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Semiconductor	SiC
Polytype	4H
Diameter	150 mm

Table 1. SUBSTRATE Specifications

Parameter	Specification	Unit	Test Method
Poly-Type	4H-N-type		
Crystal Orientation	4.0° towards <11$\bar{2}$0> ± 0.5°		
Dopant	Nitrogen		
Dopant Type	N-type		
Resistivity	0.02±0.005	Ωcm	Test 57 points
Polarity of Faces	Optical polish: Carbon face CMP: Si face ready for EPI		
Nominal Diameter	150.0±0.2	mm	
Primary Flat Length	47.5±2.5	mm	
Primary Flat Location	In {1-100} plane, with flat parallel to <11$\bar{2}$0> direction± 5°		
Thickness	350±25	μm	
Total Thickness Variation (TTV)	≤10	μm	
Warp	≤40	μm	
Bow	±25	μm	
Local Thickness Variation (LTV)	≤3.5	μm	10mm×10mm site size, by FRT
TUA (Total Usable Area) Based on a 3X3mm Die Grid	⩾92.0	%	3mm×3mm Die Grid By Candela
Micropipe Density (MPD)	⩽0.5	cm^{-2}	By Candela
BPD(Basal Plane Dislocation)	⩽5000	cm^{-2}	KOH etching
TSD(Threading Screw Dislocation)	⩽300	cm^{-2}	KOH etching
Scratch Length	⩽150	mm	Cumulative length per wafer By Candela
Foreign Poly Types	0	%	0 within the Fixed Quality Area,
Stains	⩽2*2	cm^2	Backside stain inspection by bright light
Edge Chips	None greater than 0.5 mm width or depth.	Boolean	Inspection performed using unaided eye under bright light.
Surface Roughness	Less than 0.2nm within the FQA	nm	area 5 um x 5 um By AFM
Surface Metal Contamination	5E11	Atoms /cm^2	Na,K,Ca,Fe,Ni,Cu,Zn,Au,Ag,Al,Ga,Hg, As,Pt

Table 2. 150 mm EPITAXY Specifications

Parameter		N-type
Dopant		Nitrogen
Doping calculation Method		N_D-N_A
CV Doping Concentration	Range	2.05E16 cm^{-3} ± 10%
	Tolerance	± 30%
	Uniformity	≤ 10%
	Test method	MCV
FTIR Thickness	Range	5 um± 5%
	Tolerance	± 20%
	Uniformity	≤ 5%
	Test method	FTIR
Notes	1. Tolerance calculation method: ｜(Extreme value -Target value) ｜/Target value 2. Uniformity calculation method: Standard deviation value/Mean value 3. Edge exclusion: 5 mm 4. Specific specifications can be customized by customers	

Table 3. 150mm EPITAXY Characteristics

Characteristics	Specification	Method	Definition and detail
Electrically Active Defects	≤4 cm^{-2}	Candela CS920, or 8520, or Lasertec Sica88	Includes :Triangles, Downfalls
Scratches	Total length ≤ 150mm	Candela CS920, or 8520, or Lasertec Sica88	Front side surface
Stains	＜2*2cm^2	Accent light	The stains on the backside (sheet/block)
Roughness	＜0.5 nm	AFM	20 μm^2 sampling area, front side surface
Coating	Coating width < 3mm	Accent light	Sediments at the backside edge of SiC Epi
Die yield	⩾90%	Candela CS920, or 8520, or Lasertec Sica88	Electrically active defects on 3x3 mm^2 die，Includes :Triangles, Downfalls
Note	3mm edge exclusion for 150mm wafer		

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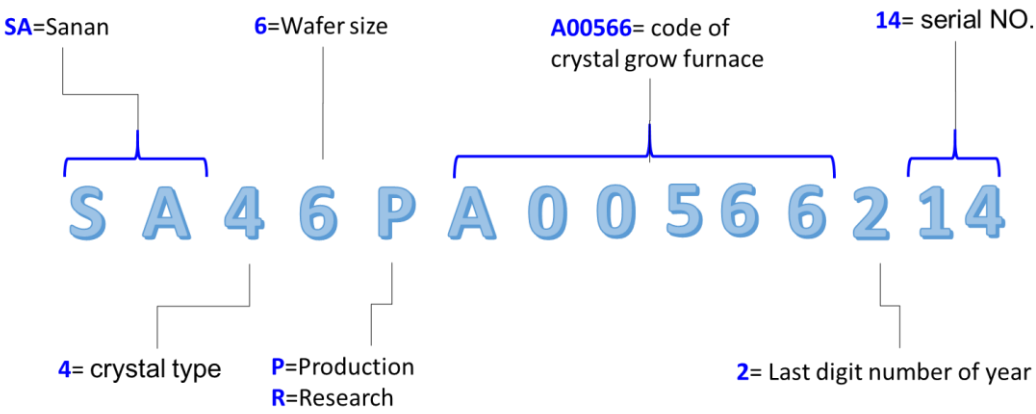
Naming Rules



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