```
<xsd:complexType name="NamedValueType">
  <xsd:sequence>
    <xsd:element name="Name" type="xsd:string"/>
    <xsd:element name="Value" type="xsd:anyType"/>
  </xsd:sequence>
</xsd:complexType>

<!-- Service Status Type - - - - -   Service Status Type - - -->
<xsd:complexType name="ServiceStatusType">
  <xsd:sequence>
    <xsd:element name="SvcAck" type="jit:SvcAckType"/>
    <xsd:element name="SvcErr" type="SvcErrType" minOccurs="0" maxOccurs="unbounded"/>
  </xsd:sequence>
</xsd:complexType>

<xsd:simpleType name="SvcAckType">
  <xsd:restriction base="xsd:string">
    <xsd:enumeration value="Successful"/>
    <xsd:enumeration value="Wrong Service"/>
    <xsd:enumeration value="Refused"/>
    <xsd:enumeration value="Invalid Parameter"/>
    <xsd:enumeration value="Has started"/>
    <xsd:enumeration value="Unsuccessful"/>
    <xsd:enumeration value="Wrong object"/>
  </xsd:restriction>
</xsd:simpleType>

<xsd:complexType name="SvcErrType">
  <xsd:sequence>
    <xsd:element name="SvcErrCode" type="xsd:integer"/>
    <xsd:element name="SvcErrText" type="xsd:string"/>
  </xsd:sequence>
</xsd:complexType>

<!-- Attributes - - - - -   Attributes - - - - - -  Attributes - - -->
<xsd:attributeGroup name="RegRequestAttr">
  <xsd:attribute name="dateTime" type="xsd:dateTime" use="required"/>
  <xsd:attribute name="sessionRef" type="xsd:string" use="required"/>
  <xsd:attribute name="requestId" type="xsd:string" use="required"/>
</xsd:attributeGroup>

<xsd:attributeGroup name="RegResponseAttr">
  <xsd:attribute name="dateTime" type="xsd:dateTime" use="required"/>
  <xsd:attribute name="sessionRef" type="xsd:string" use="required"/>
  <xsd:attribute name="requestRef" type="xsd:string" use="required"/>
  <xsd:attribute name="status" type="RspStatus" use="required"/>
  <xsd:attribute name="authority" type="xsd:string" use="optional"/>
  <xsd:attribute name="linkId" type="xsd:string" use="optional"/>
  <xsd:attribute name="linkCnt" type="xsd:integer" use="optional"/>
  <xsd:attribute name="linkExp" type="xsd:duration" use="optional"/>
</xsd:attributeGroup>

<xsd:simpleType name="RspStatus">
  <xsd:restriction base="xsd:string">
    <xsd:enumeration value="GRANTED"/>
    <xsd:enumeration value="REFUSED"/>
  </xsd:restriction>
</xsd:simpleType>

</xsd:schema>
```

RELATED INFORMATION 1
IPC MESSAGING MECHANISM AND STRUCTURE

NOTICE: This related information is not an official part of SEMI T13.2 and was derived from the Japanese Traceability Committee. This related information was approved for publication by full letter ballot on July 23, 2004.

R1-1 HTTP and SOAP Envelope

R1-1.1 The following diagram illustrates HTTP message border and SOAP Envelope structure. SOAP Header contains information of the message and SOAP body just contains SOAP Faults to make sure what happens when something wrong. Intended message service and its parameters are contained in second MIME Block to make it possible to allow mixture of non-XML data.

R1-2 Communication with Message Broker

R1-2.1 The following diagrams show client-server communications with Message Broker.

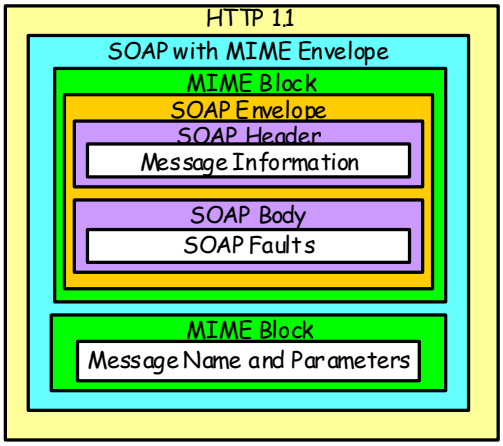

Figure R1-1
SOAP Envelope and MIME Blocks

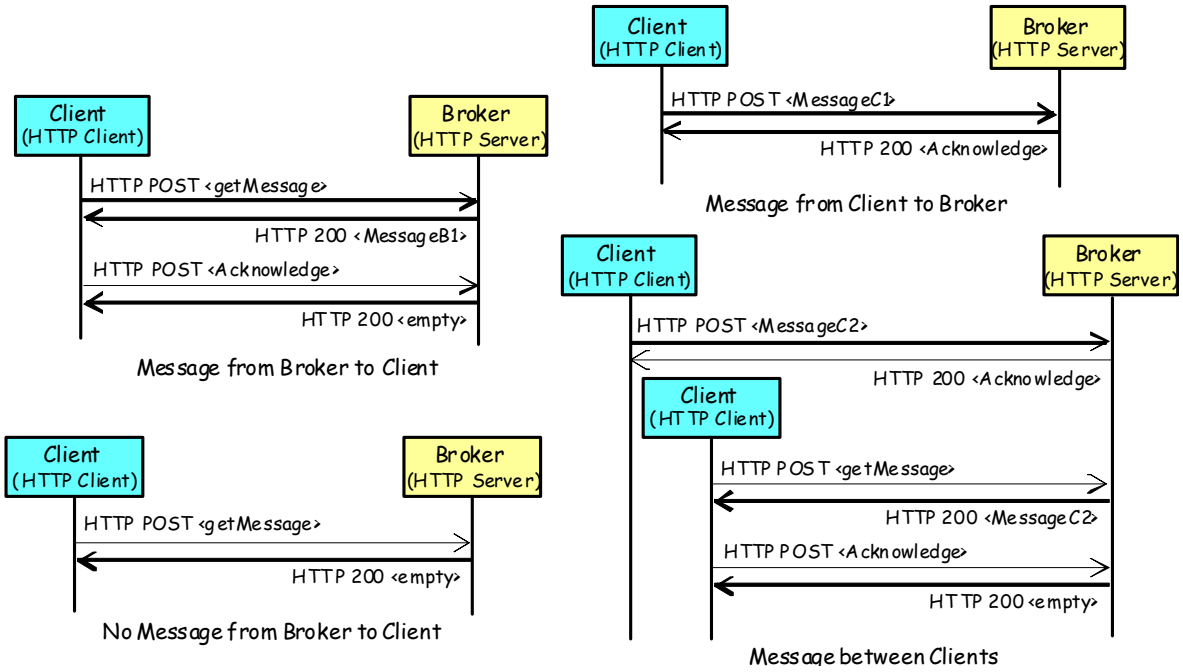

Figure R1-2
Communication with Message Broker

NOTICE: SEMI makes no warranties or representations as to the suitability of the standards set forth herein for any particular application. The determination of the suitability of the standard is solely the responsibility of the user. Users are cautioned to refer to manufacturer's instructions, product labels, product data sheets, and other relevant literature, respecting any materials or equipment mentioned herein. These standards are subject to change without notice.

