

SEMI G83-0301 (Reapproved 0308) SPECIFICATION FOR BAR CODE MARKING OF PRODUCT PACKAGES

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1 Purpose

1.1 This specification describes the area needed for adding bar codes, the bar code specifications, and the code notation format for direct and indirect material product packages (unit packs) for semiconductor packaging.

1.2 The following are the goals of this specification:

- Quality control using computers
- Prevention of mistakes created by human error
- Material control at the manufacturing site

1.3 The following is not a goal of this specification:

- Purchasing control

2 Scope

2.1 This specification is to be used for direct and indirect materials relating to packaging materials.

2.2 This specification is to be used for product packages only.

NOTICE: This standard does not purport to address safety issues, if any, associated with its use. It is the responsibility of the users of this standard to establish appropriate safety and health practices and determine the applicability of regulatory or other limitations prior to use.

3 Referenced Standards

3.1 SEMI Standards

SEMI G71 — Specification for Barcode Marking of Intermediate Containers for Packaging Materials

3.2 AIM Specifications¹

USS-39 — Universal Symbol Specification code 39

USS-128 — Universal Symbol Specification code 128

3.3 ANSI Specification²

ANSI X3.182 — Bar Code Print Quality - Guideline

NOTICE: Unless otherwise indicated, all documents cited shall be the latest published versions.

4 Terminology

4.1 Many of the items relating to bar code technology are defined in the AIM Glossary of Terms, ANSI X3.182 (Bar code Print Quality Guidelines).

4.1.1 *data field* — field (area) for adding a bar code to a product package.

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4.1.2 *direct material* — components and parts that make up a semiconductor package. Examples include lead frames, molding compounds, bonding wires, die bonding materials, etc.

4.1.3 *HRI (Human Readable Identification)* — characters that can be read by a human.

4.1.4 *indirect material* — supplementary materials and parts used during processing but that do not make up a semiconductor package. Examples include bonding capillaries, dicing blades, etc.

4.1.5 *intermediate container* — container that holds one or more product packages for product/order separation in a shipping container or final container.

4.1.6 *product package* — the smallest package format, made by a single material. Also called a unit pack.

4.1.7 *shipping pack* — package or shipping container/final container (see Figure 1) that is strong enough for industrial use for product packaging, storage, and shipping.

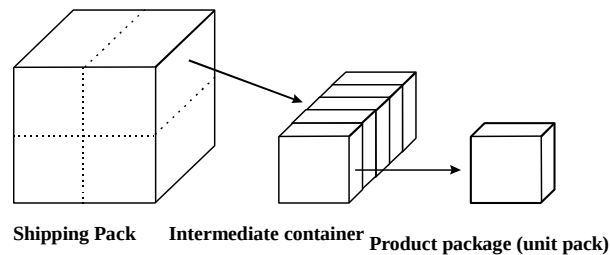


Figure 1
Package Form Regulations

5 Requirements

5.1 Data Field

5.1.1 Length is 42 mm or greater, height is 15 mm or greater (see Figure 2 and Table 2).

5.1.2 The noted content bar code is HRI.

5.2 Bar Code

5.2.1 *Bar Code Character* — Bar code characters specified by AIM USS-39 or AIM USS-128 shall be used.

5.2.2 *Printing Quality* — According to ANSI X3.182 Bar Code Print Quality Guidelines.

5.2.3 *Code Dimensions* — The bar code dimensions will be as listed in Table 1.

5.2.4 *Restrictions on use of Code 128* — Use only code set B. Also, do not use shift characters within data.

5.2.5 The data digit count will be from 15 to 26 (excluding start/stop characters and check characters).

5.2.6 Use check character.

5.3 HRI (Human Readable Identification)

5.3.1 Just below the bar code located in the data field, a field for HRI characters is noted.

5.3.2 The HRI height will be 3 mm or greater.

5.3.3 The space between the HRI and bar code shall be 1 mm or greater (see Figure 2 and Table 2).

5.4 Data Contents

5.4.1 Includes items listed in Table 3.

5.4.2 The sequence, from left to right is as follows: the product recognition number, manufacturing date, sub-lot number, and lot number.

5.4.3 Product recognition number and lot number shall be included.

5.4.4 Manufacture date and sub-lot number shall be written in fixed digits. Remaining unused digits shall be filled by minus codes “-”.

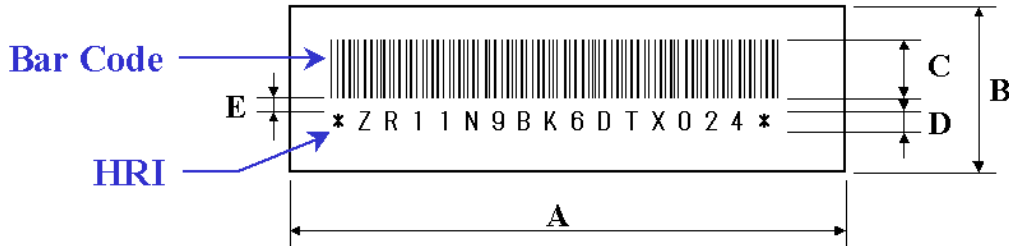


Figure 2
Data Field Dimensions and Placement

Table 1 Code Dimensions

Code 39, Code 128	Dimensions
Minimum element width	0.15 mm or greater.
Code 39 wide bar width	Greater than 2 times, but less than 3 times the minimum element width.
Gap between characters	Minimum element width or greater.
Character height	8.0 mm or greater.
Quiet zone	10 times or greater than the minimum element size (before and after the bar code).

Table 2 Data Field Dimensions

Item	Dimensions
Data field length	$A \geq 42$ mm
Data field height	$B \geq 15$ mm
Bar code height	$C \geq 8$ mm
HRI character height	$D \geq 3$ mm
Space between bar code and HRI	$E \geq 1$ mm

Table 3 Data Contents (see Appendix 1)

Field Name	Product Recognition No.	Manufacturing Date	Sub-Lot No.	Lot No.
Meaning	Code used by user mainly to characterize products.	Date the material was manufactured.	Code for characterizing the product package.	Code used by supplier mainly to characterize products.
Number of digits	5 to 12	3	2	5 to 9
Note	No regulations.	1st digit: Last digit of Gregorian calendar year. 2nd digit: Month indication, note that A = October, B = November, C = December. 3rd digit: Day indication, note that A = the tenth, B = the eleventh, C = the twelfth, ... U = the thirtieth, V = the thirty-first.	No regulations.	No regulations.