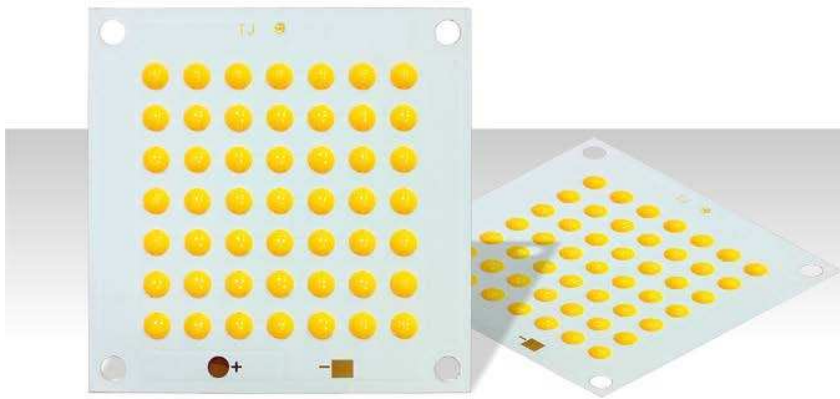


Harvatek COM LEDs Approval Sheet
Model No.: XT35 Series

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HARVATEK[®] COM- XT35C¹ Series



- Dimension : 54×54mm
- Typical Im : CW 6189 lm
WW 5005 lm@2450mA
- Color Temperature : CW/ WW
- CRI : CW>70 WW>80
- Assembly : Screws or thermal conductive double-sided tape

Table of Contents

Dimensions 3

Absolute Maximum Ratings..... 4

Forward Voltage Characteristics 5

Operating Current and Luminous Flux Characteristics 6

Note:

The fifth code represents color temperature

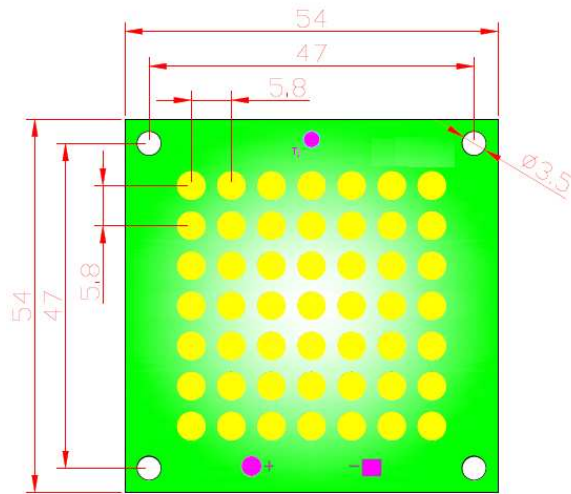
1. C represents Cool White, it can be replaced by Letter N: Neutral White Letter W: Warm White.

Same as below shown.

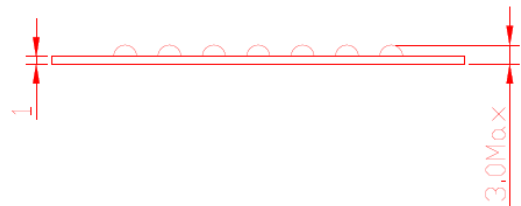
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Dimensions

XT35



Top View



Front View

<Figure1 Drawing for part no. XT35C, XT35N, XT35W>.

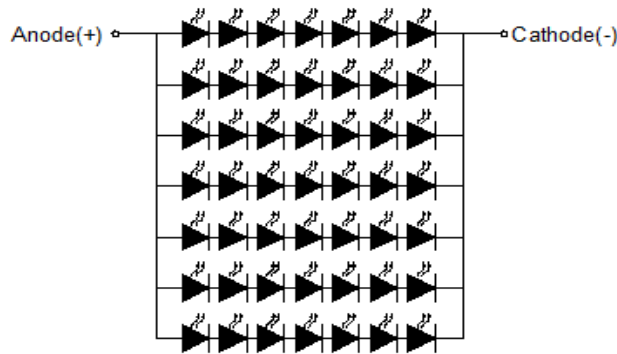
Notes:

1. Solder pads are labeled “+” and “-” to denote positive and negative, respectively.
2. Drawings are not to scale.
3. Drawing dimensions are in millimeters.
4. Unless otherwise specified, tolerances are $\pm 0.20\text{mm}$.
5. The optical center of the LED Array is defined by the mechanical center of the array.

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Circuit Layout

XT35



Absolute Maximum Ratings

The following tables describe absolute maximum ratings of XT35 Series. Please refer to circuit layout on previous page for DC forward current & voltage selection.

