

NLW3535AV1 LED

Package of Specifications



Anhui Retop Electronics Co.,Ltd

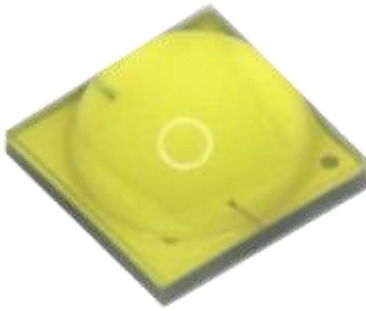
Product: NLW3535AV1

Version: V1.1

Date : 2019-06-12



NLW3535AV1



Product Features

- High efficacy for cost effective solutions
- high quality lighting solution
- Industry-leading thermal resistance
- Reflow solder able-JEDEC J-STD-020C
- Excellent Lumen maintenance requirements

Product Applications

- Outdoor lighting
- Indoor lighting
- Down Light
- Spot Light
- Automotive lighting
- Street lighting

Luminous Flux Characteristics

CCT (K)	CRI	Condition		Flux
	Typ @350mA	I _F (mA)	T _J (°C)	Typ
3000K	70	350	25	162
	70	350	85	149
	70	700	85	280
	70	1000	85	379
4000K	70	350	25	166
	70	350	85	152
	70	700	85	286
	70	1000	85	387
5000k	70	350	25	172
	70	350	85	158
	70	700	85	297
	70	1000	85	403
6500K	70	350	25	170
	70	350	85	157
	70	700	85	294
	70	1000	85	398

Forward Voltage (VF)	350	25	2.77
	350	85	2.71
	700	85	2.81
	1000	85	2.89

Notes:

- The viewing angle is 50 % center light intensity angle, Optical simulation software light source data of ProSource\Lighttools\TracePro\ASAP\Zemax etc can be provided;
- ETI maintains a testing tolerance of $\pm 7\%$ on flux and power measurements, ± 0.007 on chromaticity (CCx, CCy), ± 3 on CRI measurements, Voltage, $\pm 0.1V$ on voltage testing.

Absolute Maximum Ratings

Item	Symbol	Absolute Maximum Rating
Junction Temperature (°C)	T_j	150°C
Operating Temperature (°C)	T_{op}	-40°C - 120°C
Storage Temperature (°C)	T_{stg}	-40°C - 120°C
Forward Current	I_F	1500mA
Pulse Forward Current	I_{FM}	2000mA
Reverse Voltage	V_R	No Reverse Operation Design
Electrostatic Discharge	ESD (HBM)	8000V

Notes:

1. Maximum Forward Current and Maximum Pulse Current require the junction temperature to be lower than the rated junction temperature;
2. IFM condition Pulse width at 50ms and duty cycle at 0.016;
3. Built-in ESD protection diode.

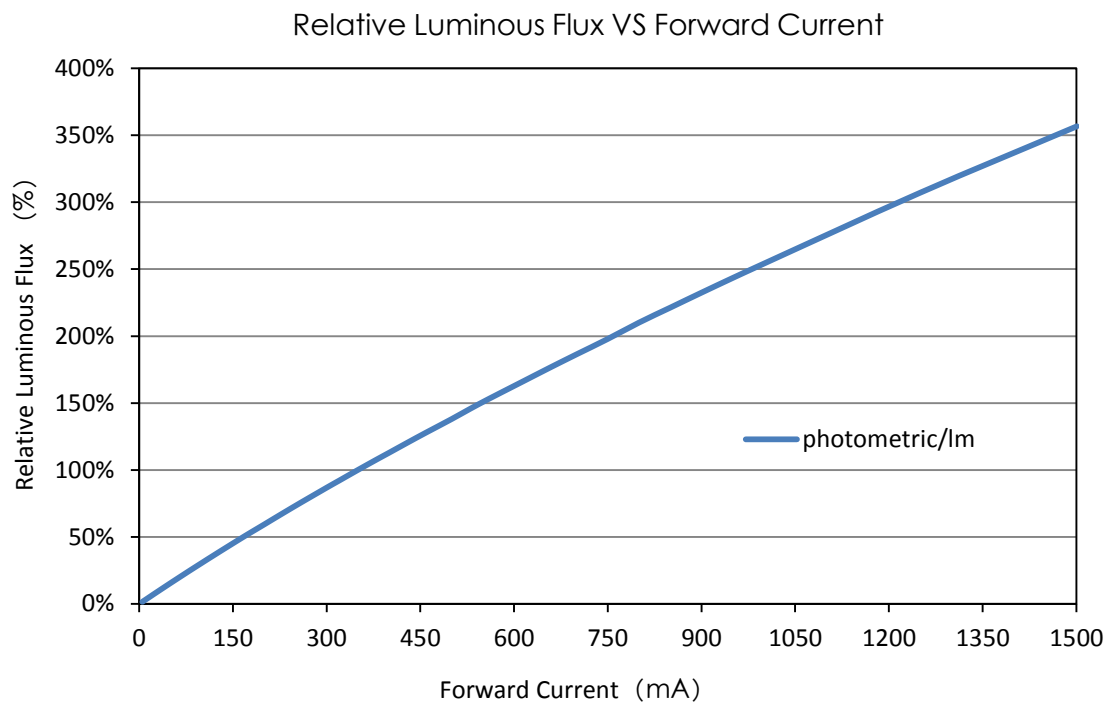
Luminance binning comparison between at 25°C and at 85°C

Color temp.	Luminance range (lm) @25°C		Luminance range (lm) @85°C	
2200~6500K	S3	156-164	R5	139-148
	S4	164-172	S2	148-156
	S5	172-182	S3	156-164
	S6	182-200	S4	164-172

