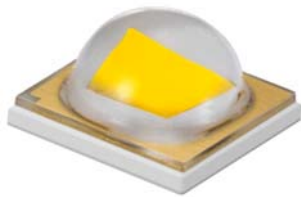


**CODE & BINNING**

# LH351Z – 3535 Ceramic LED @85°C



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**SAMSUNG ELECTRONICS**

95, Samsung2-Ro, Giheung-Gu,  
Yongin-City, Gyeonggi-Do 446-711, KOREA



# 1. Product Code Information

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
S	P	H	W	H	T	L	3	D	2	0	C	E	3	R	T	H	3

Code			PKG information	Specification			
1	2	3	Samsung Package	High Power			
4	5	Color	WH	White			
6	Product Version						
7	8	Product	L3	LH351Z			
9	Lens type		D	Dome Lens			
10	Operating condition		2	Max 2 Watt			
11	Not defined		0	Default			
12	CRI(@85°C)		C	Min. 70+			
			D	Min. 75+			
			E	Min. 80+			
			J	Min. 68+			
13	14	V <sub>F</sub>	E1	2.7~2.8 V	E3		
			F1	2.8~2.9 V			
			G1	2.9~3.0 V			
15	16	CCT	W0	2700K			
			V0	3000K			
			U0	3500K			
			T0	4000K			
			R0	5000K			
			Q0	5700K			
			P0	6500K			
17	18	Luminous Flux	F1	90~100 lm	F7 <sup>1)</sup>		
			G1	100~110 lm	G6		
			H1	110~120 lm		H5	
			J1	120~130 lm			J4
			K1	130~140 lm			
			M1	140~150 lm			
			N1	150~160 lm			
1) Digit 17 : Min. spec. Digit 18 : The number of high bin rank from Min. spec. Ex) F1 = 90~100 lm, F7 = 90~160 lm							

# 1. Luminous Flux Characteristics ( $T_j = 85^\circ\text{C}$ )

Nominal CCT	Minimum CRI	Product Code	Flux Rank	Sorting Condition Flux @350mA		
				Flux Bin	Flux Range	
2700K	80	SPHWHTL3D20EE3W0F3	F3	F1	90 ~ 100	
				G1	100 ~ 110	
				H1	110 ~	
		SPHWHTL3D20EE3WPF3		F1	90 ~ 100	
				G1	100 ~ 110	
				H1	110 ~	
		SPHWHTL3D20EE3WMF3		F1	90 ~ 100	
				G1	100 ~ 110	
				H1	110 ~	
		SPHWHTL3D20EE3W0G3	G3	G1	G1	100 ~ 110
					H1	110 ~ 120
					J1	120 ~
SPHWHTL3D20EE3WPG3	G1	100 ~ 110				
	H1	110 ~ 120				
	J1	120 ~				
SPHWHTL3D20EE3WMG3	G1	100 ~ 110				
	H1	110 ~ 120				
	J1	120 ~				
3000K	80	SPHWHTL3D20EE3V0F3	F3	F1	90 ~ 100	
				G1	100 ~ 110	
				H1	110 ~	
		SPHWHTL3D20EE3VPF3		F1	90 ~ 100	
				G1	100 ~ 110	
				H1	110 ~	
		SPHWHTL3D20EE3VMF3		F1	90 ~ 100	
				G1	100 ~ 110	
				H1	110 ~	
		SPHWHTL3D20EE3V0G3	G3	G1	G1	100 ~ 110
					H1	110 ~ 120
					J1	120 ~
		SPHWHTL3D20EE3VPG3		G1	100 ~ 110	
				H1	110 ~ 120	
				J1	120 ~	
SPHWHTL3D20EE3VMG3	G1	100 ~ 110				
	H1	110 ~ 120				
	J1	120 ~				
SPHWHTL3D20EE3V0H3	H3	H1	H1	110 ~ 120		
			J1	120 ~ 130		
			K1	130 ~		

