

Standard specifications of 2 inch / 100 mm Sn-doped β -Ga₂O₃ (001) substrates

Items		Specifications	
Orientation		(001)	
Dopant		Sn	
Conductivity		n-type	
Resistivity ($\Omega \cdot \text{cm}$)		0.007–0.042	
Dimensions	Size	2 inch	100 mm
	Diameter (mm)	50.8 ± 0.3	100 ± 0.5
	Orientation flat width (mm)	15.9 ± 2.5	32.5 ± 2.5
	Index flat width (mm)	8.0 ± 2.5	18.0 ± 2.5
	Thickness (mm)	0.65 ± 0.02	
	Reference	Fig. 1	
Offset angle (degree)		[010] : 0 ± 1	
		[100] : 0 ± 1	
XRD FWHM (arcsec)		[010] : ≤ 50	
		[100] : ≤ 50	
Surface	Front	CMP	
	Back	CMP	

Remarks

- Chipping may occur within the following limits:
2-inch: <8 mm (opposite OF), $<15.9 \pm 2.5$ mm (OF side); 100 mm: <18 mm (opposite OF), $<32.5 \pm 2.5$ mm (OF side).
- These products must be used for research and development purposes only.
- The substrates must not be used as a seed crystal.
- The specifications are subject to change without notice.

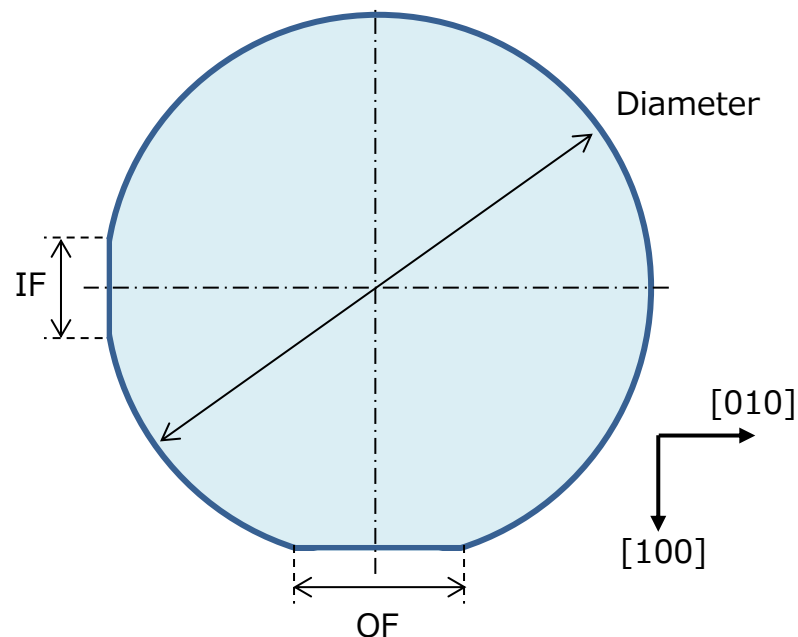


Fig.1



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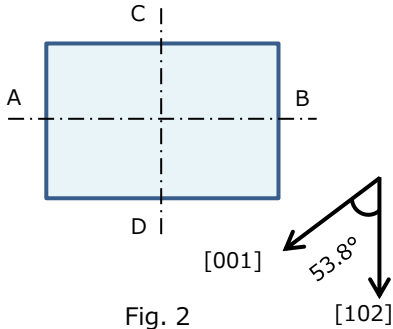
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Standard specifications of 10×15 mm² β-Ga₂O₃ (010) substrates