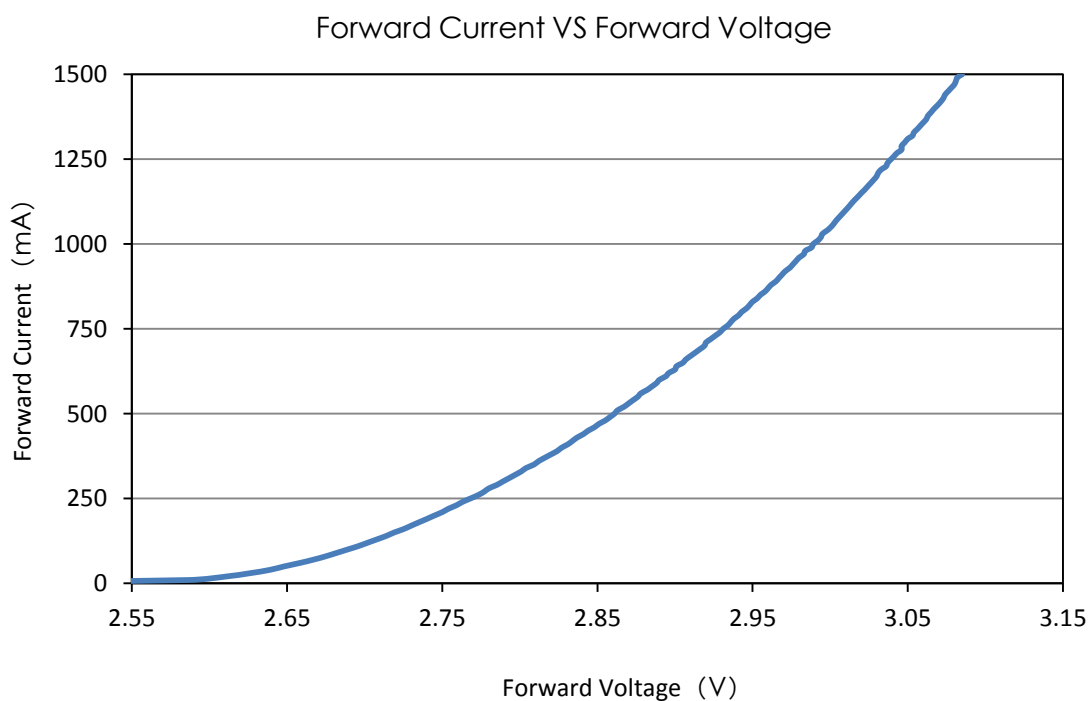
The color coordinate difference in value between 25°C and at 85°C

Color temp.	ΔX	ΔY	ΔT_c (K)
2200	<0.002	<0.002	<50
2700	<0.002	<0.002	<50
3000	<0.003	<0.004	<50
4000	<0.004	<0.005	<50
5000	<0.002	<0.003	<100
5700	<0.002	<0.002	<100
6500	<0.003	<0.004	<150