		SPHWHTL3D20EE3VPH3		H1	110 ~ 120
				J1	120 ~ 130
				K1	130 ~
		SPHWHTL3D20EE3VMH3		H1	110 ~ 120
				J1	120 ~ 130
				K1	130 ~
3500K	80	SPHWHTL3D20EE3U0G3	G3	G1	100 ~ 110
				H1	110 ~ 120
				J1	120 ~
		SPHWHTL3D20EE3UPG3		G1	100 ~ 110
				H1	110 ~ 120
				J1	120 ~
		SPHWHTL3D20EE3UMG3	G1	100 ~ 110	
			H1	110 ~ 120	
			J1	120 ~	
		SPHWHTL3D20EE3U0H3	H3	H1	110 ~ 120
				J1	120 ~ 130
				K1	130 ~
		SPHWHTL3D20EE3UPH3		H1	110 ~ 120
				J1	120 ~ 130
	K1	130 ~			
SPHWHTL3D20EE3UMH3	H1	110 ~ 120			
	J1	120 ~ 130			
	K1	130 ~			
4000K	80	SPHWHTL3D20EE3T0G3	G3	G1	100 ~ 110
				H1	110 ~ 120
				J1	120 ~
		SPHWHTL3D20EE3TPG3		G1	100 ~ 110
				H1	110 ~ 120
				J1	120 ~
		SPHWHTL3D20EE3TMG3	G1	100 ~ 110	
			H1	110 ~ 120	
			J1	120 ~	
		SPHWHTL3D20EE3T0H3	H3	H1	110 ~ 120
				J1	120 ~ 130
				K1	130 ~
		SPHWHTL3D20EE3TPH3		H1	110 ~ 120
				J1	120 ~ 130
	K1	130 ~			
SPHWHTL3D20EE3TMH3	H1	110 ~ 120			
	J1	120 ~ 130			
	K1	130 ~			



Nominal CCT	Minimum CRI	Product Code	Flux Rank	Sorting Condition Flux @350mA			
				Flux Bin	Flux Range		
4000K	70	SPHWHTL3D20CE3T0H3	H3	H1	110 ~ 120		
				J1	120 ~ 130		
				K1	130 ~		
		SPHWHTL3D20CE3TPH3		H1	110 ~ 120		
				J1	120 ~ 130		
				K1	130 ~		
		SPHWHTL3D20CE3TMH3		H1	110 ~ 120		
				J1	120 ~ 130		
				K1	130 ~		
		75		SPHWHTL3D20CE3T0J3	J3	J1	120 ~ 130
						K1	130 ~ 140
						M1	140 ~
	SPHWHTL3D20CE3TPJ3		J1	120 ~ 130			
			K1	130 ~ 140			
			M1	140 ~			
	SPHWHTL3D20CE3TMJ3	J1	120 ~ 130				
		K1	130 ~ 140				
		M1	140 ~				
	70	SPHWHTL3D20CE3T0K3	K3	K1	130 ~ 140		
				M1	140 ~ 150		
				N1	150 ~		
		SPHWHTL3D20CE3TPK3		K1	130 ~ 140		
				M1	140 ~ 150		
				N1	150 ~		
SPHWHTL3D20CE3TMK3		K1		130 ~ 140			
		M1		140 ~ 150			
		N1		150 ~			
5000K	75	SPHWHTL3D20DE3RTH3	H3	H1	110 ~ 120		
				J1	120 ~ 130		
				K1	130 ~		
		SPHWHTL3D20DE3RTJ3		J1	120 ~ 130		
				K1	130 ~ 140		
				M1	140 ~		
	70	SPHWHTL3D20CE3RTH3	H3	H1	110 ~ 120		
				J1	120 ~ 130		
				K1	130 ~		
		SPHWHTL3D20CE3RTJ3		J1	120 ~ 130		
				K1	130 ~ 140		
				M1	140 ~		



		SPHWHTL3D20CE3RTK3	K3	K1	130 ~ 140
				M1	140 ~ 150
				N1	150 ~
5700K	75	SPHWHTL3D20DE3QTH3	H3	H1	110 ~ 120
				J1	120 ~ 130
				K1	130 ~
	70	SPHWHTL3D20CE3QTH3	H3	H1	110 ~ 120
				J1	120 ~ 130
				K1	130 ~
		SPHWHTL3D20CE3QTJ3	J3	J1	120 ~ 130
				K1	130 ~ 140
				M1	140 ~
				K1	130 ~ 140
SPHWHTL3D20CE3QTK3	K3	M1	140 ~ 150		
		N1	150 ~		
6500K	70	SPHWHTL3D20CE3PTH3	H3	H1	110 ~ 120
				J1	120 ~ 130
				K1	130 ~
	SPHWHTL3D20CE3PTJ3	J3	J1	120 ~ 130	
			K1	130 ~ 140	
			M1	140 ~	



