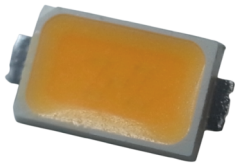
EDISON
Lighting Design Manufacturing Service

PLCC Series

ET-5630B HVS
Datasheet



Features :

- High luminous Intensity and high efficiency
- Based on Blue : InGaN technology
- Wide viewing angle : 120°
- Excellent performance and visibility
- Suitable for all SMT assembly methods
- IR reflow process compatible
- Environmental friendly; RoHS compliance

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General Information

Introduction

Ultra high luminous efficacy, combined with the flexibility in design due to its slim and miniature size, PLCC LED Series are optimized to be used as lighting for signboard.

Ordering Code Format

2	T	x x	x x	x x	x x	0 0 0	x x x
X1	X2	X3-X4	X5-X6	X7-X8	X9-X10	X11-X13	X14-X16

X1		X2		X3-X4		X5-X6		X7-X8	
Type		Component		Series		Wattage		Color	
2	Emitter	T	PLCC	01	3014	01	1W	CW	Cool White
				03	3528	X1	0.1W	NW	Neutral White
				04	5050	X2	0.2W	WW	Warm White
				05	5630	X5	0.5W	RX	Red
				07	1208	Y6	0.06W	TX	True Green
								BX	Blue
								AX	Amber
								YX	Yellow
								OX	Red Orange
								M1	RGB

X9-X10		X11-X13		X14-X16	
Internal code		PCB Board		Serial Number	
-	-	000	-	-	-

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Absolute Maximum Ratings

Absolute maximum ratings (T_a=25°C)

Parameter	Symbol	Value	Units
Forward Current	I_F	40	mA
Pulse Forward Current (tp<=100μs, Duty cycle=0.25)	I_{pulse}	60	mA
Reverse Current	I_R	10	uA
Reverse Voltage	V_R	[2]	V
LED Junction Temperature	T_J	125	°C
Operating Temperature	-	-40 ~ +80	°C
Storage Temperature	-	-40 ~ +125	°C
ESD Sensitivity (HBM)	V_B	2,000	V
Soldering Temperature	T_s	Reflow Soldering : 255~260°C/10~30sec Manual Soldering : 350°C/3sec	

Notes:
1. Proper current derating must be observed to maintain junction temperature below the maximum at all time.
2. LEDs are not designed to be driven in reverse bias.

Characteristics

Parameter		Symbol	Value	Units
Viewing Angle	(Typ.)	$2\Theta_{1/2}$	120	Degree
Thermal resistance		-	20	°C/W
CRI		-	80	-
CCT	(Cool White) (Neutral White) (Warm White)	-	4745~7500 3700~4745 2580~3700	K

Notes:
1. $2\theta_{1/2}$ is the off-axis angle where the luminous intensity is half of the axial luminous intensity.
2. Color Rendering Index CRI tolerance: ±2

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Luminous Flux Characteristic

Luminous Flux Characteristics, I_F=20mA and T_J=25˚C

Color	Group	Min. Luminous Flux(lm)	Max. Luminous Flux(lm)	Forward Current(mA)	Order Code
Cool White	R2	45.3	51.2	20	2T05X5CW14000005
	S1	51.2	58.8		
	S2	58.8	66.5		
Neutral White	R2	45.3	51.2	20	2T05X5NW14000001
	S1	51.2	58.8		
	S2	58.8	66.5		
Warm White	R1	39.4	45.3	20	2T05X5WW32000001
	R2	45.3	51.2		
	S1	51.2	58.8		

Note:
The luminous flux performance is guaranteed within published operating conditions. Edison Opto maintains a tolerance of ±10% on flux measurements.

Voltage Bin Structure

Group	Min. Voltage (V)	Max. Voltage (V)
V22	22	23
V23	23	24
V24	24	25
V25	25	26
V26	26	27