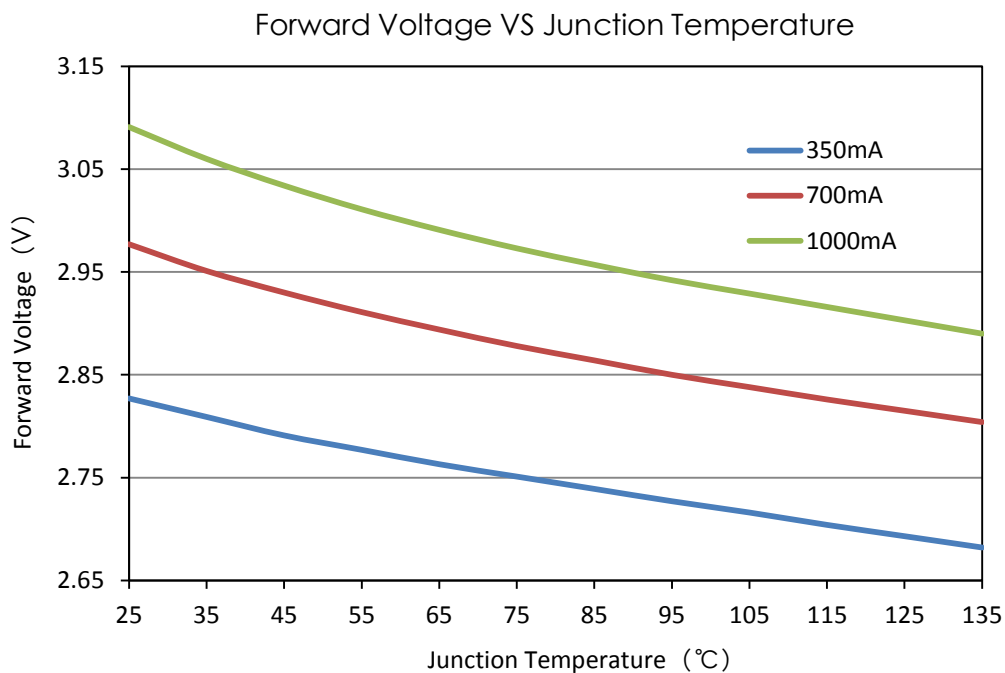
Product Characteristic Curve



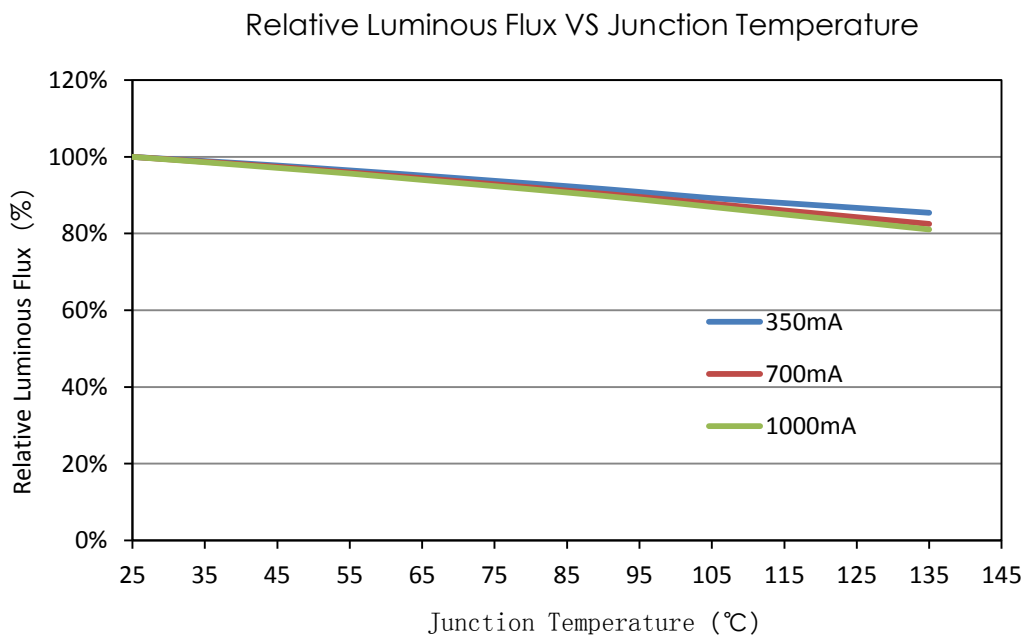
Product Characteristic Curve



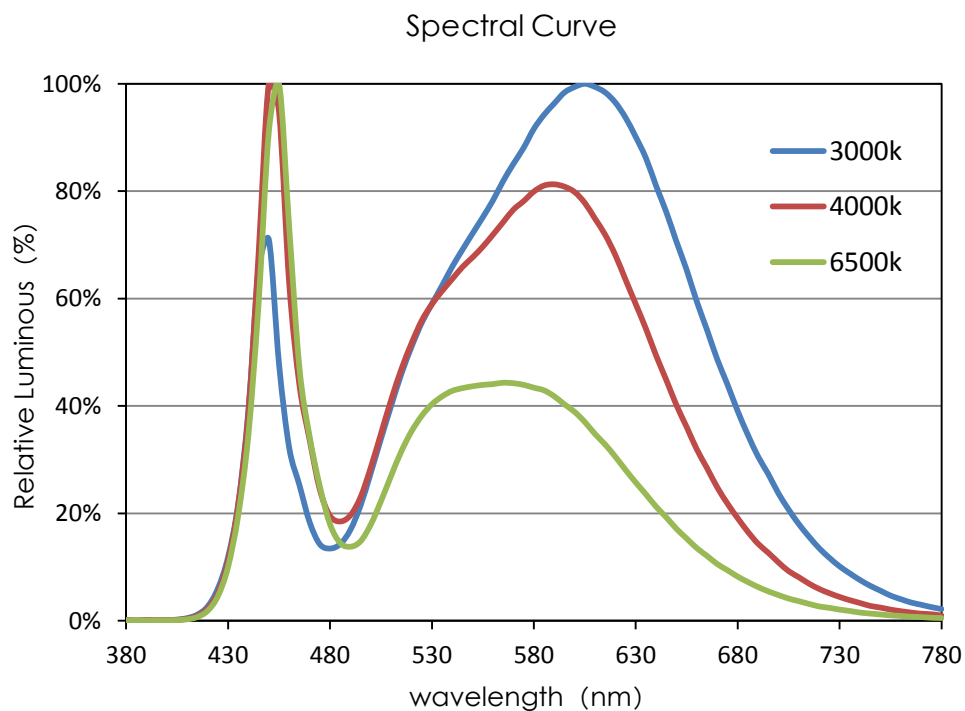
Product Characteristic Curve



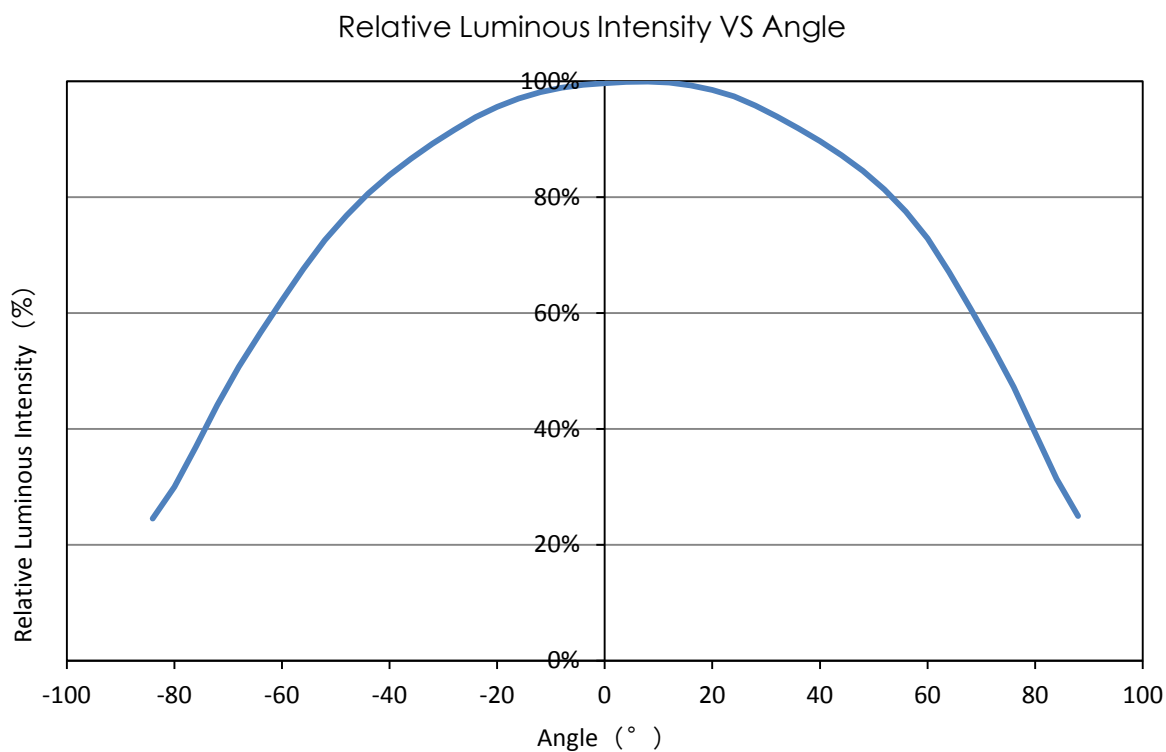
Product Characteristic Curve



