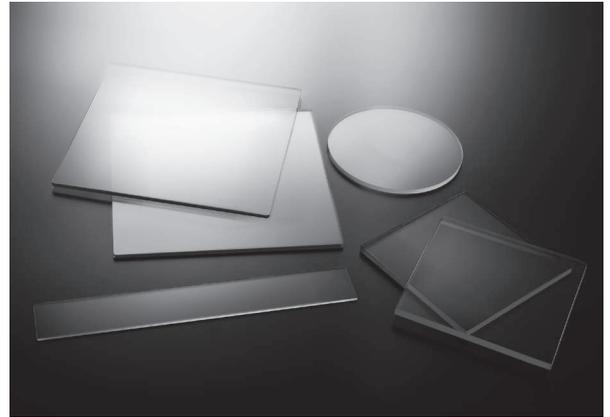


## ZERO™

ZERO™ has zero CTE. It is suitable as a material for temperature compensation.

ZERO™ is used as a material for various parts that require high levels of thermal dimensional stability.



### Properties

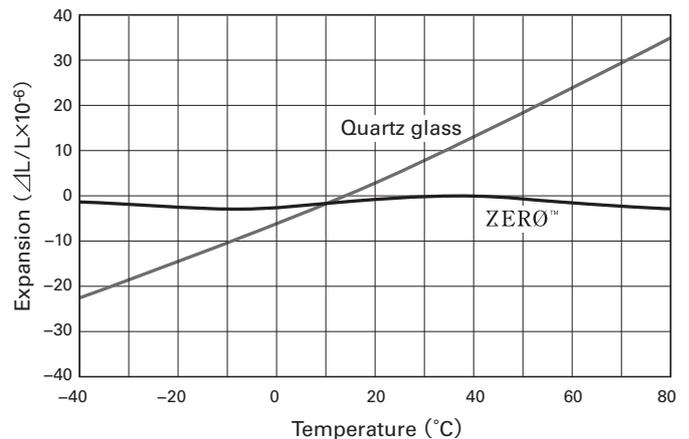
Coefficient of thermal expansion	-40-80°C	$\times 10^{-7}/K$	0
Young's modulus		GPa	95
Vickers hardness	Hv		680
Density		$\times 10^3 kg/m^3$	2.55
Refractive index	$n_d$		1.54
	1550nm		1.53

### Reference Data

Thermal conductivity	W/m·K	25° C	1.6
		100° C	1.7
Thermal diffusivity index	$\times 10^{-6} m^2/s$	25° C	0.80
		100° C	0.75
Specific heat	kJ/(kg·K)	25° C	0.80
		100° C	0.90
Shear modulus	GPa		39
Poisson's ratio			0.2
Knoop hardness Hk			590
Abrasion Aa		JOGIS	50
Bending strength	MPa	3 point bending	180
Abbe number $v_d$			57
Photo-elastic constant		$\times 10^{-6}/MPa$	3
Internal transmittance (10mmt)	%	580nm	88
		1550nm	93
Water resistance		JOGIS RW	Class1
Acid resistance		ISO 8424	Class1
Alkali resistance		ISO 10629	Class1
Volume resistivity (Log $\rho$ )	$\Omega \cdot cm$	350° C	5.4
Dielectric constant		1MHz, 25° C	7.4
		2.45GHz, 25° C	6.5
Dielectric loss tan $\delta$	$\times 10^{-3}$	1MHz, 25° C	17
		2.45GHz, 25° C	43

The figures of the properties are measured values, but they are not guaranteed.

### Thermal Expansion



### Transmittance

