HOYA

HOYA CANDEO OPTRONICS CORPORATION

Thickness (2.3) mm

ND1

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	0.0	0.0	0.0	0.1
λnm	400	410	420	430	440	450	460	470	480	490	500	510	520	530	540	550	560	570	580	590
T	0.3	0.4	0.5	0.6	0.6	0.7	0.9	0.9	0.9	0.8	0.8	0.8	0.8	0.8	0.9	0.9	0.9	0.8	0.7	0.7
λnm	600	610	620	630	640	650	660	670	680	690	700	710	720	730	740	750	760	770	780	790
T	0.7	0.8	0.9	1.0	1.0	1.1	1.2	1.5	1.9	2.6	3.3	4.1	4.7	5.2	5.7	6.0	6.3	6.5	6.7	6.9
λnm	800	810	820	830	840	850	860	870	880	890	900	910	920	930	940	950	960	970	980	990
T	7.1	7.2	7.3	7.3	7.4	7.4	7.4	7.4	7.3	7.3	7.2	7.1	7.1	7.0	6.9	6.8	6.7	6.7	6.6	6.5
λnm	1000	1010	1020	1030	1040	1050	1060	1070	1080	1090	1100	1120	1140	1160	1180	1200				
T	6.5	6.4	6.4	6.4	6.3	6.3	6.3	6.3	6.3	6.3	6.4	6.4	6.6	6.8	7.0	7.4				

Refractive Index/Absorption coefficient/Reflection coefficent

λnm	400	500	600	700	800	900	1000
n	1.532	1.520	1.514	1.510	1.508	1.506	1.505
K	8.2E-05	8.5E-05	1.0E-04	8.4E-05	7.3E-05	8.2E-05	9.5E-05
P	0.915	0.918	0.920	0.921	0.921	0.922	0.922

Classes of Bubbles and Inclusions

Bubble Class
3

Color Specification

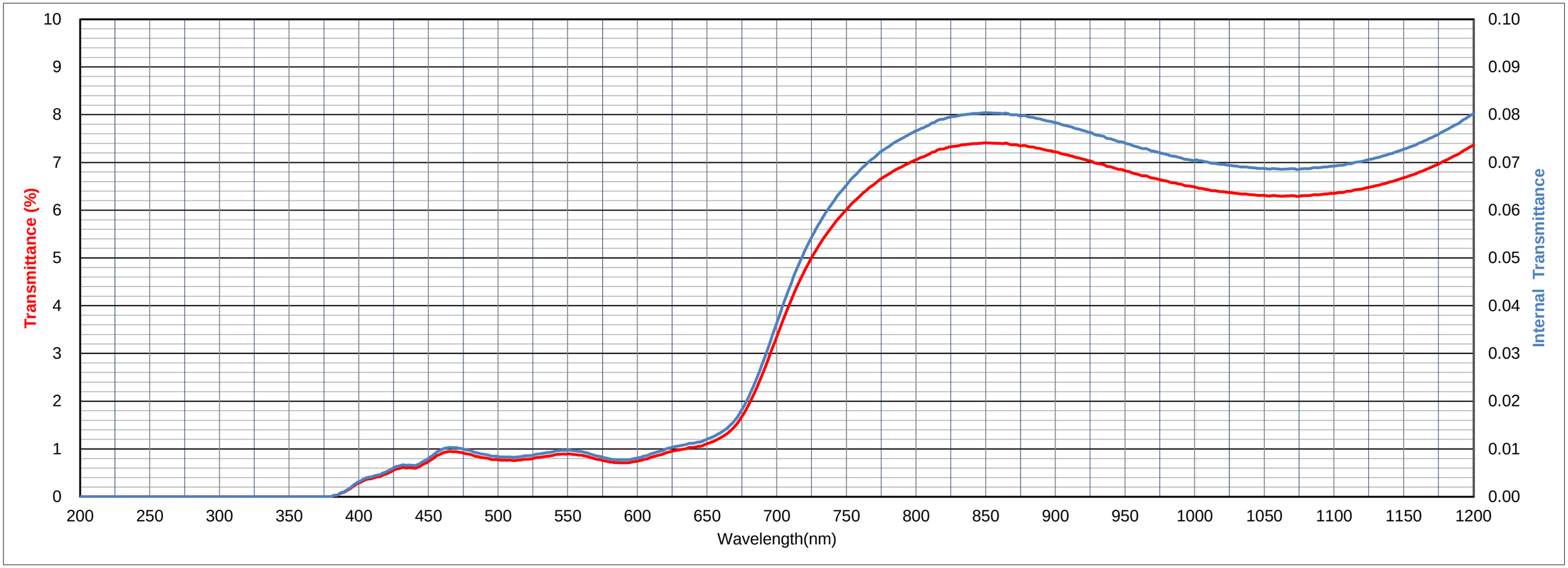
	x	y	Y	λ_d	P_e
A	-	-	-	-	-
C	-	-	-	-	-
D65	-	-	-	-	-

