

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	0.0	0.2	0.7	0.7	3.6
λnm	400	410	420	430	440	450	460	470	480	490	500	510	520	530	540	550	560	570	580	590
T	6.4	6.5	6.8	7.6	7.6	8.8	10.4	10.7	10.5	10.2	10.1	10.1	10.3	10.6	11.1	11.5	11.6	11.3	10.5	9.7
λnm	600	610	620	630	640	650	660	670	680	690	700	710	720	730	740	750	760	770	780	790
T	9.6	9.8	10.1	10.2	10.0	9.9	10.0	10.4	11.4	12.6	13.8	14.4	14.6	14.4	14.0	13.5	12.9	12.3	11.7	11.2
λnm	800	810	820	830	840	850	860	870	880	890	900	910	920	930	940	950	960	970	980	990
T	10.7	10.3	9.9	9.5	9.2	8.9	8.6	8.3	8.1	7.8	7.6	7.4	7.1	6.9	6.7	6.5	6.4	6.2	6.0	5.9
λnm	1000	1010	1020	1030	1040	1050	1060	1070	1080	1090	1100	1120	1140	1160	1180	1200				
T	5.7	5.6	5.5	5.4	5.3	5.2	5.1	5.1	5.0	4.9	4.9	4.8	4.8	4.9	4.9	5.1				

Refractive Index/Absorption coefficient/Reflection coefficient

λnm	400	500	600	700	800	900	1000
n	1.529	1.520	1.516	1.513	1.512	1.511	1.510
K	2.8E-05	2.9E-05	3.6E-05	3.5E-05	4.5E-05	6.0E-05	7.4E-05
P	0.916	0.918	0.919	0.920	0.920	0.921	0.921

Classes of Bubbles and Inclusions

Bubble Class
3

Color Specification

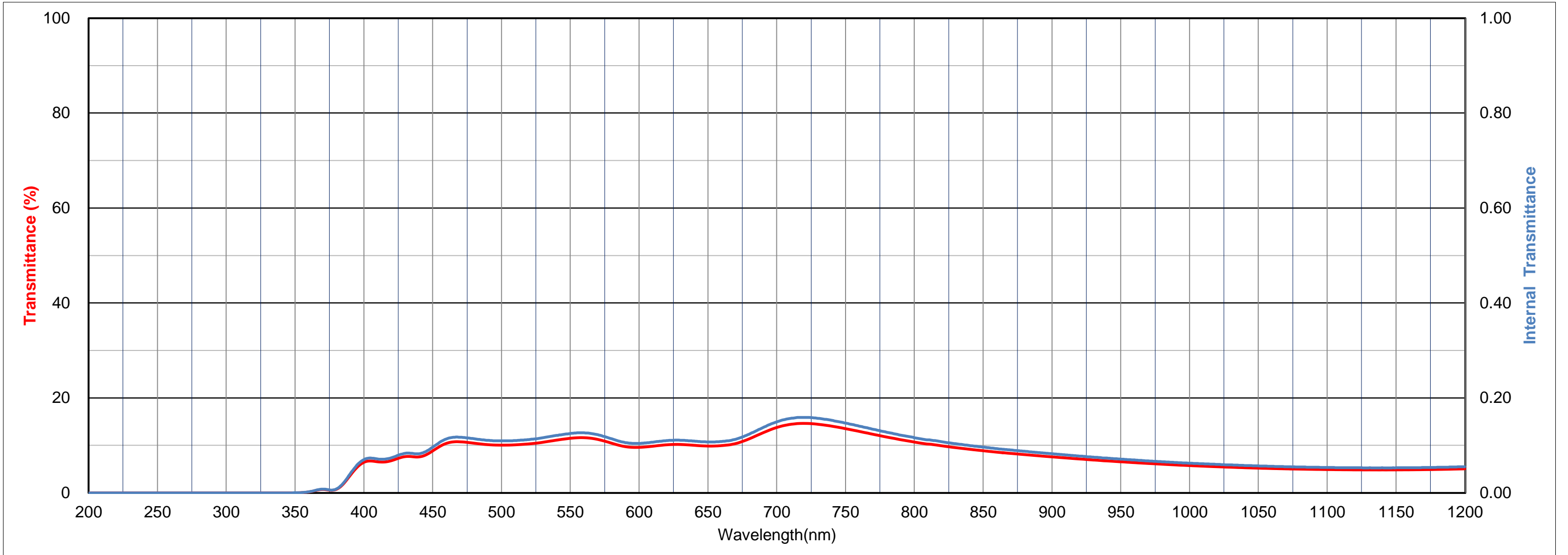
	x	y	Y	λ <sub>d</sub>	P <sub>e</sub>
A	0.447	0.420	11	569	8
C	0.316	0.340	11	562	8
D65	0.318	0.352	11	561	8