Note:
Forward voltage measurement allowance is ± 0.4V

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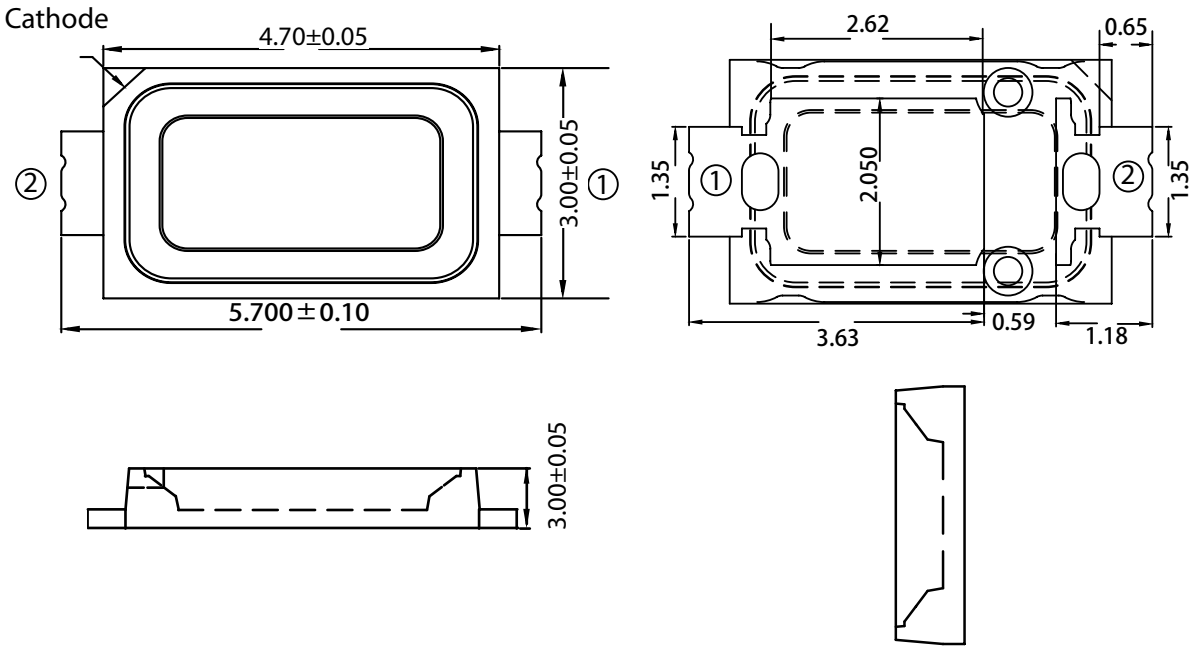
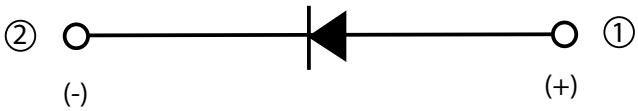
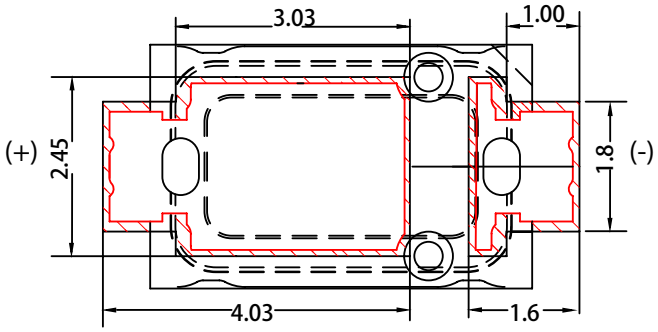
Mechanical Dimensions



Circuit



Solder Pad



Notes:
1. All dimensions are measured in mm.
2. Tolerance : ± 0.20 mm

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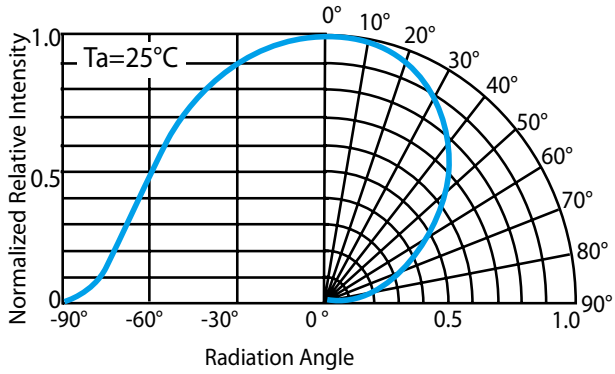
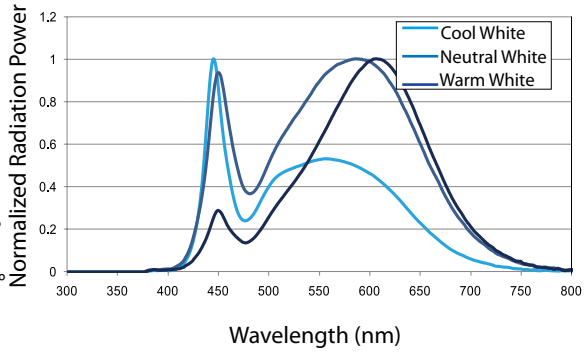
Characteristic Curve