Table 1-1

Parameter	Range	Unit	Symbol
LED Junction Temperature	<85	°C	T _j
Operating Temperature	(-40 to +100)	°C	
Storage Temperature	(-40 to +120)	°C	
LED Substrate Temperature(Heatsink)	<80	°C	T _s

Table 1-2

Parameter	Product Code	Unit	Symbol
	XT35 (7S7P)		
DC Forward Current ⁽¹⁾	2450	mA	I _F
DC Forward Voltage	22	V	V _F
Reverse Voltage ⁽²⁾	--	V	V _R

Notes for Table1-2:

1. DC forward current should not exceed LED's operating current.
2. LEDs are not designed to be driven in reverse bias.

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Forward Voltage Characteristics

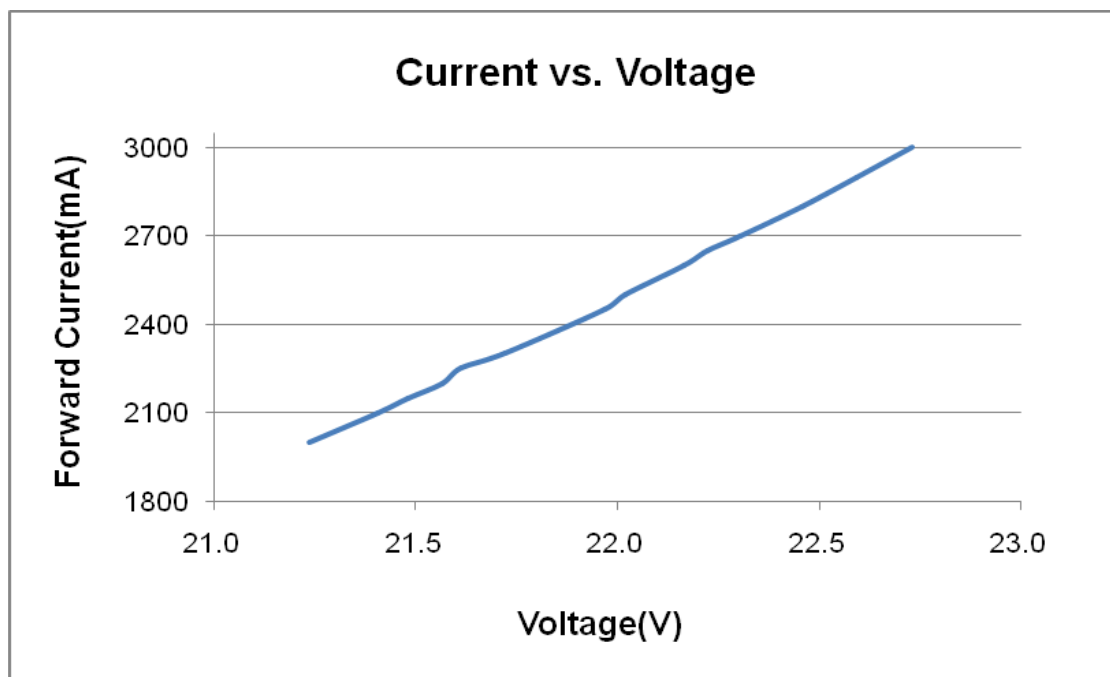
The following table describes forward voltage of XT35 Series. Please note that the all forward voltage range is based on constant driving current. Do not base on the values below to design a constant voltage system.

Table 2

P/N	Min. Voltage (V _F)	Typ. Voltage (V _F)	Max. Voltage (V _F)	Unit
XT35	20	22	24	V

Notes for Table 2:

Forward voltage is measured with an accuracy of ±10%



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Operating Current and Luminous Flux Characteristics

The following table describes typical luminous flux at $T_j=25^\circ\text{C}$ and $T_j=85^\circ\text{C}$ for XT35 at DC forward current 2000mA ,2250mA, 2450mA and 2900 mA.

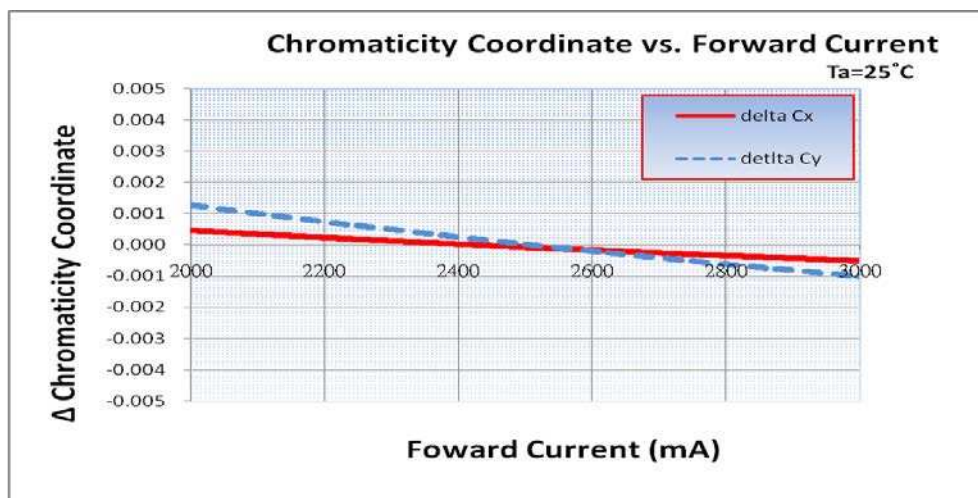
The CCT range shown in the following table is COM Product standard CCT ranks.