Properties

Chemical		Thermal				Mechanical		Others
D_W	D_A	Tg	Ts	α -30/70	α 100/300	H_K	F_A	d
1	3	490	565	-	65	530	100	2.41

Tolerance of Transmittance (T)

Average Transmittance at 400nm-700nm	
Tav(%)	OD
1±0.5	2 ±0.3



All data is mean values of various melts.

The content of this catalog is accurate as of April ,2014

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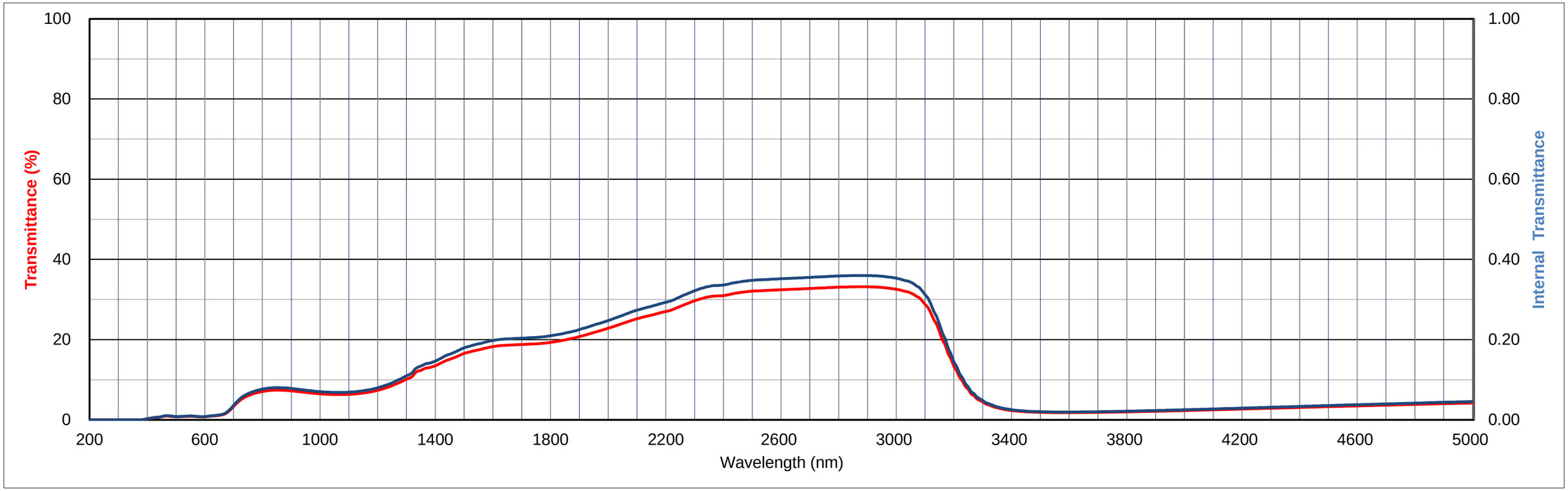
Transmittance (T) **units: %**