### 3. Color Bins ( $T_J = 85^\circ\text{C}$ )

#### 3-1) Color Binning

Nominal CCT	Product Code	Color Rank	Chromaticity Bins
2700K	SPHWHTL3D20EE3W0F3	W0 (Whole Bin)	W1,W2,W3,W4,W5,W6,W7,W8, W9,WA,WB,WC,WD,WE,WF,WG
	SPHWHTL3D20EE3W0G3		
	SPHWHTL3D20EE3WPF3	WP (Quarter)	W6,W7,WA,WB
	SPHWHTL3D20EE3WPG3		
	SPHWHTL3D20EE3WMF3	WM (M3 Bin)	-
	SPHWHTL3D20EE3WMG3		
3000K	SPHWHTL3D20EE3V0F3	V0 (Whole Bin)	V1,V2,V3,V4,V5,V6,V7,V8, V9,VA,VB,VC,VD,VE,VF,VG
	SPHWHTL3D20EE3V0G3		
	SPHWHTL3D20EE3V0H3		
	SPHWHTL3D20EE3VPF3	VP (Quarter)	V6,V7,VA,VB
	SPHWHTL3D20EE3VPG3		
	SPHWHTL3D20EE3VPH3		
	SPHWHTL3D20EE3VMF3	VM (M3 Bin)	-
	SPHWHTL3D20EE3VMG3		
	SPHWHTL3D20EE3VMH3		
3500K	SPHWHTL3D20EE3U0G3	U0 (Whole Bin)	U1,U2,U3,U4,U5,U6,U7,U8, U9,UA,UB,UC,UD,UE,UF,UG
	SPHWHTL3D20EE3U0H3		
	SPHWHTL3D20EE3UPG3	UP (Quarter)	U6,U7,UA,UB



	SPHWHTL3D20EE3UPH3	UP (Quarter)	U6,U7,UA,UB
	SPHWHTL3D20EE3UMG3	UM (M3 Bin)	-
	SPHWHTL3D20EE3UMH3		
4000K	SPHWHTL3D20EE3T0G3	T0 (Whole Bin)	T1,T2,T3,T4,T5,T6,T7,T8, T9,TA,TB,TC,TD,TE,TF,TG
	SPHWHTL3D20EE3T0H3		
	SPHWHTL3D20EE3TPG3	TP (Quarter)	T6,T7,TA,TB
	SPHWHTL3D20EE3TPH3		
	SPHWHTL3D20EE3TMG3	TM (M3 Bin)	-
	SPHWHTL3D20EE3TMH3		