Table 3

Product No.	ANSI CCT (K)	CRI	Luminous flux(lm)		Test Current (mA)	Power (W) (Typ)	Efficacy (lm/W) (Typ at Tj 25°C)	Lumen depreciation
			Tj=25°C	Tj=85°C				
XT35C	5200K	>70	5174	4553	2000	42.41	122	12%
			5738	5050	2250	48.63	118	12%
			6189	5446	2450	53.82	115	12%
			7010	6169	2900	65.52	107	12%
XT35N	4000K	>75	4622	4113	2000	42.41	109	11%
			5154	4587	2250	48.63	106	11%
			5543	4933	2450	53.82	103	11%
			6224	5539	2900	65.52	95	11%
XT35W	2900K	>80	4198	3736	2000	42.41	99	11%
			4668	4154	2250	48.63	96	11%
			5005	4454	2450	53.82	93	11%
			5766	5131	2900	65.52	88	11%

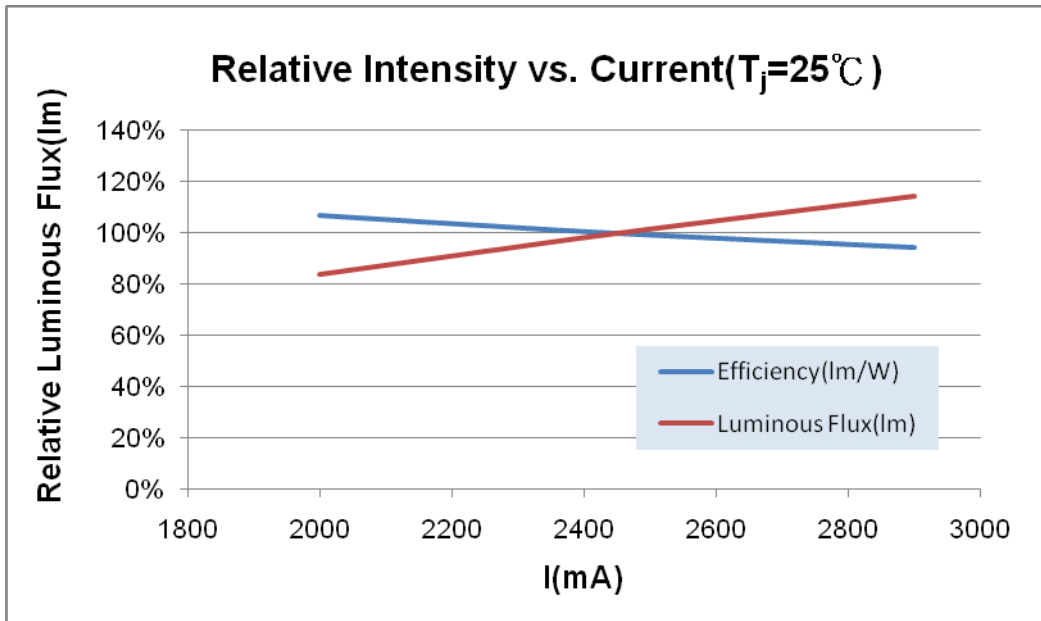
Notes for Table 3:

Luminous flux is measured with an accuracy of $\pm 10\%$



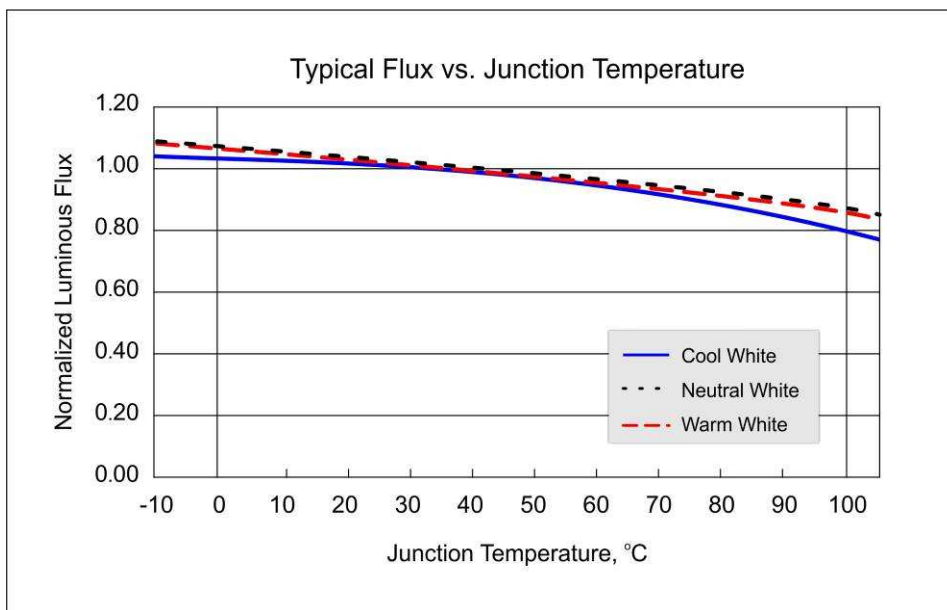
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Current vs. Efficiency