Items		Specifications		
Orientation		(010)		
Dopant		Sn	Undoped	Fe
Conductivity		n-type	n-type	Insulating ($>10^{10}\Omega \cdot \text{cm}$)
N_d-N_a (cm ⁻³)		$1 \times 10^{18} - 9 \times 10^{18}$	$\leq 9 \times 10^{17}$	-
Dimensions	A-B (mm)	15 ± 0.3	15 ± 0.3	15 ± 0.3
	C-D (mm)	10 ± 0.3	10 ± 0.3	10 ± 0.3
	Thickness (mm)	0.5 ± 0.02	0.5 ± 0.02	0.5 ± 0.02
	Reference	Fig. 2	Fig. 2	Fig. 2
Offset angle (degree)		$\perp[102] : 0 \pm 1$	$\perp[102] : 0 \pm 1$	$\perp[102] : 0 \pm 1$
		$[102] : 0 \pm 1$	$[102] : 0 \pm 1$	$[102] : 0 \pm 1$
XRD FWHM (arcsec)		$\perp[102] : \leq 150$	$\perp[102] : \leq 150$	$\perp[102] : \leq 150$
		$[102] : \leq 150$	$[102] : \leq 150$	$[102] : \leq 150$
Surface	Front	CMP	CMP	CMP
	Back	Grinding	Grinding	Grinding

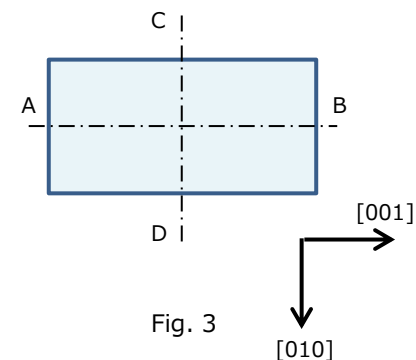
Remarks

- 1 These products must be used for research and development purposes only.
- 2 The substrates must not be used as a seed crystal.
- 3 The specifications are subject to change without notice.



Standard specifications of β -Ga₂O₃ (100) substrates

Items		Specifications
Orientation		(100)
Dopant		Sn, Undoped, Fe
Conductivity		-
N_d-N_a (cm ⁻³)		-
Dimensions	A-B (mm)	- (Typical : 20-23)
	C-D (mm)	- (Typical : 10)
	Thickness (mm)	- (Typical : 0.2-1.0)
	Reference	Fig.3
Offset angle (degree)		-
		-
XRD FWHM (arcsec)		-
		-
Surface	Front	Cleavage
	Back	Cleavage



Remarks

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Standard specifications of 10×15 mm² β-Ga₂O₃ (011) substrates

Items		Specifications	
Orientation		(011)	
Dopant		Sn	Fe
Conductivity		n-type	Insulating ($>10^{10}\Omega \cdot \text{cm}$)
N_d-N_a (cm ⁻³)		$2 \times 10^{18} - 2 \times 10^{19}$	-
Dimensions	A-B (mm)	15 ± 0.3	15 ± 0.3
	C-D (mm)	10 ± 0.3	10 ± 0.3
	Thickness (mm)	0.5 ± 0.02	0.5 ± 0.02
	Reference	Fig. 4	Fig. 4
Offset angle (degree)		[100]: 0 ± 1	[100]: 0 ± 1
		$\perp[100]$: 0 ± 1	$\perp[100]$: 0 ± 1
XRD FWHM (arcsec)		[100]: ≤ 150	[100]: ≤ 150
		$\perp[100]$: ≤ 150	$\perp[100]$: ≤ 150
Surface	Front	CMP	CMP
	Back	Grinding	Grinding

Remarks

- 1 These products must be used for research and development purposes only.
- 2 The substrates must not be used as a seed crystal.
- 3 The specifications are subject to change without notice.

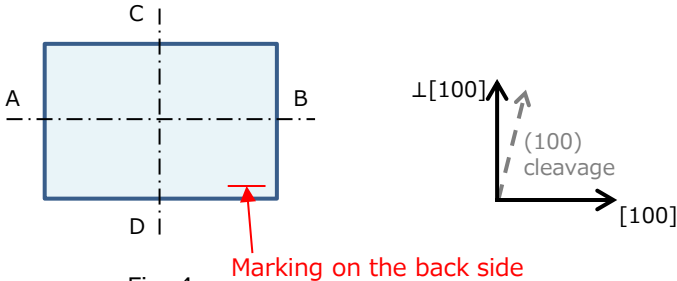


Fig. 4