Beam Pattern



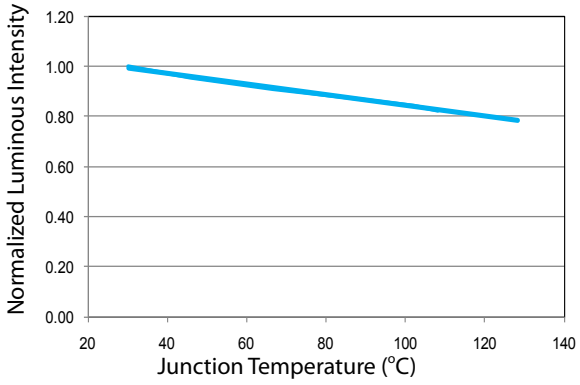
Beam pattern diagram for PLCC series

Color Spectrum



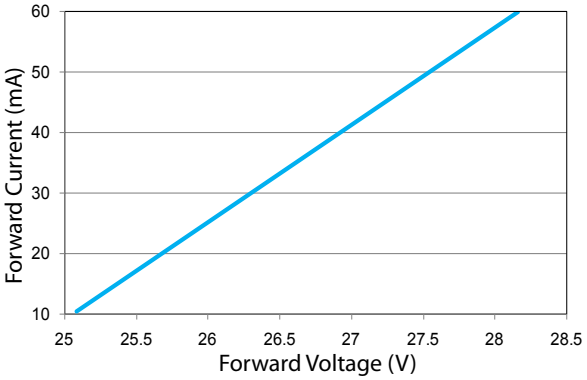
Color Spectrum at a typical CCT for ET-5630B HVS

Luminous Intensity VS Jnction Temperature



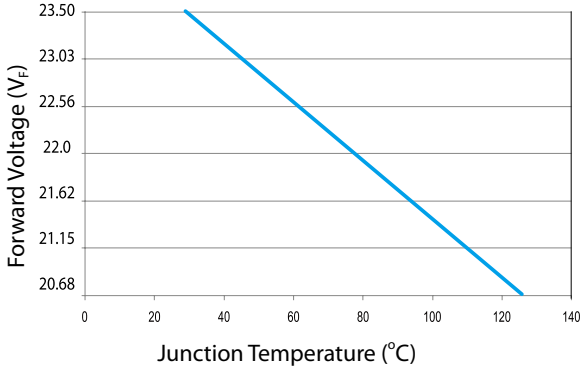
Luminous Intensity VS Junction Temperature for ET-5630B HVS

Forward Current VS Forward Voltage



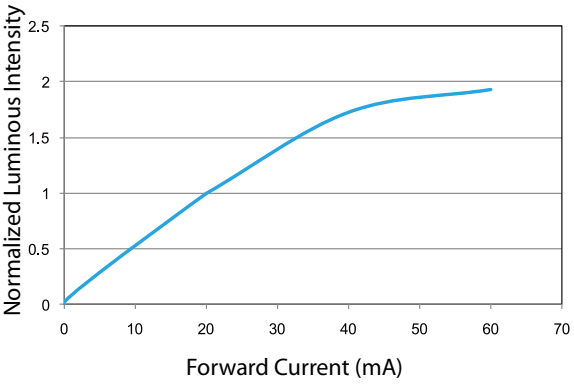
Forward Voltage VS Forward Current for ET-5630B HVS

Forward Voltage VS Junction Temperature



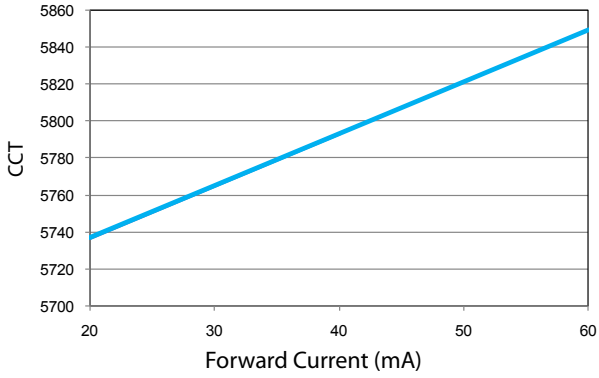
Forward Voltage VS Junction Temperature for ET-5630B HVS