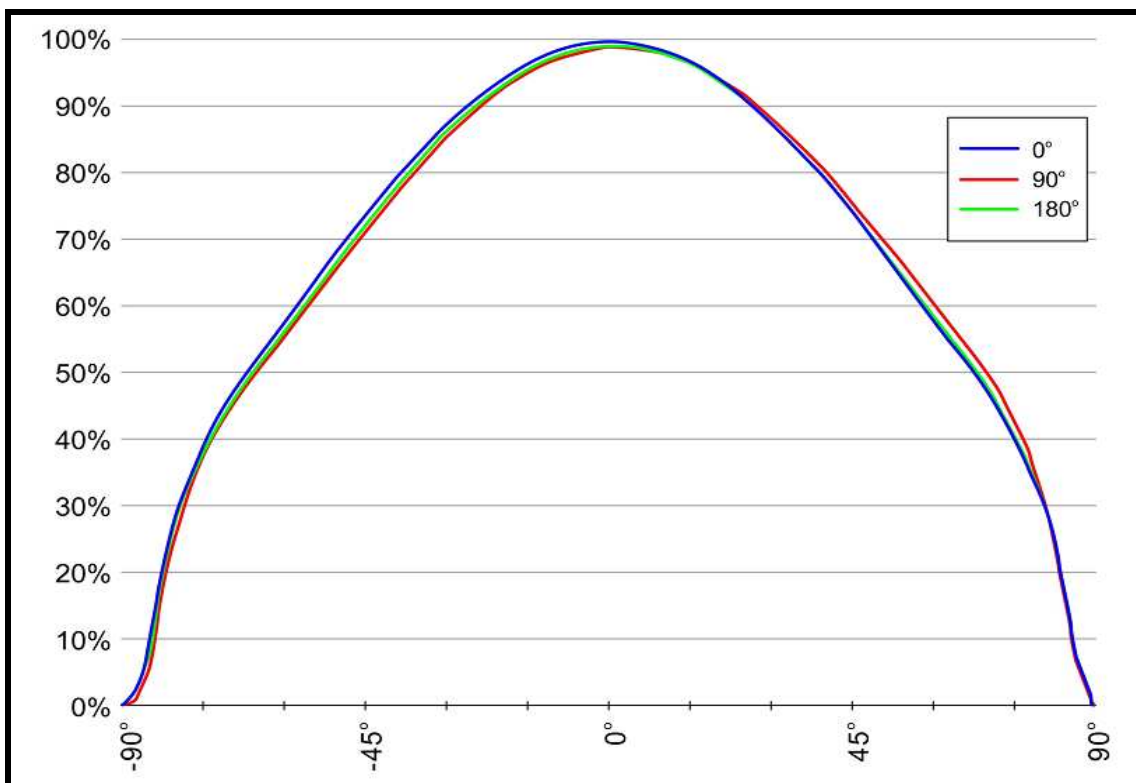
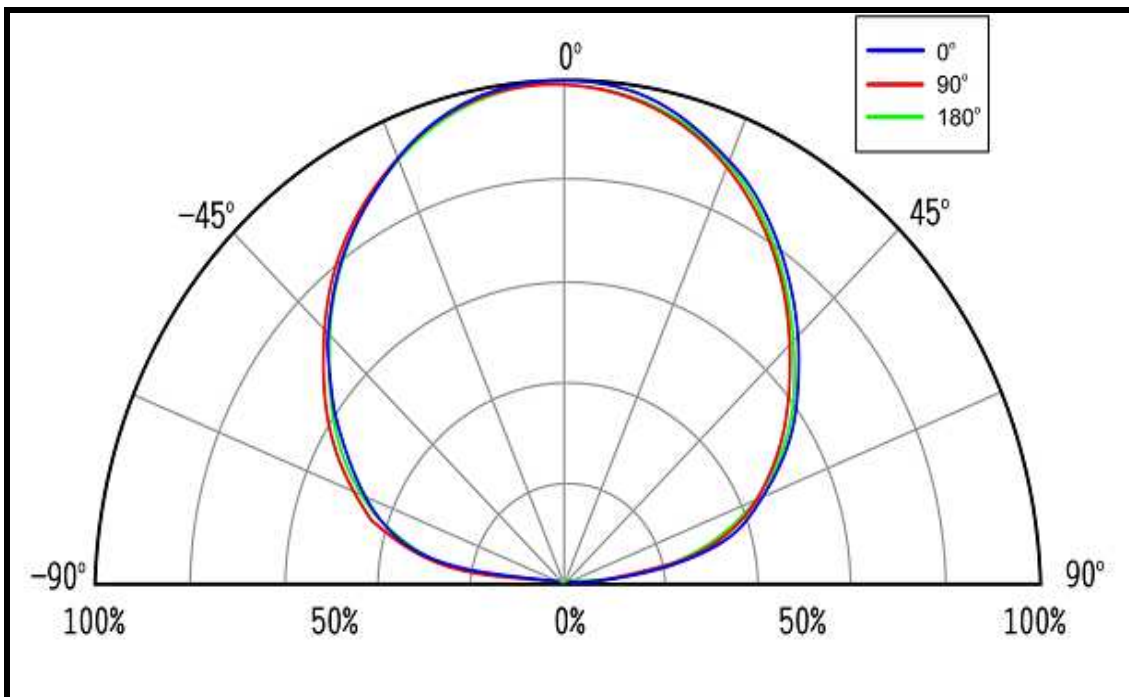
<Figure 2 The trend chart for relative intensity vs. current of XT35C, XT35W>

Input Current (mA)	2000	2250	2450	2900
Actual Watt	42.41	48.63	53.82	65.52
Total Typical Im for CW	5174	5738	6189	7010
Total Typical Im for WW	4198	4668	5005	5766
Suggested Application	Flood light/ Street light			



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Photometric



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Appendix

Official Product	HT Part No. XT35	Your Part No.		Data Sheet No.
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BIN Code Definition

The following tables describe luminous flux group and color group.