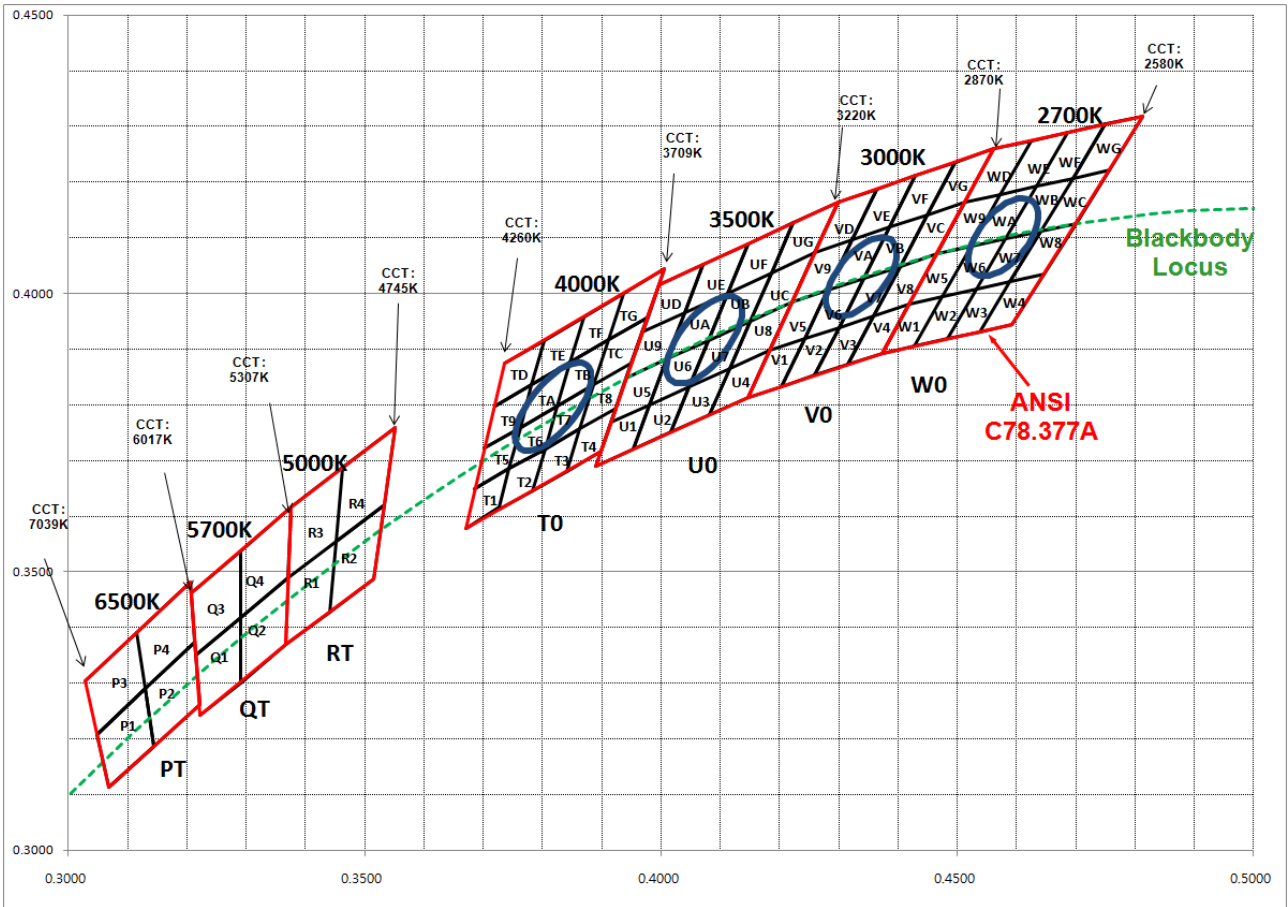




### 3-1) Color Binning

Nominal CCT	Product Code	Color Rank	Chromaticity Bins	
4000K	SPHWHTL3D20CE3T0H3	T0 (Whole Bin)	T1,T2,T3,T4,T5,T6,T7,T8, T9,TA,TB,TC,TD,TE,TF,TG	
	SPHWHTL3D20CE3T0J3			
	SPHWHTL3D20CE3T0K3			
	4000K	SPHWHTL3D20CE3TPH3	TP (Quarter)	T6,T7,TA,TB
		SPHWHTL3D20CE3TPJ3		
		SPHWHTL3D20CE3TPK3		
	4000K	SPHWHTL3D20CE3TMH3	TM (M3 Bin)	-
		SPHWHTL3D20CE3TMJ3		
		SPHWHTL3D20CE3TMK3		
5000K	SPHWHTL3D20DE3RTH3	RT (M7 Bin)	R1,R2,R3,R4	
	SPHWHTL3D20DE3RTJ3			
	SPHWHTL3D20CE3RTH3			
	SPHWHTL3D20CE3RTJ3			
	SPHWHTL3D20CE3RTK3			
5700K	SPHWHTL3D20DE3QTJ3	QT (M7 Bin)	Q1,Q2,Q3,Q4	
	SPHWHTL3D20CE3QTH3			
	SPHWHTL3D20CE3QTJ3			
	SPHWHTL3D20CE3QTK3			
6500K	SPHWHTL3D20CE3PTH3	PT (M7 Bin)	P1,P2,P3,P4	
	SPHWHTL3D20CE3PTJ3			