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SEMI T14-0705
SPECIFICATION FOR MICRO ID ON 300 mm SILICON WAFERS

This specification was technically approved by the Global Traceability Committee and is the direct responsibility of the Japanese Traceability Committee. Current edition approved by the Japanese Regional Standards Committee on July 23, 2004. Initially available at www.semi.org September 2004; to be published November 2004.

NOTICE: The designation number of T14 was updated during the 0705 cycle to reflect the creation of T14.1

1 Purpose

1.1 The purpose of this document is to specify a new means of identification with the Micro ID on 300mm polished monocrystalline Silicon wafer with polished edge for process control.

1.2 The objective of the Micro ID is to keep unique information to be assigned in the device manufacturing process on the location defined on the wafer bevel.

2 Scope

2.1 This document assumes that the Micro ID is implemented under the responsibility of Device Manufacturers.

2.2 A two-dimensional data matrix code symbol consists of the microdots marked on the bevel of a semiconductor wafer.

2.3 Although this specification does not specify the marking techniques that may be employed when complying with its requirements, it is assumed that the microdots will be obtained by laser irradiated individual dots.

2.4 The data matrix code symbol is applicable to a broad range of wafer products (un-patterned or patterned wafers) with mirror polished bevel surface.

2.5 The format and algorithms of this code are based on two-dimensional symbology specified in ISO/IEC ISS 16022.

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 health practices and determine the applicability or regulatory limitations prior to use.

3 Referenced Standards

3.1 *SEMI Standards*

SEMI AUX001 — List of Vendor Identification Codes

SEMI M1 — Specifications of Polished Monocrystalline Silicon Wafers

SEMI M1.15 — Standard for 300 mm Polished Monocrystalline Silicon Wafers (Notched)

SEMI T1 — Specifications for Back Surface Bar Cord Marking of Silicon Wafers

SEMI T7 — Specification for Back Surface Marking of Double-Side Polished Wafers with a Two-Dimensional Matrix Code Symbol

3.2 *ISO[1]/IEC[2] Standard*

ISO/IEC ISS 16022 — Information Technology – International Symbology Specification – Data Matrix

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

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1 International Organization for Standardization, ISO Central Secretariat, 1, rue de Varembé, Case postale 56, CH-1211 Geneva 20, Switzerland. Telephone: 41.22.749.01.11; Fax: 41.22.733.34.30, Website: /www.iso.ch

2 International Electrotechnical Commission, 3, rue de Varembé, Case Postale 131, CH-1211 Geneva 20, Switzerland. Telephone: 41.22.919.02.11; Fax: 41.22.919.03.00, Website: www.iec.ch

4 Terminology

4.1 *Definitions*

4.1.1 *alignment bar, of a data matrix code symbol* — a solid line of contiguous filled cells abutting a line of alternately filled and empty cells [ISO/IEC ISS 16022].

4.1.2 *binary values* — a protrusion dot in the wafer surface indicates the binary value 1. The absence of a dot, or a smooth surface surrounding a cell center point indicates the binary value 0.

4.1.3 *border column* — the outermost column of a data matrix code symbol. This column is a portion of the finder pattern.

4.1.4 *border row* — the outermost row of a data matrix code symbol. This row is a portion of the finder pattern.

4.1.5 *cell center point, of an array* — the point at which the centerline of a row intersects the centerline of a column.

4.1.6 *cell, of a data matrix code symbol* — the area within which a dot may be placed to indicate a binary value.

4.1.7 *cell spacing, of an array* — the (equal) vertical or horizontal distance between the cell center points of contiguous cells.

4.1.8 *center line, of a row or column* — the line positioned parallel to, and spaced equally between, the boundary lines of the row or column.

4.1.9 *central area, of a cell* — the area enclosed by a circle centered at the cell center point; used by code readers to sense the binary value of the cell.

4.1.10 *data matrix code symbol* — a two-dimensional array of square cells arranged in contiguous rows and columns. In certain ECC200 symbols, data regions are separated by alignment patterns. The data region is surrounded by a finder pattern [ISO/IEC ISS 16022].

4.1.11 *finder pattern, of a* data matrix *code symbol* — a perimeter to the data region. Two adjacent sides contain dots in every cell; these are used primarily to define physical size, orientation and symbol distortion. The two opposite sides are made up of cells containing dots in alternate cells [ISO/IEC ISS 16022].

4.1.12 *Micro ID* — Micro ID consists of the data matrix code symbol, which is formed with some protruding marks on the silicon wafers.

4.1.13 *protrusion dot* — a locally protruded region with a reflectance which differs from that of the surrounding surface.

NOTE 1: To assure reading efficiency, a minimum contrast of 30% is required between the reflectance value of a dot and the surrounding wafer surface. Various densitometers can provide such measurements nondestructively.

4.1.14 *protrusion dot misalignment, within a cell* — the distance between the physical center point of a protrusion dot and the cell center point.

5 Requirements

5.1 *Shape and Size of the Data Matrix Code Symbol*

5.1.1 Each square data matrix code symbol shall be composed of an array of 16 rows and 16 columns as defined in ISO/IEC ISS 16022. (As shown in Figure 1.)

5.1.2 Cell spacing shall be 6.25 µm, center to center. (As shown in Figure 2.)

5.2 *Shape and Size of the Microdot Mark*

5.2.1 A microdot mark is formed by laser irradiation and consists of a single dot mark on each laser-irradiated point.

5.2.2 The mark has a single protrusion, which includes a concave portion provided around the protrusion and lower than a surface of the wafer and whose center potion protrudes upward so as to be higher than the surface of the wafer.

