

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	0.6	5.2	18.5	37.7	54.0	66.1	75.0	78.7	79.9	77.9
λnm	400	410	420	430	440	450	460	470	480	490	500	510	520	530	540	550	560	570	580	590
T	74.0	72.0	70.2	71.2	72.7	73.1	71.9	73.2	74.4	75.5	75.3	74.8	73.4	72.8	73.6	75.3	75.5	74.7	73.2	70.9
λnm	600	610	620	630	640	650	660	670	680	690	700	710	720	730	740	750	760	770	780	790
T	67.9	64.2	59.7	54.8	49.6	44.3	38.8	34.0	28.8	23.8	19.2	15.2	11.8	9.0	6.7	4.9	3.5	2.4	1.6	1.1
λnm	800	810	820	830	840	850	860	870	880	890	900	910	920	930	940	950	960	970	980	990
T	0.7	0.4	0.3	0.2	0.1	0.1	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
λnm	1000	1010	1020	1030	1040	1050	1060	1070	1080	1090	1100	1120	1140	1160	1180	1200				
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				

Refractive Index/Absorption coefficient/Reflection coefficient

λnm	400	500	600	700	800	900	1000
n	1.539	1.529	1.525	1.522	1.520	1.519	1.518
K	2.0E-06	2.3E-06	4.5E-06	2.8E-05	9.8E-05	2.1E-04	3.3E-04
P	0.914	0.916	0.917	0.918	0.918	0.919	0.919

Classes of Bubbles and Inclusions

Bubble Class
3

Color Specification

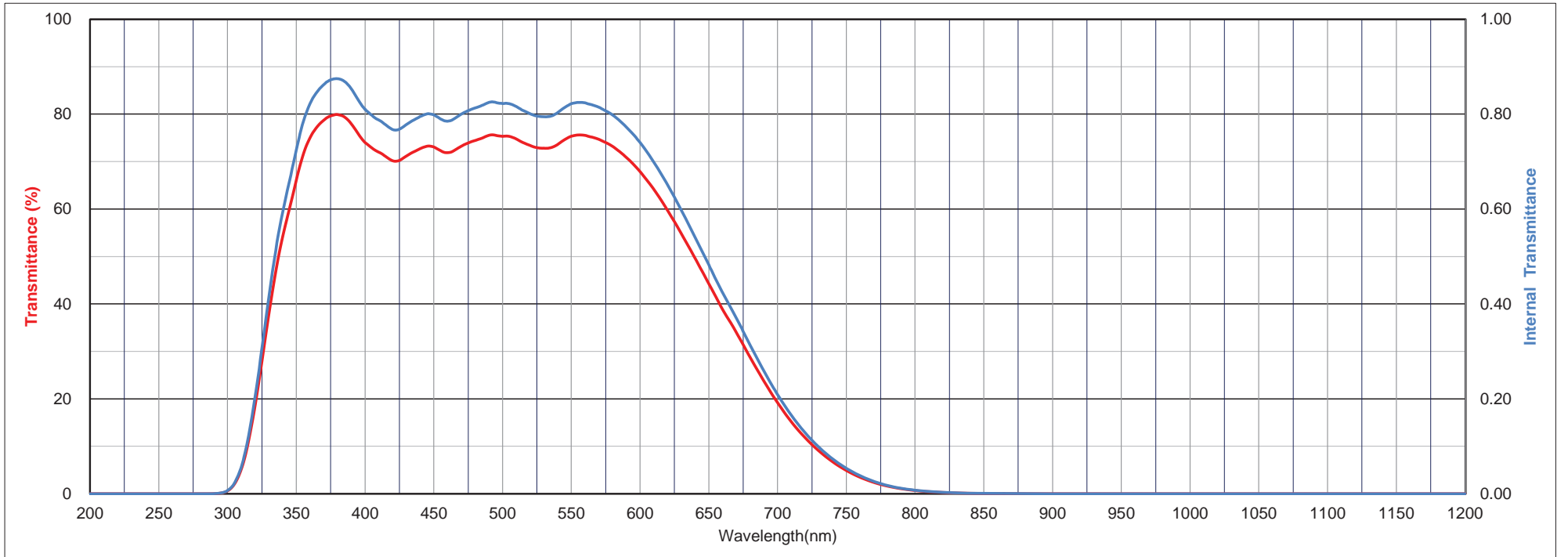
	x	y	Y	λ _d	P _e
A	0.424	0.419	69	504	5
C	0.295	0.320	71	494	5
D65	0.298	0.333	71	495	5

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	-	595	-	-	64	517	-	2.63

Tolerance of Transmittance (T)

Transmittance at 750nm	Transmittance at 1000nm	Average Transmittance at 400nm-700nm
T750(%)	T1000(%)	Tav(%)
<6	<1	63±5



All data is mean values of various melts.