### 3-2) Chromaticity Region & Coordinates





### 3-2) Chromaticity Region & Coordinates (Continued)

Region	CIE X	CIE Y	Region	CIE X	CIE Y	Region	CIE X	CIE Y	Region	CIE X	CIE Y
W rank (2700K)						V rank (3000K)					
W1	0.4373	0.3893	W9	0.4465	0.4071	V1	0.4147	0.3814	V9	0.4221	0.3984
	0.4418	0.3981		0.4513	0.4164		0.4183	0.3898		0.4259	0.4073
	0.4475	0.3994		0.4573	0.4178		0.4242	0.3919		0.4322	0.4096
	0.4428	0.3906		0.4523	0.4085		0.4203	0.3833		0.4281	0.4006
W2	0.4428	0.3906	WA	0.4523	0.4085	V2	0.4203	0.3833	VA	0.4281	0.4006
	0.4475	0.3994		0.4573	0.4178		0.4242	0.3919		0.4322	0.4096
	0.4532	0.4008		0.4634	0.4193		0.4300	0.3939		0.4385	0.4119
	0.4483	0.3919		0.4582	0.4099		0.4259	0.3853		0.4342	0.4028
W3	0.4483	0.3919	WB	0.4582	0.4099	V3	0.4259	0.3853	VB	0.4342	0.4028
	0.4532	0.4008		0.4634	0.4193		0.4300	0.3939		0.4385	0.4119
	0.4589	0.4021		0.4695	0.4207		0.4359	0.3960		0.4449	0.4141
	0.4538	0.3931		0.4641	0.4112		0.4316	0.3873		0.4403	0.4049
W4	0.4538	0.3931	WC	0.4641	0.4112	V4	0.4316	0.3873	VC	0.4403	0.4049
	0.4589	0.4021		0.4695	0.4207		0.4359	0.3960		0.4449	0.4141
	0.4646	0.4034		0.4756	0.4221		0.4418	0.3981		0.4513	0.4164
	0.4593	0.3944		0.4700	0.4126		0.4373	0.3893		0.4465	0.4071
W5	0.4418	0.3981	WD	0.4513	0.4164	V5	0.4183	0.3898	VD	0.4259	0.4073
	0.4465	0.4071		0.4562	0.4260		0.4221	0.3984		0.4299	0.4165
	0.4523	0.4085		0.4624	0.4274		0.4281	0.4006		0.4364	0.4188
	0.4475	0.3994		0.4573	0.4178		0.4242	0.3919		0.4322	0.4096
W6	0.4475	0.3994	WE	0.4573	0.4178	V6	0.4242	0.3919	VE	0.4322	0.4096
	0.4523	0.4085		0.4624	0.4274		0.4281	0.4006		0.4364	0.4188
	0.4582	0.4099		0.4687	0.4289		0.4342	0.4028		0.4430	0.4212
	0.4532	0.4008		0.4634	0.4193		0.4300	0.3939		0.4385	0.4119
W7	0.4532	0.4008	WF	0.4634	0.4193	V7	0.4300	0.3939	VF	0.4385	0.4119
	0.4582	0.4099		0.4687	0.4289		0.4342	0.4028		0.4430	0.4212
	0.4641	0.4112		0.4750	0.4304		0.4403	0.4049		0.4496	0.4236
	0.4589	0.4021		0.4695	0.4207		0.4359	0.3960		0.4449	0.4141
W8	0.4589	0.4021	WG	0.4695	0.4207	V8	0.4359	0.3960	VG	0.4449	0.4141
	0.4641	0.4112		0.4750	0.4304		0.4403	0.4049		0.4496	0.4236
	0.4700	0.4126		0.4813	0.4319		0.4465	0.4071		0.4562	0.4260
	0.4646	0.4034		0.4756	0.4221		0.4418	0.3981		0.4513	0.4164

### 3-2) Chromaticity Region & Coordinates (Continued)

Region	CIE X	CIE Y	Region	CIE X	CIE Y	Region	CIE X	CIE Y	Region	CIE X	CIE Y
U rank (3500K)						T rank (4000K)					
U1	0.3889	0.3690	U9	0.3941	0.3848	T1	0.367	0.3578	T9	0.3702	0.3722
	0.3915	0.3768		0.3968	0.3930		0.3726	0.3612		0.3763	0.376
	0.3981	0.3800		0.4040	0.3966		0.3744	0.3685		0.3782	0.3837
	0.3953	0.3720		0.4010	0.3882		0.3686	0.3649		0.3719	0.3797
U2	0.3953	0.3720	UA	0.4010	0.3882	T2	0.3726	0.3612	TA	0.3763	0.376
	0.3981	0.3800		0.4040	0.3966		0.3783	0.3646		0.3825	0.3798
	0.4048	0.3832		0.4113	0.4001		0.3804	0.3721		0.3847	0.3877
	0.4017	0.3751		0.4080	0.3916		0.3744	0.3685		0.3782	0.3837
U3	0.4017	0.3751	UB	0.4080	0.3916	T3	0.3783	0.3646	TB	0.3825	0.3798
	0.4048	0.3832		0.4113	0.4001		0.384	0.3681		0.3887	0.3836
	0.4116	0.3865		0.4186	0.4037		0.3863	0.3758		0.3912	0.3917
	0.4082	0.3782		0.4150	0.3950		0.3804	0.3721		0.3847	0.3877
U4	0.4082	0.3782	UC	0.4150	0.3950	T4	0.384	0.3681	TC	0.3887	0.3837
	0.4116	0.3865		0.4186	0.4037		0.3898	0.3716		0.395	0.3875
	0.4183	0.3898		0.4259	0.4073		0.3924	0.3794		0.3978	0.3958
	0.4147	0.3814		0.4221	0.3984		0.3863	0.3758		0.3912	0.3917
U5	0.3915	0.3768	UD	0.3968	0.3930	T5	0.3686	0.3649	TD	0.3719	0.3797
	0.3941	0.3848		0.3996	0.4015		0.3744	0.3685		0.3782	0.3837
	0.4010	0.3882		0.4071	0.4052		0.3763	0.376		0.3802	0.3916
	0.3981	0.3800		0.4040	0.3966		0.3702	0.3722		0.3736	0.3874
U6	0.3981	0.3800	UE	0.4040	0.3966	T6	0.3744	0.3685	TE	0.3782	0.3837
	0.4010	0.3882		0.4071	0.4052		0.3804	0.3721		0.3847	0.3877
	0.4080	0.3916		0.4146	0.4089		0.3825	0.3798		0.3869	0.3958
	0.4048	0.3832		0.4113	0.4001		0.3763	0.376		0.3802	0.3916
U7	0.4048	0.3832	UF	0.4113	0.4001	T7	0.3804	0.3721	TF	0.3847	0.3877
	0.4080	0.3916		0.4146	0.4089		0.3863	0.3758		0.3912	0.3917
	0.4150	0.3950		0.4222	0.4127		0.3887	0.3836		0.3937	0.4001
	0.4116	0.3865		0.4186	0.4037		0.3825	0.3798		0.3869	0.3958
U8	0.4116	0.3865	UG	0.4186	0.4037	T8	0.3863	0.3758	TG	0.3912	0.3917
	0.4150	0.3950		0.4222	0.4127		0.3924	0.3794		0.3978	0.3958
	0.4221	0.3984		0.4299	0.4165		0.395	0.3875		0.4006	0.4044
	0.4183	0.3898		0.4259	0.4073		0.3887	0.3836		0.3937	0.4001