5.2.3 The length of each dot mark along the surface of the article to be marked should be 6.0 µm + 10% – 20%. (As shown in Figure 3.)

5.3 *Border Rows and Columns*

5.3.1 One border row and one border column shall contain a dot in each cell. These are identified as the primary border row and the primary border column. They are used by the code reader to determine the orientation of the matrix.

5.3.2 The opposing (secondary) border row and column shall contain dots in alternating cells.

5.3.3 The reference point shall be the physical center point of corner cell common to the primary border row and the primary border column. (As shown in Figure 4.)

5.3.4 The maximum dot misalignment within a cell is 1.4 µm. This ensures that a minimum size dot covers a cell central area of radius 1 µm.

5.4 *Content of the Data Matrix Code Symbol*

5.4.1 Each square data matrix code symbol shall contain 16 message characters, together with the error checking and correcting (ECC200) code characters, encoded in accordance with ISO/IEC ISS 16022.

5.4.2 The message characters shall include the following: A–Z, 0–9, and dash (–).

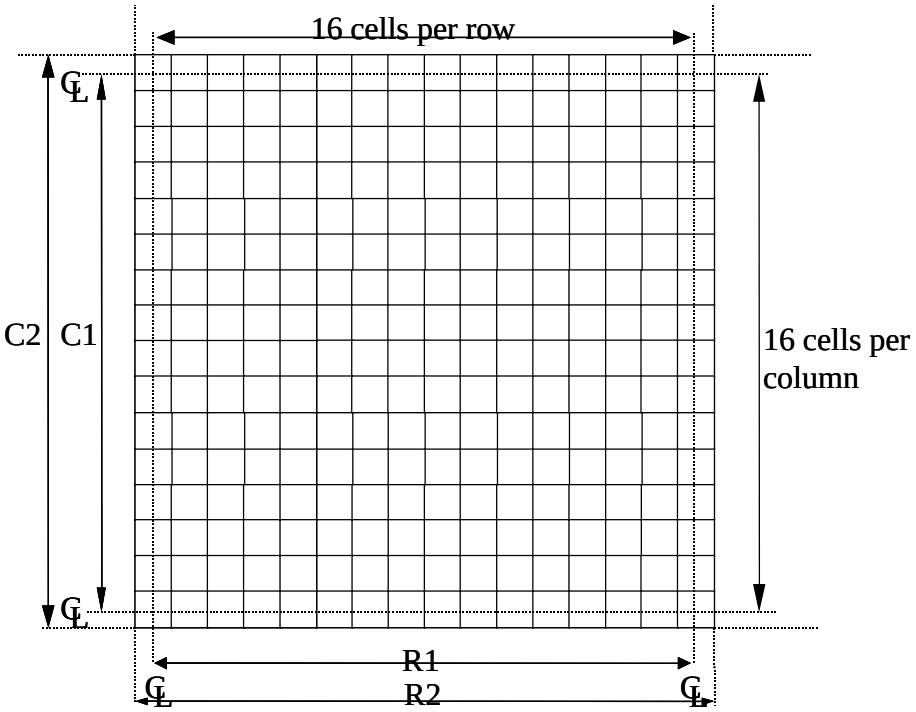
5.5 *Location of the Data Matrix Code Symbol*

5.5.1 With the wafer positioned front surface up and with the primary fiducial (notch) toward the operator, the origin of the data matrix code symbol shall be located as specified below. (As shown in Figure 5.)

5.5.1.1 *Circular position* — the reference point shall be located along the perimeter by 3.0 ± 0.1° counterclockwise from the axis of the notch fiducial bisector. (As shown in Figure 5.)

5.5.1.2 *Radial position* — the mark position of Micro ID is decided by the responsibility of Device Manufacturers on the bevel area where the Micro ID is survived even after the CMP processing and the backside grind. (Related Information in Figure R1-2.)

5.5.2 The primary border row of the data matrix code symbol shall be placed toward the periphery of the wafers, and the primary border column of the data matrix code symbol shall be placed toward the center of the wafers, originating from the reference point.



Nominal Dimensions (µm)

R1 = 92.00 ± 6% C1 = 92.00 ± 6%
R2 = 98.00 ± 6% C2 = 98.00 ± 6%

Figure 1
Data Matrix Field Dimensions
ECC200 - 16 rows × 16 columns

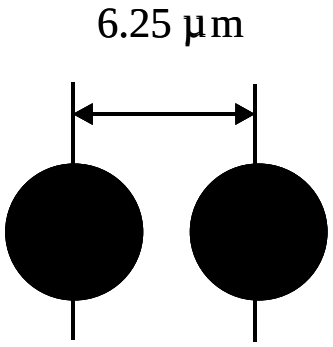


Figure 2
Cell Spacing

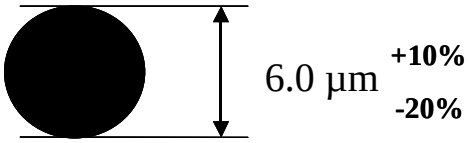


Figure 3
Dot Shape Circle (Projected Sectional Area)