Properties

Chemical		Thermal				Mechanical		Others
D <sub>w</sub>	D <sub>A</sub>	T <sub>g</sub>	T <sub>s</sub>	α <sub>-30/70</sub>	α <sub>100/300</sub>	H <sub>K</sub>	F <sub>A</sub>	d
1	3	490	565	-	65	530	100	2.41

Tolerance of Transmittance (T)

Average Transmittance at 400nm-700nm	
Tav(%)	OD
10±2	1±0.1





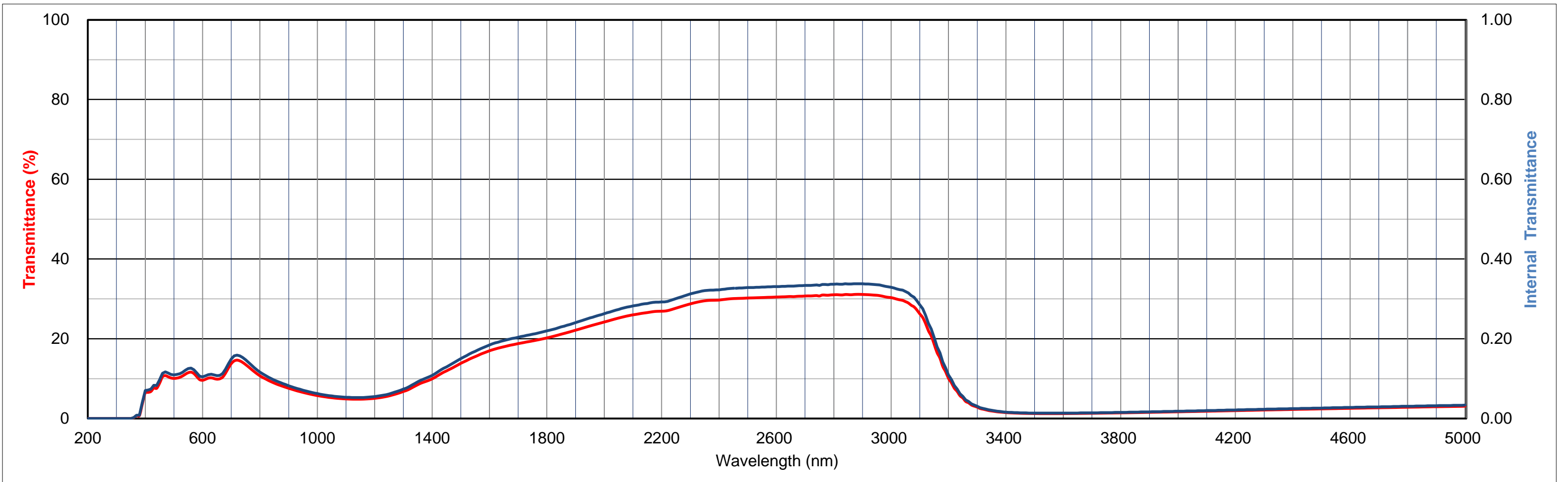
HOYA CANDEO OPTRONICS CORPORATION

Thickness (3.0) mm

ND10

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	0.0	0.2	0.7	0.7	3.6
λnm	400	410	420	430	440	450	460	470	480	490	500	510	520	530	540	550	560	570	580	590
T	6.4	6.5	6.8	7.6	7.6	8.8	10.4	10.7	10.5	10.2	10.1	10.1	10.3	10.6	11.1	11.5	11.6	11.3	10.5	9.7
λnm	600	610	620	630	640	650	660	670	680	690	700	710	720	730	740	750	760	770	780	790
T	9.6	9.8	10.1	10.2	10.0	9.9	10.0	10.4	11.4	12.6	13.8	14.4	14.6	14.4	14.0	13.5	12.9	12.3	11.7	11.2
λnm	800	810	820	830	840	850	860	870	880	890	900	910	920	930	940	950	960	970	980	990
T	10.7	10.3	9.9	9.5	9.2	8.9	8.6	8.3	8.1	7.8	7.6	7.4	7.1	6.9	6.7	6.5	6.4	6.2	6.0	5.9
λnm	1000	1010	1020	1030	1040	1050	1060	1070	1080	1090	1100	1110	1120	1130	1140	1150	1160	1170	1180	1190
T	5.7	5.6	5.5	5.4	5.3	5.2	5.1	5.1	5.0	4.9	4.9	4.9	4.8	4.8	4.8	4.8	4.9	4.9	4.9	5.0
λnm	1200	1210	1220	1230	1240	1250	1260	1270	1280	1290	1300	1310	1320	1330	1340	1350	1360	1370	1380	1390
