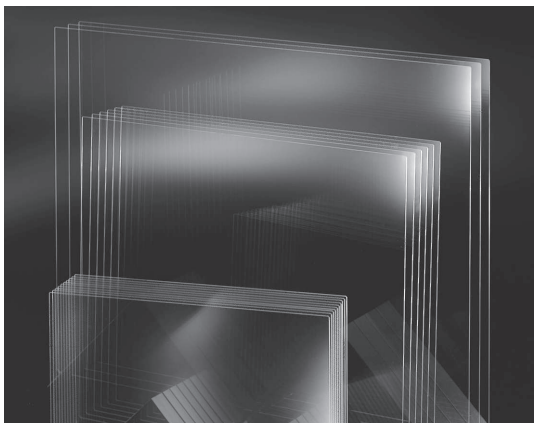
Ref. No. 2610-01E

OA-11, OA-20, OA-31

OA-11, OA-20, and OA-31 glass substrates are used for a wide range of display and thin-film applications. Due to their low deformation and minimal gravitational sagging, these glass substrates remain easy to handle even at thin thicknesses. They also offer excellent dimensional stability during high-temperature processes, making them well suited for high-resolution display applications.



Features

1. **Smooth surface and small thickness deviation**
   Glass substrates formed using overflow technology exhibit flat precision surfaces and highly uniform thickness.
2. **Alkali-free**
   With a maximum alkali oxide content of 0.1%, this product does not degrade the conductive properties of thin-film transistors.
3. **Thermal dimensional stability**
   A high strain point and a low thermal expansion coefficient give OA-11 high thermal dimensional stability during the TFT forming process and other heat treatment processes.
4. **Superior optical properties**
   High light transmittance
5. **Chemically stable surface**
   OA-11 is inert to treating agents used in the semiconductor process and the TFT forming process, so surfaces retain pristine quality.

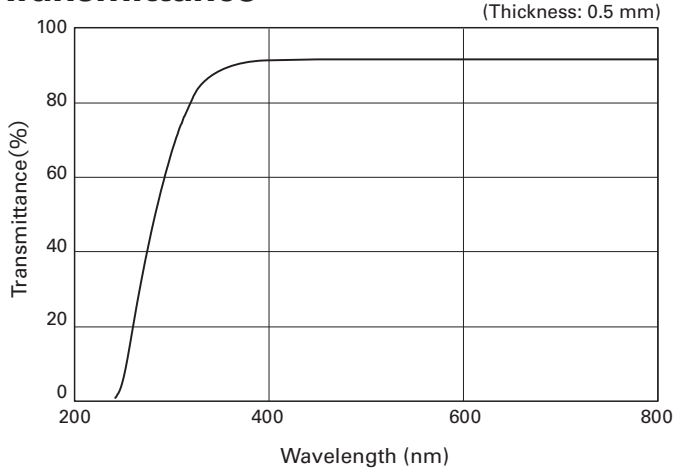
Main Applications

- **OA-11:**
  LCD displays, OLED displays
- **OA-20:**
  Oxide TFT (IGZO) displays, OLED displays, automotive displays
- **OA-31:**
  LTPS TFT displays, next-generation displays, flexible OLED carrier substrates

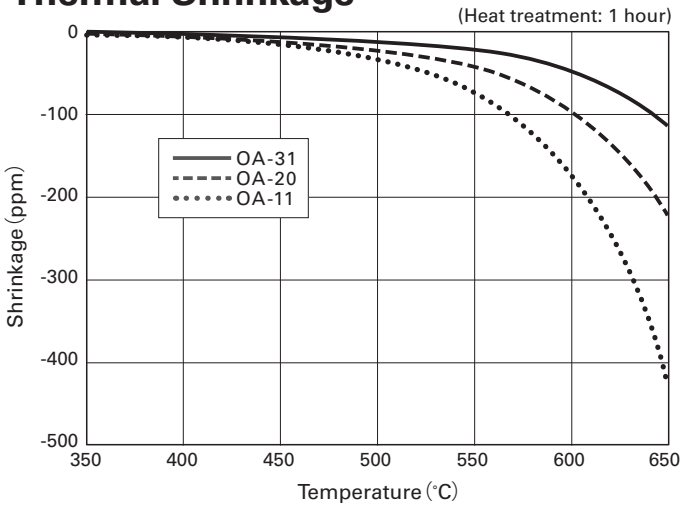
Properties

Properties / Glass Code			OA-11	OA-20	OA-31
Size			−G10.5	−G8.6	−G6
Strain point		°C	685	725	750
Young's modulus		GPa	78	83	83
Density		$\times 10^3$kg/m^3	2.52	2.55	2.64
Coefficient of thermal expansion	30-380°C	$\times 10^{-7}$/K	37	37	39
Poisson's ratio			0.2	0.2	0.25
Vickers hardness	Hv		620	670	680
Volume resistivity Log ρ	350°C	Ω·cm	13.0	13.0	13.2
Dielectric constant	1MHz, RT		5.6	5.7	5.9
tan δ	1MHz, RT		0.001	0.001	0.002
Light transmittance	λ =550nm	%	92	91	91
Refractive index (n_d)	587.6nm		1.53	1.53	1.53
Chemical durability	10% HCl (80°C-60min)		No visual change		
	63 BHF (20°C-3min)		No visual change		
Alkali oxide content		wt %	0.1 max.		
As, Sb content		wt %	Less than 0.1		

Transmittance



Thermal Shrinkage



Flatness

Subjects	Specifications	Remarks
Waviness	0.06μm max.	Standard length 20mm (SEMI D15-1296)
Surface Roughness	Ra: 0.2nm	AFM

Only on the pattern surface

Dimensions

(mm)

Length			
L_1		L_2	
Center	Tolerance	Center	Tolerance
370	± 0.2	470	± 0.3
550	± 0.35	650	± 0.4
730	± 0.5	920	± 0.6
1100	± 0.7	1300	± 0.8
1500	± 1.0	1850	± 1.2
1950	± 1.4	2250	± 1.6
2200	± 1.6	2500	± 1.7
2940	± 2.0	3370	± 2.2

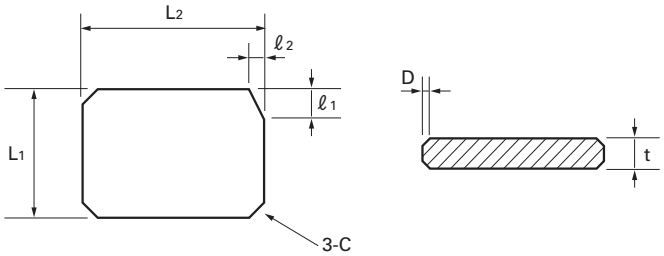
Custom sizes and thicknesses available on request.

(mm)

Thickness	
t	
Center	Tolerance
0.50	± 0.05
0.40	± 0.04

Corner Cut		Orientation Corner 1-C		Chamfering
3-C		ℓ_1, ℓ_2		D
Center	Tolerance	Center	Tolerance	Simple Round Shape
1.5	± 1.0	4.0	± 1.0	0.05-0.55

Consult us for other shapes.



Surface Defects (Scratch, Dirt)

None observed in surface inspection carried out using oblique illuminations as shown in the following table.

Grade A	Grade B
10000 lx	1500 lx

Only on the pattern surface

Processing Defects
(Peripheral Chipping and Cracking)

Size of Defects (mm)	Maximum Number Allowed
$>$ 1.0	None
$\leqq$ 1.0	Disregard

There were no sign of chips nor cracks developing in the glass.
Inspection conditions: Surface inspection at 1500 lux.