Luminous Intensity VS Forward Current

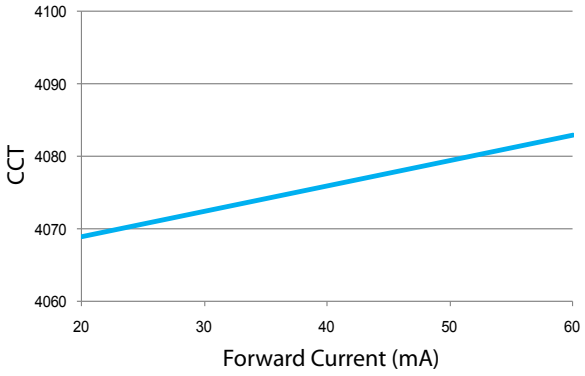


Luminous intensity VS Foward Current for ET-5630B HVS

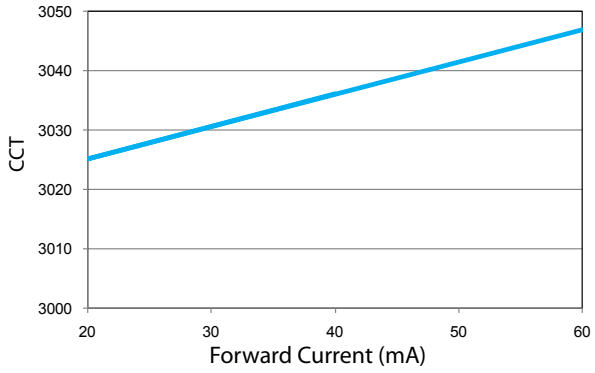
CCT VS Forward Current



CCT VS Forward Current for ET-5630B HVS Cool White

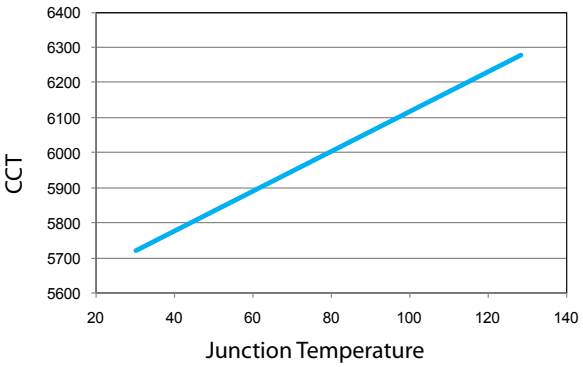


CCT VS Forward Current for ET-5630B HVS Neutral White

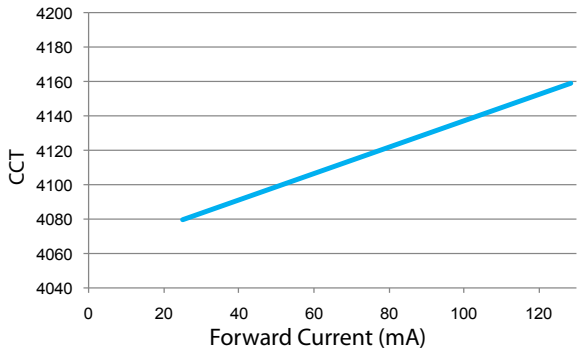


CCT VS Forward Current for ET-5630B HVS Warm White

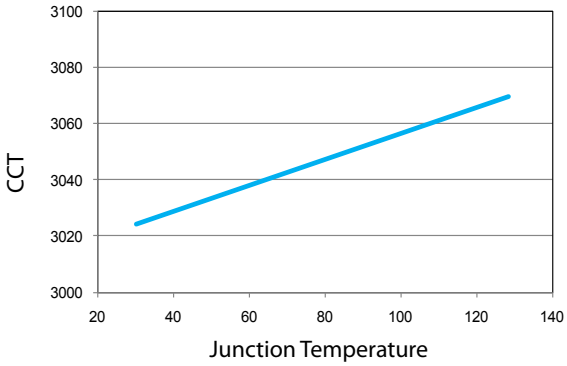
CCT VS Junction Temperature



CCT VS Junction Temperature for ET-5630B HVS Cool White

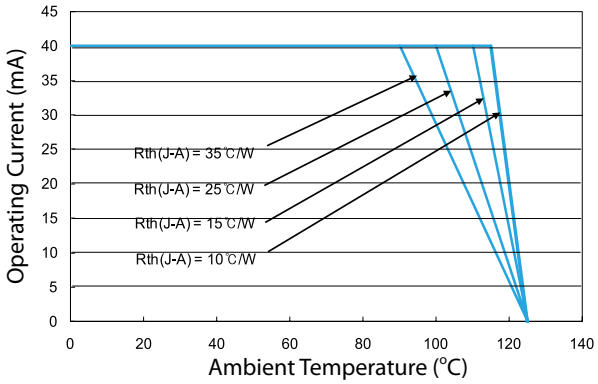


CCT VS Forward Current for ET-5630B HVS Warm White



CCT VS Junction Temperature for ET-5630B HVS Warm White

Operating Current VS Ambient Temperature



Operating Current VS Ambient Temperature for ET-5630B HVS series

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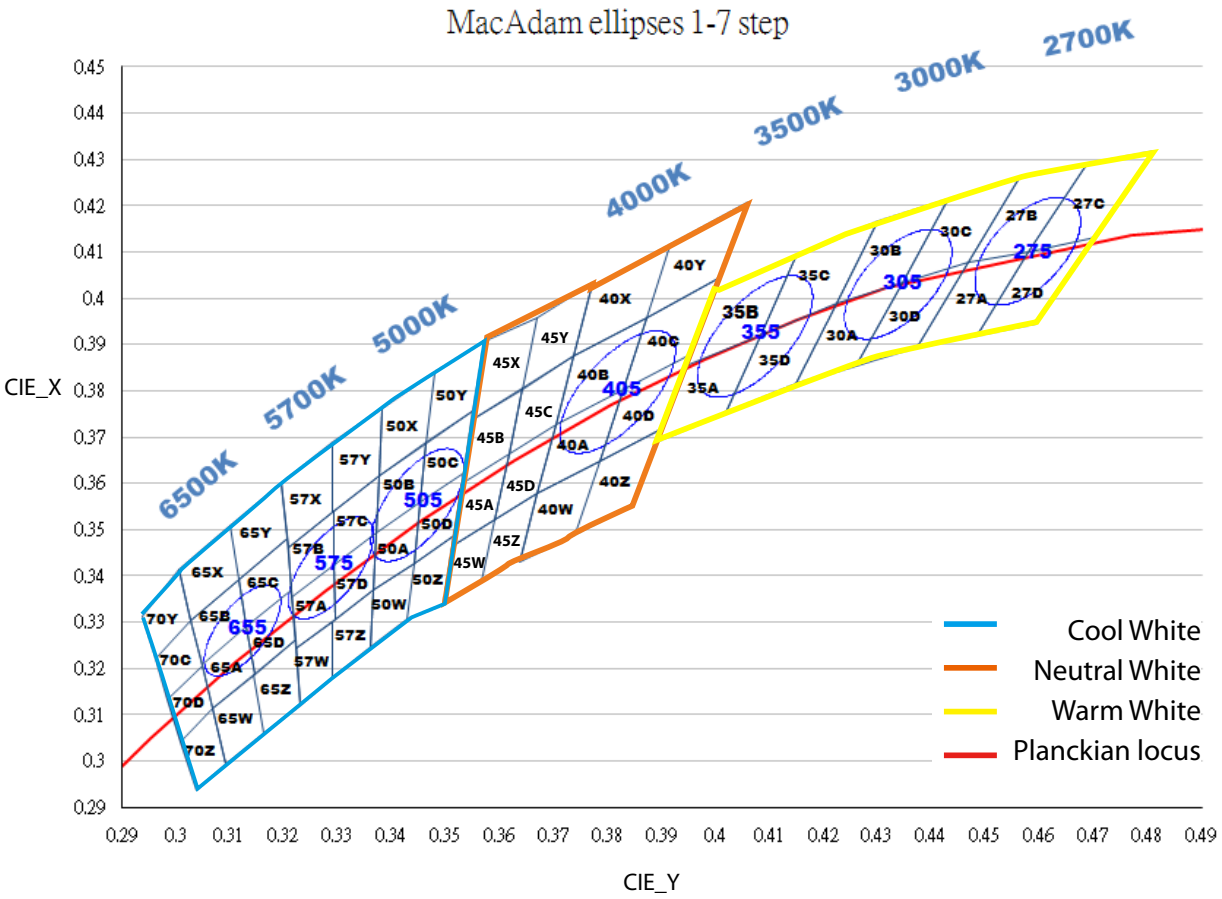
Color BIN code



CCT	Steps	C_x	C_y	a	b	theta
