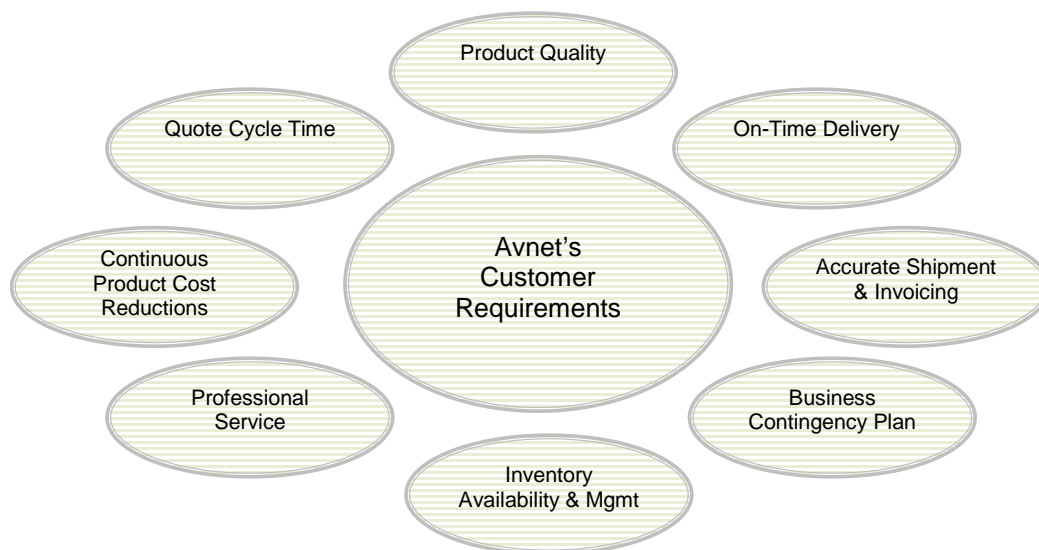
Avnet Customers, ranging from individuals to large multinational corporations, have chosen Avnet as a Supplier because of the value and quality of its people, the speed and flexibility of its service and the reliability of the products it supplies. This level of Customer commitment on Avnet’s behalf means that Avnet can only afford to work with those Suppliers that serve Avnet the way Avnet serves its Customers.

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.

Competitive pressure on Avnet’s Customers creates the necessity for Avnet’s performance to show continuous and measurable improvement in each of the Company’s key Customer requirements categories, including, but not limited to:



Product Quality:

Avnet’s Customers expect to be provided quality product...

- Perfect in form, fit and function
- Packaged to protect the part in environmentally safe materials
- Provided with full product warranty from the Supplier to the same standard as the Customer would receive if it had purchased the product directly from the Supplier.
- Any and all warranties can be passed through to Avnet’s Customer or end-user.

On Time Delivery:

Avnet and Avnet Customers expect 100% on-time deliveries.

Accurate Shipment/Invoicing:

Avnet counts on its Suppliers to provide the correct part information including complete and legible paperwork accompanying the product, including packing lists, certificates of compliance, certificates of origin (country of origin), and other items as required.

Inventory Availability

Avnet expects Suppliers to drive shorter and more accurate lead times.

Business Contingency plan:

Avnet expects Suppliers to maintain an effective business contingency/disaster recovery plan throughout the term of the relationship. Supplier shall 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.* Supplier shall submit a copy of the plan to Avnet upon request.

Professional Service:

Avnet expects Suppliers to:

- Provide accurate commitments for product availability, pricing and delivery
- Recommend alternative products/substitutions when necessary
- Provide first-call quotes and bookings, first-call resolution of inventory availability issues and first-call resolution of shipment errors (RMAs)
- Empowered, experienced account managers who can enable effective, focused communication.

Continuous Product Cost Reduction:

Avnet strives to build a partnership with our Suppliers and seek opportunities for mutually reducing total product and supply chain costs and ensure timely and competitive pricing.

3.3 Social Responsibility

Supplier assures that he will comply with international ethical standards.

Therefore the delivered goods must have been produced

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

Conflict Minerals

All products supplied to Avnet must comply with the essential requirements as of Dodd-Frank Act (US) Section 1502.

4 Expectations towards our Suppliers

Avnet considers quality to be the number one priority in all activities and strives to understand and focus its businesses to meet Customers' requirements and expectations. This idea of quality includes product shipment, providing services that always meet or exceed our Customers' quality standards and resolving problems in a timely, professional manner.

Supplier Organization

Supplier will maintain a dedicated organization consisting of both senior management and support personnel and provide Avnet with an organizational chart including key contacts and area of responsibility/functions. The Supplier Account Manager will ensure Avnet's Commodity Sourcing Manager is included in appropriate business interfaces between Supplier and Avnet for all commercial term requirements.

4.1 Materials Management

4.1.1 General

Allocation Policy

Supplier will maintain and publish a formal allocation policy that clearly outlines its process for dealing with periods of allocation and method for determining allocation of product.

Field Sales Organization

Supplier will maintain an adequate field sales force (direct and/or representative) that will be responsive to Customer requirements and trained and compensated in a way that will not discourage sales through distribution.

Requests for Quotation

Supplier will meet the following performance standards for quotation (price and delivery) inquiries for standard products:

- Lead-time request – first contact
- Meet comp – first contact
- Major meet comp – 48 business hours or less
- Customer contracts (annual agreements) – seven business days

When applicable, Avnet will ask Supplier to partner in the following capacities:

Marketing

Suppliers may be asked to participate in our marketing process including the determination of the target market and key messages. This includes supporting the internal and external tactics of the campaign with appropriate collateral, content and funding as required. Additional support of the marketing efforts may include actively promoting the activities to its field and corporate networks to ensure alignment and buy-in to our mutual efforts.

Literature

Avnet may ask Supplier to provide literature and published sales tools, hardcopy and electronically if available, such as catalogs, cross references, and technical bulletins, at no cost to Avnet.

Training

Suppliers may be asked to assist in the development of field-training programs tailored for distribution (video training, product manager seminars, internet seminars and training manuals) at no cost to the distribution channel. Avnet will make our video conferencing capability available to Supplier to maximize training opportunities.

Technical Assistance

Supplier will provide Avnet technical assistance upon request. Supplier will make available applications and engineering personnel to help develop marketing strategies, and provide solutions-oriented assistance to our Customers.

4.1.2 Order Management

General

Our Materials Management organization is responsible for

- Materials procurement
- Price protections
- Reschedules/cancellations
- Stock rotations
- Process automation
- Scrap programs
- Ship & debits, product mix
- Expedites
- Cost negotiations
- Process automation

The requirements defined herein shall apply to all products and services which are delivered by the Supplier on the basis of the orders he receives and accepts from the Purchaser during the term of this Agreement.

The products shall be in compliance with the

- Description (e.g. specifications, data sheets, drawings) and/or with
- The product samples agreed upon.

All orders are exclusively agreed based upon the related manufacturers' technical product information.

Suppliers will receive all new purchase orders and purchase order change notices via:

- B2B transaction (see Annex 3),
- Supplier website,
- Manual P.O. entry (e-mail) or
- Fax

These should be entered in Suppliers order entry system within one (1) business day of receipt.

The Supplier shall check without undue delay whether a purchase order or product description provided by the Purchaser is in any way

- Obviously incorrect
- Unclear
- Incomplete
- Not in compliance with the product sample

Supplier shall immediately give written notice, to the Purchaser, should any of the above be discovered.

Avnet requires Suppliers to monitor open purchase line items on a continuous basis to ensure delivery to the original acknowledged (or most recent) delivery dock date or ship date.

- Changes in delivery dock date or ship date will be provided daily via the B2B transaction (see *Annex 3*)
- Supplier will also provide daily, weekly or monthly backlog status, with the most current delivery dock dates, via B2B or manual delivery

If B2B transaction is not available, Supplier will provide weekly backlog status with changes in delivery date since the last status report. This data will be provided in Excel or a text file via e-mail.

