

SEMI M23.2-1000

STANDARD FOR ROUND 3 inch (76.2 mm) DIAMETER POLISHED MONOCRYSTALLINE INDIUM PHOSPHIDE WAFERS

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NOTE: The complete specification for this product includes all requirements of SEMI M23.

Table 1 Dimension and Tolerance Requirements

<i>Property</i>	<i>Dimension</i>	<i>Tolerance</i>	<i>Units^{#1}</i>
DIAMETER	76.2	± 0.5	mm
THICKNESS, CENTER POINT	600	± 25	μm
PRIMARY FLAT LENGTH	22	± 2	mm
SECONDARY FLAT LENGTH	11	± 2	mm
BOW	to be specified		
TOTAL THICKNESS VARIATION	to be specified		

1 For reference purposes, the metric (SI) units apply.

Table 2 Orientation and Flat Location Requirements

<i>Property</i>	<i>Requirement</i>	
<i>Option</i>	<i>Dove-Tail</i>	<i>V-Groove</i>
PRIMARY FLAT ORIENTATION	(011) $\pm 0.5^\circ$, (see #1) under an indium facet. The primary flat shall be perpendicular to the "Dove-tail" etch figure. (See #2)	(011) $\pm 0.5^\circ$, (see #1) under a phosphorus facet. The primary flat shall be perpendicular to the "V-Groove" etch figure. (See #2)
SECONDARY FLAT ORIENTATION	$90 \pm 5^\circ$ clockwise from the primary flat.	$90 \pm 5^\circ$ counterclockwise from the primary flat.
SURFACE ORIENTATION (See NOTE 3.)		
A	{100} $\pm 0.5^\circ$ (see Figure 1, SEMI M23)	{100} $\pm 0.5^\circ$ (see Figure 2, SEMI M23)
B	{100} off $2^\circ \pm 0.5^\circ$ toward any {110} plane (see Figure 3)	{100} off $2^\circ \pm 0.5^\circ$ toward the {110} plane which is between the primary and secondary flats (see Figure 4)
ORTHOGONAL MISORIENTATION	$\pm 5^\circ$ (see Figure 5)	$\pm 5^\circ$ (see Figure 5)

#1 See Table 1 in SEMI M23.

#2 See Figures 1 and 2 in SEMI M23, which show the orientation of the Dovetail and V-groove figures relative to crystallographically anisotropic pits (see NOTE 4).

#3 The frame of reference is the (100) plane of the crystal. It is the wafer normal that is tilted towards the (110) plane of the crystal.

#4 Relating to the etchant used for identifying V-groove and/or dovetail direction, see reference: "HBr-K₂Cr₂O₇ - H₂O etching system for indium phosphide" J.L.Weyher, et al. Materials Science and Engineering B28 (1994) 488-492.



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