Thickness (2.3) mm

ND1

λnm	200	210	220	230	240	250	260	270	280	290	300	310	320	330	340	350	360	370	380	390
τ	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	0.0	0.0	0.0	0.1
λnm	400	410	420	430	440	450	460	470	480	490	500	510	520	530	540	550	560	570	580	590
τ	0.3	0.4	0.5	0.6	0.6	0.7	0.9	0.9	0.9	0.8	0.8	0.8	0.8	0.8	0.9	0.9	0.9	0.8	0.7	0.7
λnm	600	610	620	630	640	650	660	670	680	690	700	710	720	730	740	750	760	770	780	790
τ	0.7	0.8	0.9	1.0	1.0	1.1	1.2	1.5	1.9	2.6	3.3	4.1	4.7	5.2	5.7	6.0	6.3	6.5	6.7	6.9
λnm	800	810	820	830	840	850	860	870	880	890	900	910	920	930	940	950	960	970	980	990
τ	7.1	7.2	7.3	7.3	7.4	7.4	7.4	7.4	7.3	7.3	7.2	7.1	7.1	7.0	6.9	6.8	6.7	6.7	6.6	6.5
λnm	1000	1010	1020	1030	1040	1050	1060	1070	1080	1090	1100	1110	1120	1130	1140	1150	1160	1170	1180	1190
τ	6.5	6.4	6.4	6.4	6.3	6.3	6.3	6.3	6.3	6.3	6.4	6.4	6.4	6.5	6.6	6.7	6.8	6.9	7.0	7.2
λnm	1200	1210	1220	1230	1240	1250	1260	1270	1280	1290	1300	1310	1320	1330	1340	1350	1360	1370	1380	1390
τ	7.4	7.6	7.8	8.0	8.2	8.5	8.8	9.1	9.4	9.8	10.1	10.4	10.8	11.7	12.2	12.3	12.7	12.9	13.0	13.2
λnm	1400	1410	1420	1430	1440	1450	1460	1470	1480	1490	1500	1510	1520	1530	1540	1550	1560	1570	1580	1590
τ	13.5	13.8	14.2	14.5	14.9	15.1	15.4	15.6	15.9	16.3	16.6	16.8	16.9	17.1	17.3	17.5	17.6	17.8	18.0	18.1
λnm	1600	1610	1620	1630	1640	1650	1660	1670	1680	1690	1700	1710	1720	1730	1740	1750	1760	1770	1780	1790
τ	18.3	18.4	18.5	18.5	18.6	18.6	18.6	18.7	18.7	18.7	18.8	18.8	18.9	18.9	18.9	19.0	19.0	19.1	19.1	19.2
λnm	1800	1810	1820	1830	1840	1850	1860	1870	1880	1890	1900	1910	1920	1930	1940	1950	1960	1970	1980	1990
τ	19.3	19.4	19.5	19.7	19.8	19.9	20.1	20.2	20.4	20.6	20.7	20.9	21.1	21.3	21.5	21.8	22.0	22.2	22.4	22.6
λnm	2000	2050	2100	2150	2200	2250	2300	2350	2400	2450	2500	2550	2600	2650	2700	2750	2800	2850	2900	2950
τ	22.8	24.0	25.2	26.1	27.0	28.3	29.7	30.7	31.0	31.7	32.1	32.3	32.4	32.6	32.8	32.9	33.1	33.2	33.2	33.0
λnm	3000	3050	3100	3150	3200	3250	3300	3350	3400	3450	3500	3550	3600	3650	3700	3750	3800	3850	3900	3950
τ	32.6	31.6	28.8	21.9	13.3	7.6	4.5	3.0	2.3	2.0	1.9	1.8	1.8	1.8	1.9	1.9	2.0	2.1	2.1	2.2
λnm	4000	4050	4100	4150	4200	4250	4300	4350	4400	4450	4500	4550	4600	4650	4700	4750	4800	4850	4900	4950
τ	2.3	2.4	2.5	2.6	2.7	2.8	2.9	3.0	3.1	3.2	3.3	3.4	3.5	3.6	3.7	3.7	3.8	3.9	4.0	4.1
λnm	5000																			
τ	4.2																			



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