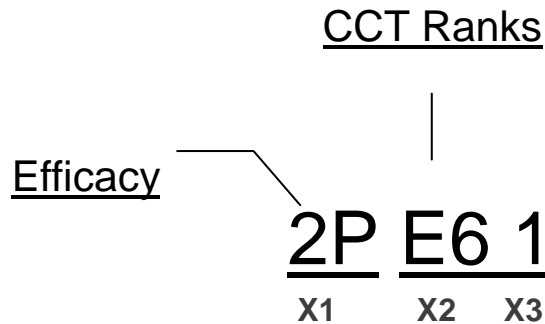


Table 1-1.

X1	X2	X3
Light Efficacy	ANSI C78.377A CCT Quadrangles	Detailed CCT Ranks
	E1 E10	0 No Detailed ranks
	E2 E20	1
	E3 E30	2
	E4 E40	3
	E5 E50	4
	E6 E60	
	E7 E70	
	E8 E80	

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Table 1-2. Light efficacy

Main BIN No.	lm/W		Secondary BIN No.	lm/W		Warm White (WW)			Neutral White (NW)		Cool White (CW)		
	min.	max.		min.	max.	E10	E20	E30	E40	E50	E60	E70	E80
						2700K	3000K	3500K	4000K	4500K	5000K	5700K	6500K
J	10	25	1J	10	17								
			2J	17	25								
K	25	40	1K	25	32								
			2K	32	40								
L	40	62	1L	40	51								
			2L	51	62								
M	62	70	1M	62	66								
			2M	66	70								
N	70	85	1N	70	77		Main						
			2N	77	85		Main		Main				
P	85	100	1P	85	92		Main		Main				
			2P	92	100		Main		Main		Main		
Q	100	115	1Q	100	107				Main		Main		
			2Q	107	115						Main		
R	115	130	1R	115	122						Main		
			2R	122	130								
S	130	145	1S	130	137								
			2S	137	145								
T	145	160	1T	145	152								
			2T	152	160								
U	160	175	1U	160	167								
			2U	167	175								
V	175	190	1V	175	182								
			2V	182	190								
W	190	205	1W	190	197								
			2W	197	205								

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Table 1-3. CCT ANSI C78.377A

BIN Code		E10	E20	E30	E40	E50	E60	E70	E80
Nominal CCT(K)		2700	3000	3500	4000	4500	5000	5700	6500
CCT Range(K)		2580-2870	2870-3220	3220-3710	3710-4260	4260-4745	4745-5310	5310-6020	6020-7040
Center	x	0.4578	0.4338	0.4073	0.3818	0.3611	0.3447	0.3287	0.3123
	y	0.4101	0.4030	0.3917	0.3797	0.3658	0.3553	0.3417	0.3282
Tolerance Quadrant	x	0.4813	0.4562	0.4299	0.4006	0.3736	0.3551	0.3376	0.3205
	y	0.4319	0.4260	0.4165	0.4044	0.3874	0.3760	0.3616	0.3481
	x	0.4562	0.4299	0.3996	0.3736	0.3548	0.3376	0.3207	0.3028
	y	0.4260	0.4165	0.4015	0.3874	0.3736	0.3616	0.3462	0.3304
	x	0.4373	0.4147	0.3889	0.3670	0.3512	0.3366	0.3222	0.3068
	y	0.3893	0.3814	0.3690	0.3578	0.3465	0.3369	0.3234	0.3113
	x	0.4593	0.4373	0.4147	0.3898	0.3670	0.3515	0.3366	0.3221
	y	0.3944	0.3893	0.3814	0.3716	0.3578	0.3487	0.3369	0.3261

