

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	0.3	4.9	19.6	39.2	55.5	61.9	58.7	72.6
λnm	400	410	420	430	440	450	460	470	480	490	500	510	520	530	540	550	560	570	580	590
T	77.0	76.0	76.1	77.1	76.7	78.3	80.1	80.5	80.4	80.5	80.6	80.8	81.0	81.2	81.2	81.2	81.2	81.1	80.9	80.6
λnm	600	610	620	630	640	650	660	670	680	690	700	710	720	730	740	750	760	770	780	790
T	80.5	80.5	80.4	80.3	80.0	79.8	79.6	79.5	79.5	79.4	79.3	79.0	78.6	78.0	77.5	76.8	76.2	75.5	74.9	74.2
λnm	800	810	820	830	840	850	860	870	880	890	900	910	920	930	940	950	960	970	980	990
T	73.6	73.1	72.5	72.0	71.5	71.1	70.6	70.1	69.7	69.4	69.0	68.6	68.2	67.9	67.5	67.2	66.9	66.6	66.3	66.0
λnm	1000	1010	1020	1030	1040	1050	1060	1070	1080	1090	1100	1120	1140	1160	1180	1200				
T	65.8	65.3	65.1	64.9	64.8	64.6	64.5	64.4	64.3	64.2	64.2	64.2	64.3	64.5	64.7	65.1				

Refractive Index/Absorption coefficient/Reflection coefficient

λnm	400	500	600	700	800	900	1000
n	1.525	1.516	1.512	1.509	1.507	1.506	1.505
K	3.5E-06	3.3E-06	4.0E-06	5.2E-06	8.8E-06	1.3E-05	1.7E-05
P	0.917	0.919	0.920	0.921	0.921	0.922	0.922

Classes of Bubbles and Inclusions

Bubble Class
3

Color Specification

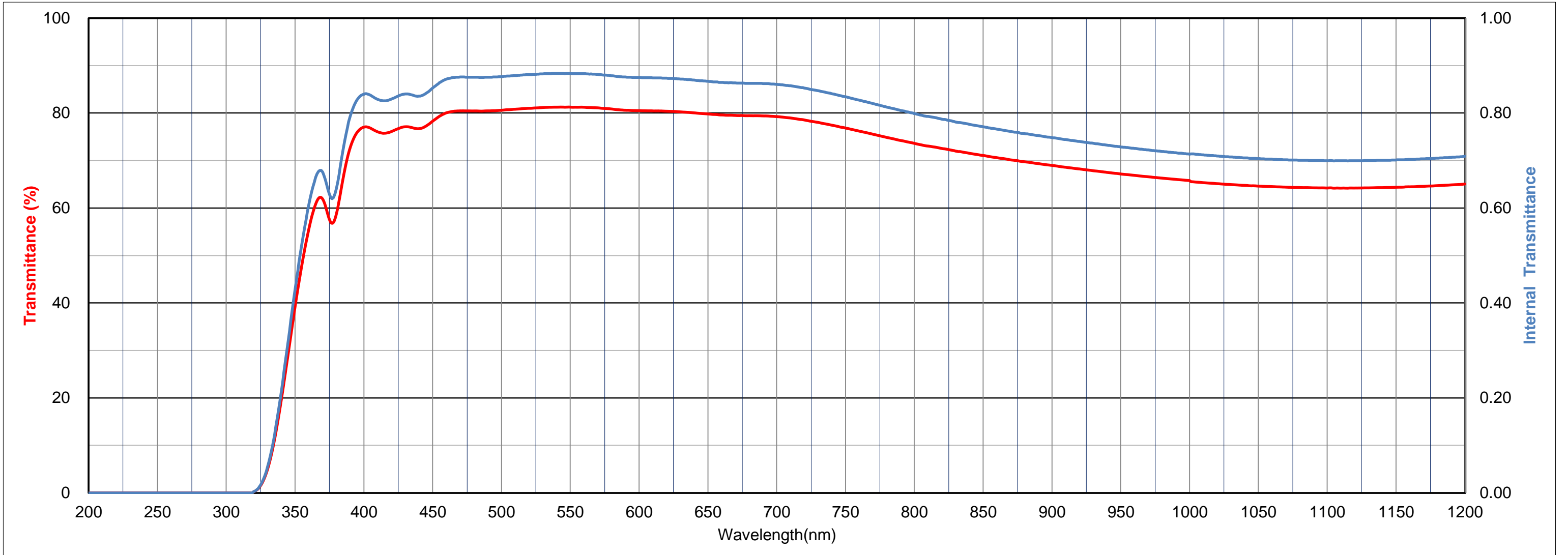
	x	y	Y	λ _d	P _e
A	0.448	0.409	81	573	2
C	0.311	0.320	81	564	1
D65	0.314	0.333	81	564	1

