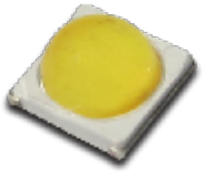
EDISON
Lighting Design Manufacturing Service

PLCC Series

ET-3535 1/3W Series Datasheet



Features :

- Maximum drive current up to 700mA
- Low thermal resistance as low as 8 ˚C/W
- Wide viewing angle of 120~140 degrees
- Reflow soldering with JEDEC JSTD-020C compatible
- RoHS compliant

Typical Applications :

- General luminaire
- Bulb
- Downlight

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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	0 6	0 1	x x	1 1	0 0 0	x x x
X1	X2	X3	X4	X5	X6	X7	X8

X1		X2		X3		X4		X5	
Type		Component		Series		Wattage		Color	
2	Emitter	T	PLCC	06	3535	01	1W	CW	Cool White
								NW	Neutral White
								WW	Warm White

X6		X7		X8	
Internal code		PCB Board		Serial Number	
11	-	000	-	-	-

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Absolute Maximum Ratings

Parameter	Symbol	Value	Units
Power dissipated	P_d	2.4	W
Forward Current	I_F	700	mA
Allowable peak forward current	I_p	1000	mA
Reverse Current	I_R	10	uA
Reverse Voltage	V_R	0.6	V
LED Junction Temperature	T_J	135	°C
Operating Temperature	-	-40 ~ +85	°C
Storage Temperature	-	-40 ~ +85	°C
Electrostatic discharge threshold	ESD	Class2	-
Soldering Temperature	T_s	Reflow Soldering : 255~260°C/10~30sec Manual Soldering : 350°C/3sec	

Absolute maximum ratings (T_a=25°C)

Notes:

1. I_{pulse} measured at 1/10 duty cycle, 0.1ms pulse width.
2. ESD HBM class 2 per Mil-Std-883D method 3015.

Characteristics

Parameter		Symbol	Value	Units
Viewing Angle	(Typ.)	$2\Theta_{1/2}$	120	Degree
Forward voltage	(Typ.) (Max.)	V_F	3.15 3.5	V
Thermal resistance	(Typ.)	-	8	°C/W
Temperature coefficient V_F	(Typ.)		-3	mV/°C
CRI	(Typ.)	-	80	-
CCT/Wavelength	(Cool White) (Neutral White) (Warm White)	-	5300-7000 3700-4500 2700-3050	K

Note:

$2\theta_{1/2}$ is the off-axis angle where the luminous intensity is half of the axial luminous intensity.

Luminous Flux Characteristic

Luminous Flux Characteristics, I_F=350mA and T_J=25˚C

Color	Group	Min. Luminous Flux(lm)	Max. Luminous Flux(lm)	Typ. Luminous Flux (lm) @ 700 mA	Order Code
Cool White	V1	110	120	216	2T0601CW11000001
	V2	120	130		
Neutral White	U3	100	110	198	2T0601NW11000001
	V1	110	120		
Warm White	U3	100	110	189	2T0601WW11000001
	V1	110	120		

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)
VA1	2.8	2.9
VB1	2.9	3.0
VC1	3.0	3.1
VA2	3.1	3.2
VB2	3.2	3.3
VC2	3.3	3.4
VA3	3.4	3.5

Note:
Forward voltage measurement allowance is ± 0.1V.