Within 72 hours of receipt of purchase Suppliers will provide purchase order acknowledgments via

- B2B transaction (P.O. acknowledgment)
- OR-
- Excel or text file format (via e-mail) acknowledgment (if B2B transaction is not available)

The order acknowledgment will include the following:

- | | |
|----------------------------------------------------|---------------------------------------------------------------|
| <input type="checkbox"/> Avnet PO Number | <input type="checkbox"/> Unit cost |
| <input type="checkbox"/> Avnet PO Line Item Number | <input type="checkbox"/> Avnet required date |
| <input type="checkbox"/> Order date | <input type="checkbox"/> Acknowledged Supplier dock/ship date |
| <input type="checkbox"/> Supplier order number | <input type="checkbox"/> Routing instructions/carrier |
| <input type="checkbox"/> Part number | <input type="checkbox"/> Special instructions |
| <input type="checkbox"/> Quantity | <input type="checkbox"/> Authorization numbers as required |

Supplier will inform our Materials Management organization of any P.O. change issues before processing the order and will provide daily following information via B2B transaction, fax or e-mail:

- dock date changes for any date that is changed from Suppliers original acknowledged dock date
- ship notice for product in transit with associated shipping information (i.e. invoice number, date shipped, quantity shipped, carrier tracking information, weight, and waybill)

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.

Expedites

Supplier will respond within eight (8) business hours from the receipt of an expedite request with the most current delivery promise date. If the new ship date exceeds the original acknowledged date or latest promise date, Supplier will provide the following information:

- Explanation for the delay
- Suggestions for alternative product or upgrade with the best available delivery as a replacement solution

Freight Authorizations

If Avnet requests to upgrade the freight method against a factory purchase order the Supplier will charge the shipping costs to the appropriate Avnet account number(s). Please contact the Materials person placing the PO should you need these account numbers or refer to Transportation/Freight Considerations, for additional freight details and requirements.

Lead Times and Inventory Availability

Supplier will provide current and accurate lead-time and inventory availability information by part number

- Daily via the B2B Inventory Inquiry/Advice (see Annex 3).
- If lead-time information is not provided via B2B, Supplier will communicate lead-time for all products on a regularly base and any commodity suffering lead-time fluctuations in excess of plus or minus two (2) weeks in writing to Avnet Materials Management and appropriate management teams.

For ease of identification Supplier will include:

- series prefixes
- family code
- package types
- specific part numbers

Product Re-Directs (North America)

In cases where a product re-direct affects Avnet's FIFO (first in, first out) with the Supplier, Avnet requires that Suppliers reference the NEW P.O. number in the "reference comment" field or second Customer P.O. field. It is imperative that BOTH purchase order numbers be visible on the packing slip and Supplier invoice, as a cross-reference, in an effort to facilitate timely and easy bill payment.

Please contact your Materials representative for questions related to the Europe/Middle East/Asia (EMEA) process.

Our Internal Re-Direct Process

When changing the shipping location (re-directing product) Avnet is required to:

- Cancel the re-directed part number from the original purchase order placed with the Supplier
- Issue a new P.O. to the Supplier
- Include a reference comment to the new P.O. within the original P.O.
- Include a reference comment to the original P.O. within the new P.O.

At no time will Avnet allow factory "will calls" without executive level authorization.

4.1.3 Price Files

In an effort to provide “best-in-class” Customer service, it is imperative for you to provide us with only the most timely and accurate product and pricing data. As a result, we have developed price file data requirements that are outlined below:

- | | |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|
| <input type="checkbox"/> Supplier part number (Ordering part number) | <input type="checkbox"/> UPMQ – Unit Package Minimum Quantity (pack count per tray, tube, etc.) |
| <input type="checkbox"/> Class Code | <input type="checkbox"/> Design win – (Y/N) |
| <input type="checkbox"/> Standard | <input type="checkbox"/> Avnet (‘Disti’) cost |
| <input type="checkbox"/> Returnable | <input type="checkbox"/> Special cost (AMR/VPA) |
| <input type="checkbox"/> Non-Returnable (Effective date) | <input type="checkbox"/> Suggested resale pricing |
| <input type="checkbox"/> Special | <input type="checkbox"/> Inspection method |
| <input type="checkbox"/> End-of-life (Effective date) | <input type="checkbox"/> Sole Source (Y/N) |
| <input type="checkbox"/> Obsolete | <input type="checkbox"/> ECCN: Export Control Classification Number and/or ITAR |
| <input type="checkbox"/> Prototype / Engineering sample | <input type="checkbox"/> Our Schedule B: harmonized tariff schedule |
| <input type="checkbox"/> Family part number – Supplier core/base part number | <input type="checkbox"/> EU- RoHS Level |
| <input type="checkbox"/> Description | <input type="checkbox"/> EU-REACH SVHC contained |
| <input type="checkbox"/> MOQ – Minimum Order Quantity | <input type="checkbox"/> Net weight single unit (grams) |
| <input type="checkbox"/> MPQ – Minimum Package Quantity (may be a multiple of UPMQ) | <input type="checkbox"/> Battery contained / incorporated |
| <input type="checkbox"/> Book cost | <input type="checkbox"/> Device Package type |
| <input type="checkbox"/> HighREL / MIL | <input type="checkbox"/> Packaging (reel, tube, tray) |
| | <input type="checkbox"/> HTS |

Optional Price File Fields:

- | | |
|-----------------------------------------------------------------------------------------------------|--------------------------------------------|
| <input type="checkbox"/> MO\$ - Minimum Order Value (provided only if MOQ and MPQ is not available) | <input type="checkbox"/> Your lead time |
| <input type="checkbox"/> Your ABC | <input type="checkbox"/> Country of origin |

- Supplier will provide notification of changes, in writing, to our Materials Operations team.
- Both parties will exchange contacts and instructions during the on-boarding process.
- Supplier will provide at least thirty (30) days advance notice of any change to the price file fields. Notification will include the entire aforementioned price file data fields supplied in either an Excel file e-mail attachment or B2B transaction.

Avnet will be allowed at least sixty (60) days from the effective date of the cost decrease, or Supplier notification date, whichever is later, to process, and file the automated price protection claim/debit. Price increases will not affect open purchases per the agreement between the parties and open quotes will not be affected for at least thirty (30) days after Avnet receives notification.

Ship from Stock & Debit (SSD)

Basic Standards:

Supplier will respond with a valid authorization number to Avnet within eight (8) business hours of the request. For a “hot” shipment, Supplier should respond within two (2) business hours.

- The Supplier will offer blanket SSD authorization valid for a period of time to be determined by both the Supplier and Avnet.

The Supplier will generate and send a hard copy of open SSD’s authorization report to Avnet on a monthly basis.

4.1.4 Returns / Warranty

Factory Returns/Stock Rotations/Scrap Allowances

Avnet requires Suppliers to provide a statement of

- Allowable stock rotation and/or scrap authorization values
- At least thirty (30) days prior to the effective date of the return
-

The statement will include

- Packaging requirements and
- Any provisions that would render the product non-returnable.

Upon receiving a rotation request, Supplier will advise Avnet of a return material authorization (RMA) number within ten (10) days.

Once Avnet has received the RMA number or scrap authorization Avnet will prepare product for shipment or scrap disposition within thirty (30) days and by no later than Supplier RMA expiration date.

Avnet recognizes that some Suppliers offer scrap allowances in lieu of or in addition to stock rotation allowances. Should a scrap allowance be applicable, you will provide us a statement of scrap allowance at least thirty (30) days prior to the effective date of the scrap.

Warranty Repairs

Supplier will

- Provide an RMA number for warranty repairs within three (3) business days of receipt of request.
- Complete warranty repairs within thirty (30) business days of receipt of product.
- Bear the responsibility for freight (2nd day air) both to and from the designated repair facility.
- Return repaired product in new packaging upon Avnet request.

Avnet will debit Supplier for the full value of any product shipped back to you for warranty repairs.

Non-Standard, Non-Cancelable Non-Returnable (NCNR) Product

Avnet relies on the Supplier's written definition of non-standard product by product types or specific part numbers.

Suppliers will make

- An advance notice, to Avnet,
- Of at least ninety (90) days with
- Any proposed changes in product classification (end of life, obsolescence, export control classification/ITAR products, drop ship only, factory specials, NCNR, standard package, MPQ) that would render product series or specific part numbers non-standard.

If the product is reclassified from standard to non-standard, Avnet is permitted to

- Prepare a list for return of reclassified line items in inventory
- For credit at the net price paid.

Suppliers will

- Review the return request and
- Advise an RMA number within ten (10) days of receipt.

Avnet will be permitted sixty (60) days from receipt of the RMA to prepare product for shipment.

Reclassified product will not be subject to package minimums, including freight or multiples. In addition, Avnet will not have a penalty for return of reclassified product and Suppliers will not charge us for return of reclassified product against allowable stock rotation dollars.