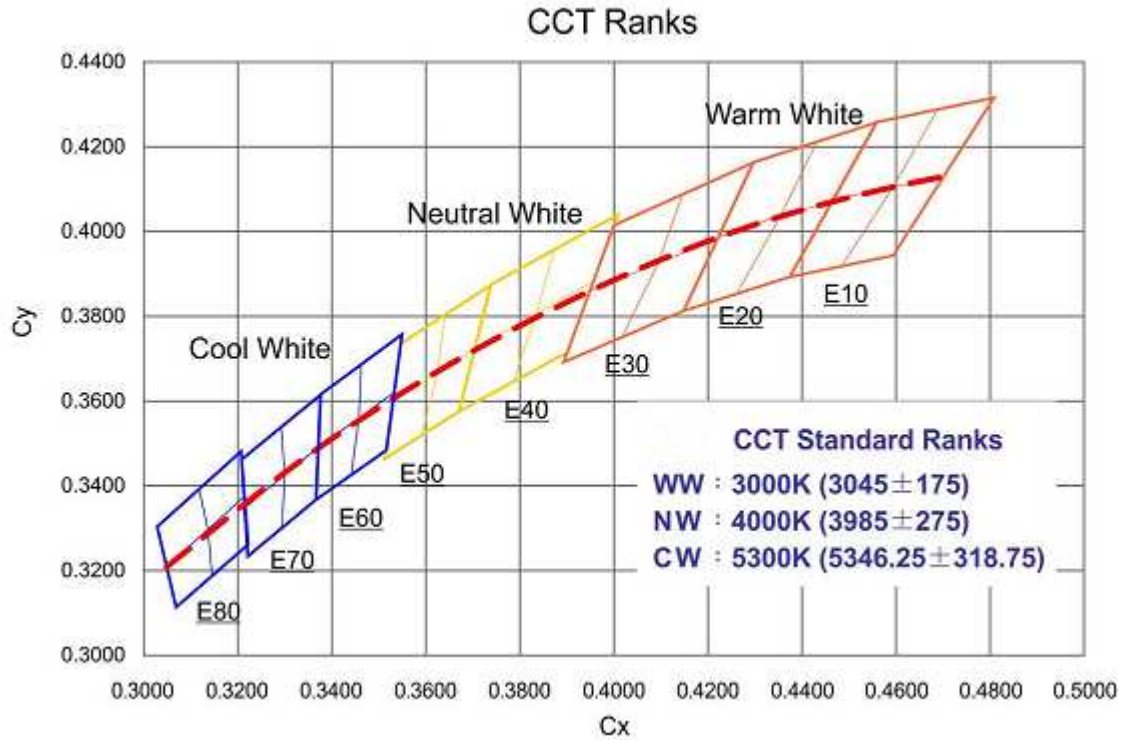
Table 1-4. Secondary BIN No.

BIN Code	Secondary BIN No.	Position	CCT(K)		Tolerance Quadrant							
			Left	Right	Right Up		Left Up		Left Down		Right Down	
			min.	max.	x	y	x	y	x	y	x	y
E10	E11	Down	2580	2725	0.4703	0.4132	0.4593	0.4106	0.4483	0.3919	0.4593	0.3944
	E12	Up			0.4813	0.4319	0.4688	0.4290	0.4593	0.4106	0.4703	0.4132
	E13	Down	2725	2870	0.4593	0.4106	0.4468	0.4077	0.4373	0.3893	0.4483	0.3919
	E14	Up			0.4688	0.4290	0.4562	0.4260	0.4468	0.4077	0.4593	0.4106
E20	E21	Down	2870	3045	0.4468	0.4077	0.4355	0.4037	0.4260	0.3854	0.4373	0.3893
	E22	Up			0.4562	0.4260	0.4431	0.4213	0.4355	0.4037	0.4468	0.4077
	E23	Down	3045	3220	0.4355	0.4037	0.4223	0.3990	0.4147	0.3814	0.4260	0.3854
	E24	Up			0.4431	0.4213	0.4299	0.4165	0.4223	0.3990	0.4355	0.4037
E30	E31	Down	3220	3465	0.4223	0.3990	0.4094	0.3928	0.4018	0.3752	0.4147	0.3814
	E32	Up			0.4299	0.4165	0.4148	0.4090	0.4094	0.3928	0.4223	0.3990
	E33	Down	3465	3710	0.4094	0.3928	0.3943	0.3853	0.3889	0.3690	0.4018	0.3752
	E34	Up			0.4148	0.4090	0.3996	0.4015	0.3943	0.3853	0.4094	0.3928

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E40	E41	Down	3710	3985	0.3952	0.3880	0.3838	0.3811	0.3784	0.3647	0.3898	0.3716
	E42	Up			0.4006	0.4044	0.3871	0.3959	0.3838	0.3811	0.3952	0.3880
	E43	Down	3985	4260	0.3838	0.3811	0.3703	0.3726	0.3670	0.3578	0.3784	0.3647
	E44	Up			0.3871	0.3959	0.3736	0.3874	0.3703	0.3726	0.3838	0.3811
E50	E51	Down	4260	4502.5	0.3703	0.3726	0.3624	0.3670	0.3591	0.3522	0.3670	0.3578
	E52	Up			0.3736	0.3874	0.3642	0.3805	0.3624	0.3670	0.3703	0.3726
	E53	Down	4502.5	4745	0.3624	0.3670	0.3530	0.3601	0.3512	0.3465	0.3591	0.3522
	E54	Up			0.3642	0.3805	0.3548	0.3736	0.3530	0.3601	0.3624	0.3670
E60	E61	Down	4745	5027.5	0.3533	0.3624	0.3459	0.3565	0.3441	0.3428	0.3515	0.3487
	E62	Up			0.3551	0.3760	0.3464	0.3688	0.3459	0.3565	0.3533	0.3624
	E63	Down	5027.5	5310	0.3459	0.3565	0.3371	0.3493	0.3366	0.3369	0.3441	0.3428
	E64	Up			0.3464	0.3688	0.3376	0.3616	0.3371	0.3493	0.3459	0.3565
E70	E71	Down	5310	5665	0.3371	0.3493	0.3299	0.3425	0.3294	0.3302	0.3366	0.3369
	E72	Up			0.3376	0.3616	0.3292	0.3539	0.3299	0.3425	0.3371	0.3493
	E73	Down	5665	6020	0.3299	0.3425	0.3215	0.3348	0.3222	0.3234	0.3294	0.3302
	E74	Up			0.3292	0.3539	0.3207	0.3462	0.3215	0.3348	0.3299	0.3425
E80	E81	Down	6020	6530	0.3213	0.3371	0.3137	0.3297	0.3145	0.3187	0.3221	0.3261
	E82	Up			0.3205	0.3481	0.3117	0.3393	0.3137	0.3297	0.3213	0.3371
	E83	Down	6530	7040	0.3137	0.3297	0.3048	0.3209	0.3068	0.3113	0.3145	0.3187
	E84	Up			0.3117	0.3393	0.3028	0.3304	0.3048	0.3209	0.3137	0.3297