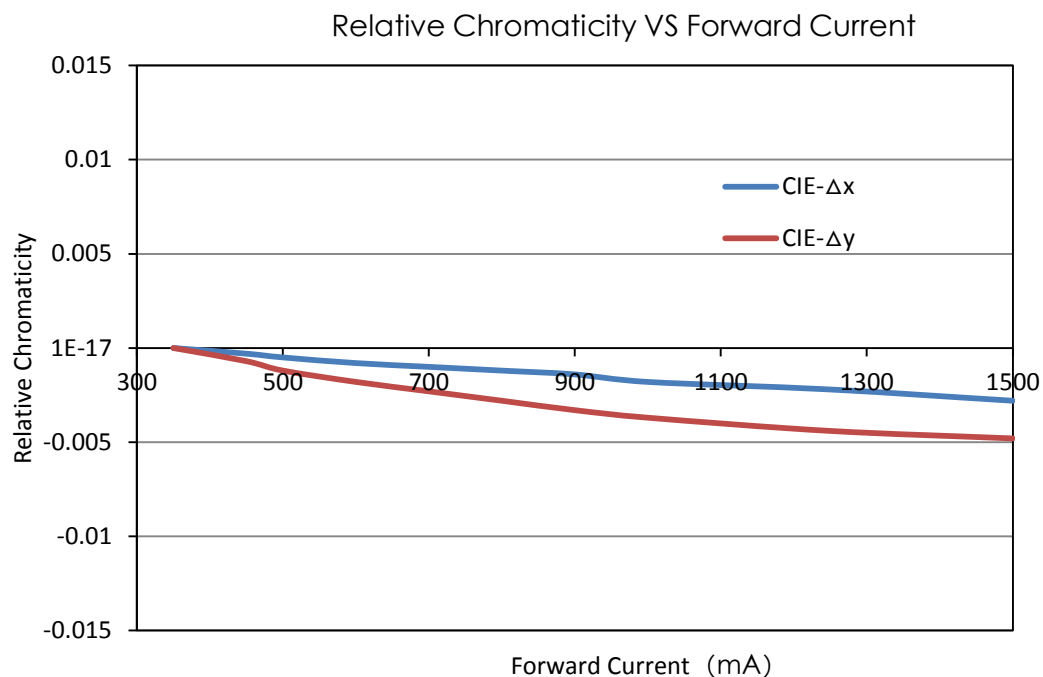
Product Characteristic Curve



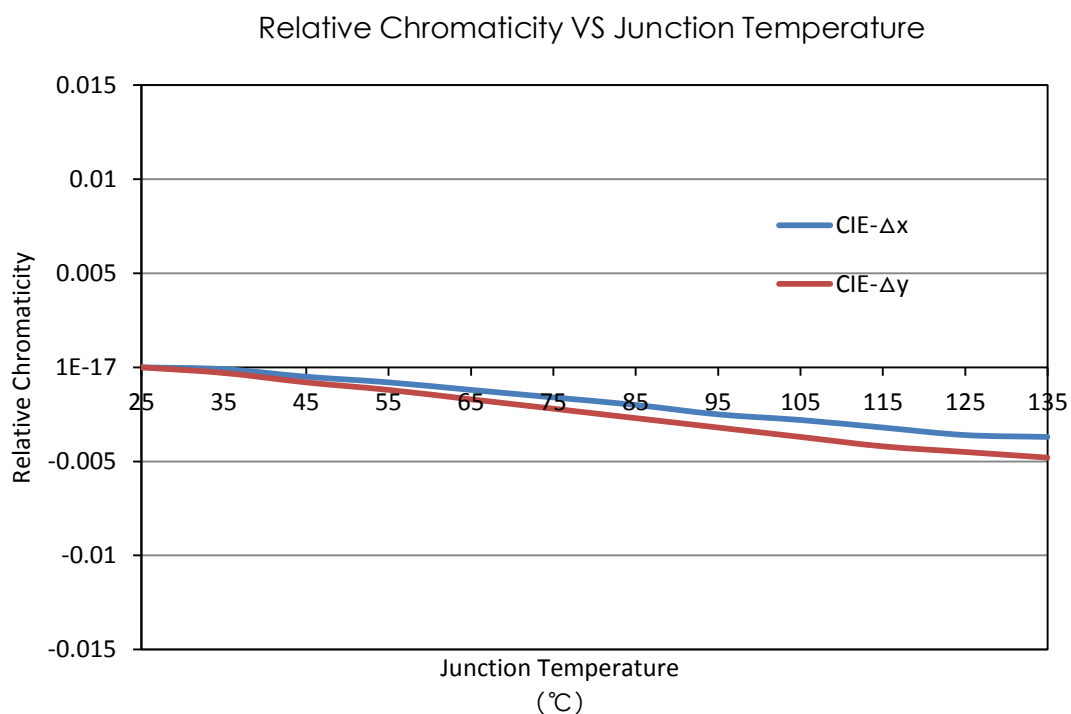
Product Characteristic Curve



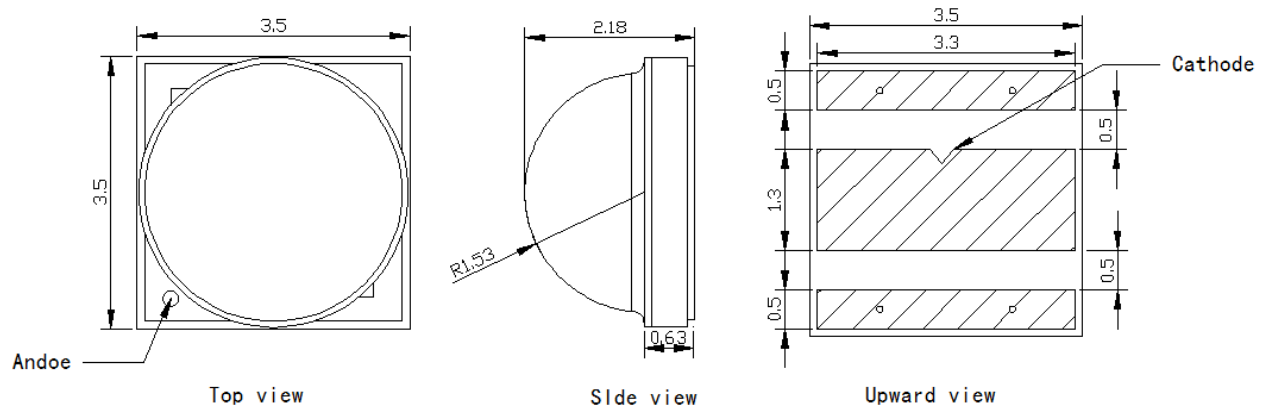
Product Characteristic Curve



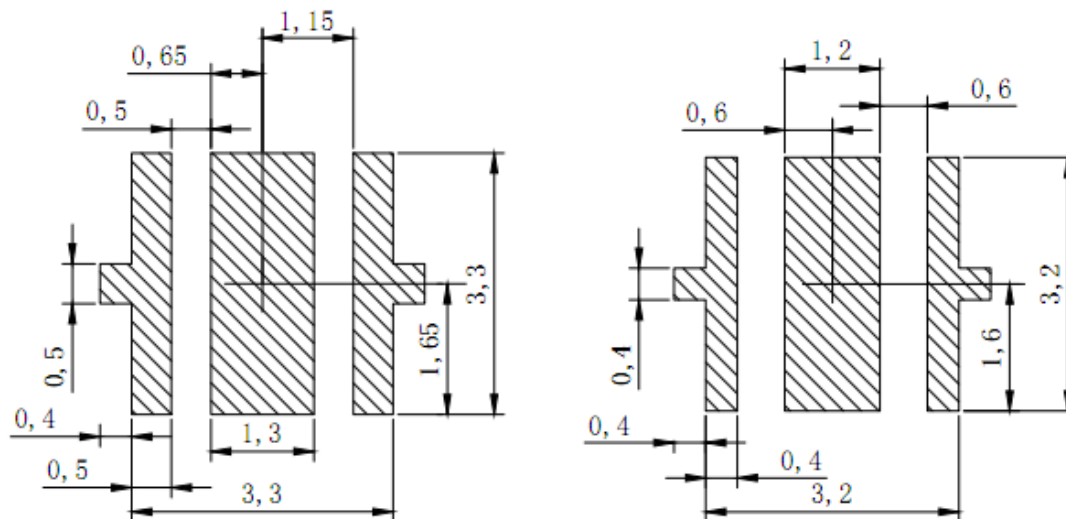
Product Characteristic Curve



