Silicon Crystal & Compound Semiconductor

Silicon Carbide (SiC) Substrate

Silicon Carbide Substrate, manufactured from crystal grown by MOCVD method, is an outstanding new generation wide bandgap semiconductor with high thermal conductivity and breakdown field, high intrinsic temperature and radiation resistance ability, allowing fast electron drifting speed, as well as more stable chemical properties, which can be widely applied for high-tech fields or emerging markets such as electric power transmission, LED display, new energy automobiles, Aeronautics and Astronautics industries. 4H/6H conductivity is acailable, 2" 3" 4" and 6" can be supplied.

No.	Items		Standard Specifications			
1	Size		2"	3"	4"	6"
2	Diameter	mm	50.8±0.2	76.2±0.2	100±0.5	150±0.5
3	Growth Method		MOCVD	MOCVD	MOCVD	MOCVD
4	Conductivity Type		4H-N/N, 6H-N/N, 4H-SI, 6H-SI			
5	Resistivity	Ω·cm	0.015-0.028 for 4H-N; 0.02-0.1 for 6H-N; >1E5 for 4H-SI or 6H-SI			
6	Orientation		0°±0.2°; 4.0°±0.5°			
7	Thickness	μm	330±25	(350-500)±25	(350-500)±25	(350-500)±25
8	Primary Flat Location		<1-100>±5°	<1-100>±5°	<1-100>±5°	<1-100>±5°
9	Primary Flat Length	mm	16±1.7	22.2±3.2	32.5±2	47.5±2.5
10	Secondary Flat Location		Silicon face up: 90°, clockwise from prime flat ±5.0°			
11	Secondary Flat Length	mm	8±1.7	11.2±1.5	18±2	22±2.5
12	TTV	μm max	15	15	15	15
13	Bow	μm max	40	40	40	40
14	Warp	μm max	60	60	60	60
15	Edge Exclusion	mm max	1	2	3	3
16	Micropipe Density	cm^{-2}	<5, industrial; <15, lab; <50, dummy			
17	Dislocation	cm^{-2}	<3000, industrial; <20000, lab; <500000, dummy			
18	Surface Roughness	nm max	1(Polished), 0.5 (CMP)			
19	Cracks		None, for industrial grade			
20	Hexagonal Plates		None, for industrial grade			
21	Scratches		≤3mm, total length less than substrate diameter			
22	Edge Chips		None, for industrial grade			

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