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



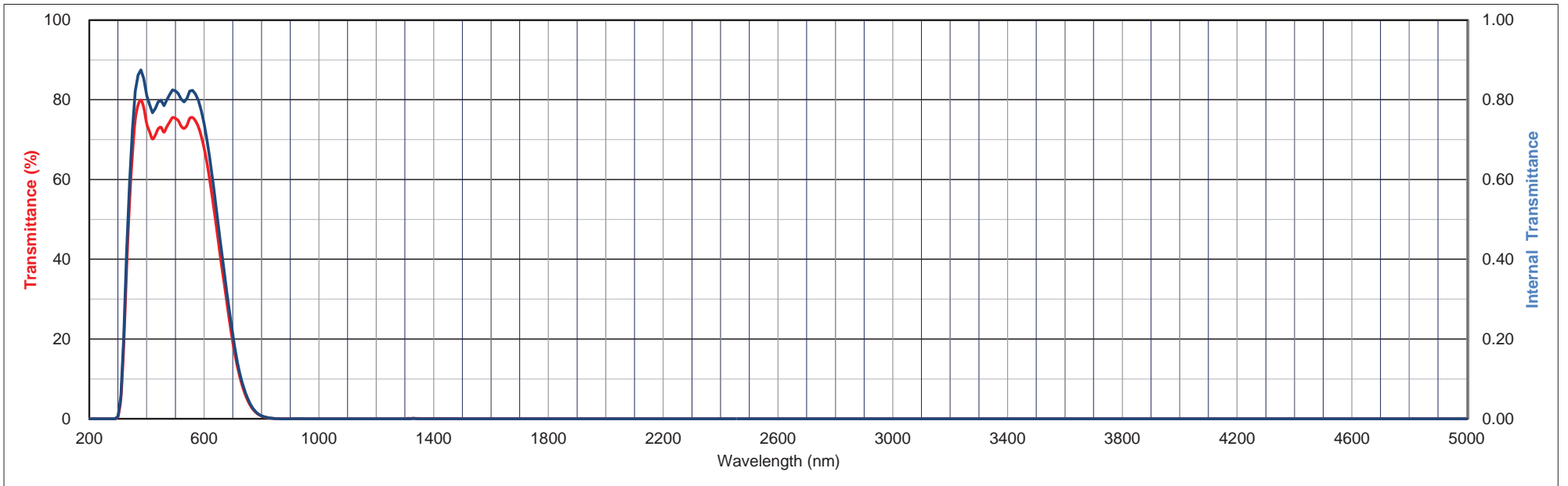
HOYA CANDEO OPTRONICS CORPORATION

Thickness 3.00 mm

HA5

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	0.6	5.2	18.5	37.7	54.0	66.1	75.0	78.7	79.9	77.9
λnm	400	410	420	430	440	450	460	470	480	490	500	510	520	530	540	550	560	570	580	590
T	74.0	72.0	70.2	71.2	72.7	73.1	71.9	73.2	74.4	75.5	75.3	74.8	73.4	72.8	73.6	75.3	75.5	74.7	73.2	70.9
λnm	600	610	620	630	640	650	660	670	680	690	700	710	720	730	740	750	760	770	780	790
T	67.9	64.2	59.7	54.8	49.6	44.3	38.8	34.0	28.8	23.8	19.2	15.2	11.8	9.0	6.7	4.9	3.5	2.4	1.6	1.1
λnm	800	810	820	830	840	850	860	870	880	890	900	910	920	930	940	950	960	970	980	990
T	0.7	0.4	0.3	0.2	0.1	0.1	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
λnm	1000	1010	1020	1030	1040	1050	1060	1070	1080	1090	1100	1110	1120	1130	1140	1150	1160	1170	1180	1190
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	0.0
λnm	1200	1210	1220	1230	1240	1250	1260	1270	1280	1290	1300	1310	1320	1330	1340	1350	1360	1370	1380	1390
T	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.0	0.0
λnm	1400	1410	1420	1430	1440	1450	1460	1470	1480	1490	1500	1510	1520	1530	1540	1550	1560	1570	1580	1590
T	0.0	0.1	0.1	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
λnm	1600	1610	1620	1630	1640	1650	1660	1670	1680	1690	1700	1710	1720	1730	1740	1750	1760	1770	1780	1790
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	0.0
λnm	1800	1810	1820	1830	1840	1850	1860	1870	1880	1890	1900	1910	1920	1930	1940	1950	1960	1970	1980	1990
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	0.0
λnm	2000	2050	2100	2150	2200	2250	2300	2350	2400	2450	2500	2550	2600	2650	2700	2750	2800	2850	2900	2950
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	0.0
λnm	3000	3050	3100	3150	3200	3250	3300	3350	3400	3450	3500	3550	3600	3650	3700	3750	3800	3850	3900	3950
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	0.0
λnm	4000	4050	4100	4150	4200	4250	4300	4350	4400	4450	4500	4550	4600	4650	4700	4750	4800	4850	4900	4950
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	0.0
λnm	5000																			
T	0.0																			



All data is mean values of various melts.

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