Licensed by SEMI to Shibo Zhang, _SEMI_Individuals
Downloaded: 2019-11-24
Single user license only. Copying and Networking prohibited.

Table 6 Dimensional Characteristics of 100 mm and 125 mm Polished Single Crystal Silicon Wafers Without Secondary Flat#1

Property		*100 mm Wafers Without Secondary Flat (t=525 µm)#2*	*125 mm Wafers Without Secondary Flat (t=625 µm)#2*
Previous SEMI Reference:		*SEMI M1.11*	*SEMI M1.12*
Wafer Category:		*1.11*	*1.12*
2-6.1	Diameter	100.00 ± 0.20 mm.	125.00 ± 0.20 mm
2-6.2	Primary Flat Length	32.5 ± 2.5 mm	42.5 ± 2.5 mm
2-6.3	Primary Flat Orientation#3	{110} ± 1°	
2-6.5	Secondary Flat Location	No secondary flat	
2-6.6	Edge Profile Coordinate, C_y (T/3 Template, see Table 10)	175 µm	208 µm
2-6.7	Thickness, Center Point	525 ± 15 µm	625 ± 15 µm
2-6.8	Total Thickness Variation, Max.	10 µm	
2-6.9	Bow, Max.	40 µm	
2-6.10	Warp, Max.	40 µm	

#1 Note that these specifications were originated in Japan. They are equivalent to the specifications for wafers of the same nominal diameter in JEITA EM-3602. Care should be taken in applying this configuration to specific applications (see ¶ 6.1.4).

#2 For referee purposes, metric (SI) units apply. To ensure that product shipped is within specification, any conversion to U.S. Customary equivalents should be done following the maximum-minimum convention in which the minimum values are rounded-up and the maximum values are rounded-down to ensure that the equivalent range is always inside the referee range. If U.S. Customary equivalents are used for incoming inspection, minimum values should be rounded-down and maximum values rounded-up to avoid rejection of material that is within the specification when measured by the referee system of units. **CAUTION**: The significance of the rightmost digit may vary, depending on the quantity being measured and the precision of the test procedure. Refer to the relevant test method for precision data which can be used to construct appropriate guard bands.

#3 For (111) wafers, the $(1\bar{1}0)$, $(01\bar{1})$, and $(\bar{1}01)$ planes are the equivalent, allowable (110) planes. For (100) wafers, the allowable equivalent (110) planes are $(01\bar{1})$, (011), $(0\bar{1}1)$, and $(0\bar{1}\bar{1})$.

Table 7 Dimensional Characteristics of 150 mm and 200 mm Polished Single Crystal Silicon Wafers Without Secondary Flat#1

Property		*150 mm Wafers Without Secondary Flat (t=625 µm)#2*		*200 mm Wafers Flatted, Without Secondary Flat#2*	
Previous SEMI Reference:		*SEMI M1.13*		*SEMI M1.10*	
Wafer Category:		*1.13.1*	*1.13.2*	*1.10.1*	*1.10.2*
2-6.1	Diameter	150.00 ± 0.20 mm		200.00 ± 0.20 mm	
2-6.2	Primary Flat Length	47.5 ± 2.5 mm		Not applicable	
	Flat Diameter	Not applicable		195.50 ± 0.20 mm	
2-6.3	Primary Flat Orientation#3	{110} ± 1°			
2-6.5	Secondary Flat Location	No secondary flat			
2-6.6	Edge Profile Coordinate, C_y (see Table 10)	T/3 Template 208 µm	T/4 Template 156 µm	T/3 Template 242 µm	T/4 Template 181 µm
2-6.7	Thickness, Center Point	625 ± 15 µm		725 ± 20 µm	
2-6.8	Total Thickness Variation, Max.	10 µm			
2-6.9	Bow, Max.	60 µm		65 µm	
2-6.10	Warp, Max.	60 µm		75 µm	
2-5.7	Edge Surface Condition	Not specified		Supplier-customer agreement#4	

#1 Note that these specifications were originated in Japan. They are equivalent to the specifications for wafers of the same nominal diameter in JEITA EM-3602. Care should be taken in applying this configuration to specific applications (see ¶ 6.1.4).

Licensed by SEMI to Shibo Zhang, _SEMI_Individuals
Downloaded: 2019-11-24
Single user license only. Copying and Networking prohibited.

