

SEMI G83-0619

SPECIFICATION FOR BAR CODE MARKING OF PRODUCT PACKAGES

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1 Purpose

1.1 This Specification describes the physical area needed for adding two-dimensional matrix symbols, the 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: SEMI Standards and Safety Guidelines do not purport to address all safety issues associated with their use. It is the responsibility of the users of the Documents to establish appropriate safety and health practices, and determine the applicability of regulatory or other limitations prior to use.

3 Referenced Standards and Documents

3.1 SEMI Standards and Safety Guidelines

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

3.2 ISO/IEC Standards¹

ISO/IEC 15415 — Automatic Identification and Data Capture Techniques – Bar Code Print Quality Test Specification – Two-Dimensional Symbols

ISO/IEC 15416 — Automatic Identification and Data Capture Techniques – Bar Code Print Quality Test Specification – Linear Symbols

ISO/IEC 15417 — Automatic Identification and Data Capture Techniques – Code 128 Bar Code Symbology Specification

ISO/IEC 16022 — Automatic Identification and Data Capture Techniques – Data Matrix Bar Code Symbology Specification

ISO/IEC 16388 — Automatic Identification and Data Capture Techniques – Code 39 Bar Code Symbology Specification

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

¹ International Organization for Standardization, ISO Central Secretariat, BIBC II, Chemin de Blandonnet 8, CP 401, 1214 Vernier, Geneva, Switzerland; Telephone: +41.22.749.01.11, <http://www.iso.org>

4 Terminology

4.1 Definitions

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

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 *human readable identification (HRI)* — 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.

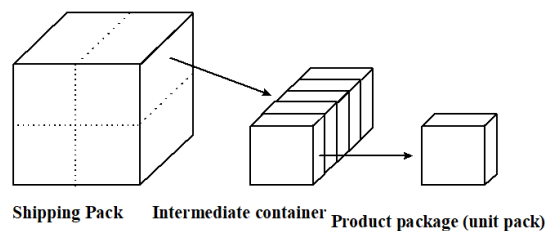


Figure 1
Package Form Regulations

5 Requirements

5.1 Code Symbol

5.1.1 *Code Symbol* — Bar code characters specified by ISO/IEC Code 39, Code 128 or Data Matrix code shall be used.

5.2 Bar Code (Code 39 or Code 128)

5.2.1 *Bar Code Character* — Bar code characters specified by ISO/IEC Code 39, Code 128 shall be used.

5.2.2 *Printing Quality* — According to ISO/IEC 15416, Bar Code Print Quality Test Specification – Linear Symbols.

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

5.2.4 *Data Digit* — The data digit will be as listed in Table 5.

5.2.5 *Data Field* — The data field will be as listed in Table 3.

5.2.6 *Human Readable Identification (HRI)* — HRI dimensions will be as listed in Table 3.

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

5.2.6.2 The HRI height will be 3 mm or greater.

5.2.6.3 The space between the HRI and bar code shall be 1 mm or greater (see Figure 2 and Table 3).

5.3 Bar Code (Data Matrix Code)

5.3.1 *Bar Code Character* — Bar code characters specified by ISO/IEC Data Matrix code shall be used.

5.3.2 *Printing Quality* — According to ISO/IEC 15415, Automatic Identification and Data Capture Techniques – Bar Code Print Quality Test Specification – Two-Dimensional Symbols.

5.3.3 *Code Dimensions* — The bar code dimensions will be as listed in Table 2.

5.3.4 *Data Digit* — The data digit will be as listed in Table 5.

5.3.5 *Data Field* — The data field will be as listed in Table 4.

5.3.6 *HRI* — HRI is optional. Therefore, it is not defined the details about it.

5.4 *Data Contents*

5.4.1 Includes items listed in Table 5.

5.4.2 *Data Format*

5.4.2.1 *Data Format* — The data format will be as listed in Figure 5.

5.4.2.2 *Supplier Codes₁* — A series of Visible ASCII Characters (20₁₆-7E₁₆) to identify supplier with 3-character.

NOTE 1: List of Suppliers Codes is to be provided by the separated Auxiliary Document.

5.4.2.3 *Unique Code* — The unique code shall be expressed in thirteen-digit of alpha-numerical codes. Space character or Null character shall not be allowed. The unique code realizes the individual identification of the product. Therefore, it is not allowed to give same code to a different product.

5.4.2.4 *Security Code* — Unique code can encrypt the some or all. This function is optional.



Figure 2
Data Field Dimensions and Placement of Bar Code (Code 39 and Code 128)

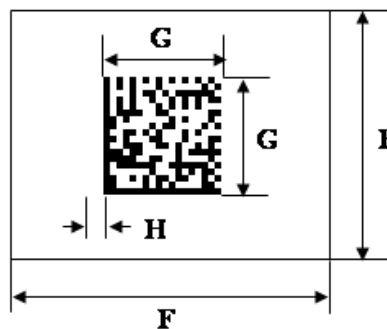


Figure 3
Data Field Dimensions and Placement of Data Matrix of Square