Properties

Chemical		Thermal				Mechanical		Others
D _w	D _A	T _g	T _s	α _{-30/70}	α _{100/300}	H _K	F _A	d
4	5	470	540	66	72	510	100	2.39

Tolerance of Transmittance (T)

Average Transmittance at 400nm-700nm	
Tav(%)	OD
80±5	0.1±0.03





HOYA CANDEO OPTRONICS CORPORATION

Thickness (1.2) mm

ND80

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	0.3	4.9	19.6	39.2	55.5	61.9	58.7	72.6
λnm	400	410	420	430	440	450	460	470	480	490	500	510	520	530	540	550	560	570	580	590
T	77.0	76.0	76.1	77.1	76.7	78.3	80.1	80.5	80.4	80.5	80.6	80.8	81.0	81.2	81.2	81.2	81.2	81.1	80.9	80.6
λnm	600	610	620	630	640	650	660	670	680	690	700	710	720	730	740	750	760	770	780	790
T	80.5	80.5	80.4	80.3	80.0	79.8	79.6	79.5	79.5	79.4	79.3	79.0	78.6	78.0	77.5	76.8	76.2	75.5	74.9	74.2
λnm	800	810	820	830	840	850	860	870	880	890	900	910	920	930	940	950	960	970	980	990
T	73.6	73.1	72.5	72.0	71.5	71.1	70.6	70.1	69.7	69.4	69.0	68.6	68.2	67.9	67.5	67.2	66.9	66.6	66.3	66.0
λnm	1000	1010	1020	1030	1040	1050	1060	1070	1080	1090	1100	1110	1120	1130	1140	1150	1160	1170	1180	1190
T	65.8	65.3	65.1	64.9	64.8	64.6	64.5	64.4	64.3	64.2	64.2	64.2	64.2	64.2	64.3	64.4	64.5	64.6	64.7	64.9
λnm	1200	1210	1220	1230	1240	1250	1260	1270	1280	1290	1300	1310	1320	1330	1340	1350	1360	1370	1380	1390
T	65.1	65.2	65.5	65.7	65.9	66.2	66.5	66.8	67.1	67.4	67.8	68.2	68.7	69.2	69.5	69.9	70.2	70.5	70.7	70.8
λnm	1400	1410	1420	1430	1440	1450	1460	1470	1480	1490	1500	1510	1520	1530	1540	1550	1560	1570	1580	1590
T	70.8	71.0	71.4	71.8	72.1	72.4	72.6	72.8	73.1	73.3	73.5	73.7	73.8	74.0	74.1	74.2	74.3	74.5	74.6	74.6
λnm	1600	1610	1620	1630	1640	1650	1660	1670	1680	1690	1700	1710	1720	1730	1740	1750	1760	1770	1780	1790
T	74.7	74.8	74.9	74.9	75.0	75.0	75.1	75.1	75.1	75.2	75.2	75.3	75.3	75.4	75.4	75.4	75.5	75.5	75.6	75.6
λnm	1800	1810	1820	1830	1840	1850	1860	1870	1880	1890	1900	1910	1920	1930	1940	1950	1960	1970	1980	1990
T	75.7	75.7	75.8	75.9	75.9	76.0	76.1	76.2	76.2	76.3	76.4	76.5	76.5	76.6	76.7	76.8	76.8	76.9	76.9	77.0
λnm	2000	2050	2100	2150	2200	2250	2300	2350	2400	2450	2500	2550	2600	2650	2700	2750	2800	2850	2900	2950
T	77.0	77.4	77.5	77.2	76.9	77.1	77.5	77.4	76.5	76.2	75.6	75.4	75.2	75.1	75.0	74.9	74.9	74.8	74.6	74.2
λnm	3000	3050	3100	3150	3200	3250	3300	3350	3400	3450	3500	3550	3600	3650	3700	3750	3800	3850	3900	3950
T	73.5	72.1	68.1	57.8	43.4	31.9	24.3	20.1	17.8	16.8	16.3	16.1	16.1	16.3	16.4	16.7	17.0	17.4	17.7	18.1
λnm	4000	4050	4100	4150	4200	4250	4300	4350	4400	4450	4500	4550	4600	4650	4700	4750	4800	4850	4900	4950
T	18.4	18.8	19.2	19.5	19.9	20.3	20.6	21.0	21.3	21.6	22.0	22.3	22.5	22.8	23.1	23.4	23.7	24.0	24.2	24.4
λnm	5000																			
T	24.7																			