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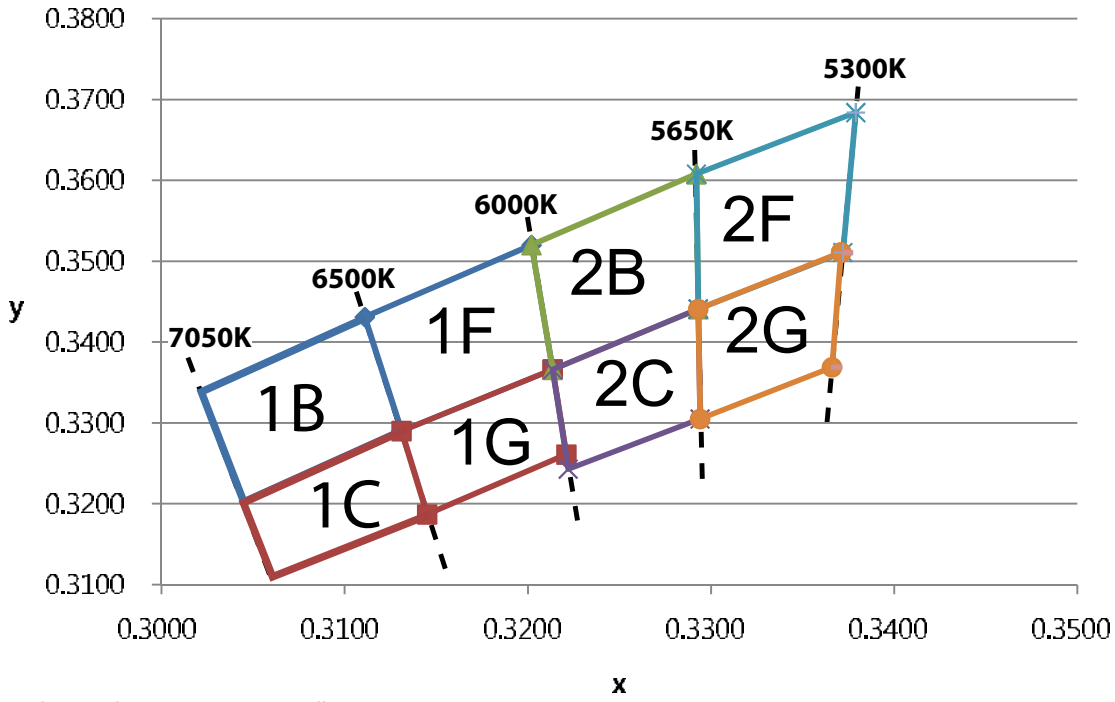
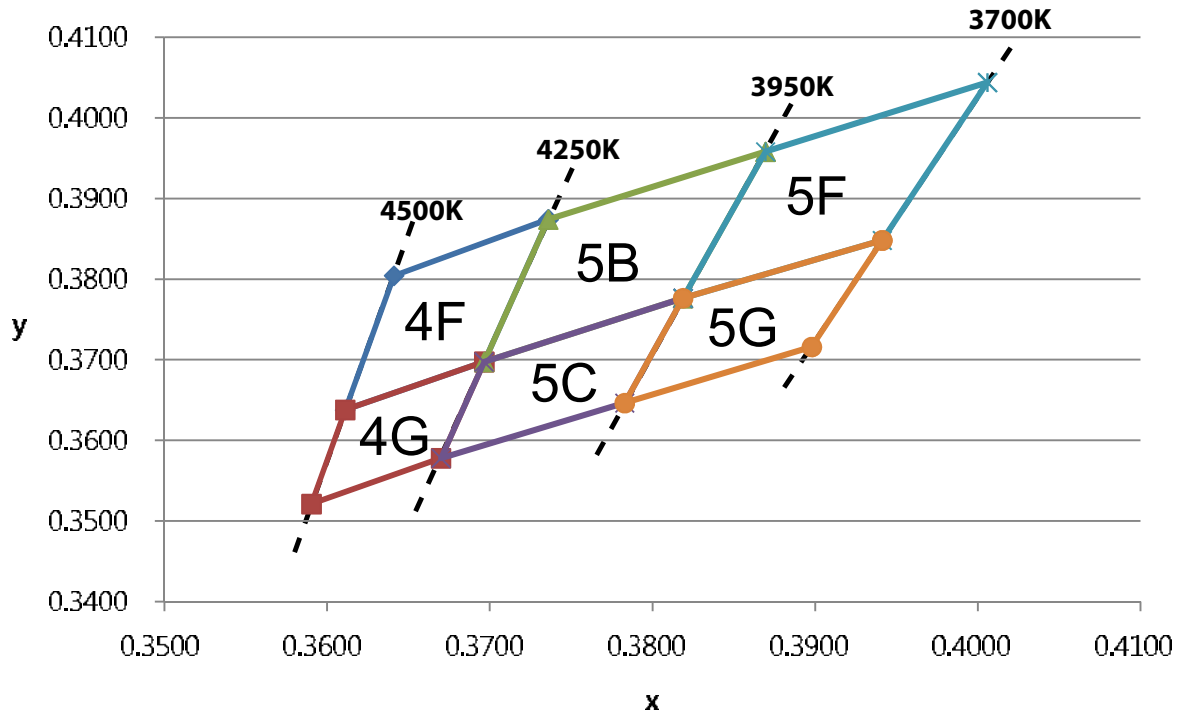
Color Bin Structure



