

Transmittance (T) units: %

λnm	200	210	220	230	240	250	260	270	280	290	300	310	320	330	340	350	360	370	380	390
T	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	1.9	4.4	4.0	13.0
λnm	400	410	420	430	440	450	460	470	480	490	500	510	520	530	540	550	560	570	580	590
T	19.4	19.3	19.5	21.2	21.0	23.4	26.4	27.1	26.7	26.3	26.2	26.4	26.6	27.0	27.6	28.2	28.4	27.9	26.6	25.2
λnm	600	610	620	630	640	650	660	670	680	690	700	710	720	730	740	750	760	770	780	790
T	24.8	24.9	25.2	25.0	24.5	24.0	23.9	24.2	25.2	26.4	27.2	27.4	27.0	26.2	25.1	24.0	22.8	21.7	20.6	19.6
λnm	800	810	820	830	840	850	860	870	880	890	900	910	920	930	940	950	960	970	980	990
T	18.7	18.0	17.3	16.7	16.1	15.6	15.1	14.6	14.2	13.8	13.4	13.1	12.7	12.4	12.1	11.8	11.5	11.3	11.0	10.8
λnm	1000	1010	1020	1030	1040	1050	1060	1070	1080	1090	1100	1120	1140	1160	1180	1200				
T	10.6	10.4	10.2	10.1	9.9	9.8	9.7	9.6	9.5	9.4	9.3	9.2	9.2	9.2	9.3	9.5				

Refractive Index/Absorption coefficient/Reflection coefficient

λnm	400	500	600	700	800	900	1000
n	1.536	1.523	1.516	1.512	1.510	1.508	1.507
K	1.9E-05	1.9E-05	2.4E-05	2.6E-05	3.8E-05	5.3E-05	6.5E-05
P	0.915	0.918	0.919	0.920	0.921	0.921	0.921

Classes of Bubbles and Inclusions

Bubble Class
3

Color Specification

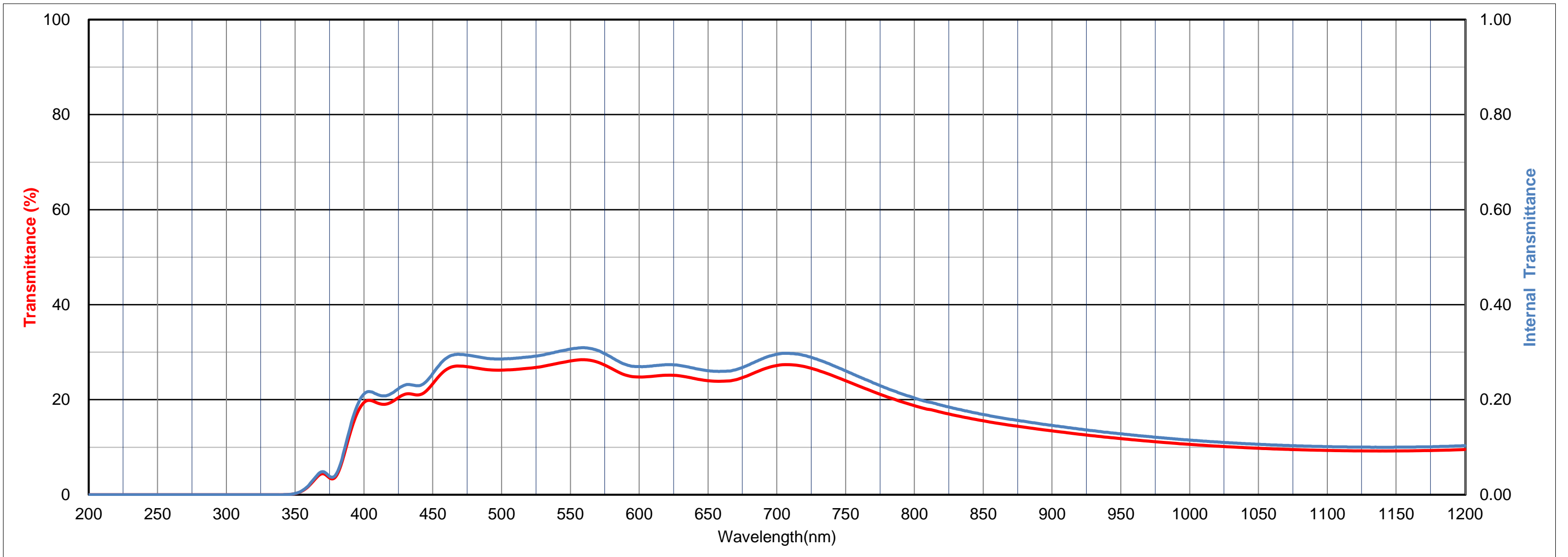
	x	y	Y	λ _d	P _e
A	0.444	0.418	26	559	5
C	0.312	0.334	27	556	5
D65	0.314	0.346	27	555	5