Due to the very nature of non-standard product, Avnet considers the Suppliers acknowledged delivery promise date as critical. Supplier will communicate any anticipated deviation from that date to Avnet Material Management. Dependent upon our Customer requirements, Avnet may elect to cancel the subject line item at no penalty, even on one (1) hours notice if the Customer cancels due to the Suppliers' late delivery or extended delivery.

4.2 Accounts Payable

The Avnet Accounts Payable department is responsible for processing all Supplier invoices and payments, all Supplier bill-backs and all other debits and/or credits. Avnet prefers to receive invoices via B2B (see. Annex 3).

Invoices

Avnet defines accurate shipments and invoicing as:

- Correct part information including complete and legible paperwork accompanying the product, including packing lists, certificates of compliance, certificates of origin (country of origin), and other items as required.
- Correct, legible and timely invoicing including quantity, price, ship to and bill to address, P.O. number, special instructions, carrier and freight information, payment terms and other information as required.

The following information must be included on all invoices:

- | | |
|---------------------------------------------------------------------------------------------------------------|----------------------------------------------|
| <input type="checkbox"/> Bill address – must include Avnet vendor number (contact Avnet for this information) | <input type="checkbox"/> Waybill number |
| <input type="checkbox"/> Date of Shipment | <input type="checkbox"/> Part number |
| <input type="checkbox"/> Date of invoice | <input type="checkbox"/> Part description |
| <input type="checkbox"/> Payment terms | <input type="checkbox"/> Quantity ordered |
| <input type="checkbox"/> Unique invoice number not to be recycled for two years | <input type="checkbox"/> Quantity shipped |
| <input type="checkbox"/> Avnet purchase order number | <input type="checkbox"/> Unit cost |
| <input type="checkbox"/> Weight of shipment | <input type="checkbox"/> Line item |
| <input type="checkbox"/> Method of shipment | <input type="checkbox"/> Extended cost |
| | <input type="checkbox"/> Grand total |
| | <input type="checkbox"/> Packing slip number |

In addition to the above information, for properly authorized product drop-shipped directly to our Customer, the Customer's correct name and address must also be included.

The following invoice guidelines also apply to all Supplier shipments:

- Only one purchase order may be billed per invoice
- Shipments and invoice line items must coincide on a one-for-one basis – no summary billing
- The extended cost for each invoice line item must include all applicable discounts, except prompt payment discounts
- Part numbers on invoices must correspond with part numbers on the purchase orders unless a substitute part was shipped
- All invoices must be free of sales tax
- All items must be shipped "freight collect." Freight, shipping & handling or other delivery charges will not be paid. Avnet will pay invoiced freight only on properly authorized factory drop ships. See Incoterms 2010 and/or DDP regulations.

Supplier will invoice Avnet no earlier than the date of shipment. Prompt payment discounts will be considered earned on all invoices which are not received by Avnet on a timely basis as a result of mail delay, EDI problems or where the payable position falls into a debit balance.

Bill-backs (Chargeback Invoices)

A bill-back is defined as the Supplier's dispute of a debit, or deduction taken by Avnet. Each bill-back needs to meet the following criteria:

- One debit per bill-back. Avnet will reject spreadsheets listing multiple disputes since each dispute must be recorded in Avnet's system individually and associated with the original debit or deduction.
- Bill-back will be provided to Avnet in writing in the form of an invoice or online
- Bill-back will include the appropriate backup documentation consisting of a copy of the original debit memo or a copy of the detailed ship-from-stock and debit report
- Bill-back will be received no later than six (6) months after the date of the transaction. Avnet will not honor a bill-back referencing a transaction older than six months.
- Supplier and Avnet will agree to a minimum bill-back amount, per line item

Proof of Shipment

Supplier may request proof of shipment within six (6) months of the date that product left Avnet's dock. Avnet will not honor requests made after that time.

Short Shipments

If the value of the product deemed by Avnet or the Supplier to be short shipped is less than \$500, the shipping entity will bear the loss. If a short shipment is claimed by Avnet, Avnet will automatically deduct the amount. If the Supplier claims short shipment, the Supplier will notify Avnet via bill-back.

Ship from Stock & Debit (SSD)

EDI Standards:

Avnet prefers to process all Ship from Stock & Debit transactions via EDI. In addition to the basic standards:

- Avnet will transmit to the Supplier on a weekly basis via the EDI Product Transfer Account Adjustment 844 transaction set (Send). The Supplier should maintain a flexible window for acceptance of data
- The Supplier will return notification to Avnet, within 24 hours from the time of receipt, via the EDI Response to Product Transfer Account Adjustment; 849 transaction set (Accept/Reject)
- The Supplier will send all error codes which apply to each rejected transaction to Avnet. In an effort to minimize the number of ship & debit rejections, Avnet expects the Supplier to engage in the EDI pre-approval 845 (Price Authorization Acknowledgment/Status) transaction
- Avnet will be allowed to resubmit rejected transactions up to a period of 180 days from the original transaction date.
- The Supplier will provide open Ship from Stock & Debit Authorization reports, weekly at a minimum but preferable bi-weekly, via the EDI Price Authorization Acknowledgment/Status 845 transactions set, in lieu of a hard copy monthly report.

Accounts Payable Customer Service

Contact Avnet should you need assistance that cannot be resolved and submit payments to the Accounts Payable Mailing Addresses provided by Avnet.

Supplier Statement Reconciliation

The Avnet AP department will periodically request copies of Supplier Accounts Receivable statements so that records can be compared and issues resolved on a timely basis. This is important to both Avnet and the Supplier so that exposure to unresolved items is resolved in a timely manner. No aged items should exist over 90 days old.



Requests for Information

Please respond with details of any open credits, unapplied cash so that Avnet AP can take debits as appropriate for these items. Any open invoices will be reviewed and processed if there is no record on Avnet's books of these transactions. Any partial debits (or disputes) should follow the bill-back process and individual bill-backs/charge-backs should be submitted with supporting documentation to Avnet AP.

Aged Items

If items are not cleared off Supplier Open AR after repeated requests, Avnet will reject any bill-backs for items over 6 months.

AP Audit

From time to time, Avnet will audit its Accounts Payable records for erroneous payments and potential duplicates. Avnet or its retained third party audit firm will contact the Supplier and provide evidence of the error so the correcting transactions can be processed.

4.3 Product and Packing Material Compliance

Environmental Requirements

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-REACH SVHC content by percent by weight (%).
- Suppliers are required to separate Lead Free / RoHS conforming product from leaded / non-RoHS conforming product.
- Material Declaration Sheets should be posted on Supplier's Website for access by Customers.

- Supplier may be required to complete an IPC 1752 class 5 or 6 form or a similar form providing material content.

With respect to the products ordered under this Agreement, Supplier warrants and agrees that it has complied with:

- All applicable national, federal, state and local laws, codes and requirements as well as with
- All applicable national environmental laws and regulations like the restriction of the use of certain hazardous substances, technical and safety and waste disposal of electric and electronic equipment (WEEE) in their current latest revisions.
 - EU-RoHS / EU-REACH SVHC / WEEE / Battery /Phytosanitary measures (substance regulations)
 - CE (European technical and safety conformity)
 - Export Control
 - Material data entries into IMDS (International Material Data System) on customer request
 - Material data entries into BOMCheck (Bill-of-Material Data System) on customer request

4.4 Subcontractors

Avnet sub-contractors are expected to adhere to all sections of this Handbook.

Receiving

Subcontractor

- Is required to receive our supplied product within twenty-four (24) hours of product arriving on their Dock. Proof of receipt will be determined by Avnet monitoring the tracking number of the shipment.
- Will notify Avnet within forty-eight (48) hours of any discrepancy which will include incorrect part number, quantity error or material damage.

Production Scheduling

Subcontractor will notify Avnet bi-weekly, via Excel spreadsheet, on the status of all production schedules.

In-Process Failures

Subcontractor will 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 shall include the following information as a minimum:

- | | |
|---------------------------------------|----------------------------------------------------------|
| <input type="checkbox"/> Manufacturer | <input type="checkbox"/> Purchase Order received against |
| <input type="checkbox"/> Part number | <input type="checkbox"/> Serial number (if applicable) |
| <input type="checkbox"/> Quantity | <input type="checkbox"/> 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 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.

Finished Product Shipments

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

Subcontractor will provide information via fax, or email, the same day that shipment was made in order for us to complete our invoicing to their Customer.