2700K	5	0.4578	0.4101	0.01350	0.00700	53.7
3000K	5	0.4338	0.4030	0.01390	0.00680	53.22
3500K	5	0.4073	0.3917	0.01545	0.00690	54
4000K	5	0.3818	0.3797	0.01565	0.00670	53.72
4500K	5	-	-	-	-	-
5000K	5	0.3447	0.3553	0.01370	0.00590	59.62
5700K	5	0.3287	0.3417	0.01243	0.00533	59.09
6500K	5	0.3123	0.3282	0.01115	0.00475	58.57

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7000K

70Y		70C		70D		70Z	
CIE_X	CIE_Y	CIE_X	CIE_Y	CIE_X	CIE_Y	CIE_X	CIE_Y
0.2984	0.3133	0.2984	0.3133	0.2984	0.3133	0.3037	0.2937
0.2962	0.322	0.2962	0.322	0.3048	0.3207	0.3009	0.3042
0.3028	0.3304	0.3028	0.3304	0.3068	0.3113	0.3068	0.3113
0.3048	0.3207	0.3048	0.3207	0.3009	0.3042	0.3093	0.2993

6500K

65X		65B		65A		65W	
CIE_X	CIE_Y	CIE_X	CIE_Y	CIE_X	CIE_Y	CIE_X	CIE_Y
0.3005	0.3415	0.3131	0.329	0.3117	0.3393	0.3068	0.3113
0.3099	0.3509	0.3048	0.3209	0.3028	0.3304	0.3144	0.3186
0.3115	0.3391	0.3068	0.3113	0.3048	0.3209	0.3161	0.3059
0.3028	0.3304	0.3145	0.3187	0.3131	0.329	0.3093	0.2993