Properties

Chemical		Thermal				Mechanical		Others
D _w	D _A	T _g	T _s	α _{-30/70}	α _{100/300}	H _K	F _A	d
1	2	535	600	62	66	550	100	2.42

Tolerance of Transmittance (T)

Average Transmittance at 400nm-700nm	
Tav(%)	OD
25±2.5	0.60±0.05





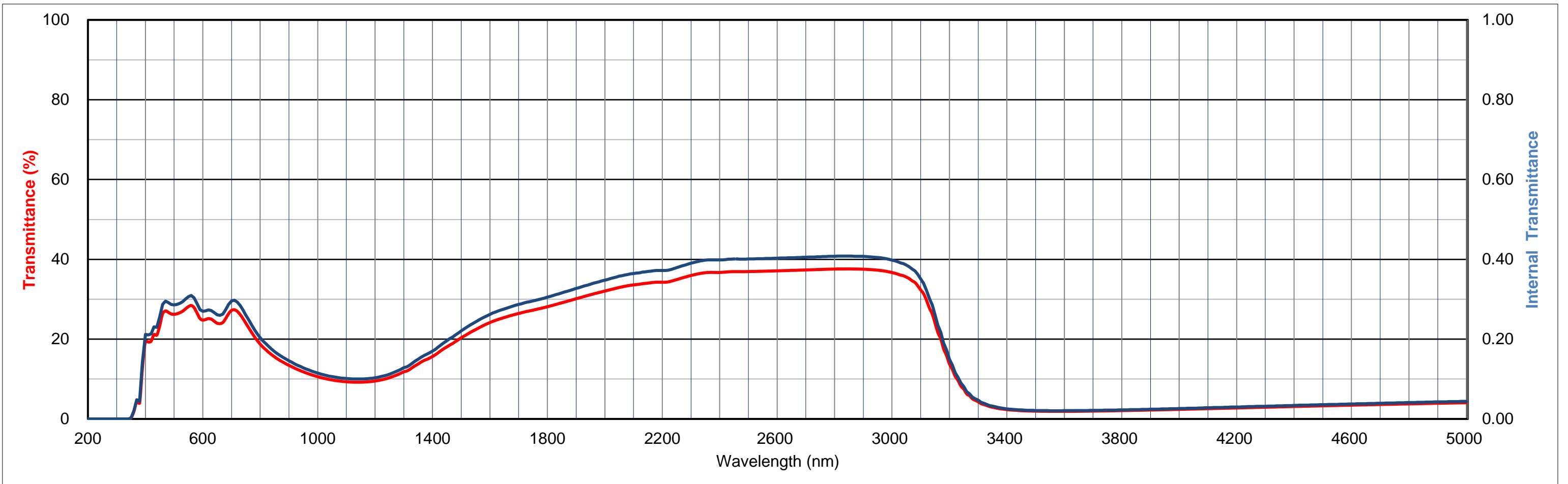
HOYA CANDEO OPTRONICS CORPORATION

Thickness (2.61) mm

ND25

Transmittance (T) units: %

λnm	200	210	220	230	240	250	260	270	280	290	300	310	320	330	340	350	360	370	380	390
T	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	1.9	4.4	4.0	13.0
λnm	400	410	420	430	440	450	460	470	480	490	500	510	520	530	540	550	560	570	580	590
T	19.4	19.3	19.5	21.2	21.0	23.4	26.4	27.1	26.7	26.3	26.2	26.4	26.6	27.0	27.6	28.2	28.4	27.9	26.6	25.2
λnm	600	610	620	630	640	650	660	670	680	690	700	710	720	730	740	750	760	770	780	790
T	24.8	24.9	25.2	25.0	24.5	24.0	23.9	24.2	25.2	26.4	27.2	27.4	27.0	26.2	25.1	24.0	22.8	21.7	20.6	19.6
λnm	800	810	820	830	840	850	860	870	880	890	900	910	920	930	940	950	960	970	980	990
T	18.7	18.0	17.3	16.7	16.1	15.6	15.1	14.6	14.2	13.8	13.4	13.1	12.7	12.4	12.1	11.8	11.5	11.3	11.0	10.8
λnm	1000	1010	1020	1030	1040	1050	1060	1070	1080	1090	1100	1110	1120	1130	1140	1150	1160	1170	1180	1190
T	10.6	10.4	10.2	10.1	9.9	9.8	9.7	9.6	9.5	9.4	9.3	9.3	9.2	9.2	9.2	9.2	9.2	9.3	9.3	9.4
λnm	1200	1210	1220	1230	1240	1250	1260	1270	1280	1290	1300	1310	1320	1330	1340	1350	1360	1370	1380	1390