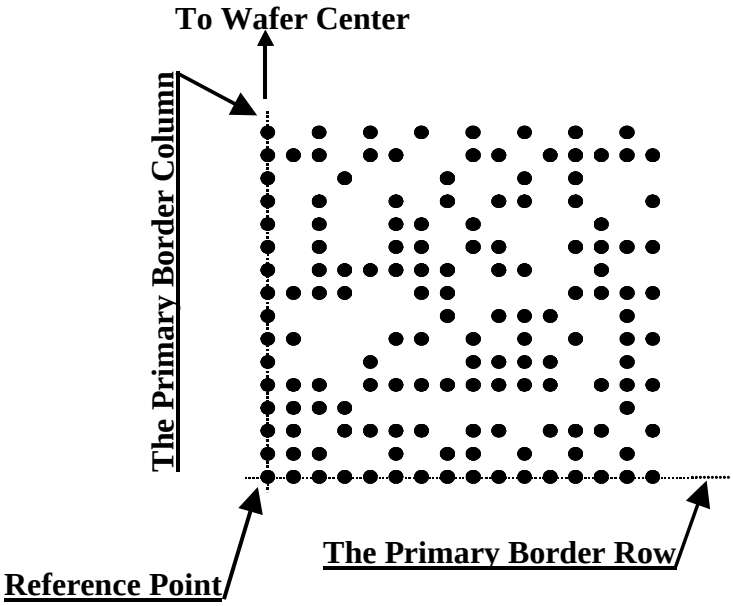
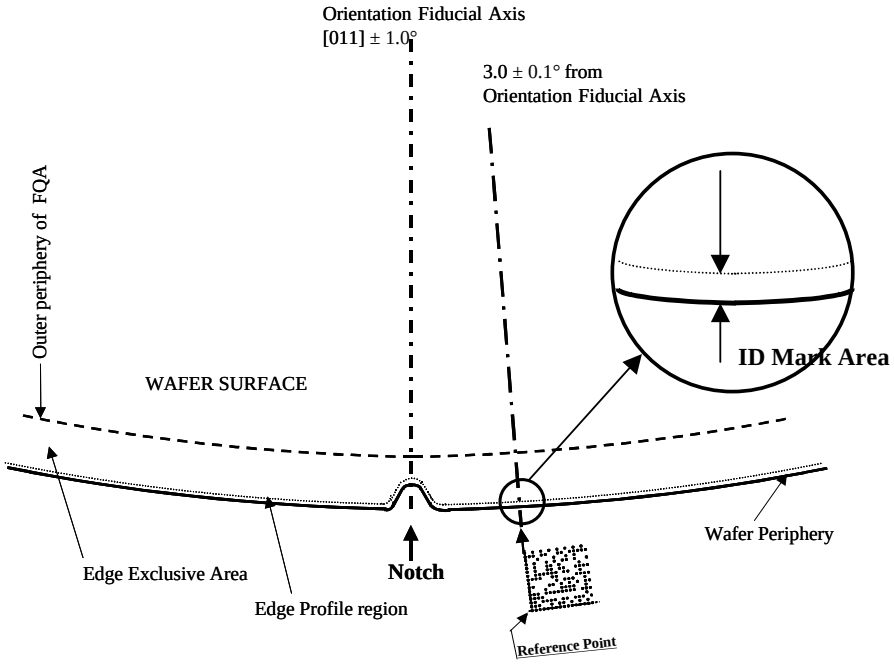


Figure 4
Data Matrix Code Fields
ECC200 - 16 rows × 16 columns



NOTE: Figure 5 is not to scale.

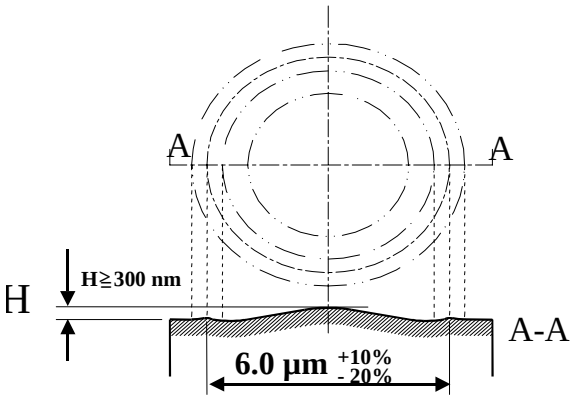
Figure 5
Data Matrix Code Location on Front Bevel Surface of Notched 300 mm Diameter Wafer
Top View

RELATED INFORMATION 1
APPLICATION NOTES

NOTICE: This related information is not an official part of SEMI (**doc#**) and was derived from the Japanese Traceability committee. This related information was approved for publication by full letter ballot on July 23, 2004.

R1-1 Shape and Size of the Protrusion Dot Mark

R1-1.1 A microdot mark is formed by laser irradiation and consists of a single dot mark on each laser-irradiated point. The mark has a single protrusion, which includes a concave portion provided around the protrusion and lower than a surface of the wafer and whose center potion protrudes upward so as to be higher than the surface of the wafer. The length of each dot mark along the surface of the article to be marked should be 6.0 µm + 10% – 20%. The protrusion height is more than 300 nanometers, formed on each laser irradiate point. (As shown in below Figure R1-1.)

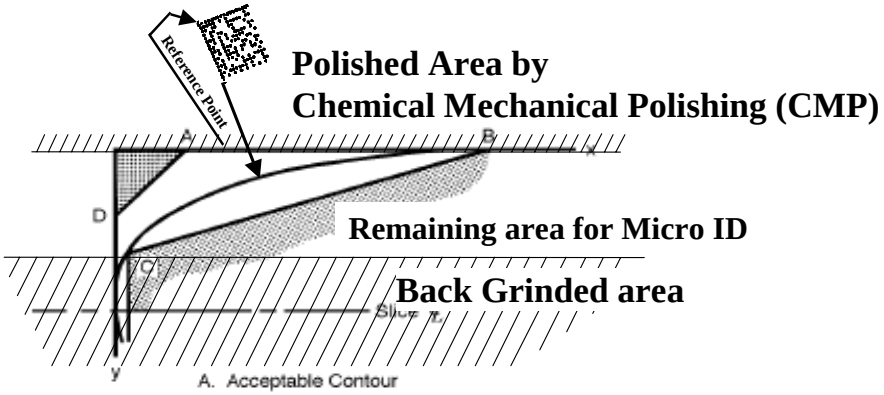


NOTE: Figure R1-1 is not to scale.

Figure R1-1
Dot Height & Vertical Cross Section

R1-2 Location of Data Matrix Code Symbol

R1-2.1 Data matrix code location is defined on the front bevel of a 300 mm diameter notched wafer, whose side view is referred from SEMI M1.



NOTE: Figure R1-2 is not to scale.

Figure R1-2
Data Matrix Code Location on Front Bevel Surface of 300 mm Diameter Wafer
Side View

RELATED INFORMATION 2
APPLICATION NOTES

NOTICE: This related information is not an official part of SEMI (**doc#**) and was derived from the Japanese Traceability Committee. This related information was approved for publication by full letter ballot on July 23, 2004.

R2-1 References

R2-1.1 The following papers may be referred to understand Micro ID technology presented in this document.

1) Improvement in Reading Precision of Micro-ID Engraved on Wafer, ISSM2003, 2003/09/30

2) Micro-ID Technology for Single Wafer Management, ISSM2002, 2002/10/17

3) New Identification System for Individual Wafer Management, ISSM2000; Session II-6 (2000) Page 33, 2000/9/26

R2-2 SEMI Activities

R2-2.1 Additional information is gathered at 2nd round robin of the Micro ID Task Force. Many of such information turned out to be excellent and valuable in reading the Micro ID.