65Y		65C		65D		65Z	
CIE_X	CIE_Y	CIE_X	CIE_Y	CIE_X	CIE_Y	CIE_X	CIE_Y
0.3099	0.3509	0.3205	0.3481	0.3213	0.3371	0.3144	0.3186
0.3196	0.3602	0.3117	0.3393	0.3131	0.329	0.3221	0.3261
0.3205	0.3481	0.3131	0.329	0.3145	0.3187	0.3231	0.312
0.3115	0.3391	0.3213	0.3371	0.3221	0.3261	0.3161	0.3059

5700K

50X		50B		50A		50W	
CIE_X	CIE_Y	CIE_X	CIE_Y	CIE_X	CIE_Y	CIE_X	CIE_Y
0.3381	0.3762	0.3452	0.3558	0.3464	0.3688	0.3366	0.3369
0.348	0.384	0.3371	0.3493	0.3376	0.3616	0.344	0.3428
0.3463	0.3687	0.3366	0.3369	0.3371	0.3493	0.3429	0.3307
0.3376	0.3616	0.3441	0.3428	0.3452	0.3558	0.3361	0.3245

50Y		50C		50D		50Z	
CIE_X	CIE_Y	CIE_X	CIE_Y	CIE_X	CIE_Y	CIE_X	CIE_Y
0.348	0.384	0.3551	0.376	0.3533	0.3624	0.344	0.3428
0.3571	0.3907	0.3464	0.3688	0.3452	0.3558	0.3515	0.3487
0.3551	0.376	0.3452	0.3558	0.3441	0.3428	0.3495	0.3339
0.3463	0.3687	0.3533	0.3624	0.3515	0.3487	0.3429	0.3307

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5000K

57X		57B		57A		57W	
CIE_X	CIE_Y	CIE_X	CIE_Y	CIE_X	CIE_Y	CIE_X	CIE_Y
0.3196	0.3602	0.3293	0.3423	0.3292	0.3539	0.3222	0.3243
0.329	0.369	0.3215	0.3353	0.3207	0.3462	0.329	0.33
0.329	0.3538	0.3222	0.3243	0.3215	0.3353	0.329	0.318
0.3207	0.3462	0.3294	0.3306	0.3293	0.3423	0.3231	0.312

57Y		57C		57D		57Z	
CIE_X	CIE_Y	CIE_X	CIE_Y	CIE_X	CIE_Y	CIE_X	CIE_Y
0.329	0.369	0.3376	0.3616	0.3371	0.3493	0.329	0.33
0.3381	0.3762	0.3292	0.3539	0.3293	0.3423	0.3366	0.3369
0.3376	0.3616	0.3293	0.3423	0.3294	0.3306	0.3361	0.3245
0.329	0.3538	0.3371	0.3493	0.3366	0.3369	0.329	0.318

4500K

45X		45B		45A		45W	
CIE_X	CIE_Y	CIE_X	CIE_Y	CIE_X	CIE_Y	CIE_X	CIE_Y
0.3571	0.3907	0.3617	0.3663	0.3642	0.3805	0.3512	0.3465
0.3668	0.3957	0.353	0.3601	0.3548	0.3736	0.359	0.3521
0.3641	0.3804	0.3512	0.3465	0.353	0.3601	0.3567	0.3389
0.3548	0.3736	0.3591	0.3522	0.3617	0.3663	0.3495	0.3339

45Y		45C		45D		45Z	
CIE_X	CIE_Y	CIE_X	CIE_Y	CIE_X	CIE_Y	CIE_X	CIE_Y
0.3668	0.3957	0.3736	0.3874	0.3703	0.3726	0.359	0.3521
0.3771	0.4034	0.3642	0.3805	0.3617	0.3663	0.367	0.3578
0.3736	0.3874	0.3617	0.3663	0.3591	0.3522	0.364	0.344
0.3641	0.3804	0.3703	0.3726	0.367	0.3578	0.3567	0.3389

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4000K

40X		40B		40A		40W	
CIE_X	CIE_Y	CIE_X	CIE_Y	CIE_X	CIE_Y	CIE_X	CIE_Y
0.3769	0.4022	0.3828	0.3803	0.3871	0.3959	0.367	0.3578
0.3736	0.3874	0.3703	0.3726	0.3736	0.3874	0.3637	0.343
0.3871	0.3959	0.367	0.3578	0.3703	0.3726	0.374	0.3491
0.3914	0.4115	0.3784	0.3647	0.3828	0.3803	0.3784	0.3647