You will provide shipment information as specified below as a minimum:

- | | |
|------------------------------------------------|----------------------------------------------------------|
| <input type="checkbox"/> Copy of invoice | <input type="checkbox"/> Tracking or waybill number |
| <input type="checkbox"/> Purchase order number | <input type="checkbox"/> Number of pallets or containers |
| <input type="checkbox"/> Carrier | <input type="checkbox"/> Copy of CofC if one is required |

In the case of partial shipments, the Subcontractor will notify the applicable material representative. You will not make any partial shipments without our authorization.

Consignment Requirements

Appropriate agreement must be in place.

Request for Quotation

Subcontractor will respond to Contractor's RFQ within ten (10) business days of receipt thereof, with a written quotation, or within three (3) business days of receipt with a written request for further information if necessary, or a No-Bid written response.

4.5 Quality Management Requirements

Policies and Procedures

Supplier will:

- Maintain clearly defined policies and procedures and make them available upon request
- Notify our Materials Management of any significant changes to these policies and procedures
 - o In writing
 - o At least ninety (90) days in advance of the effective date of the change and
 - o According to the notice requirements contained in the Supplier-Avnet Agreement

The Supplier shall give the Purchaser notice in writing within a reasonable time in advance of any changes to the:

- Manufacturing processes
- Materials or parts incorporated in the products
- Relocation of production plants
- Modifications made to the methods or facilities for the testing of the products
- Other quality assurance measures

This shall not apply if the Supplier may exclude any effects on the product. The Supplier shall use its best efforts to give such notifications twelve months prior to their implementation.

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.

Quality Assurance Representative

Upon request each party shall notify the other about the person in charge of quality assurance who shall represent him for the performance and execution of this Agreement and take any coherent decisions. Should any Party change its quality assurance representative, it shall immediately notify the other party of such a change.

Supplier's Obligation to Provide Proof and Information to the Purchaser

The Supplier shall, within reasonable intervals, allow the Purchaser to check the compliance with the quality assurance measures mentioned in Section 4.4 and 4.5. The Supplier shall therefore, after prior agreement of the Parties on the date of such an inspection, grant the Purchaser reasonable access to his business premises and shall make available a duly qualified member of his staff for the duration of the inspection visit. Access and inspection of classified processing methods and other company specific secrets may be denied to the Purchaser.

4.5.1 QM System requirements

At minimum the Supplier shall maintain a certified quality management system which complies with the requirements of ISO 9001 in its latest revision.

Production processes shall comply with TS16949 or equivalent quality management standards and shall manufacture and test the products in accordance with the stipulations of such quality management systems.

The Supplier shall make sure without delay that these requirements are in conformity with their quality management system. Wherever applicable, and possible, for the products the electronics industry specific standards shall be applied by the Supplier in their latest revision.

- JEDEC 625 (ESD)
- IEC 61340-5-1&2 (ESD)
- JEDEC 020 (Moisture/Reflow Sensitivity Classification for Nonhermetic Solid State Surface Mount Devices)
- JEDEC 033 (Standard for Handling, Packing, Shipping and Use of Moisture/Reflow Sensitive Surface Mount Devices)
- JEDEC 31 (General Requirements for Distributors of Commercial and Military Semiconductor Devices)
- JEDEC 130A (Guidelines for Packing and Labeling of Integrated Circuits in Unit Container Packing (Tubes, Trays, and Tape and Reel))
- JEITA 4701/300 (Environmental and endurance test methods for semiconductor devices)
- JEP 146 (Supplier evaluation)
- JESD 671 (Quality Problem Analysis and Corrective Action Requirements)

The Supplier quality management systems shall target to achieve:

- Zero errors in order fulfillment
- 100% on-time delivery to confirmed delivery dates
- 100% product quality in line with the manufacturer's product related technical product specifications

4.5.2 Incoming Inspection at the Purchaser

Upon delivery of the products, the Purchaser shall check without delay whether they:

- Correspond with the ordered quantity and type
- Display apparent damage resulting from their transport or any other visible defect
- Need to issue a Supplier Corrective Action Request (SCAR)

The SCAR will state the nature of the non-conformance. Supplier will be responsible for:

- Root cause analysis
- Reasonable actions to prevent recurrence
- Submitting a written response within ten (10) business days from the receipt of the SCAR.

Sealed minimum package or order quantities (MPQ, MOQ) will not be opened for further inspection. If the Parties consider that at the time of delivery further tests or extended inspections by the Purchaser are advisable, these shall be specified before Supplier confirms a purchase order.

If the Purchaser notes any apparent damage or defect during such receiving inspection, he shall refuse acceptance of shipment or notify the Supplier of such damages without delay. If the Purchaser notes some damage, defect or product nonconformity at a later date, he shall also report this without delay. Regardless, he shall provide the Supplier a copy of the delivery note and sufficient samples or other pertinent proof (e. g. pictures) upon request.

The Purchaser shall have no further obligations towards the Supplier concerning inspection of the products at delivery and any notification resulting from there. Regardless of that, the Supplier does not renounce his right to raise an objection to purchasers delayed complaint or notice of defects.

4.5.3 Product Quality – Corrective Actions

Standard product delivered should not exceed a production date code limit of 24 calendar months.

In the case of reported product quality issues Supplier and Purchaser will closely co-operate in order to limit the extent of possible damages in the fastest way possible. Upon receipt of affected samples the Supplier is supposed to:

- Agree to a corrective action request (CAR)
- Analyze the affected samples,
- Produce a detailed failure analysis result (FAR) and where indicated
- Propose permanent corrective actions within 10 working days utilizing 8D-Methodology

Corrective actions shall cover the product quality itself as well as further containment actions towards Purchaser and end customers that have received or processed affected products (e. g. product alert, product callback, PCN, stock returns etc.).

If relevant the supplier agrees to directly co-operate with the Purchasers end customer to contain damages resulting from product quality issues as well as to make permanent corrective actions in the fastest and most efficient way possible.

Supplier shall do its best to prevent disruptions in the Purchasers supply chain by rework or the supply of error free replacement product.

4.5.4 Non-Conforming Product

Suppliers will notify our Quality Management, Material Management and appropriate division management organizations in writing of any quality or reliability problems discovered, as well as regarding any product Supplier has shipped to Avnet, or on Avnet's behalf as a drop ship.

Avnet will:

- Follow the Supplier provided policy relating to non-conforming product policy for returning non-conforming (defective, DOA) product.
- Debit Supplier for the full value of any non-conforming product shipped back.

Replacement of non-conforming product, if required, will be regarded as a priority order and shipped within one (1) business day of receipt of order (subject to availability of inventory). Avnet may require on-site Supplier support to resolve non-conforming product issues. In that case, the Supplier will send a representative(s) to the Avnet location.

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

Providing our selling organization with critical component changes that may affect 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) have to be sent to the email addresses provided by Avnet.

The exclusive basis for Purchaser orders is the original manufacturers' technical product information. Any changes to products (e.g. Product Change Notification (PCN), Product Alerts, Product recalls) ordered within the past 24 months will be forwarded in a reasonable time frame to the Purchaser. This applies for product discontinuance notes (PDN) and products becoming obsolete as well.

Ideally the Supplier adheres to all requirements of JEDEC standards in their latest revision.

- JESD46 (Customer Notification of Product/Process Changes Semiconductor Suppliers) and
- JESD48 (Product Discontinuance)

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

- Avnet complete part number and/or Supplier part number (if different)
- Last time buy date
- Last time return date
- Last time 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
- Complete new P/N
- 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 cannot guarantee timely action.

4.5.6 Additional Consideration for High Reliability / Military (HighREL / MIL) 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 Conformance's will take 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. Documentation is an integral and necessary element of the shipment. 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) 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

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

4.5.7 Traceability

The Supplier shall ensure, whether by identification of the products, or, if such is impossible or impractical, by other suitable means that, in case of defects appearing in a product, he can immediately establish which other products might be affected. All products are marked separately. For traceability purposes multiple package quantities (MPQ) shall contain:

- One production date code
- One production batch/lot only

Identification and full traceability can only be assured based upon clearly recorded product date codes and and/or batches/lot/mask numbers. In cases where several production date codes are part of a single MPQ, exact quantities per product date code shall be indicated on the packaging and shipping papers. A MPQ split must not result in losing product traceability.

The Supplier shall provide clear description of how to identify production information:

- Production date code
- Production lot
- Production site
- Country of origin
- Optional: unique trace code, serial number etc.

It is desired to have a production date code indicating the year and the calendar week of production (YYWW format – two digits of the production year [YY], two digits for the calendar week [WW]).

4.5.8 Supplier Evaluation & Scorecard

Avnet is constantly evaluating our internal processes and tools to determine where Customer Service improvements can be made and have the same expectations of our Suppliers.

