Guidelines for the Identification and Labeling of Moisture Sensitive Integrated Circuits

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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 number of Plastic Surface Mount Components (PSMC's) are subject to permanent damage due to moisture induced failures encountered during high temperature surface mount processing unless appropriate precautions are observed.

In order for Distributors to take appropriate precautions to maintain the moisture integrity of these products, Distributors must be able to readily identify this product on receipt from the manufacturer and subsequently during storage.

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 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 needs of the end user, NEDA has actively promoted the development and implementation of standardized packaging, handling, and labeling practices.

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 1992, The NEDA

Semiconductor Packing and Handling Task Force developed this Guideline to provide a distinctive symbol and labels to be used to identify those PSMC devices that require special packaging and precautions. Subsequently, the NEDA Board of Directors, in September, 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, this Guideline represents 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 the continuously revised publication of the accompanying Implementation Matrix.

4. While this Guideline may not share unanimous agreement, a majority consensus generally endorses it.

5. Compliance by manufacturers and distributors with these Guidelines is strictly voluntary.

6. In some instances, a middle ground may exist. 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 Task Force which developed these Guidelines:

Anthem Electronics
Arrow Electronics
Bell Industries
Hall-Mark Electronics
Avnet Electronics
Marshall Industries
Pioneer-Standard Electronics
Wyle Laboratories/EMG

Advanced Micro Devices
Analog Devices
Chips and Technologies
Cypress Semiconductor
Harris Semiconductor
Intel
Lattice Semiconductor
Linear Technology
Motorola
National Semiconductor
SGS-Thomson
Signetics
Teledyne Components
Texas Instruments

SYMBOL AND LABELS FOR MOISTURE SENSITIVE DEVICES

1. INTRODUCTION.

A number of Plastic Surface Mount Components (PSMC's) are subject to permanent damage due to moisture induced failures encountered during high temperature surface mount processing unless appropriate precautions are observed.

2. PURPOSE.

It is the purpose of this Guideline to provide a distinctive symbol and labels to be used to identify those PSMC devices that require special packaging and precautions.

3. SYMBOL AND LABELS.

3.1 MOISTURE SENSITIVE SYMBOL: See Figure 1.

3.2 ID LABEL: See Figure 2. This label is recommended to be a minimum of three-fourths (3/4) inches diameter, with a blue (Pantone #297C) background and with black symbol and letters.

3.3 CAUTION LABEL: See Figure 3. This label is recommended to be a minimum of three (3) inches by three (3) inches square, with a white background and with blue (Process Blue) symbols and letters.

3.3.1 Wording is suggested to be identical to Figure 3 except Paragraph "2(a)" in which the "_____ hours/days" may be printed according to each company's requirements, or printed as shown and completed by hand.

3.3.2 The "Bag Seal Date" shall be filled in utilizing "MMDDYY", "YYWW" or equivalent format, or supplied on the bar code label.

4. LABEL LOCATIONS.

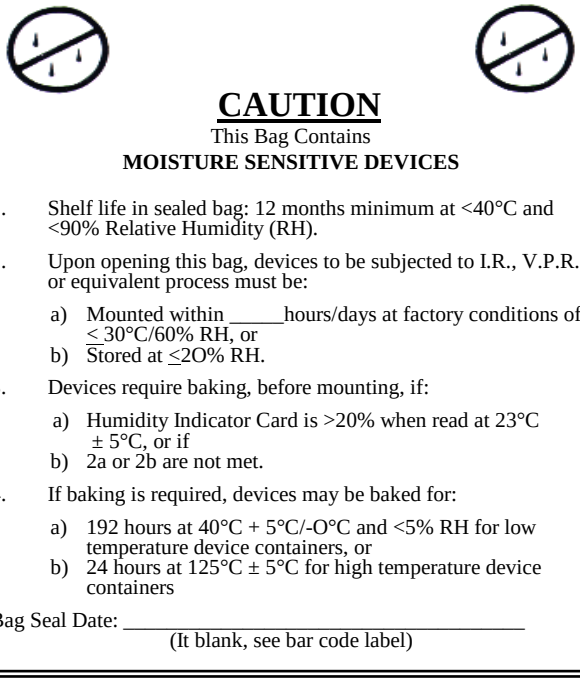
4.1 ID LABEL: As a minimum, the ID Label should be placed: (i) on the same end of the intermediate product package or container where the Product Package (P2) Label is found; and (ii) near or on the Product Package (P2) Label.

Manufacturers agree and are expected to work toward its use for shipping containers.

4.2 CAUTION LABEL: As a minimum, the Caution Label should be placed on the Moisture Barrier Bag near or on the same side as other labels that may be on this bag.

Figure 1 - MOISTURE SENSITIVE SYMBOL

Figure 2 - ID LABEL



CAUTION

This Bag Contains

MOISTURE SENSITIVE DEVICES

1. Shelf life in sealed bag: 12 months minimum at <40°C and <90% Relative Humidity (RH).
2. Upon opening this bag, devices to be subjected to I.R., V.P.R. or equivalent process must be:
   a) Mounted within _____hours/days at factory conditions of ≤ 30°C/60% RH, or
   b) Stored at ≤2O% RH.
3. Devices require baking, before mounting, if:
   a) Humidity Indicator Card is >20% when read at 23°C ± 5°C, or if
   b) 2a or 2b are not met.
4. If baking is required, devices may be baked for:
   a) 192 hours at 40°C + 5°C/-O°C and <5% RH for low temperature device containers, or
   b) 24 hours at 125°C ± 5°C for high temperature device containers

Bag Seal Date: _____
(It blank, see bar code label)

Figure 3 - CAUTION LABEL