## **Glass Wafer for CSP**

Alkali-free and polish-free glass wafer featuring low CTE\* is used as cover glass for WLCSP (Wafer Level Chip Size Package) of CMOS image sensors.

\*CTE: coefficient of thermal expansion

## **Features**

- Alkali-free and polish-free
- As-free, Sb-free characteristics are eco-friendly.
- Excellent surface quality
- Available in various thin film coatings such as AR and metal.



## **Properties**

Properties/Glass Code			ABC-1
Coefficient of thermal expansion	30-380°C	× 10 <sup>-7</sup> /K	37
Density × 10 <sup>3</sup> kg/m		$\times 10^3 \text{kg/m}^3$	2.52
Young's modulus GPa		GPa	78
Poisson's ratio			0.2
Volume resistivity Log p	350℃	Ω·cm	13.0
Dielectric constant	1MHz, RT		5.6
tan $\delta$	1MHz, RT		0.001
Refractive index(nd)	587.6nm	%	1.53
Light transmittance	λ=550nm	%	92

## **Configuration Image of Smartphone Camera**