Avnet uses the Supplier Quality Scorecard as part of our continued commitment to quality, service and changing Customer needs. The goal of the program is to provide better Customer service by eliminating the gap between our Customers' expectations and our combined efforts to meet them. The scorecard allows Suppliers to gauge their ability to service our mutual end-Customers increasing both parties' awareness of breakdowns in communications and processes allowing both of us to address issues before they negatively affect Customer service.

4.6 Logistics Requirements

The Avnet Logistics organization is responsible for receiving and inventorying all products, maintaining all required documentation, packaging and shipping all products to our Customers. The objective of this section is to provide you with our packaging and shipping requirements to meet our delivery and service commitments.

General Requirements

Where applicable, Avnet will work with Suppliers to continuously improve service levels and ultimately qualify Suppliers for Avnet's dock-to-stock program which promotes lowering cycle times and total cost of ownership.

Suppliers' adherence to our Supplier Quality Handbook is the key to making this program successful. Specifications of our dock-to-stock program are tailored to the requirements of the specific commodity type and our receiving location.

Business Documents

At minimum all business documents related to orders and deliveries shall contain the:

- Purchase order number
- Order position number
- Manufacturer part number
- Customer (Avnet's) part number
- Country of origin
- EU-RoHS conformance Level
- EU-REACH SVHC information
- Battery information
- Customs tariff number
- Export control classification number (ECCN)

Transportation/Freight Considerations

Avnet's Transportation department has positioned itself with the best carriers to handle inbound product.

- Supplier should have a completed "routing guide" on file
- Any freight charges incurred as a result of shipments tendered contrary to our instructions will be debited back
- Shipments need to be sent freight collect, bill recipient, or third party bill (specific instructions will be outlined on our P.O.)
- Shipping carton and pallet count must be noted on the carrier waybill, when applicable
- Supplier should consolidate shipments made on the same day on a single bill of lading or waybill
- Supplier should not insure multiple shipments or declare their value unless specifically instructed to do so

Please contact the Avnet Transportation department with any questions.

5 Supplements/Annexes

The matrix below provides guidance on which of the following Annexes may be relevant to Annexes applicable to

	Avnet EM		Avnet TS
	Semiconductor IP/E & Military	Avnet Embedded	
Annex I	x	x	x
Annex I.I	x		
Annex II	x	x	x
Annex III	x	x	x

Annex 1: 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) shall be marked with barcode labels as specified in this Annex.

All data shall 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).

Inbound 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 shall 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 shall be labeled per *Label 3*. Tape & Reel product must be labeled on the reel and the individual reel box.



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) Manf. Part Number
- (Q) Quantity (4L) Country of Origin
- (1T) Lot Code (where applicable)
- (9D) Date Code (YYWW)

SUPPLIER NAME		AVNET LSC 60 SOUTH MCKEMY CHANDLER, AZ USA 85226	
(K) PURCHASE ORDER NUMBER H0504309722			
(3S) PACKLIST NUMBER		0PJ002F	
(P) PART NUMBER		12345654321-1	
(1P) MANF. PART NUMBER XLX25986-FPG144H			
(Q) QUANTITY 55000		(4L) COO 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	

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) Manf. 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).

LABEL 2

- For consolidated shipments, outer container labels shall be identified per this example or equivalent.
- Orders shipped in this type of external packaging must be segregated with the packing slip affixed to box #1 and all multi-box orders must be located together.
- MIXED LOAD – Identifies product inside as consolidated orders of multiple lines and Purchase Orders.
- Package Weight requirements are defined by Regional Logistic Service Centre. (US=LBS, EU & Asia = KGs)

Ship From Address		Ship To Address	
BURLINGTON AIR EXP W/B#: 546333712 			
(3S) PKG. ID:		0033317+7388081	
			
MIXED			
LOAD			
(Q) QUANTITY:		122	
			
(Z) OPTIONAL:			
DESC.: 2.5V 9A 5VIN ISR, VERT			<small>REL-B</small>
PACKAGE COUNT	PACKAGE WT.	SWB: 0004269616	
1 OF 1	16.00 LBS 7.25 KGS	BX#:7388081	

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)

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		

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 Identification Text or Symbol.

Preferred Formats:

RoHS Comp, RoHS Compliant, RoHS Comp by Exemption followed by number of exemption, Pb Free.



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 – H050XXXXXXX 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.

SHIP FROM: SUPPLIER NAME 60 S. MCKENY AVE. CHANDLER, AZ 85226		SHIP TO: AVNET INC. SUPPLIER ADDRESS	
W/B: STD WAYBILL # [Barcode]			
(4S) PACKING LIST #: 123456789 [Barcode]			
(K) PURCHASE ORDER: H0503596548 [Barcode]			
(1P) P/N: 5962-8762501EA [Barcode]			
(Q) QUANTITY: 3000 [Barcode]			
(9D) DATE CODE: YYMM [Barcode]		(1T) LOT CODE: XXXX [Barcode]	
[Large 2D Barcode]			
ROHS COMPLIANT			
CARTON COUNT: 1 OF 1		SHIP DATE 10/13/2011	

Overview about Barcode / Human readable Features:

FEATURE/ATTRIBUTE	Document Requirements		
	Labeling	Intermediate & Unit Container	Packing Slip
Slip Bill To Address			
Country of Origin		H	H
Date Code		BH	BH
Established Reliability (E/R) identification – <i>When applicable</i>	H		
RoHS Indicator – <i>Symbol Ref. J-STD-609 or “Lead Free” / “RoHS conforming” verbiage</i>		H	H
REACH SVHC information		H	H
CE Mark	H		
Battery containment information			H
Lithium Battery	H		
Moisture Sensitive Level – <i>When applicable per J-STD-033</i>		H	H
Package Count – <i>e.g. 1 of 2, 2 of 2</i>	H		H
Packing Slip Number	BH		BH
Part Number	BH	BH	BH
Product Date Code – <i>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</i>	BH		
Product Lot Code – <i>Military receipts</i>	BH	BH	BH
Purchase Order Number	BH		BH
Quantity	BH	BH	BH
Serial Number – <i>When applicable</i>	BH	BH	
Ship from Address	H		H
Ship to Address	H		
Waybill Number			H
Weight (followed by UoM (unit of measurement))	H		H

B = Barcode readable **H** = Human readable **BH** = Both barcode and human readable