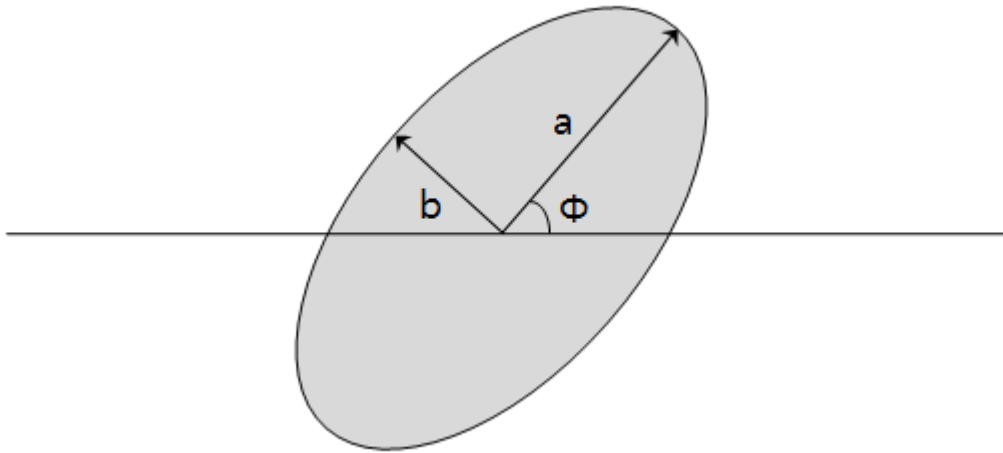
### 3-2) Chromaticity Region & Coordinates (Continued)

Region	CIE X	CIE Y	Region	CIE X	CIE Y	Region	CIE X	CIE Y	Region	CIE X	CIE Y
R rank (5000K)						P rank (6500K)					
R1	0.3371	0.3490	R3	0.3376	0.3616	P1	0.3068	0.3113	P3	0.3048	0.3207
	0.3451	0.3554		0.3463	0.3687		0.3144	0.3186		0.3130	0.3290
	0.3440	0.3427		0.3451	0.3554		0.3130	0.3290		0.3115	0.3391
	0.3366	0.3369		0.3371	0.3490		0.3048	0.3207		0.3028	0.3304
R2	0.3451	0.3554	R4	0.3463	0.3687	P2	0.3144	0.3186	P4	0.3130	0.3290
	0.3533	0.3620		0.3551	0.3760		0.3221	0.3261		0.3213	0.3373
	0.3515	0.3487		0.3533	0.3620		0.3213	0.3373		0.3205	0.3481
	0.3440	0.3427		0.3451	0.3554		0.3130	0.3290		0.3115	0.3391
Q rank (5700K)											
Q1	0.3215	0.3350	Q3	0.3207	0.3462						
	0.3290	0.3417		0.3290	0.3538						
	0.3290	0.3300		0.3290	0.3417						
	0.3222	0.3243		0.3215	0.3350						
Q2	0.3290	0.3417	Q4	0.3290	0.3538						
	0.3371	0.3490		0.3376	0.3616						
	0.3366	0.3369		0.3371	0.3490						
	0.3290	0.3300		0.3290	0.3417						

Notes:

SAMSUNG ELECTRONICS maintains  $\pm 0.01$  tolerance of CCx, CCy

### 3-3) MacAdam 3-step Ellipse



Nominal CCT	Center		Theta	a	b
	CIE X	CIE Y			
2700K	0.4578	0.4101	53.70	0.0081	0.0042
3000K	0.4338	0.4030	53.22	0.0083	0.0041
3500K	0.4073	0.3917	54.00	0.0093	0.0041
4000K	0.3818	0.3797	53.72	0.0094	0.0040