SEMI T14.1-0705
SPECIFICATION FOR THE MICRO ID OF SHORT VERTICAL DIMENSION ON 300 mm WAFERS

This specification was technically approved by the global Traceability Committee. This edition was approved for publication by the global Audits and Reviews Subcommittee on May 20, 2005. It was available at www.semi.org in June 2005 and on CD-ROM in July 2005.

1 Purpose

1.1 The purpose of this document is to specify a new means of identification with the Micro ID on 300 mm polished monocrystalline Silicon wafer with polished edge for process control.

1.2 The objective of the Micro ID is to keep unique information to be assigned in the device manufacturing process on the location defined on the wafer bevel.

1.3 This sub-document to SEMI T14 is intoned that Micro ID technology should be enhanced further to apply on more precipitous edge profile 300 mm polished wafers.

2 Scope

2.1 This document assumes that the Micro ID is implemented under the responsibility of Device Manufacturers.

2.2 A two-dimensional data matrix code symbol consists of the microdots marked on the bevel of a semiconductor wafer.

2.3 Although this specification does not specify the marking techniques that may be employed when complying with its requirements, it is assumed that the microdots will be obtained by laser irradiated individual dots.

2.4 The data matrix code symbol is applicable to a broad range of wafer products (un-patterned or patterned wafers) with mirror polished bevel surface.

2.5 The format and algorithms of this code are based on two-dimensional symbology specified in ISO[1]/IEC[2] ISS 16022.

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 health practices and determine the applicability or regulatory limitations prior to use.

3 Referenced Standards and Documents

3.1 *SEMI Standards*

SEMI M1 — Specifications of Polished Monocrystalline Silicon Wafers

SEMI T14 — Specification for Micro ID on 300mm Silicon Wafers

3.2 *ISO/IEC Standard*

ISO/IEC ISS 16022 — International Symbology Specification – Data Matrix

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

4 Terminology

4.1 *Definitions*

4.1.1 *binary values* — a protrusion dot in the wafer surface indicates the binary value 1. The absence of a dot or a smooth surface surrounding a cell center point indicates the binary value 0.

1 International Organization for Standardization, ISO Central Secretariat, 1, rue de Varembé, Case postale 56, CH-1211 Geneva 20, Switzerland. Telephone: 41.22.749.01.11; Fax: 41.22.733.34.30 Website: http://www.iso.ch

2 International Electrotechnical Commission, 3, rue de Varembé, Case Postale 131, CH-1211 Geneva 20, Switzerland. Telephone: 41.22.919.02.11; Fax: 41.22.919.03.00 Website: http://www.iec.ch

4.1.2 *border column* — the outermost column of a data matrix code symbol. This column is a portion of the finder pattern.

4.1.3 *border row* — the outermost row of a data matrix code symbol. This row is a portion of the finder pattern.

4.1.4 *cell center point, of an array* — the point at which the centerline of a row intersects the centerline of a column.

4.1.5 *cell, of a* data matrix *code symbol* — the area within which a dot may be placed to indicate a binary value.

4.1.6 *cell spacing, of an array* — the (equal) vertical or horizontal distance between the cell center points of contiguous cells.

4.1.7 *center line, of a row or column* — the line positioned parallel to, and spaced equally between, the boundary lines of the row or column.

4.1.8 *central area, of a cell* — the area enclosed by a circle centered at the cell center point; used by code readers to sense the binary value of the cell.

4.1.9 *data matrix code symbol* — a two-dimensional array of square cells arranged in contiguous rows and columns. In certain ECC200 symbols, data regions are separated by alignment patterns. The data region is surrounded by a finder pattern [ISO/IEC ISS 16022].

4.1.10 *finder pattern, of a* data matrix *code symbol* — a perimeter to the data region. Two adjacent sides contain dots in every cell; these are used primarily to define physical size, orientation and symbol distortion. The two opposite sides are made up of cells containing dots in alternate cells [ISO/IEC ISS 16022].

4.1.11 *Micro ID* — Micro ID consists of the data matrix code symbol, which is formed with some protruding marks on the silicon wafers.

4.1.12 *protrusion dot* — a locally protruded region with a reflectance which differs from that of the surrounding surface.

4.1.13 NOTE 1: To assure reading efficiency, a minimum contrast of 30% is required between the reflectance value of a dot and the surrounding wafer surface. Various densitometers can provide such measurements nondestructively.

4.1.14 *protrusion dot misalignment, within a cell* — the distance between the physical center point of a protrusion dot and the cell center point.

5 Requirements

5.1 *Shape and Size of the Data Matrix Code Symbol*

5.1.1 Each rectangle data matrix code symbol shall be composed of an array of 12 rows and 26 columns as defined in ISO/IEC ISS 16022, as shown in Figure 1.

5.1.2 Cell spacing shall be 4.17μm, center to center, as shown in Figure 2.

5.2 *Shape and Size of the Microdot Mark*

5.2.1 A microdot mark is formed by laser irradiation and consists of a single dot mark on each laser-irradiated point.

5.2.2 The mark has a single protrusion, which includes a concave portion provided around the protrusion and lower than a surface of the wafer and whose center portion protrudes upward so as to be higher than the surface of the wafer.

5.2.3 The nominal shape of the dot produced in the matrix may be circular or square. It's diameter or edge length shall be 4.0 μm + 10% – 20%, Figure 3 shows one of the examples.

5.3 *Border Rows and Columns*

5.3.1 One border row and one border column shall contain a dot in each cell. These are identified as the primary border row and the primary border column. They are used by the code reader to determine the orientation of the matrix.

5.3.2 The opposing (secondary) border row and column shall contain dots in alternating cells.

5.3.3 The reference point shall be the physical center point of corner cell common to the primary border row and the primary border column, as shown in Figure 4.

5.3.4 The maximum dot misalignment within a cell is 0.93 µm. This ensures that a minimum size dot covers a cell central area of radius 0.67 µm.

5.4 *Content of the Data Matrix Code Symbol*

5.4.1 Each rectangle data matrix code symbol shall contain 22 message characters, together with the error checking and correcting (ECC200) code characters, encoded in accordance with ISO/IEC ISS 16022.

