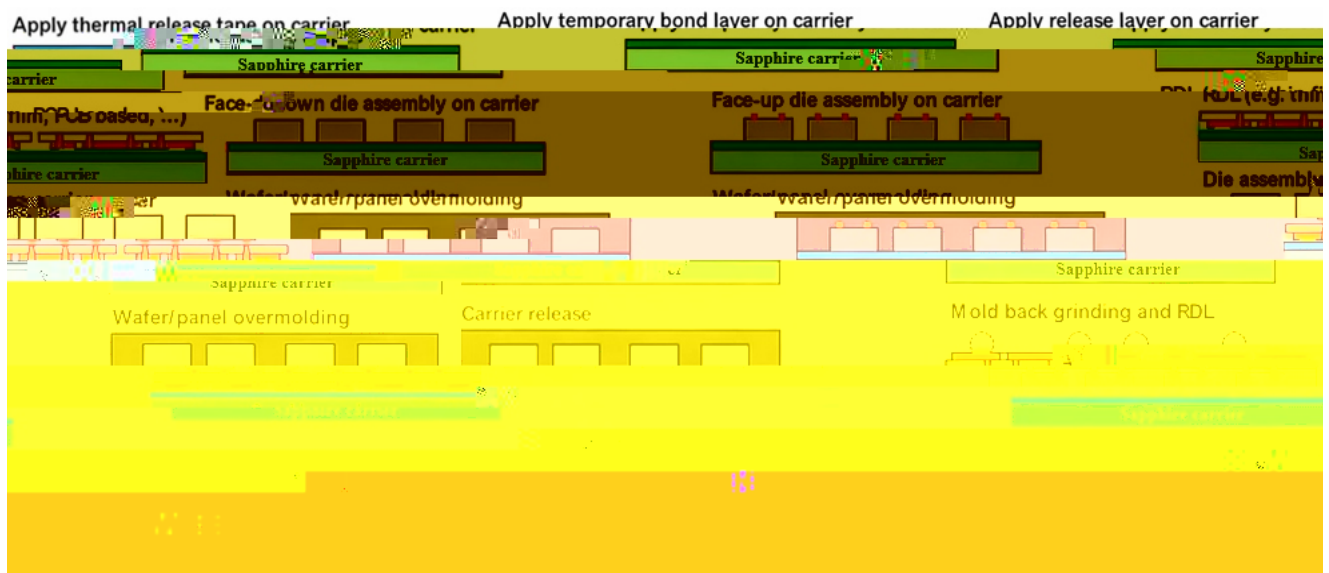
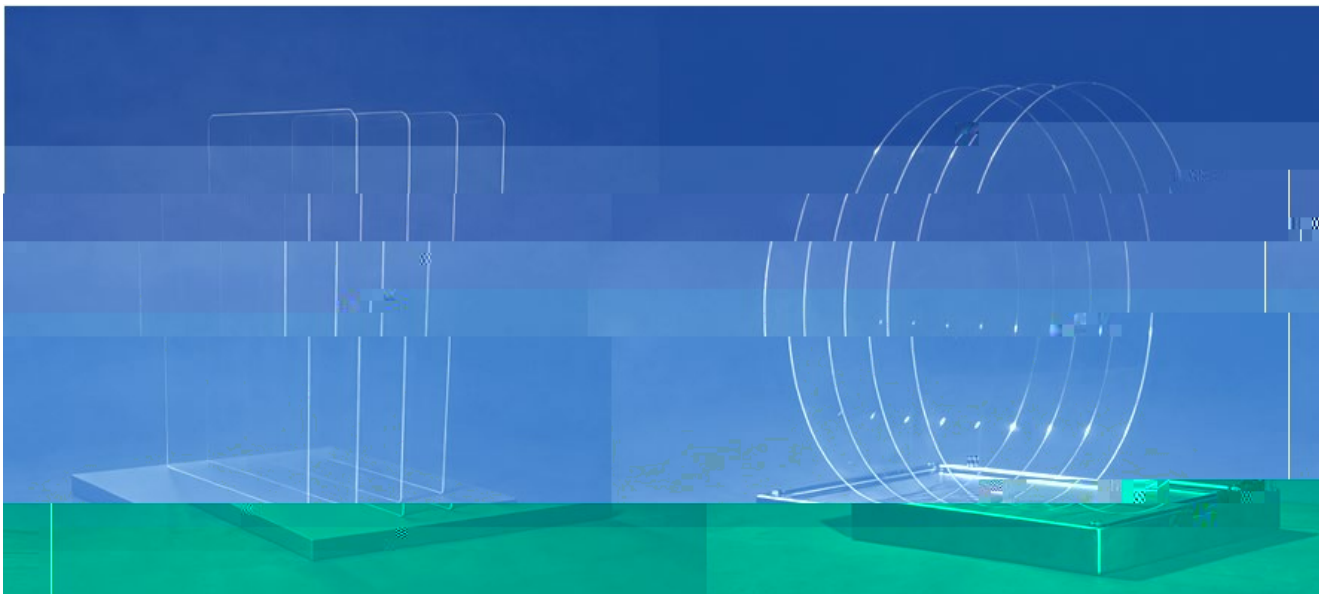