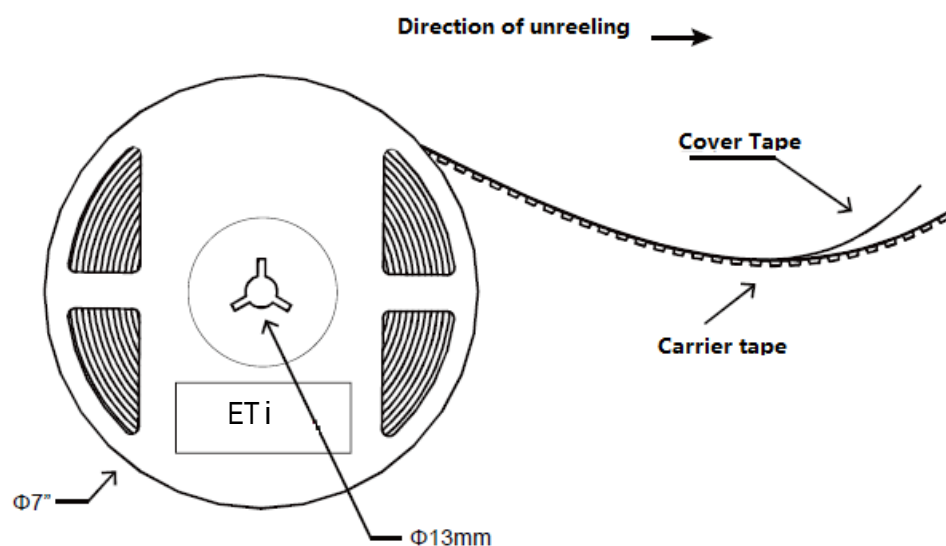
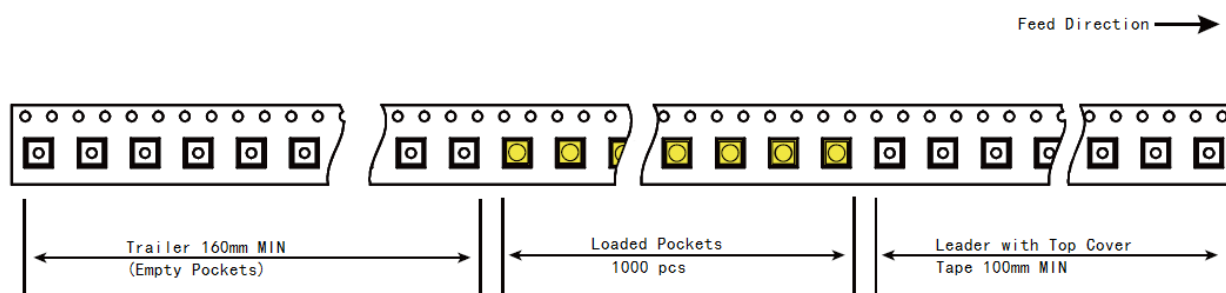
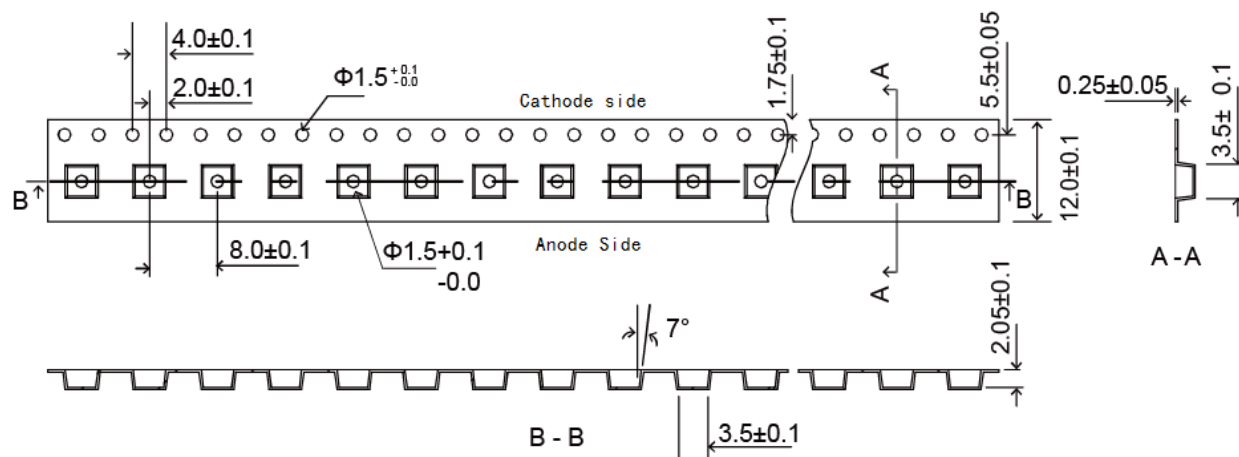
Mechanical Dimensions:

Unit: mm Tolerance: ± 0.1 

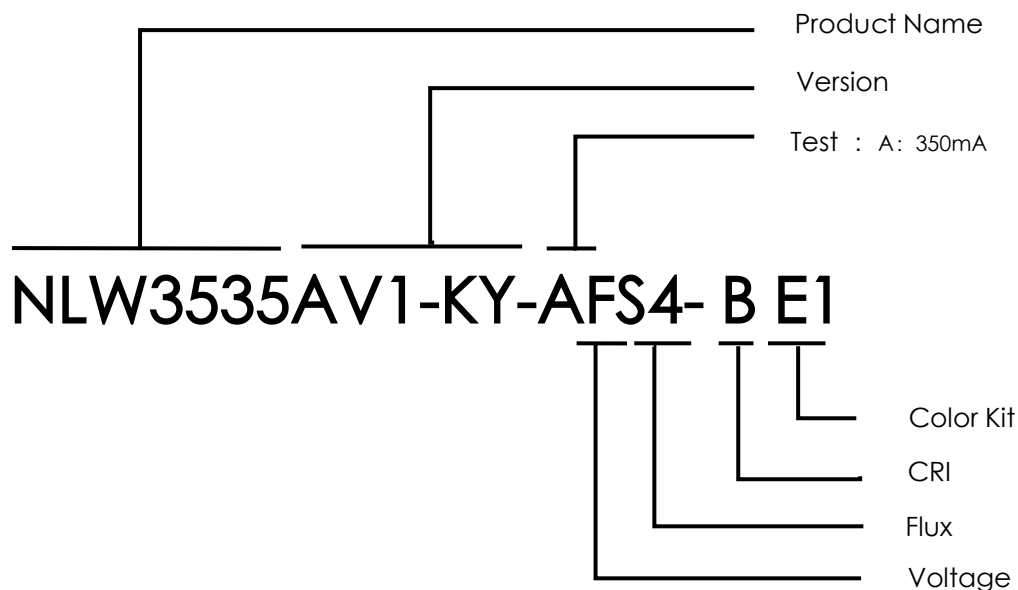
Recommended PCB Solder PAD Recommended Stencil Pattern