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<Figure 1 CCT Ranks>

Color Temperature Characteristics

The following tables describe color temperature of XT35 series.

Table 2.

P/N	Color	λ_d / CCT		Unit
		Min.	Max	
XT35C	Cool White	5000	10000	K
XT35N	Neutral White	3700	5000	K
XT35W	Warm White	2600	3700	K

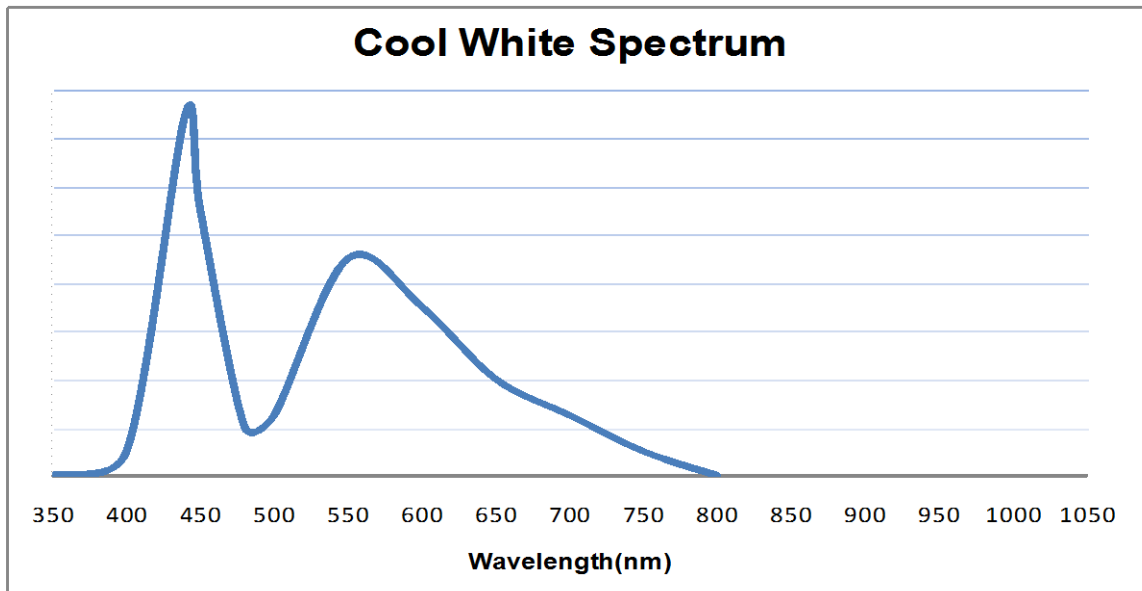
Notes for Table 2:

1. CCT is measured with an accuracy of $\pm 200K$.

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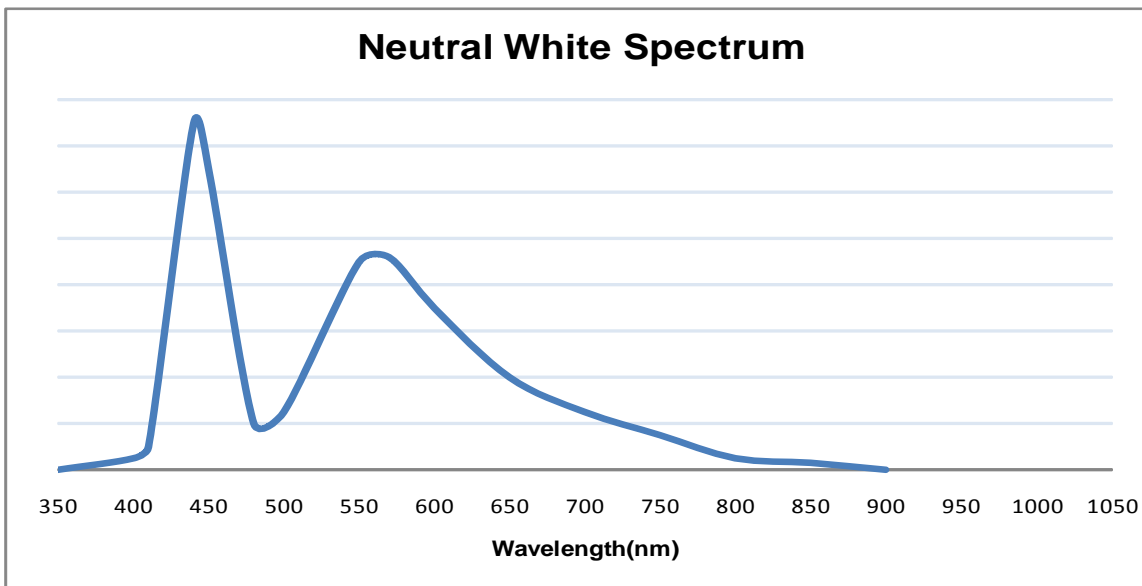
Color Spectrum