蓝宝石载盘 Sapphire Carrier

高杨氏模量 | 高机械强度 | 高透过率 | 与晶圆制程完美兼容
——适配先进封装、超薄晶圆处理场景

High Young's Modulus | High mechanical strength | High Transmittance | Perfect Compatibility with Wafer Processing
—— Suitable for advanced packaging and ultra-thin wafer processing scenarios



半导体载盘行业痛点

Pain Points in the Semiconductor Carrier Industry

当前先进封装在薄型化过程中面临的主要挑战是形变与翘曲问题。由于晶片、封装基板、底部填充胶、中介层及覆盖层等材料之间存在热膨胀系数不匹配、固化收缩以及厚度分布不对称等因素，在反复热循环过程中容易引发应力累积，进而导致结构变形。这一问题已成为封装行业在优化设计中亟需解决的关键痛点。

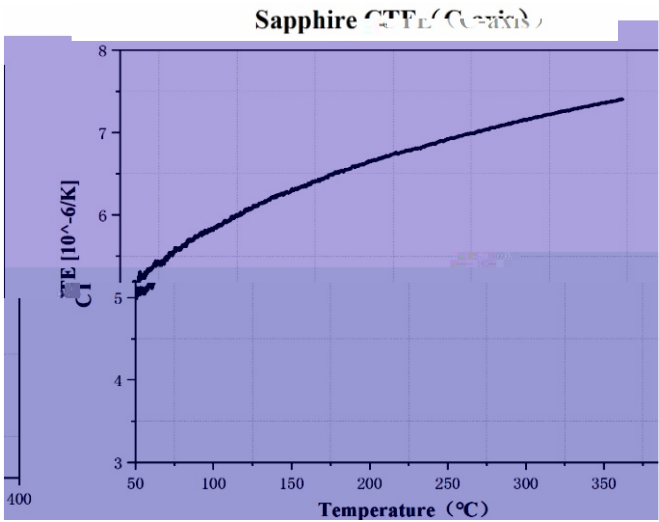
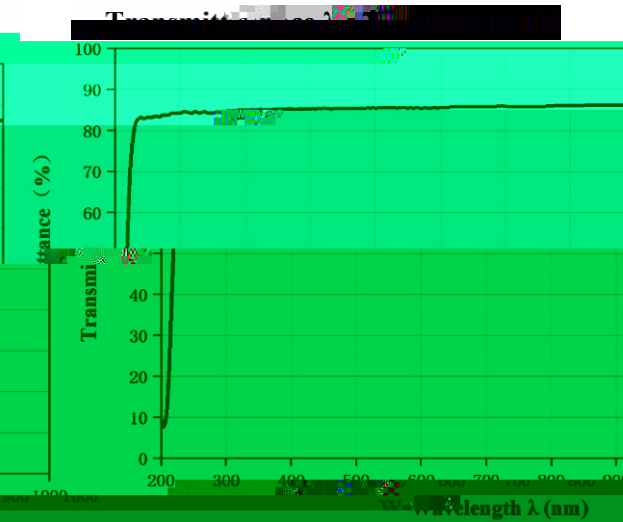
Current advanced packaging faces primary challenges of deformation and warpage during the thinning process. Due to factors such as mismatches in the coefficient of thermal expansion (CTE) among materials like the die, packaging substrate, underfill, interposer, and mold compound, as well as curing shrinkage and asymmetric thickness distribution, stress accumulation is prone to occur during repeated thermal cycling, which in turn leads to structural deformation. This issue has become a critical pain point that the packaging industry urgently needs to address in optimization design.