5.4.2 The message characters shall include the following: A–Z, 0–9, and dash (–).

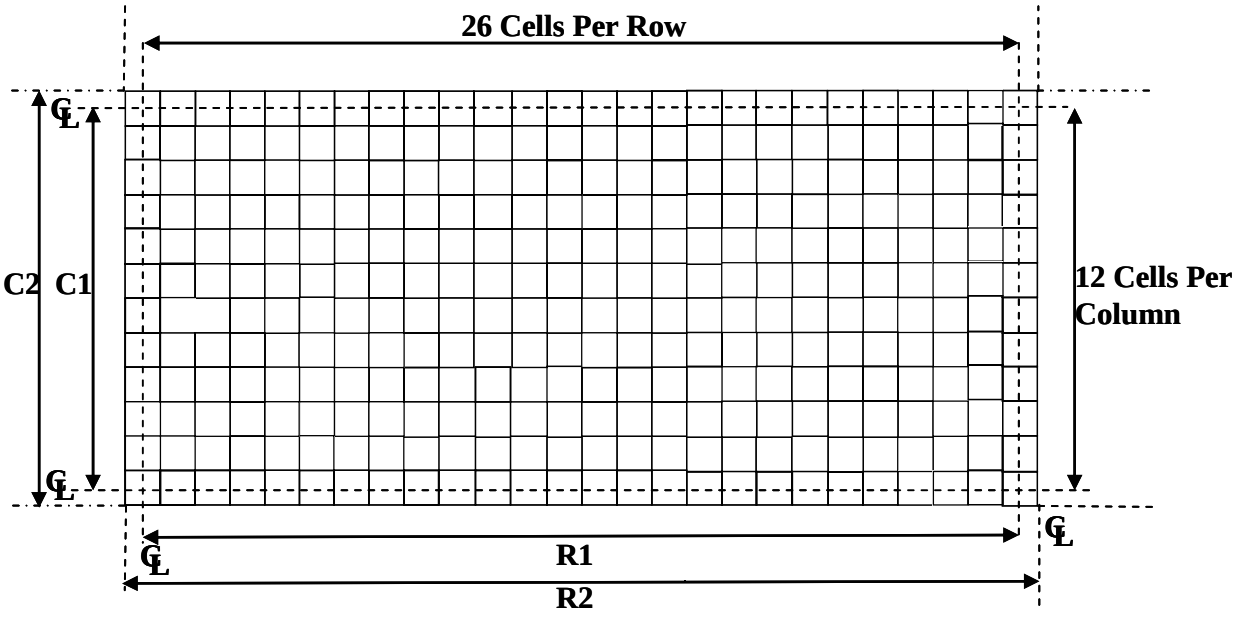
5.5 *Location of the Data Matrix Code Symbol*

5.5.1 With the wafer positioned front surface up and with the primary fiducial (notch) toward the operator, the origin of the data matrix code symbol shall be located as specified below.

5.5.1.1 *Circular Position* — The reference point shall be located along the perimeter by 3.0 ± 0.1° counterclockwise from the axis of the notch fiducial bisector, as shown in Figure 5.

5.5.1.2 *Radial Position* — The mark position of Micro ID is decided by the responsibility of Device Manufacturers on the bevel area where the Micro ID is survived even after the CMP processing and the backside grind. Refer to Related Information in Figure R1-2, for example.

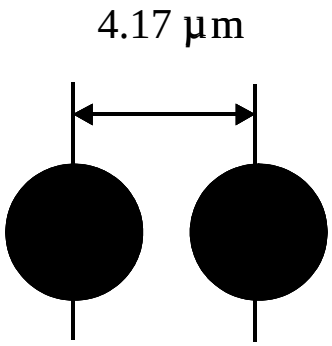
5.5.2 The primary border row of the data matrix code symbol shall be placed toward the periphery of the wafers, and the primary border column of the data matrix code symbol shall be placed toward the center of the wafers, originating from the reference point.



Nominal Dimensions (µm)

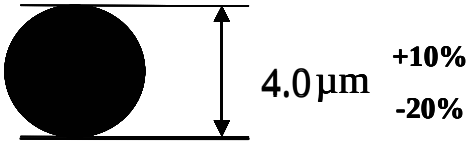
R1 = 104.25 ± 6% C1 = 45.87 ± 6%
R2 = 109.05 ± 6% C2 = 50.67 ± 6%