Tape: Unit: mm



Product Name Description:



Voltage Specification

Voltage	Min	Max	Unit
F	2.75	2.95	V

CRI Specification

CRI	Specification
B	CRI70
H	CRI80

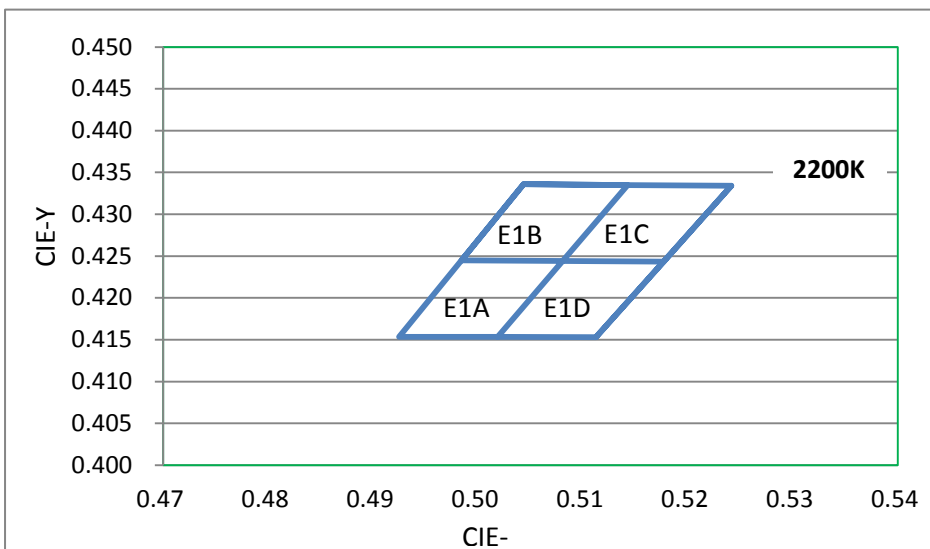
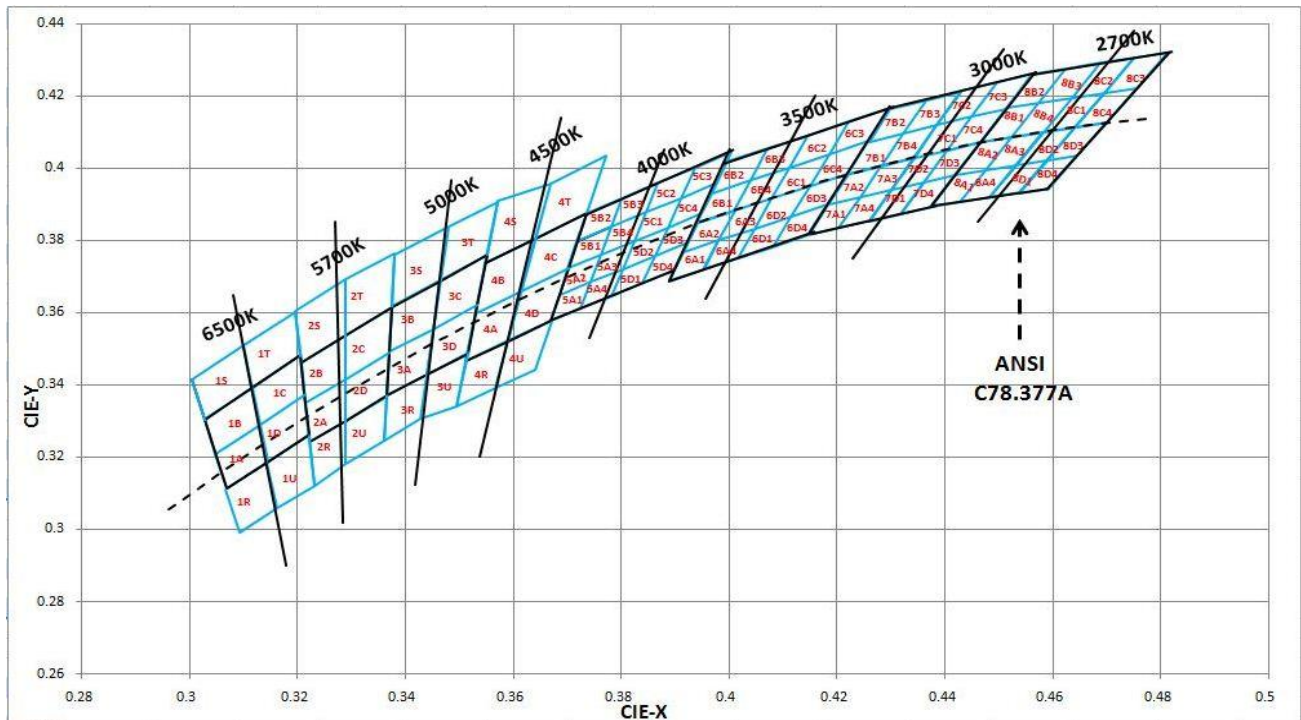
Color Kit

Color Kit	CCT	Unit
E1	6500	K
E2	5700	K
E3	5000	K
E4	4500	K
E5	4000	K
E6	3500	K
E7	3000	K
E8	2700	K
E10	2200	K

Flux Specification

Flux	Min	Max	Unit
Q3	93.9	100	Lm
Q4	100	107	Lm
Q5	107	114	Lm
R2	114	122	Lm
R3	122	130	Lm
R4	130	139	Lm
R5	139	148	Lm
S2	148	156	Lm
S3	156	164	Lm
S4	164	172	Lm
S5	172	182	Lm
S6	182	200	Lm

Color Group Description:



Tolerance: ± 0.007 on chromaticity (CCx, CCy)