蓝宝石性能优势

Performance Advantages of Sapphire

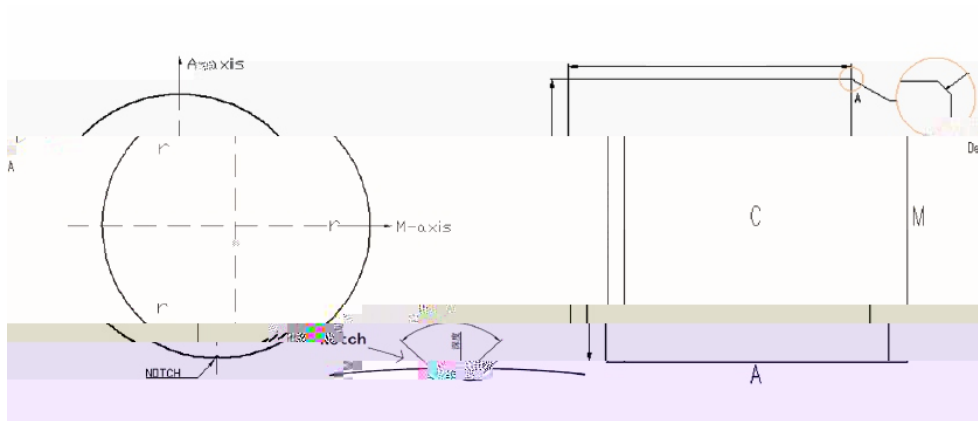
High Young's Modulus

High Young's modulus(345-420 GPa) effectively suppresses deformation and warpage



蓝宝石载盘规格

Specifications of Sapphire Carrier



Wafer	8", 12";THK 0.7~2mm
Panel	100*100~510*515mm;THK 0.7~2mm

Mechanical and Surface Properties			
Property	Performance Levels		
	Standard	Advanced	Elite
Flatness (TTV)	Standard	$\leq 3\mu\text{m}$	$\leq 5\mu\text{m}$
	Advanced	$\leq 2\mu\text{m}$	$\leq 3\mu\text{m}$
Thickness Tolerances	Standard	$\pm 0.010\text{mm}$	$\pm 0.015\text{mm}$
	Advanced	$\pm 0.005\text{mm}$	$\pm 0.010\text{mm}$
Warp	Standard	$\leq 100\mu\text{m}$	
	Advanced	$\leq 50\mu\text{m}$	
Surface Roughness (Ra)	$< 1.0\text{nm}$		
Appearance Quality	Standard	Scratch / Dig: 60/40	
	Advanced	Scratch / Dig: 40/20	

*大尺寸蓝宝石载盘的具体规格可根据客户需求定制。

Specific specs for large-size sapphire carrier can be customized according to customer requirement.

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先进封装载盘性能矩阵

Advanced Packaging Carrier Performance Matrix

Advanced Packaging Carrier Performance Matrix			
Carrier Type	Carrier Size (mm)	Carrier Material	Performance Metrics
			5.6 @20 °C; 6.6 @20 °C 7 @ 10 °C
Type A	100x100	Material X	Value 1
		Material Y	Value 2
Type B	150x150	Material X	Value 3
		Material Y	Value 4
Type C	200x200	Material X	Value 5
		Material Y	Value 6
Type D	250x250	Material X	Value 7
		Material Y	Value 8
Type E	300x300	Material X	Value 9
		Material Y	Value 10
Type F	350x350	Material X	Value 11
		Material Y	Value 12
Type G	400x400	Material X	Value 13
		Material Y	Value 14
Type H	450x450	Material X	Value 15
		Material Y	Value 16
Type I	500x500	Material X	Value 17
		Material Y	Value 18
Type J	550x550	Material X	Value 19
		Material Y	Value 20