40Y		40C		40D		40Z	
CIE_X	CIE_Y	CIE_X	CIE_Y	CIE_X	CIE_Y	CIE_X	CIE_Y
0.3914	0.4115	0.4006	0.4044	0.3952	0.388	0.3784	0.3647
0.3871	0.3959	0.3871	0.3959	0.3828	0.3803	0.374	0.3491
0.4006	0.4044	0.3828	0.3803	0.3784	0.3647	0.3844	0.3552
0.406	0.4208	0.3952	0.388	0.3898	0.3716	0.3898	0.3716

3500K

35A		35B		35C		35D	
CIE_X	CIE_Y	CIE_X	CIE_Y	CIE_X	CIE_Y	CIE_X	CIE_Y
0.4148	0.409	0.4083	0.3921	0.4299	0.4165	0.4223	0.399
0.3996	0.4015	0.3943	0.3853	0.4148	0.409	0.4083	0.3921
0.3943	0.3853	0.3889	0.369	0.4083	0.3921	0.4018	0.3752
0.4083	0.3921	0.4018	0.3752	0.4223	0.399	0.4147	0.3814

3000K

30A		30B		30C		30D	
CIE_X	CIE_Y	CIE_X	CIE_Y	CIE_X	CIE_Y	CIE_X	CIE_Y
0.4431	0.4213	0.4345	0.4033	0.4562	0.426	0.4468	0.4077
0.4299	0.4165	0.4223	0.399	0.4431	0.4213	0.4345	0.4033
0.4223	0.399	0.4147	0.3814	0.4345	0.4033	0.426	0.3854
0.4345	0.4033	0.426	0.3854	0.4468	0.4077	0.4373	0.3893

2700K

27A		27B		27C		27D	
CIE_X	CIE_Y	CIE_X	CIE_Y	CIE_X	CIE_Y	CIE_X	CIE_Y
0.4687	0.4289	0.4578	0.4101	0.4813	0.4319	0.4703	0.4132
0.4562	0.426	0.4468	0.4077	0.4687	0.4289	0.4578	0.4101
0.4468	0.4077	0.4373	0.3893	0.4578	0.4101	0.4483	0.3919
0.4578	0.4101	0.4483	0.3919	0.4703	0.4132	0.4593	0.3944

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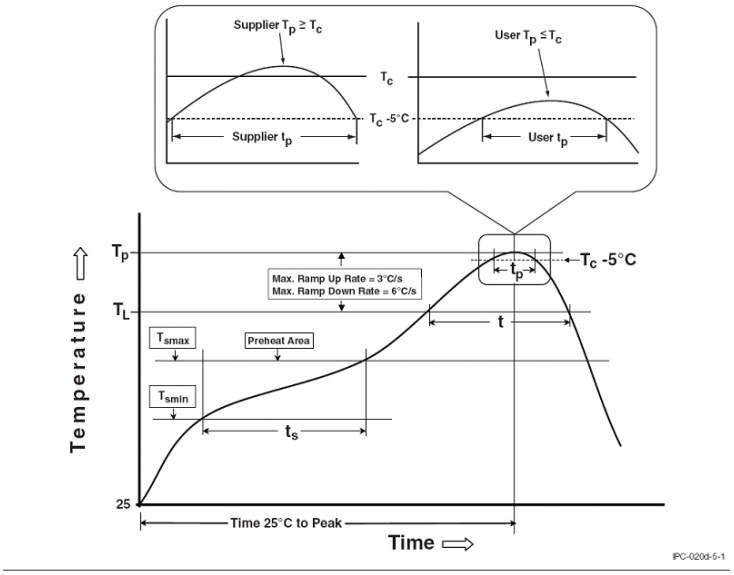
Reflow Profile

The following reflow profile is from IPC/JEDEC J-STD-020D which provided here for reference.



Reflow Profiles

Classification Reflow Profiles

Profile Feature	Pb-Free Assembly
Preheat & Soak Temperature min (Tsmin) Temperature max (Tsmax) Time (Tsmin to Tsmax) (ts)	150 °C 200 °C 60-120 seconds
Average ramp-up rate (Tsmax to Tp)	3 °C/second max.
Liquidous temperature (TL) Time at liquidous (tL)	217 °C 60-150 seconds
Peak package body temperature (Tp)*	255 °C ~260 °C *
Classification temperature (Tc)	260 °C
Time (tp)** within 5 °C of the specified classification temperature (Tc)	30** seconds
Average ramp-down rate (Tp to Tsmax)	6°C/second max.
Time 25°C to peak temperature	8 minutes max.

Notes:
1. * Tolerance for peak profile temperature (Tp) is defined as a supplier minimum and a user maximum.
2. ** Tolerance for time at peak profile temperature (tp) is defined as a supplier minimum and a user maximum.