#2 For referee purposes, metric (SI) units apply. To ensure that product shipped is within specification, any conversion to U.S. Customary equivalents should be done following the maximum-minimum convention in which the minimum values are rounded-up and the maximum values are rounded-down to ensure that the equivalent range is always inside the referee range. If U.S. Customary equivalents are used for incoming inspection, minimum values should be rounded-down and maximum values rounded-up to avoid rejection of material that is within the specification when measured by the referee system of units. **CAUTION**: The significance of the rightmost digit may vary, depending on the quantity being measured and the precision of the test procedure. Refer to the relevant test method for precision data which can be used to construct appropriate guard bands.

#3 For (111) wafers, the $(1\bar{1}0)$, $(01\bar{1})$, and $(\bar{1}01)$ planes are the equivalent, allowable (110) planes. For (100) wafers, the allowable equivalent (110) planes are $(01\bar{1})$, (011), $(0\bar{1}1)$, and $(0\bar{1}\bar{1})$.

#4 If specified as polished, this term is meant to imply a surface condition and not a particular processing technique. If desired, a quantitative measure of surface finish may optionally be indicated by specifying the rms microroughness over a specified spatial frequency (or wavelength) range. Because a standardized test method has not yet been developed for this metric, both values and test procedures, including sampling plan and detrending procedures, shall be agreed upon between supplier and customer.

Table 8 Dimensional Characteristics and Wafer ID Marking Requirements for Notched 200 mm and 300 mm Polished Single Crystal Silicon Wafers[#1]

Property		*200 mm Wafers (Notched)*[#2]			*300 mm Wafers (Notched)*[#2]
Previous SEMI Reference:		*SEMI M1.9*			*None*
Wafer Category:		*1.9.1*	*1.9.2*	*1.9.3*	*1.15.1*
2-5.1	Wafer ID Marking	Supplier-customer agreement			SEMI T7 mark with optional A/N mark (see ¶ 6.6.1.4)
2-5.7	Edge Surface Condition	Supplier-customer agreement[#3]			Polished[#3]
2-6.1	Diameter	200.00 ± 0.20 mm			300.00 ± 0.20 mm
2-6.2	Notch Dimensions (see Figure 5) Depth Angle	1.00 mm + 0.25 mm − 0.00 mm 90° + 5° − 1°			
2-6.3	Orientation of Notch Axis[#4]	<110> ± 1°			
2-6.5	Secondary Fiducial Location	No secondary fiducial			
2-6.6	Edge Profile[#5]	T/3 Template C_y = 242 µm	T/4 Template C_y = 181 µm	Edge profile parameters	Edge profile parameters
2-6.7	Thickness, Center Point	725 ± 20 µm			775 ± 20 µm
2-6.8	Total Thickness Variation, Max.	10 µm			10 µm[#6]
2-6.9	Bow, Max.	65 µm			Not specified
2-6.10	Warp, Max.	75 µm			100 µm[#7]
2-9.8	Back Surface Brightness (Gloss)	Not specified			0.80[#3,#8]

#1 Note that these specifications were originated in the United States. Care should be taken in applying this configuration to specific applications (see ¶ 6.1.4). Except for the edge profile characteristics, the specification for 300 mm wafers is essentially equivalent to the specification for wafers of this diameter in JEITA EM-3602.

#2 For referee purposes, metric (SI) units apply. To ensure that product shipped is within specification, any conversion to U.S. Customary equivalents should be done following the maximum-minimum convention in which the minimum values are rounded-up and the maximum values are rounded-down to ensure that the equivalent range is always inside the referee range. If U.S. Customary equivalents are used for incoming inspection, minimum values should be rounded-down and maximum values rounded-up to avoid rejection of material that is within the specification when measured by the referee system of units. **CAUTION**: The significance of the rightmost digit may vary, depending on the quantity being measured and the precision of the test procedure. Refer to the relevant test method for precision data which can be used to construct appropriate guard bands.

#3 If specified as polished, this term is meant to imply a surface condition and not a particular processing technique. If desired, a quantitative measure of surface finish may optionally be indicated by specifying the rms microroughness over a specified spatial frequency (or wavelength) range. Because a standardized test method has not yet been developed for this metric, both values and test procedures, including sampling plan and detrending procedures, shall be agreed upon between supplier and customer.

#4 For (111) wafers, the $[1\bar{1}0]$, $[01\bar{1}]$, and $[\bar{1}01]$ axes are the equivalent, allowable <110> axes. For (100) wafers, the allowable equivalent <110> axes are $[01\bar{1}]$, [011], $[0\bar{1}1]$, and $[0\bar{1}\bar{1}]$.

#5 For edge profile coordinates C_y see Table 10, and for the format of edge profile parameter specifications see Table 11.

#6 Full wafer scan as described in SEMI MF1530.