



NEDA Guidelines for Commercial Semiconductor Packaging and Labeling

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NEDA Guidelines for Commercial Semiconductor

Packaging and Labeling

Introduction

Growing global competition for the industries which comprise the predominant users of electronic components, particularly semiconductor products, is resulting in a continuous evolution in customers' practices and their vendor performance expectations. Customer preferred vendor programs for manufacturers and distributors are a growing trend. Stringent performance evaluations for product integrity, correctness of deliveries and related service parameters have resulted from these market driven quality initiatives and remain integral to such approved vendor programs.

Within the semiconductor customer community, the quest for improved product quality, shorter time-to-market cycles and zero-defect product manufacturing is rapidly advancing. Customer demands on their vendor base (distributors and manufacturers alike) also include greater demands for ESD protection, inspection of products, and a shortening window for the range of acceptable date codes for products. A growing percentage of top tier customers are demanding delivery of semiconductor products with a maximum date code age restriction.

Electronic component distributors must meet their customers' service quality demands, including providing products within customers' age specifications. Distributors find it increasingly difficult to meet such demands as the gap widens between date codes on products received from manufacturers and customers' acceptable date code specifications.

Distributors increasingly face conflicting demands. Customers want assurances they are receiving recent date-coded products. Many are also requiring that entire shipments have the same date code. This requires costly physical inspection and sorting of products by distributors; however, manufacturers discourage and penalize the opening of factory-sealed packaging necessary to conduct such inspections.

The whole semiconductor industry must adapt its practices to meet the customers' service and quality demands to be competitive within the OEM community. Distributors believe that adherence to a service quality standard responsive to customers' demands for recent date-coded products is the approach most likely to bring market demands and industry practice back into harmony.

In order for Distributors and Manufacturers to meet the increased service and quality demands of the end user, NEDA has actively promoted the development and implementation of standardized packaging, handling, and labeling practices.

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1. Date codes on all commercial product must be less than 12 months when shipped by the manufacturer excluding end of life product.

The majority of the manufacturers represented on the task force generally endorse a recommendation that date codes, on all commercial product, must be less than 24 months when shipped to the distributor excluding end of life product.

2. There should be no more than one date code per tube, tray or reel.

The majority of the manufacturers represented on the task force generally endorse a recommendation that in most instances, there must only be one date code per tube or tray and not more than 3 date codes per reel. When this is not possible, the manufacturers must provide a maximum of 2 date codes per tube or tray.

3. There should be no more than one date code/lot code per sealed box or sealed package. If this is not possible, then a label on the box or package should list all date codes and quantities per date code in the box.

The majority of the manufacturers represented on the task force generally endorse distributor recommendation #3.

4. Tubes, trays and reels must be marked with the quantity per tube, tray, or reel. If this is not possible, then a label on the box or package should list the quantity per tube, tray or reel.

The majority of the manufacturers represented on the task force generally endorse distributor recommendation #4.

5. Product Package and 3S Shipping Labels must include at a minimum:

A. Product Package

Mandatory Fields: The following data fields constitute a minimum requirement for distributors bar coding applications.

- a) Part Number (Customer)
 - I. Data Identifier: P
 - II. Fixed Length? No
 - III. Ex: P1234567
- b) Date Code
 - I. Data Identifier: 9D
 - II. Fixed Length? Yes (4 characters)
 - III. Ex: 9D9340

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- c) Quantity
 - I. Data Identifier: Q
 - II. Fixed Length? No
 - III. Ex: Q2000

Optional Fields: Inclusion of optional data fields should be agreed upon between trading partners.
(Example: traceability codes).

- d) Tractability Codes (optional)
 - I. Data Identifier: 1T
 - II. Fixed Length? No
 - III. Ex: 1TMA12345678

B. 3S Shipping Label

Mandatory Fields: The following data fields constitute a minimum requirement for distributor bar coding applications.