Notes:

SAMSUNG ELECTRONICS maintains  $\pm 0.01$  tolerance of CCx, CCy

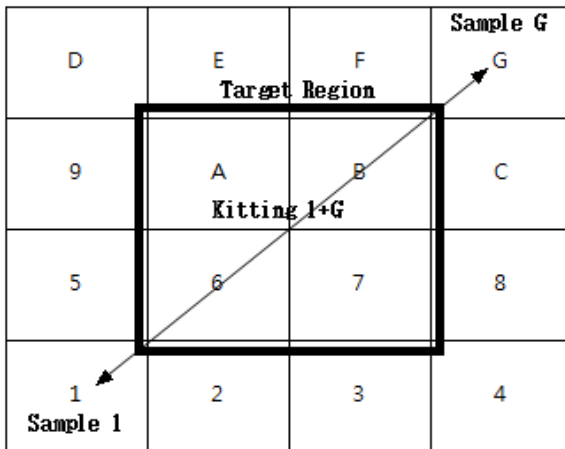
## 4. Kitting Rule

### 4-1) Color Kitting

2700K & 3000K & 3500K & 4000K

- 1) Color kitting region is below 6,7,A,B areas (Quarter bin at center).
- 2) If combine the sample 1 and the sample G, the color of kitted area is averaged one: Color of kitted area = (Color of 1 + Color of G)/2
- 3) Kitted color rank(WK, VK, UK, TK) represents color kitting region with each CCT.
- 4) Kitting concept is shown below diagram.

[Kitting example]





## 4-2) Luminous Flux Kitting

: If combine the lm of sample A and the lm of sample B, The lm of kitted product will be the average one:

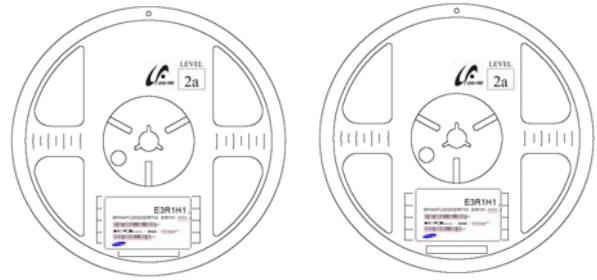
$\text{lm of kitted one} = (\text{lm of sample A} + \text{lm of sample B})/2.$

For example, kitting H1 rank is defined as a minimum flux of 110lm, therefore lm of kitting products will show a minimum flux of 110lm.



### 4-3) Packing Process

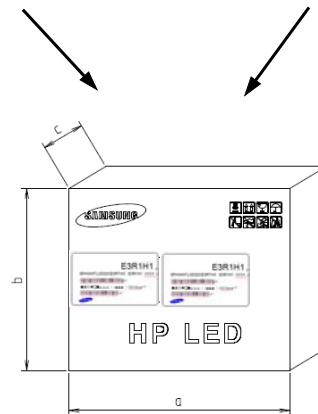
#### Reel



#### Aluminum Vinyl Bag



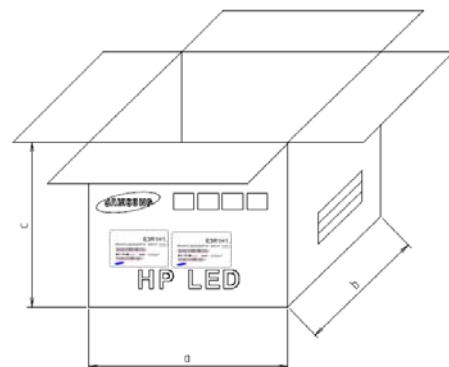
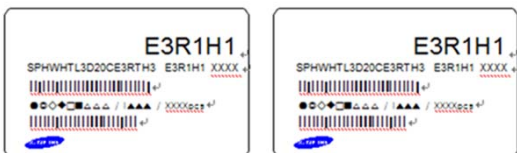
#### Inner Box



Material : Paper(SW3B(B))

TYPE	SIZE(mm)		
	(a)	(b)	(c)
7inch	185	219	44

#### Out Box



Material : Paper(SW3B(B))