Cool White Color Spectrum



<Figure 2 cool white color spectrum of XT35 typical CCT part, integrated measurement>

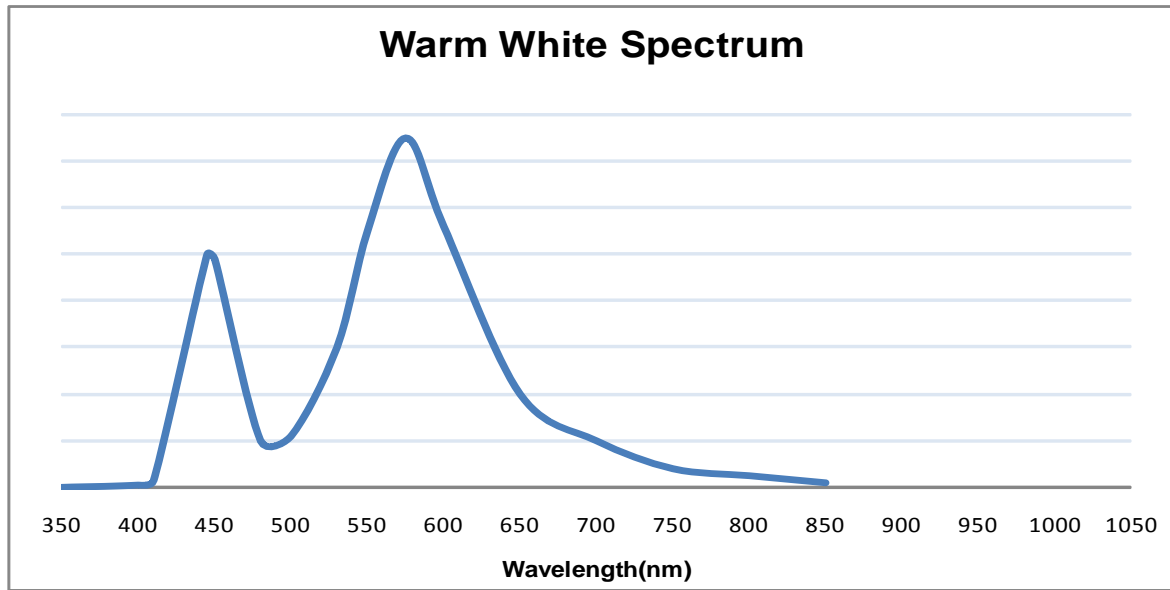
Neutral White Color Spectrum



<Figure 3 neutral white color spectrum of XT35 typical CCT part, integrated measurement>

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Warm White Color Spectrum

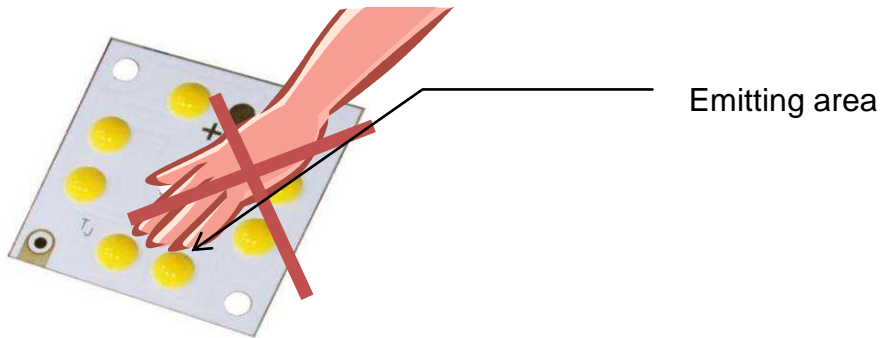


<Figure 4 warm white color spectrum of XT35 typical CCT part, integrated measurement>

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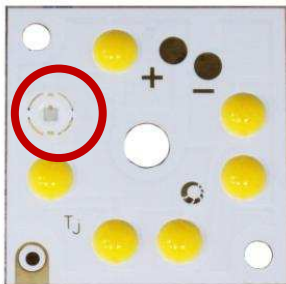
Precaution

- Don't touch, push or squish the light emitting area



Do not touch the LED Array or resin area during operation. Allow the LED Array to cool for a sufficient period of time before handling. The LED Array may reach elevated temperatures such that it can burn skin when touched.

- It may cause the situation as the following picture if the emitter crashes by accident.



- Recommended soldering method

1	Please set up the temperature of the temperature-controlled solder to 400 °C±10°C when soldering.
2	Please put the emitter on hot plate and set up the temperature of the hot plate to 100°C±10°C. Besides, please set up the temperature of the temperature-controlled solder to 300°C±10°C.

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