- a) Package ID
 - I. Data identifier: 3S
 - II. Fixed Length? No
 - III. Make up? UCC Vendor ID & Unique Number
 - IV. Ex: 3S0787990123345H005
- b) Distributor's Purchase Order Number and Line Item Number
 - I. Data Identifier: 14K (K only, if line item is not used)
 - II. Fixed Length? No
 - III. Ex: 14K12345+00001
K12345
- c) Customer Part Number
 - I. Data Identifier: P
 - II. Fixed Length? No
 - III. Ex: P512345A6
- d) Quantity
 - I. Data Identifier: Q
 - II. Fixed Length: No
 - III. Ex: Q15000

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- e) Package count
 - I. Number of shipping containers as "Box ____ of ____."
(Human readable only)
 - II. Ex: Box 5 of 10 (5/10)

The specifics of this recommendation have been directed to the Semiconductor Packaging and Labeling Task Force for further review. The ongoing results of those efforts are detailed in a separate series of related NEDA Guidelines available through NEDA.

- 6. a) All boxes or packages must be of a quantity to eliminate the presence of partial tubes.
- b) Partial tubes under the AUP of \$5.00 (Distributor price), will not be accepted. All distributors will order all semiconductors in full tube quantities for parts less than \$5.00 AUP.
- c) Distributors will return only in full tube quantities those same part numbers purchased in full tube quantities, excluding quality defects.

The majority of the manufacturers represented on the task force generally endorse distributor recommendation #6.

- 7. All sealed containers must be maintained as a standard box or bag quantity by part number.

The majority of the manufacturers represented on the task force generally endorse distributor recommendation #7.

- 8. Substitutions will be allowed only under the following guidelines:
 - a) Substitutions will be made only with prior approval from authorized Distributor personnel; and
 - b) An equal or better part; and
 - c) Clearly identifiable paperwork noting the original and substituted part; and
 - d) The Distributor will be required to cancel original P.O. line item and rebook order.

The majority of the manufacturers represented on the task force generally endorse distributor recommendation #8.

The result of these ongoing efforts will allow the Distribution community to better serve their broad customer base with increased gains in efficiency and productivity. The overriding goal of Distributors throughout this process remains the timely delivery of product to the customer while minimizing the invasion of the Manufacturer's various levels of packaging thereby maintaining the "factory sealed quality" of the product.

A NEDA Task Force comprised of distributors and their suppliers was formed to develop standards and recommendations responsive to these needs. During 1991, This Task Force developed a list of distributor requirements and corresponding manufacturer positions for commercial semiconductor packaging and labeling (see attached recommendations). The Task Force formally convened for the first time in January, 1991 in San Jose, CA. The final meeting was held on September 11, 1991 following the close of the Arrow Electronics Semiconductor Quality Symposium.

Responses from the final ballot indicated that a majority consensus generally endorsed all eight positions. Subsequently, the NEDA Board of Directors, in February, 1992, approved publication of this document as an official NEDA Guideline.

NEDA Distributors and the Task Force would like to emphasize the following:

1. When these efforts began, the industry had nothing addressing these issues.
2. While they may not represent ultimate or ideal long-term solutions for either the manufacturers or the distributors, these eight points of general agreement represent an important starting point from which to build.
3. Compliance will not happen overnight. All parties can use these items as goals to work towards over a reasonable length of time. Compliance will be monitored with continuously revised publication of the accompanying Implementation Matrix.
4. While all eight recommendations do not share unanimous agreement, a majority consensus generally endorses all of them.
5. Compliance by manufacturers and distributors with these Guidelines is strictly voluntary.
6. In some instances, a middle ground exists. Over time, this group may wish to reconvene in some manner to discuss the addition of other items and possible implementation of some of the comments that have been raised. Over time, it would seem reasonable to expect all parties to move towards a common ground as manufacturer and distributor capabilities mutually evolve in an attempt to better serve customer needs.

The following distributors and manufacturers participated in the development of these initial Guidelines:

Anthem Electronics
Arrow Electronics
Avnet Electronics
Marshall Industries
Pioneer-Standard Electronics
Wyle

Cypress Semiconductor
Harris Semiconductor
Intel
Motorola SPS
National Semiconductor
Philips Semiconductors
Texas Instruments

Advanced Micro Devices