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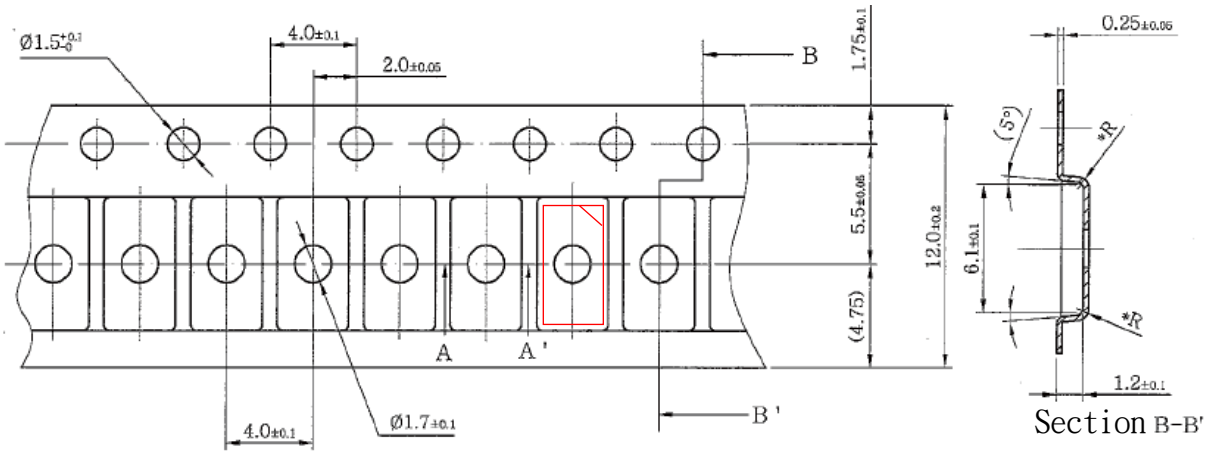
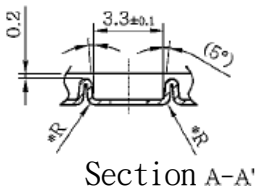
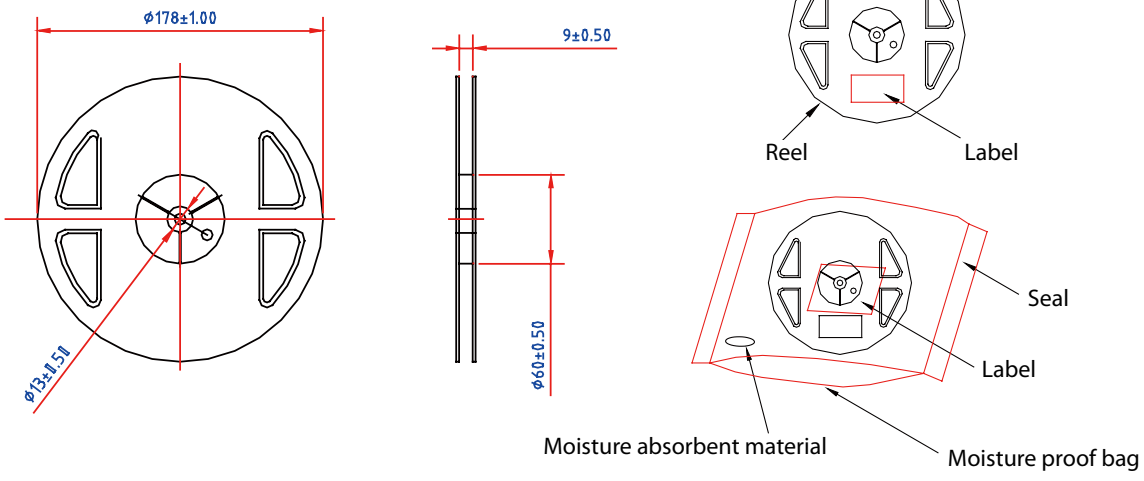
Product Packaging Information





Taping Reel



Item	Quantity	Total	Dimensions(mm)
Reel	3,000pcs	3,000pcs	R=178
Carton	36 reels	108,000pcs	520*255*285
Starting with 50pcs empty, and 50pcs empty at the last			

EDISON
Lighting Design Manufacturing Service

Revision History

Versions	Description	Release Date
1	Establish order code information	2013/09/16

About Edison Opto

Edison Opto is a leading manufacturer of high power LED and a solution provider experienced in LDMS. LDMS is an integrated program derived from the four essential technologies in LED lighting applications- Thermal Management, Electrical Scheme, Mechanical Refinement, Optical Optimization, to provide customer with various LED components and modules. More Information about the company and our products can be found at www.edison-opto.com

www.edison-opto.com

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