Forward Current: 350mA

Test Time: 20ms

Ambient Temperature: 25°C

Performance Groups—Chromaticity

Region	x	y	Region	x	y	Region	x	y	Region	x	y
1A	0.3048	0.3207	1B	0.3028	0.3304	1C	0.3115	0.3391	1D	0.3130	0.3290
	0.3130	0.3290		0.3115	0.3391		0.3205	0.3481		0.3213	0.3373
	0.3144	0.3186		0.3130	0.3290		0.3213	0.3373		0.3221	0.3261
	0.3068	0.3113		0.3048	0.3207		0.3130	0.3290		0.3144	0.3186
1R	0.3068	0.3113	1S	0.3005	0.3415	1T	0.3099	0.3509	1U	0.3144	0.3186
	0.3144	0.3186		0.3099	0.3509		0.3196	0.3602		0.3221	0.3261
	0.3161	0.3059		0.3115	0.3391		0.3205	0.3481		0.3231	0.3120
	0.3093	0.2993		0.3028	0.3304		0.3115	0.3391		0.3161	0.3059
2A	0.3215	0.3350	2B	0.3207	0.3462	2C	0.3290	0.3538	2D	0.3290	0.3417
	0.3290	0.3417		0.3290	0.3538		0.3376	0.3616		0.3371	0.3490
	0.3290	0.3300		0.3290	0.3417		0.3371	0.3490		0.3366	0.3369
	0.3222	0.3243		0.3215	0.3350		0.3290	0.3417		0.3290	0.3300
2R	0.3222	0.3243	2S	0.3196	0.3602	2T	0.3290	0.3690	2U	0.3290	0.3300
	0.3290	0.3300		0.3290	0.3690		0.3381	0.3762		0.3366	0.3369
	0.3290	0.3180		0.3290	0.3538		0.3376	0.3616		0.3361	0.3245
	0.3231	0.3120		0.3207	0.3462		0.3290	0.3538		0.3290	0.3180
3A	0.3371	0.3490	3B	0.3376	0.3616	3C	0.3463	0.3687	3D	0.3451	0.3554
	0.3451	0.3554		0.3463	0.3687		0.3551	0.3760		0.3533	0.3620
	0.3440	0.3427		0.3451	0.3554		0.3533	0.3620		0.3515	0.3487
	0.3366	0.3369		0.3371	0.3490		0.3451	0.3554		0.3440	0.3427
3R	0.3366	0.3369	3S	0.3381	0.3762	3T	0.3480	0.3840	3U	0.3440	0.3428
	0.3440	0.3428		0.3480	0.3840		0.3571	0.3907		0.3515	0.3487
	0.3429	0.3307		0.3463	0.3687		0.3551	0.3760		0.3495	0.3339
	0.3361	0.3245		0.3376	0.3616		0.3463	0.3687		0.3429	0.3307
4A	0.3530	0.3597	4B	0.3548	0.3736	4C	0.3641	0.3804	4D	0.3615	0.3659
	0.3615	0.3659		0.3641	0.3804		0.3736	0.3874		0.3702	0.3722
	0.3590	0.3521		0.3615	0.3659		0.3702	0.3722		0.3670	0.3578
	0.3512	0.3465		0.3530	0.3597		0.3615	0.3659		0.3590	0.3521
4R	0.3512	0.3465	4S	0.3571	0.3907	4T	0.3668	0.3957	4U	0.3590	0.3521
	0.3590	0.3521		0.3668	0.3957		0.3771	0.4034		0.3670	0.3578
	0.3567	0.3389		0.3641	0.3804		0.3736	0.3874		0.3640	0.3440
	0.3495	0.3339		0.3548	0.3736		0.3641	0.3804		0.3567	0.3389
5A	0.3702	0.3722	5B	0.3736	0.3874	5C	0.3870	0.3958	5D	0.3825	0.3798
	0.3825	0.3798		0.3870	0.3958		0.4006	0.4044		0.3951	0.3876
	0.3783	0.3646		0.3825	0.3798		0.3951	0.3876		0.3898	0.3716
	0.3670	0.3578		0.3702	0.3722		0.3825	0.3798		0.3783	0.3646
5A1	0.3670	0.3578	5A2	0.3686	0.3649	5A3	0.3744	0.3685	5A4	0.3726	0.3612
	0.3686	0.3649		0.3702	0.3722		0.3763	0.3760		0.3744	0.3685
	0.3744	0.3685		0.3763	0.3760		0.3825	0.3798		0.3804	0.3721
	0.3726	0.3612		0.3744	0.3685		0.3804	0.3721		0.3783	0.3646

Performance Groups—Chromaticity

Region	x	y	Region	x	y	Region	x	y	Region	x	y
5B1	0.3702	0.3722	5B2	0.3719	0.3797	5B3	0.3782	0.3837	5B4	0.3763	0.3760
	0.3719	0.3797		0.3736	0.3874		0.3802	0.3916		0.3782	0.3837
	0.3782	0.3837		0.3802	0.3916		0.3869	0.3958		0.3847	0.3877
	0.3763	0.3760		0.3782	0.3837		0.3847	0.3877		0.3825	0.3798
5C1	0.3825	0.3798	5C2	0.3847	0.3877	5C3	0.3912	0.3917	5C4	0.3887	0.3836
	0.3847	0.3877		0.3869	0.3958		0.3937	0.4001		0.3912	0.3917
	0.3912	0.3917		0.3937	0.4001		0.4006	0.4044		0.3978	0.3958
	0.3887	0.3836		0.3912	0.3917		0.3978	0.3958		0.3950	0.3875
5D1	0.3783	0.3646	5D2	0.3804	0.3721	5D3	0.3863	0.3758	5D4	0.3840	0.3681
	0.3804	0.3721		0.3825	0.3798		0.3887	0.3836		0.3863	0.3758
	0.3863	0.3758		0.3887	0.3836		0.3950	0.3875		0.3924	0.3794
	0.3840	0.3681		0.3863	0.3758		0.3924	0.3794		0.3898	0.3716
6A	0.3941	0.3848	6B	0.3996	0.4015	6C	0.4146	0.4089	6D	0.4080	0.3916
	0.4080	0.3916		0.4146	0.4089		0.4299	0.4165		0.4221	0.3985
	0.4017	0.3752		0.4080	0.3916		0.4221	0.3985		0.4147	0.3814
	0.3889	0.369		0.3941	0.3848		0.4080	0.3916		0.4017	0.3752
6A1	0.3889	0.3690	6A2	0.3915	0.3768	6A3	0.3981	0.3800	6A4	0.4080	0.3916
	0.3915	0.3768		0.3941	0.3848		0.4010	0.3882		0.3981	0.3800
	0.3981	0.3800		0.4010	0.3882		0.4080	0.3916		0.4048	0.3832
	0.3953	0.3720		0.3981	0.3800		0.4048	0.3832		0.4017	0.3751
6B1	0.3941	0.3848	6B2	0.3968	0.3930	6B3	0.4040	0.3966	6B4	0.4010	0.3882
	0.3968	0.3930		0.3996	0.4015		0.4071	0.4052		0.4040	0.3966
	0.4040	0.3966		0.4071	0.4052		0.4146	0.4089		0.4113	0.4001
	0.4010	0.3882		0.4040	0.3966		0.4113	0.4001		0.4080	0.3916
6C1	0.4080	0.3916	6C2	0.4113	0.4001	6C3	0.4186	0.4037	6C4	0.4150	0.3950
	0.4113	0.4001		0.4146	0.4089		0.4222	0.4127		0.4186	0.4037
	0.4186	0.4037		0.4222	0.4127		0.4299	0.4165		0.4259	0.4073
	0.4150	0.3950		0.4186	0.4037		0.4259	0.4073		0.4221	0.3984
6D1	0.4017	0.3751	6D2	0.4048	0.3832	6D3	0.4116	0.3865	6D4	0.4062	0.3782
	0.4048	0.3832		0.4080	0.3916		0.4150	0.3950		0.4116	0.3865
	0.4116	0.3865		0.4150	0.3950		0.4221	0.3984		0.4183	0.3898
	0.4082	0.3782		0.4116	0.3865		0.4183	0.3898		0.4147	0.3814
7A	0.4221	0.3985	7B	0.4299	0.4165	7C	0.4430	0.4212	7D	0.4342	0.4028
	0.4342	0.4028		0.4430	0.4212		0.4562	0.426		0.4465	0.4071
	0.4260	0.3853		0.4342	0.4028		0.4465	0.4071		0.4373	0.3893
	0.4147	0.3814		0.4221	0.3985		0.4342	0.4028		0.4260	0.3853
7A1	0.4147	0.3814	7A2	0.4183	0.3898	7A3	0.4242	0.3919	7A4	0.4203	0.3833
	0.4183	0.3898		0.4221	0.3984		0.4281	0.4006		0.4242	0.3919
	0.4242	0.3919		0.4281	0.4006		0.4342	0.4028		0.4300	0.3939
	0.4203	0.3833		0.4242	0.3919		0.4300	0.3939		0.4259	0.3853