Note: Color coordinates measurement allowance is ± 0.01

Group	X	Y	Group	X	Y	Group	X	Y	Group	X	Y
1B	0.3111	0.3431	1F	0.3202	0.3520	2B	0.3292	0.3608	2F	0.3379	0.3684
	0.3020	0.3335		0.3111	0.3431		0.3202	0.3520		0.3292	0.3608
	0.3048	0.3209		0.3131	0.3290		0.3214	0.3366		0.3293	0.3441
	0.3131	0.3290		0.3214	0.3366		0.3293	0.3441		0.3372	0.3511
1C	0.3131	0.3290	1G	0.3214	0.3366	2C	0.3293	0.3441	2G	0.3371	0.3511
	0.3048	0.3209		0.3131	0.3290		0.3214	0.3366		0.3293	0.3441
	0.3068	0.3108		0.3145	0.3187		0.3222	0.3243		0.3294	0.3305
	0.3145	0.3187		0.3221	0.3261		0.3294	0.3305		0.3366	0.3369

PLCC Chromaticity diagram for Cool White

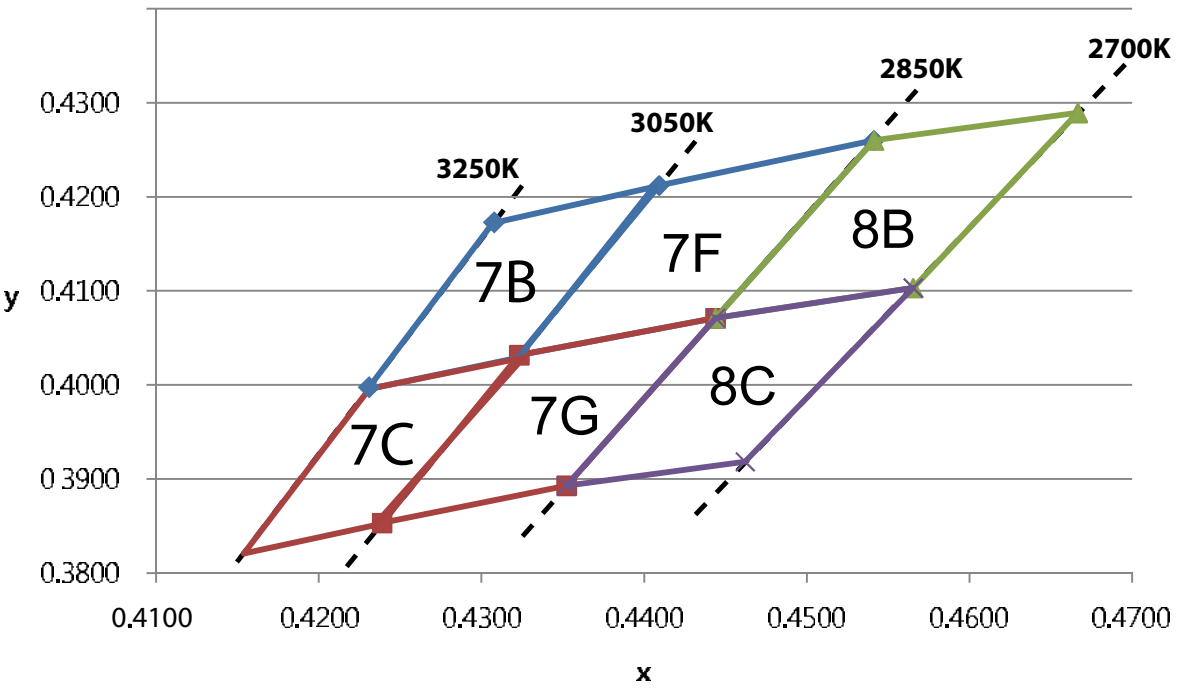


Note: Color coordinates measurement allowance is ± 0.01

Group	X	Y	Group	X	Y	Group	X	Y
4F	0.3736	0.3874	5B	0.3870	0.3958	5F	0.4006	0.4044
	0.3641	0.3804		0.3736	0.3874		0.3870	0.3958
	0.3611	0.3638		0.3697	0.3697		0.3819	0.3776
	0.3697	0.3697		0.3819	0.3776		0.3941	0.3848