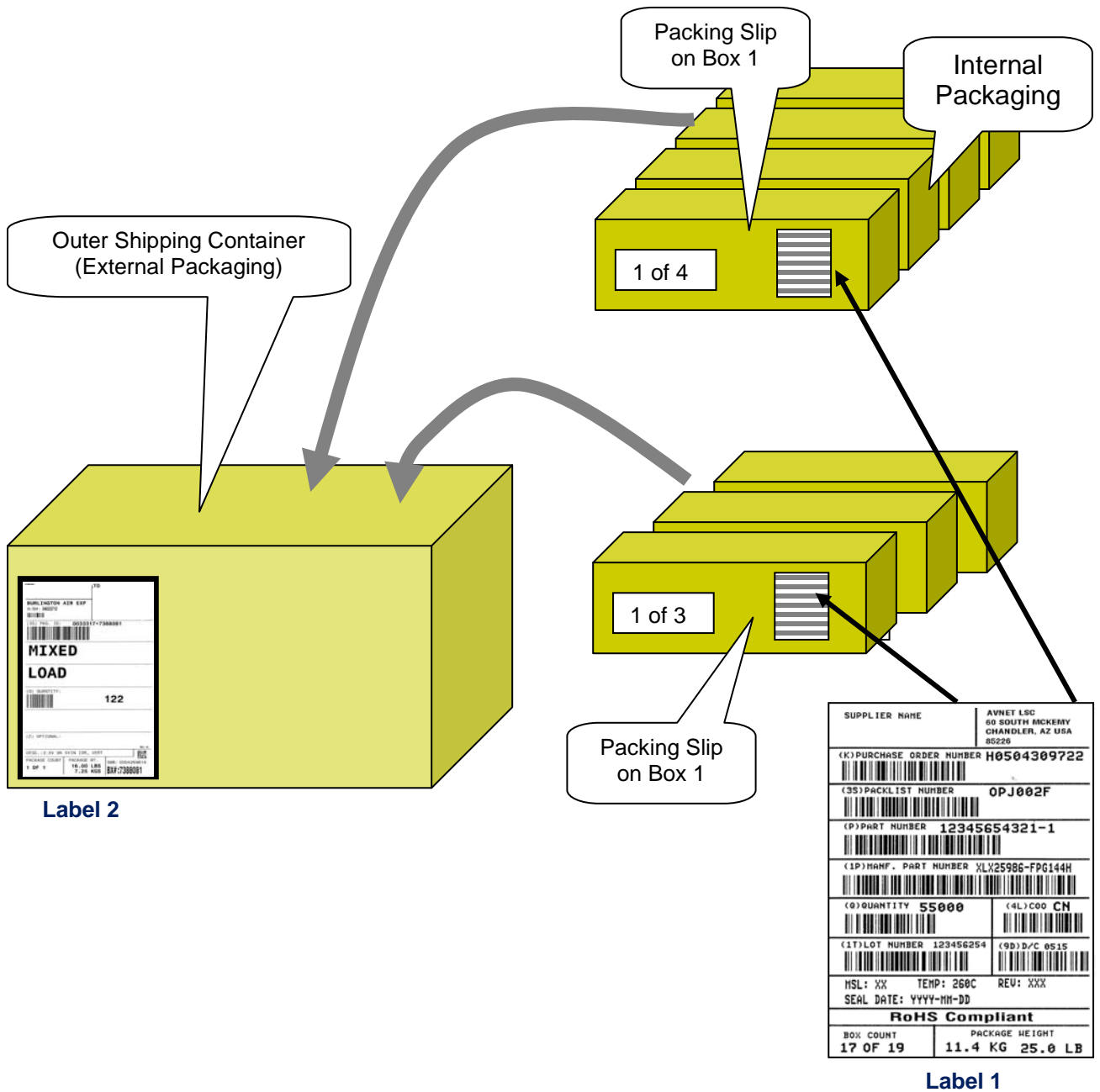
Additional Packing Slip Requirements

- Only one purchase order will be shipped per container with one packing slip
- The packing slip must be placed on the outside of the container and should be in a protective envelope marked “Packing Slip”
- When multiple containers of the same P.O. are shipped, the packing slip shall be attached on Box 1. Copies of the pack slip shall be placed inside of each of the additional containers.

Label Positions

Consolidated Shipments:

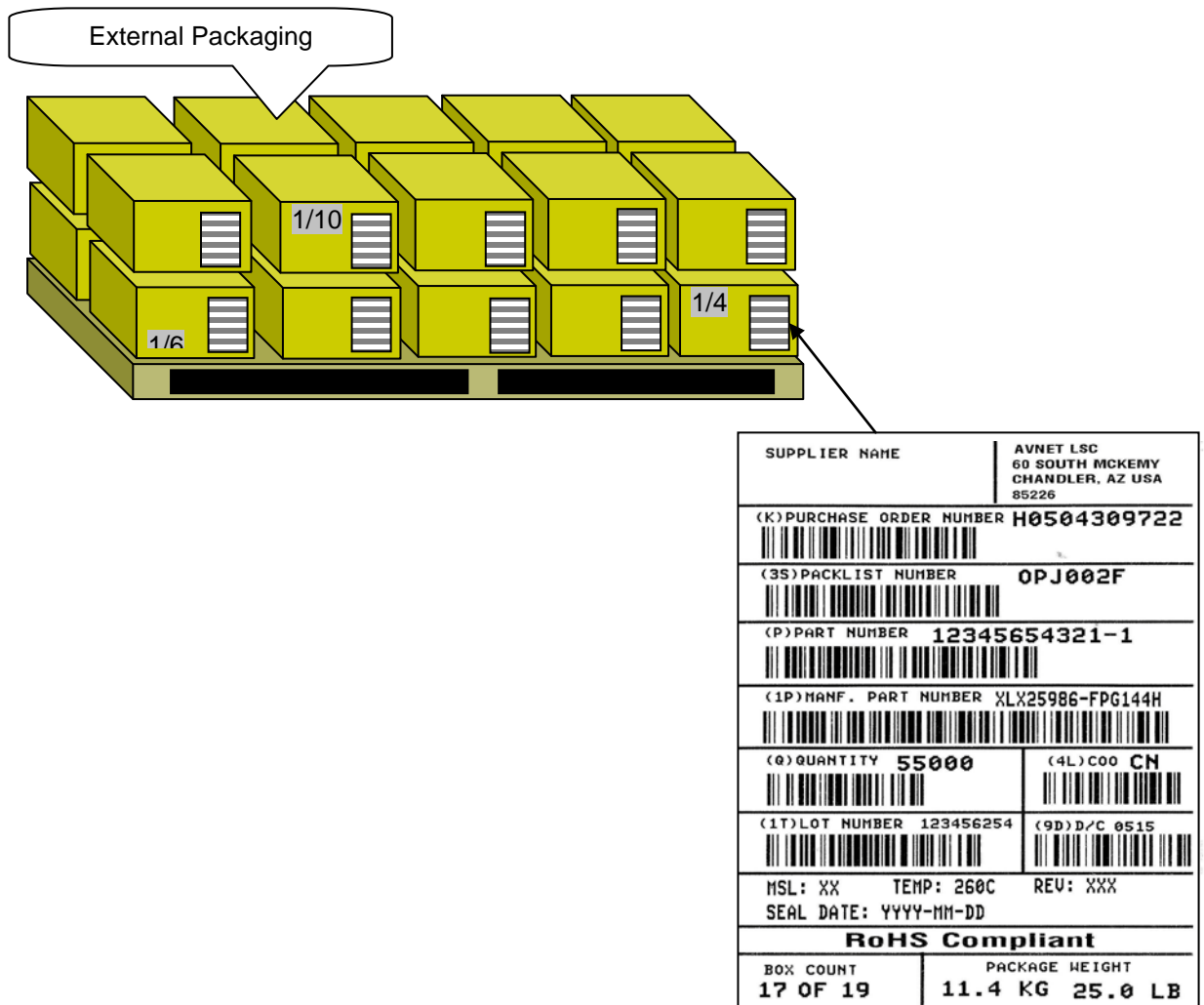
Figure 1



Individual Box Shipments:

Figure 2

- Affix *Label 1* to all boxes in the line item.
- All multi-box orders must be grouped together on the same pallet.
- Packing slips must be attached to box # 1 of all multi-box line items/orders. Product labels must be affixed per Figure 3.

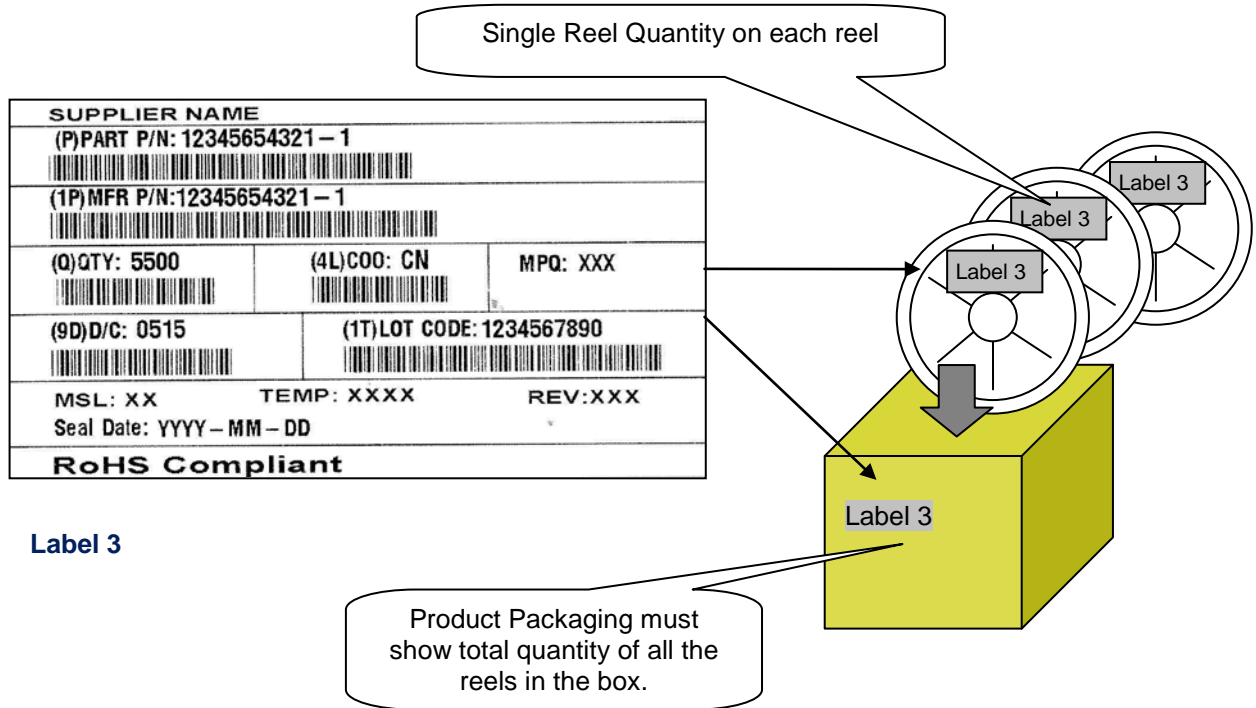


Label 1

Product Labeling:

Figure 3

- Product packaging for Tape & Reel product must show individual reel quantity on each reel and total box quantity on the product packaging.
- A Product Label (*Label 3*) must be on all dry pack, rail, and bulk bags and boxes.