Figure1
Data Matrix Field Dimension
ECC200 – 12 Rows × 26 Columns



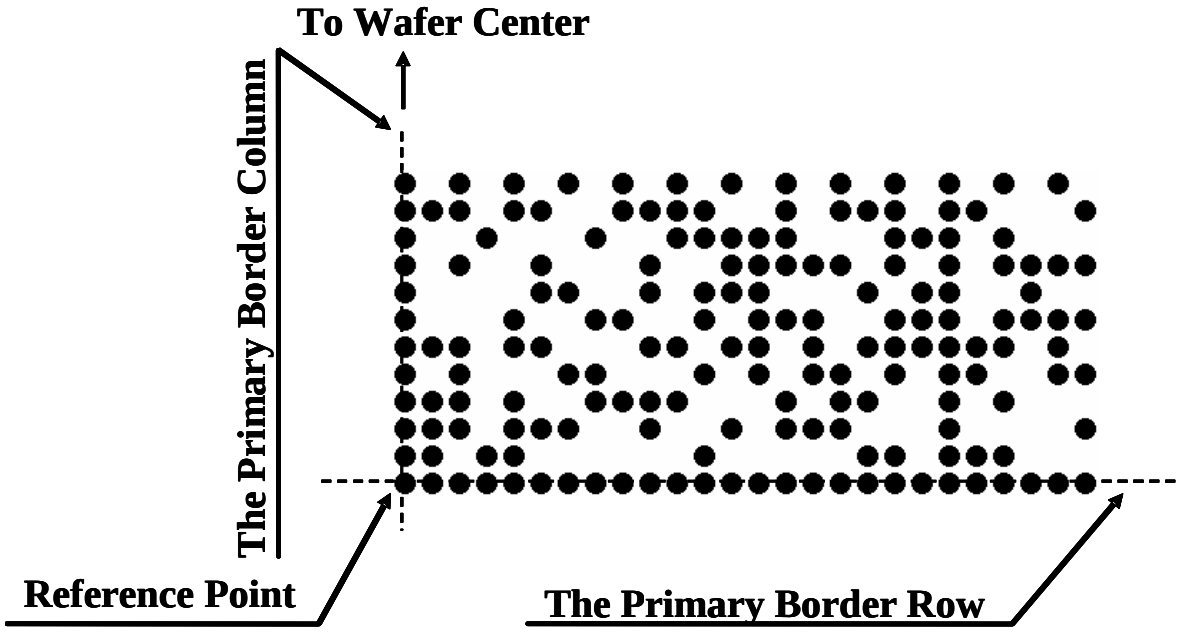
NOTE: Example of circular dots

Figure 2
Cell Spacing



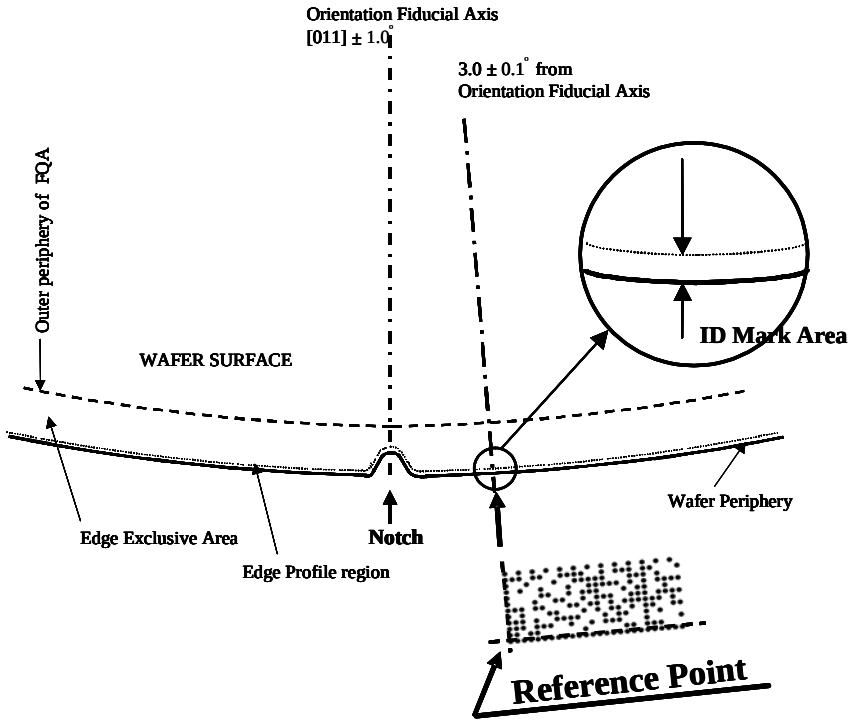
NOTE: Example of circular dot

Figure 3
Dot shape Circle (Projected sectional area)



NOTE: Example of circular dots

Figure4
Data Matrix Code Fields
ECC200 – 12 Rows × 26 Columns



NOTE: Figure 5 is not to scale.

Figure5 (Top view)

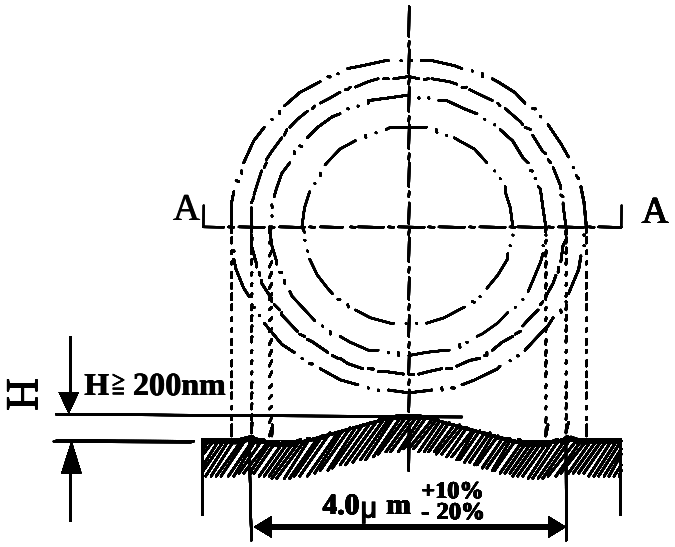
Data Matrix Code Location on Front Bevel Surface of Notched 300 mm Diameter Wafer

RELATED INFORMATION 1
APPLICATION NOTES

NOTICE: This related information is not an official part of SEMI T14.1 and was derived from full letter ballot procedures on May 20, 2005.

R1-1 Shape and Size of the Protrusion Dot Mark

R1-1.1 A microdot mark is formed by laser irradiation and consists of a single dot mark on each laser-irradiated point. The mark has a single protrusion, which includes a concave portion provided around the protrusion and lower than a surface of the wafer and whose center portion protrudes upward so as to be higher than the surface of the wafer. The nominal shape of the dot produced in the matrix may be circular or square. Its diameter or edge length shall be 4.0 μm + 10% – 20%. The protrusion height is more than 200 nanometers, formed on each laser irradiate point, as shown in below Figure.

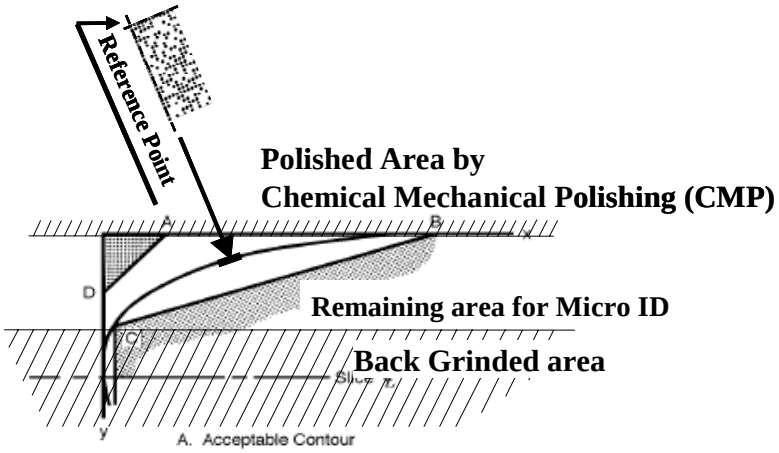


NOTE: Figure R1-1 is not to scale.
Example of circular dot

Figure R1-1
Dot Height & Vertical Cross Section

R1-2 Location of Data Matrix Code Symbol

R1-1.2 Data matrix code location is defined on the front bevel of a 300 mm diameter notched wafer, whose side view is referred from SEMI M1.