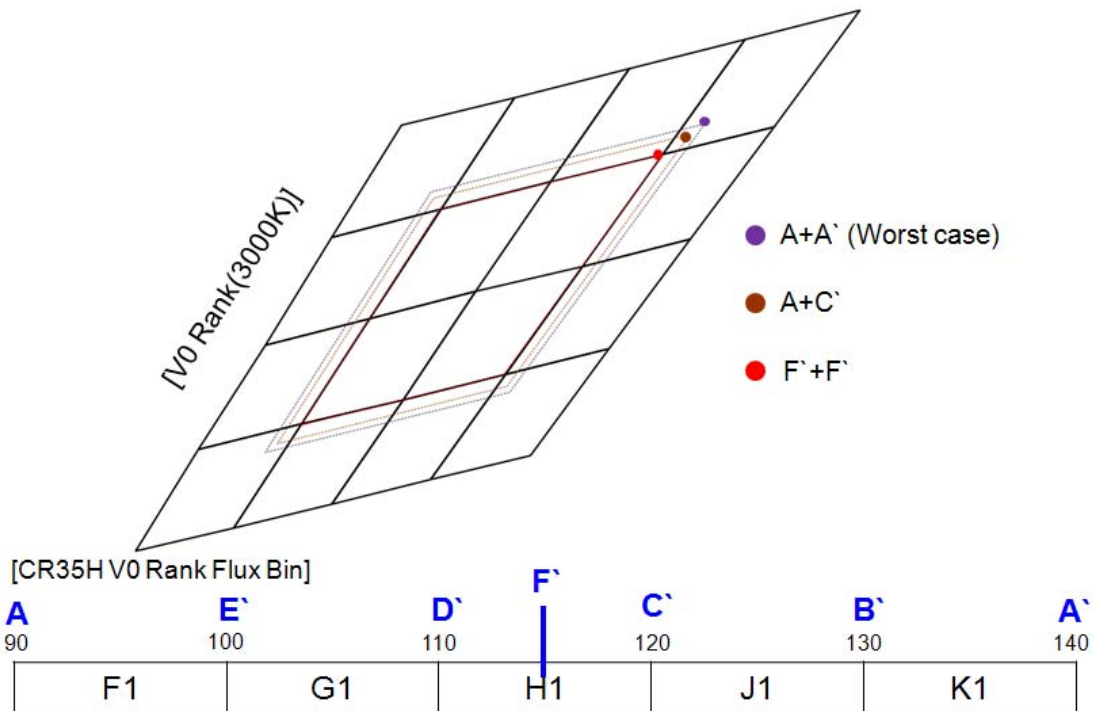
TYPE	SIZE(mm)		
	(a)	(b)	(c)
7inch	245	194	232

#### 4-4) Rules

- 1) Under Agreement Between Customer and SAMSUNG LED, SAMSUNG LED can supply kitting Bin( $V_F$ , Color,  $Im$ ).
- 2) Forward Voltage( $V_F$ ) is paired with ( $V_{F\_E3} + V_{F\_E3}$ ) or ( $V_{F\_H3} + V_{F\_H3}$ )  
 Kitting  $V_F$  is an average of paired  $V_{F\_E3}$  or  $V_{F\_H3}$   
 [ Kitting  $V_F = (V_{F\_E3} + V_{F\_E3})/2$  or  $(V_{F\_H3} + V_{F\_H3})/2$  ]  
 -  $V_F(E3) : 2.7\sim 3.0V@350mA$   
 -  $V_F(H3) : 3.0\sim 3.3V@350mA$
- 3) Chromaticity Coordinates is average by Kitting Procedure.(Below Kitting Simulation)  
 For example kitting color is an average of Color A and Color B  
 [ Kitting Color =  $(Color\_A + Color\_B)/2$  ]
- 4) Luminous Flux( $Im$ ) is average by Kitting Procedure.(Below Kitting Simulation)  
 For example Kitting  $Im$  is an average of  $Im\_A$  and  $Im\_B$   
 [ Kitting  $Im = (Im\_A + Im\_B)/2$  ]
- 5) SAMSUNG LED can provide Kitting table if Customers request

#### [Kitting Simulation] ex) 3000K

- Chromaticity Coordinate/ min&max Flux Bin Simulation



Revision History
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Date	Revision History	Writer	
		Drawn	Approved
2013.07.24	New version	S.B.HONG	Y.T.KIM
2013.08.03	1st	S.B.HONG	Y.T.KIM
2013.10.15	2nd	S.B.HONG	Y.T.KIM
2013.11.11	3rd	S.B.HONG	Y.T.KIM
2013.11.29	4th	S.B.HONG	Y.T.KIM
2014.01.08	5th	S.B.HONG	Y.T.KIM
2014.01.09	6th	S.B.HONG	Y.T.KIM
2014.01.14	7th	S.B.HONG	Y.T.KIM
2014.03.31	8th	S.B.HONG	M.Y.Son
2014.04.15	9th	S.B.HONG	M.Y.Son