When the device is too small to mark with the manufacturer part number Avnet requires some form of marking to be present on the part and on *Label 3* as a reference between such marking and the part number.

Annex 1.1: Luminosity Products

Avnet Logistics 1D (2D) Labeling Requirements for receiving inspection & booking-in the product








This document outlines labeling requirements for 1D, if possible 2D (data matrix), bar-coded information and is required on all inbound **luminosity** products received by Avnet LSC (Logistic Service Centre) locations.

The document applies additional to Annex I and contains information that defines Avnet Logistics Service Center (LSC) labeling requirements for luminary products.

Inbound Shipping Label Requirements for External Packaging

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.

Luminosity products additionally need a barcode indicating the luminosity at the bottom of the label.

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		
Luminosity (Bin Grade, Group, etc.): XXXX 		

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 shall 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 shall be attached on Box 1. Copies of the pack slip shall be placed inside of each of the additional containers

Content

The delivery documents have to contain the following information:

- | | |
|----------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|
| <input type="checkbox"/> Purchase Order number & Purchase Order line | <input type="checkbox"/> Document number (delivery note number / order number) |
| <input type="checkbox"/> Article number | <input type="checkbox"/> Quantities |
| <input type="checkbox"/> Article description | <input type="checkbox"/> In addition, the delivery documents can contain internal supplier statements. |
| <input type="checkbox"/> Avnet Article number | |

For pallet deliveries boxes should always be placed with article label and serial numbers facing to the outside of the pallet.

More detailed specifications are laid out in **Annex I** (delivery and product package label requirements) of the Supplier Quality Agreement.

Packaging Standards

The following packaging requirements have to be met:

- Non-damaged article delivery (no deterioration in quality)
- Forming of rational load quantities
- The weight of an individual shipping box must not exceed 25kg / 55lb
- Set up for suitable handling
- Optimal utilization of transportation means and load aid
- Keeping the given standard measurement for stack ability
- Transportation lock
- Trouble-free unloading of the loading equipment from the transport vehicle through hand-operated floor truck
- Clean condition of pallets, boxes and packaging
- Objects (e.g. papers, laces, coverings) that exceed the external dimensions of the packaging are to be removed before shipment
- The supplier is held liable for quality problems due to damaged or contaminated packaging
- ESD protection: particularly the delivery of electronic components must in principle comply with EN 61340-5-1 & 2 and JESD625. These norms deal with the protection of electronic devices against damages resulting from electrostatic discharge.
- Handle, package and identify moisture sensitive plastic encapsulated surface mount devices according to IPC/JEDEC J-STD-033.
- Product should be clean and free of degrading materials.
- Packaging will meet recognized environmental requirements and regulations.
- Packaging must not contain / be treated with DiMethylFumarates as anti mould agent
- Ship products to us in proper-sized containers and packaging to ensure that all products delivered arrive undamaged.
- Use conductive and anti-static materials in the packaging of electrostatic-sensitive components in accordance with MIL-PRF-81705. Avnet requests that no staples are used when securing any internal packaging directly touching product
- Supplier will not use any package or material technique that is known to introduce material defects
- Supplier will pack product shipped in „tubes“ or „rails“ to prevent shifting of components inside the packaging.

Avnet will note any special handling requirements beyond the above specification on our purchase orders and will supersede this document.

Avnet also requests:

- Multiple shipments of the same part number shipped in the same day must be consolidated. When a single purchase order line item container is part of a shipment of multiple containers, whether of the same purchase order line item, different line items or different purchase orders, the box shall be identified with a package count
- Multiple container shipments will be consolidated and shipped in such a manner to assure same day/time delivery of all containers
- Container will be sealed by the Supplier to ensure count and part type integrity
- Warning labels, electrostatic discharge caution label, moisture sensitive caution labels, safety warning, special handling requirements, HAZMAT labeling etc. must be prominently displayed on the outside of each container

Packaging

Admitted types of packaging equipment

If the material is packed on pallets, usage of EURO norm pallets is obligatory.

Deviations, enhancement and securing the load unit

Completely packed pallets must not exceed the following dimensions:

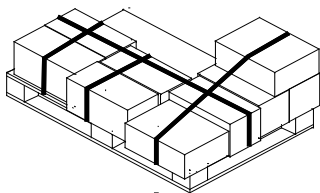
- Length x width x height (in cm) = **120 x 80 x 180**
- Maximum weight of a loaded pallet is **600 kg** (1320lb).

The pallet must not show any damage at the vats and/or the shelves.

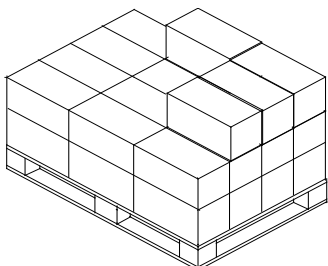
All additional packaging materials for protection of the goods have to be made of fully recyclable material. Materials like cardboard, paper and wood are acceptable.

Materials like wood wool, Styrofoam, Styrofoam chips, newsprint, etc. are not acceptable.

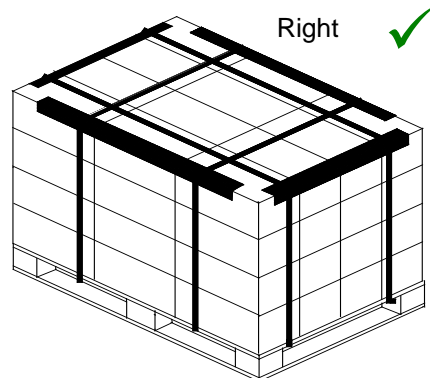
- The package on the pallet must not protrude the pallet border
- The loading unit has to be strapped in both senses. This has to be done through the pallet bottom but not under the vats
- Before strapping, the package units have to be protected through an overlay edge protection angle made of paperboard, plastics or steel plate (rounded corners)
- Loading units must always form a closed cover to ensure the stacking of several loading units on top of each other



Wrong X



Wrong X



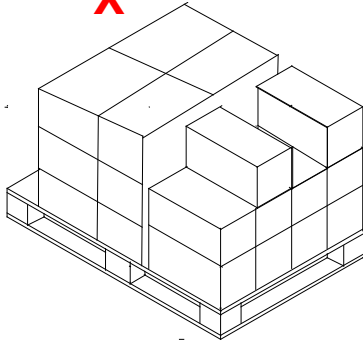
Detailed description of non-returnable pallets

Application of covering box (corrugated paper container)

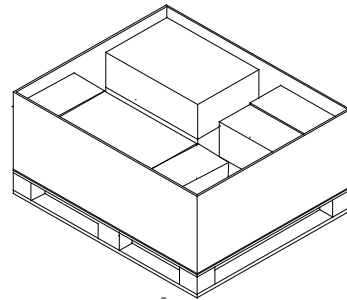
If several packages of different sizes are shipped on one pallet, a corrugated paper container will have to be used as covering box. The empty spaces between the packages have to be filled with appropriate filling material, e.g. crinkled cardboard.

Wood wool, Styrofoam chips and newspapers are not acceptable as they do not provide sufficient safety and stability of the loaded units.