NOTE: Figure R1-2 is not to scale.

Figure R1-2 (Side view)
Data Matrix Code Location on Front Bevel Surface of 300 mm Diameter Wafer

RELATED INFORMATION 2
APPLICATION NOTES

NOTICE: This related information is not an official part of SEMI T14.1 and was derived from full letter ballot procedures on May 20, 2005.

R1-2 References

R1-2.1 The following papers may be referred to understand Micro ID technology presented in this document.

- Improvement in Reading Precision of Micro-ID Engraved on Wafer, ISSM2003, 2003/09/30
- Micro-ID Technology for Single Wafer Management, ISSM2002, 2002/10/17
- New Identification System for Individual Wafer Management, ISSM2000; Session II-6 (2000) Page33, 2000/9/26

R1-3 R2-2 SEMI Activities

R1-3.1 Additional information is gathered at the second round robin of the Micro ID Task Force.

R1-3.2 Many of such information turned out to be excellent and valuable in reading the Micro ID.

SEMI T15-0705
GENERAL SPECIFICATION OF JIG ID: CONCEPT

This standard was technically approved by the global Traceability Committee. This edition was approved for publication by the global Audits and Reviews Subcommittee on May 20, 2005. It was available at www.semi.org in June 2005 and on CD-ROM in July 2005.

1 Purpose

1.1 The purpose of this standard is to establish generic Jig ID to identify individual jigs uniquely, mounted on the jig to process semiconductor devices.

2 Scope

2.1 This Standard specify the following contents of IDs to be installed onto the jigs used in the process of semiconductor manufacturing.

- Types of IDs
- Data format

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 Limitation

3.1 This Standard does not restrict the communication protocol for communicating data of Jig ID.

3.2 This Standard does not provide the shape of tags in which the information of Jig ID is written.

3.3 This Standard does not specify the physical interfaces, such as the installation positions of Jig ID and reader or reader/writer.

4 Referenced Standards and Documents

4.1 *SEMI Standard*

SEMI T12 — Specification of Tracing Jigs and Implements

4.2 *Other Standard*

ISO/IEC ISS 16022 — Information Technology - International Symbology Specification - Data Matrix

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

5 Terminology

5.1 *Definition*

5.1.1 *Jig* — a kind of attachment used to support measurement or production for material on one or more equipment, as defined in SEMI T12.

5.1.2 *Jig ID* — an identifier installed onto a Jig, which is recognized to identify the individual piece.

5.2 *Abbreviations and Acronyms*

5.2.1 *RFID* — Radio Frequency Identification

6 Types of IDs

6.1 This Standard describes identification mechanism to allow automatic reading or writing as shown below.

- Barcodes

- 2D Codes — Data Matrix (ECC200)
- RFIDs

7 Data Format

7.1 Both of the following ID part and DATA part shall be contained in the JIG ID Tag. They shall exist on the same tag.

7.1.1 *ID part* — The ID part within the JIG ID is a part describing consolidated identification data to identify the jigs. The requirements of the ID part are specified as following.

7.1.1.1 The ID part exists on any JIG IDs.

7.1.1.2 Number of digits – The number of digits contained in the ID part shall be fixed to 16 digits.

7.1.1.3 *Attribute* — Information on the ID part shall be represented in Visible ASCII Characters (20_{16}-$7E_{16}$).

7.1.1.4 *Information alteration* – No alternation to information on the ID part shall be allowed.

7.1.1.5 *Format* — Information on the ID part consists of Supplier Code, year and month of manufacturing and a serial number.

7.1.1.5.1 *Supplier Codes*[1] — A series of Visible ASCII Characters (20_{16}-$7E_{16}$) to identify supplier with 3-character.

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

7.1.1.5.2 *Year and month of manufacturing* — The year and month of manufacturing shall be expressed in a four-digit number as shown below.

YYMM

7.1.1.5.2.1 YY shall be the last two digits of the year. MM shall be two digits month of year. For example, January shall be designated as 01 and October shall be designated as 10.

7.1.1.5.3 *Serial Number* — The serial numbers shall be expressed in nine-digit of alpha-numerical codes. Space codes or Null codes shall not be allowed. Duplicated serial numbers shall not be used if 'year and month of manufacturing' is equivalent.

7.1.2 *DATA Part*

7.1.2.1 The DATA part is the optional information for the JIG ID. The DATA part contained in JIG ID shall be used for such supplemental information as notes of the requirements, conditions and history of the JIG. The specification of the DATA part is as below.

7.1.2.2 *Number of Digits* — Although the number of digits of the DATA part is not stipulated in particular, the number shall be the minimum necessary to achieve the purpose abovementioned. The following example may help understanding: Even though there is a case where approximately. 256 byte letters are used for the primary memory to describe the number of shots and the history of errors, the limitation on the number of digits for the DATA part depends on the amount of memory held by the RFID tag.

7.1.2.3 *Attribute* — Information on the DATA part shall be represented in Visible ASCII Characters (20_{16}-$7E_{16}$).

7.1.2.4 *Information Alteration* — No considerations are given to whether or not information on the DATA part is available for alteration. This information is available to read only, record, or read and write data.

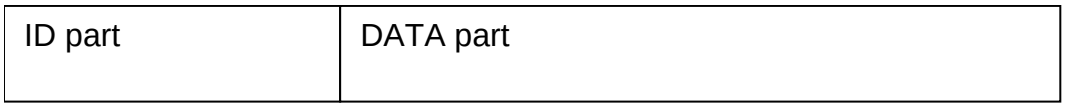


Figure 1
Data format of JIG ID

A	A	A	Y	Y	M	M	S	S	S	S	S	S	S	S	S

NOTE 1: A stands for the codes for suppliers.

NOTE 2: YY stands for the year of manufacture and MM stands for the month of manufacture.

NOTE 3: S stands for the serial numbers.

Figure 2
ID part

NOTICE: SEMI makes no warranties or representations as to the suitability of the standards set forth herein for any particular application. The determination of the suitability of the standard is solely the responsibility of the user. Users are cautioned to refer to manufacturer's instructions, product labels, product data sheets, and other relevant literature, respecting any materials or equipment mentioned herein. These standards are subject to change without notice.

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