T	5.1	5.1	5.2	5.4	5.5	5.7	5.9	6.1	6.3	6.5	6.8	7.0	7.3	7.7	8.1	8.5	8.8	9.1	9.3	9.6
λnm	1400	1410	1420	1430	1440	1450	1460	1470	1480	1490	1500	1510	1520	1530	1540	1550	1560	1570	1580	1590
T	9.9	10.3	10.8	11.2	11.6	11.9	12.3	12.6	13.0	13.4	13.8	14.2	14.5	14.9	15.2	15.5	15.8	16.2	16.4	16.7
λnm	1600	1610	1620	1630	1640	1650	1660	1670	1680	1690	1700	1710	1720	1730	1740	1750	1760	1770	1780	1790
T	17.0	17.2	17.4	17.6	17.8	18.0	18.2	18.3	18.5	18.6	18.8	18.9	19.1	19.2	19.3	19.5	19.6	19.7	19.9	20.0
λnm	1800	1810	1820	1830	1840	1850	1860	1870	1880	1890	1900	1910	1920	1930	1940	1950	1960	1970	1980	1990
T	20.2	20.4	20.6	20.7	20.9	21.1	21.3	21.5	21.7	21.9	22.1	22.3	22.6	22.8	23.0	23.2	23.4	23.6	23.8	24.0
λnm	2000	2050	2100	2150	2200	2250	2300	2350	2400	2450	2500	2550	2600	2650	2700	2750	2800	2850	2900	2950
T	24.2	25.2	26.0	26.6	26.9	27.7	28.7	29.5	29.7	30.1	30.2	30.3	30.5	30.6	30.7	30.7	31.0	31.1	31.1	30.9
λnm	3000	3050	3100	3150	3200	3250	3300	3350	3400	3450	3500	3550	3600	3650	3700	3750	3800	3850	3900	3950
T	30.3	29.3	26.2	18.6	10.0	5.1	2.8	1.9	1.5	1.3	1.2	1.2	1.2	1.3	1.3	1.4	1.4	1.5	1.5	1.6
λnm	4000	4050	4100	4150	4200	4250	4300	4350	4400	4450	4500	4550	4600	4650	4700	4750	4800	4850	4900	4950
T	1.7	1.7	1.8	1.9	2.0	2.0	2.1	2.2	2.3	2.3	2.4	2.5	2.5	2.6	2.7	2.7	2.8	2.9	2.9	3.0
λnm	5000																			
T	3.1																			



All data is mean values of various melts.