Wrong **X**

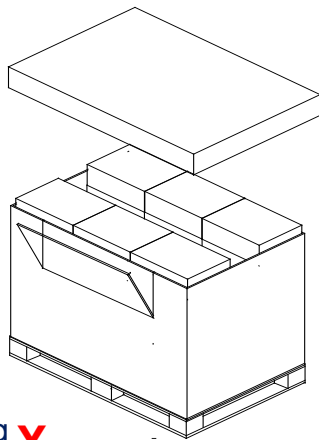


Right **✓**

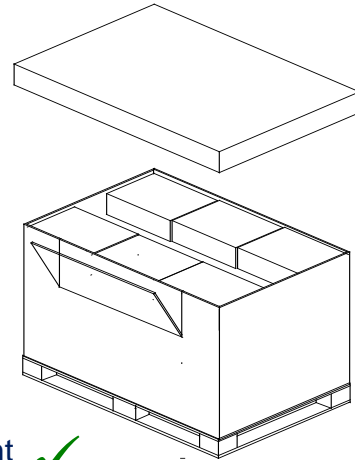


It is important that the package does not protrude the container border. Thus the pressure can be absorbed while stacking containers.

Wrong **X**



Right **✓**

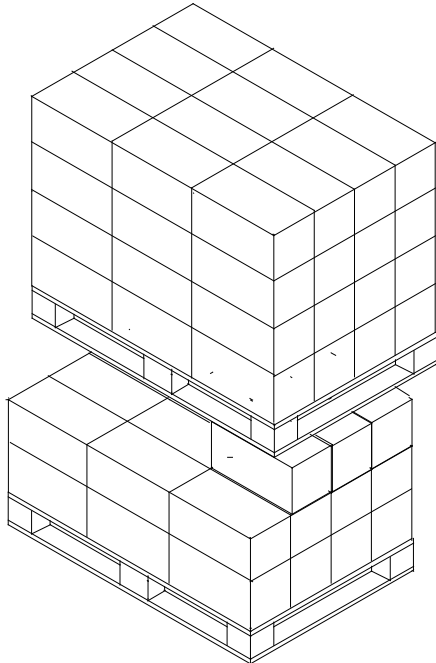


Stacking of Pallets

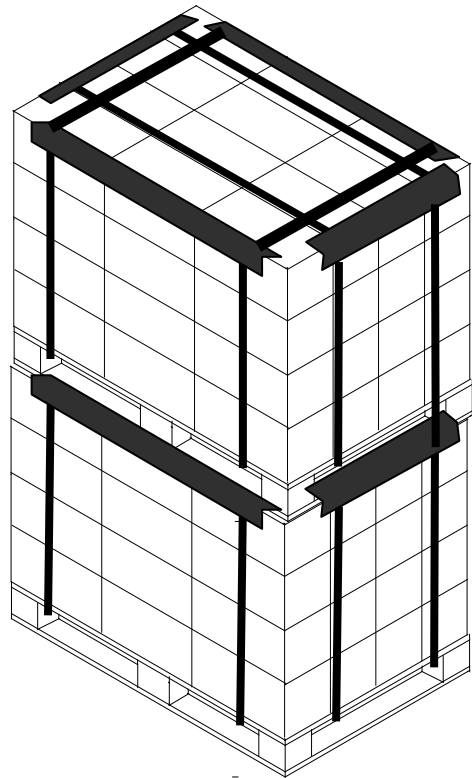
Please follow this instruction when stacking pallets and loading equipment during transportation or storage:

- Stacking only on closed top layers with secured edges
- Note the bearing capacity of the package material at stacking (possibly indication of top to bottom compression strength of the material)
- To place and to pay attention to warning notices of stack ability
- Heavy pallets belong to the bottom, light weighted pallets to the top

Wrong **X**



Right **✓**



Labeling of Loading Equipment

- The loading equipment has to be labeled clearly legible with article number as well as quantities.
- If there are different articles on the loading equipment, the loading equipment should be identified by a DIN-A4 or legal sheet of paper indicating the inscription "Mixed pallet".
- The content of the mixed pallet has to be identified on a packing list which is attached at the outside of the pallet.

More detailed specifications are defined in Annex I (delivery and product package label requirements) of the Supplier Quality Agreement.

Packaging of Electronic Parts and Components

In principle, all electrostatic endangered components and devices have to be

- Packed according to the requirements of the EN 61340-5-1 & 2 and JESD625

Packaging materials have to be:

- Free of precipitation
- Qualified for the use in ESD protected areas
- Inside the package electrostatic sensitive components and/or devices must not charge electrostatically
- The contact with electrostatically charged persons or items must not damage or destroy the components and/or devices inside the package
- The package must protect against intrusion or impact of electric fields in an ESD compatible way

Pallet Exchange

The exchange of EURO norm pallets is possible as long as only faultless pallets are delivered.

Wood packaging requirements as of March 1st, 2005

The meaning of ISPM15

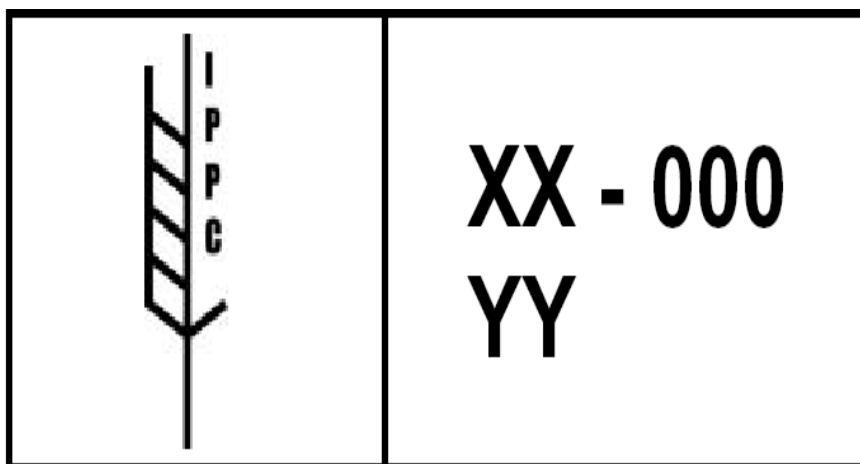
ISPM is the English abbreviation of International Standard for Phytosanitary Measures. Its dedicated goal is the prevention from spreading harmful organisms from one continent to another. This standard applies to any packaging made from real wood, thicker than six millimeters, meant for export outside the EU.

What does this standard impose?

Wood of pallets or packing cases needs to be disinfected by fumigation, using Methane Bromide or by heating the timber (to a core temperature of 56°C for 30 minutes).

Packaging that meets this standard is indelibly marked with a logo shaped like an ear of corn. The shipper is responsible that all affected packaging complies with this standard.

Logo



Starting dates for this norm (per October 2004 and subject to changes)

United States:	End of 2004
Canada:	April 2005
Chili, Korea:	June 2005
China:	April 2004
Taiwan:	October 2004
Australia:	September 2004
India:	November 2004
South-Africa:	January 2005
Colombia:	December 2004
Mexico:	mid of 2005
Switzerland:	March 2005

Annex 3: Electronic Requirements, EDI

Our Information Services Division is responsible for operating and maintaining computer hardware and communications (data/voice) networks, ensuring credibility of all databases and creating & maintaining all B2B interfaces.

B2B Requirements

Throughout this document, we have made references to your ability to transmit information via electronic data interchange (B2B). Avnet's goal is to transmit and receive transaction sets electronically whenever possible.

The following is our current B2B (EDI and RosettaNet) transaction set:

EDI:

<u>Transaction</u>	<u>Title</u>
832 In	In Price Sales Catalog
850 Out	Purchase Order
855 In	P.O. Acknowledgment
860 Out	P.O. Change
865 In	P.O. Change Acknowledgment
870 In	Order Status Report
856 In	Advanced Ship Notice
844 Out	Product Transfer/Account Adjustment (Ship & Debit Send)
845 In	Price Authorization/Acknowledgment/Status (All open ship & debit/Authorizations from Supplier)
849 In	Response to Product/Transfer Account/Adjustment (Ship & Debit/Accept/Reject)
846 In	Inventory Inquiry/Advice
810 In	Invoice
867 Out	Point of Sales Reporting
846 Out	Inventory Inquiry/advice
830 Out	Forecast with release capability
820 Out	Payment order/remittance/Advice
840 Out	Request for quote
843 In	Response to Request for Quote
861 Out	Receipt advice

RosettaNet:

<u>PIP</u>	<u>Title</u>
3A4	Purchase Order
3A8	Purchase Order Change
3A7	Purchase Order/Change Acknowledgement
3B2	Advance Ship Notice
3C3	Supplier Invoice
5C1	Registerable Parts List
5C2r	Registration Request
5C2c	Response to Registration Request
5C4	Registration Status Change
5C3	Point of Sale

As not all transaction sets can be provided in all Avnet areas please ask for the specific transaction possibilities.