Performance Groups—Chromaticity

Region	x	y	Region	x	y	Region	x	y	Region	x	y
7B1	0.4221	0.3984	7B2	0.4259	0.4073	7B3	0.4322	0.4096	7B4	0.4281	0.4006
	0.4259	0.4073		0.4299	0.4165		0.4364	0.4188		0.4322	0.4096
	0.4322	0.4096		0.4364	0.4188		0.4430	0.4212		0.4385	0.4119
	0.4281	0.4006		0.4322	0.4096		0.4385	0.4119		0.4342	0.4028
7C1	0.4342	0.4028	7C2	0.4385	0.4119	7C3	0.4449	0.4141	7C4	0.4403	0.4049
	0.4385	0.4119		0.4430	0.4212		0.4496	0.4236		0.4449	0.4141
	0.4449	0.4141		0.4496	0.4236		0.4562	0.4260		0.4513	0.4164
	0.4403	0.4049		0.4449	0.4141		0.4513	0.4164		0.4465	0.4071
7D1	0.4259	0.3853	7D2	0.4300	0.3939	7D3	0.4359	0.3960	7D4	0.4316	0.3873
	0.4300	0.3939		0.4342	0.4028		0.4403	0.4049		0.4359	0.3960
	0.4359	0.3960		0.4403	0.4049		0.4465	0.4071		0.4418	0.3981
	0.4316	0.3873		0.4359	0.3960		0.4418	0.3981		0.4373	0.3893
8A	0.4465	0.4071	8B	0.4562	0.4260	8C	0.4687	0.4289	8D	0.4582	0.4099
	0.4582	0.4099		0.4687	0.4289		0.4813	0.4319		0.4700	0.4126
	0.4483	0.3918		0.4582	0.4099		0.4700	0.4126		0.4593	0.3944
	0.4373	0.3893		0.4465	0.4071		0.4582	0.4099		0.4483	0.3918
8A1	0.4373	0.3893	8A2	0.4418	0.3981	8A3	0.4475	0.3994	8A4	0.4428	0.3906
	0.4418	0.3981		0.4465	0.4071		0.4523	0.4085		0.4475	0.3994
	0.4475	0.3994		0.4523	0.4085		0.4582	0.4099		0.4532	0.4008
	0.4428	0.3906		0.4475	0.3994		0.4532	0.4008		0.4483	0.3919
8B1	0.4465	0.4071	8B2	0.4513	0.4164	8B3	0.4573	0.4178	8B4	0.4523	0.4085
	0.4513	0.4164		0.4562	0.4260		0.4624	0.4274		0.4573	0.4178
	0.4573	0.4178		0.4624	0.4274		0.4687	0.4289		0.4634	0.4193
	0.4523	0.4085		0.4573	0.4178		0.4634	0.4193		0.4582	0.4099
8C1	0.4582	0.4099	8C2	0.4634	0.4139	8C3	0.4695	0.4207	8C4	0.4641	0.4112
	0.4634	0.4193		0.4687	0.4289		0.4750	0.4304		0.4695	0.4207
	0.4695	0.4207		0.4750	0.4304		0.4813	0.4319		0.4756	0.4221
	0.4641	0.4112		0.4695	0.4207		0.4756	0.4221		0.4700	0.4126
8D1	0.4483	0.3919	8D2	0.4532	0.4008	8D3	0.4589	0.4021	8D4	0.4538	0.3931
	0.4352	0.4008		0.4582	0.4099		0.4641	0.4112		0.4589	0.4021
	0.4589	0.4021		0.4641	0.4112		0.4700	0.4126		0.4646	0.4034
	0.4538	0.3931		0.4589	0.4021		0.4646	0.4034		0.4593	0.3944
E1A	0.4925	0.4154	E1B	0.4984	0.4245	E1C	0.5081	0.4244	E1D	0.5019	0.4153
	0.4984	0.4245		0.5043	0.4336		0.5143	0.4335		0.5081	0.4244
	0.5081	0.4244		0.5143	0.4335		0.5242	0.4334		0.5177	0.4244
	0.5019	0.4153		0.5081	0.4244		0.5177	0.4244		0.5113	0.4153

Performance Groups—Chromaticity

Color	Kit	Chromaticity Bins
Cool White	E1	1A,1B,1C,1D
	E2	2A,2B,2C,2D
	E3	3A,3B,3C,3D
Neutral White	E4	4A,4B,4C,4D
	E5	5A1,5A2,5A3,5A4,5B1,5B2,5B3,5B4,5C1,5C2,5C3,5C4,5D1,5D2,5D3,5D4
	E6	6A1,6A2,6A3,6A4,6B1,6B2,6B3,6B4,6C1,6C2,6C3,6C4,6D1,6D2,6D3,6D4
Warm White	E7	7A1,7A2,7A3,7A4,7B1,7B2,7B3,7B4,7C1,7C2,7C3,7C4,7D1,7D2,7D3,7D4
	E8	8A1,8A2,8A3,8A4,8B1,8B2,8B3,8B4,8C1,8C2,8C3,8C4,8D1,8D2,8D3,8D4
Amber	E10	E1A,E1B,E1C,E1D

Ordering Description:

White LEDs have performance distribution and been classified into multiple color groups. It is recommended to order products in combination of color groups.

Color group classification for reference:

E1, E2, E3, E4, E5, E6, E7, E8, E10.