T	9.5	9.6	9.8	9.9	10.1	10.3	10.6	10.9	11.2	11.5	11.8	12.0	12.4	12.9	13.4	13.8	14.2	14.6	14.9	15.3
λnm	1400	1410	1420	1430	1440	1450	1460	1470	1480	1490	1500	1510	1520	1530	1540	1550	1560	1570	1580	1590
T	15.7	16.1	16.6	17.2	17.6	18.1	18.5	18.9	19.4	19.9	20.4	20.8	21.2	21.6	22.0	22.4	22.8	23.2	23.5	23.9
λnm	1600	1610	1620	1630	1640	1650	1660	1670	1680	1690	1700	1710	1720	1730	1740	1750	1760	1770	1780	1790
T	24.2	24.5	24.7	25.0	25.2	25.4	25.6	25.9	26.1	26.3	26.4	26.6	26.8	27.0	27.1	27.3	27.4	27.6	27.8	27.9
λnm	1800	1810	1820	1830	1840	1850	1860	1870	1880	1890	1900	1910	1920	1930	1940	1950	1960	1970	1980	1990
T	28.1	28.3	28.5	28.7	28.9	29.1	29.3	29.5	29.7	29.9	30.1	30.3	30.5	30.7	30.9	31.1	31.3	31.5	31.7	31.9
λnm	2000	2050	2100	2150	2200	2250	2300	2350	2400	2450	2500	2550	2600	2650	2700	2750	2800	2850	2900	2950
T	32.1	33.0	33.6	34.0	34.3	34.9	36.0	36.7	36.7	36.9	36.9	37.0	37.1	37.2	37.3	37.5	37.6	37.6	37.5	37.3
λnm	3000	3050	3100	3150	3200	3250	3300	3350	3400	3450	3500	3550	3600	3650	3700	3750	3800	3850	3900	3950
T	36.7	35.5	32.3	24.0	13.8	7.5	4.3	2.9	2.3	2.1	2.0	1.9	1.9	1.9	2.0	2.0	2.1	2.2	2.2	2.3
λnm	4000	4050	4100	4150	4200	4250	4300	4350	4400	4450	4500	4550	4600	4650	4700	4750	4800	4850	4900	4950
T	2.4	2.5	2.6	2.7	2.8	2.9	2.9	3.0	3.1	3.2	3.3	3.4	3.5	3.5	3.6	3.7	3.8	3.9	3.9	4.0
λnm	5000																			
T	4.1																			



All data is mean values of various melts.