## **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	× 10-7/K	37
Density × 10 <sup>3</sup> kg/m <sup>3</sup>		$\times$ 10 <sup>3</sup> kg/m <sup>3</sup>	2.52
Young's modulus GPa		78	
Poisson's ratio			0.2
Volume resistivity Log <i>p</i>	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	$\lambda$ =550nm	%	92

## **Configuration Image of Smartphone Camera**