4G	0.3697	0.3697	5C	0.3819	0.3776	5G	0.3941	0.3848
	0.3611	0.3638		0.3697	0.3697		0.3819	0.3776
	0.3590	0.3521		0.3670	0.3578		0.3783	0.3646
	0.3670	0.3578		0.3783	0.3646		0.3898	0.3716

PLCC Chromaticity diagram for Neutral White

Color Bin ,T_a=25°C



Note: Color coordinates measurement allowance is ± 0.01

Group	X	Y	Group	X	Y	Group	X	Y
7B	0.4430	0.4212	7F	0.4562	0.4260	8B	0.4687	0.4289
	0.4290	0.4165		0.4430	0.4212		0.4562	0.4260
	0.4221	0.3984		0.4344	0.4032		0.4465	0.4071
	0.4344	0.4032		0.4465	0.4071		0.4586	0.4103
7C	0.4344	0.4032	7G	0.4465	0.4071	8C	0.4586	0.4103
	0.4221	0.3984		0.4344	0.4032		0.4465	0.4071
	0.4147	0.3814		0.4260	0.3853		0.4373	0.3893
	0.4260	0.3853		0.4373	0.3893		0.4483	0.3918

PLCC Chromaticity diagram for Warm White

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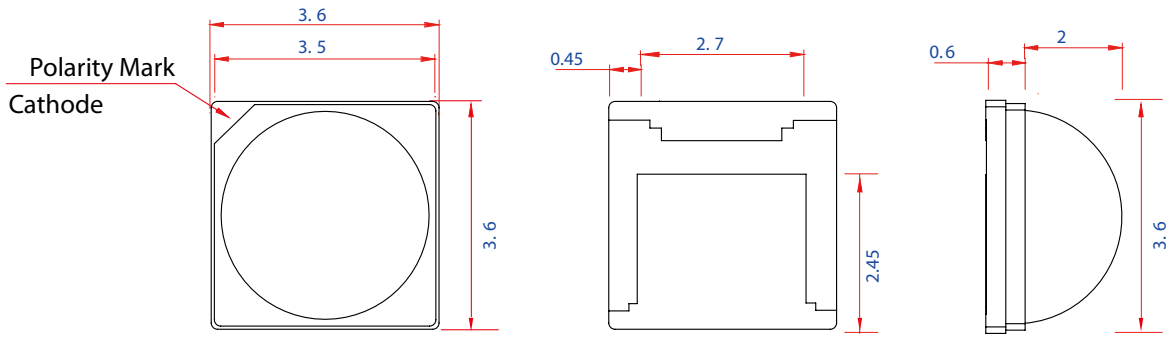
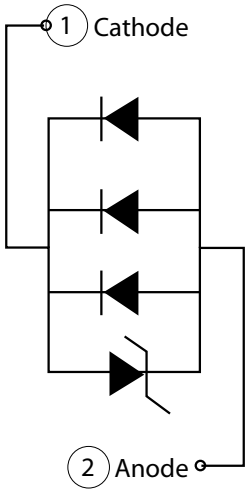
Mechanical Dimensions

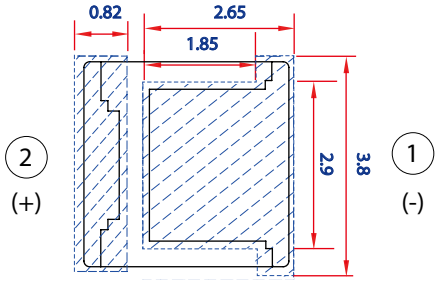
Emitter Type Dimension



Circuit



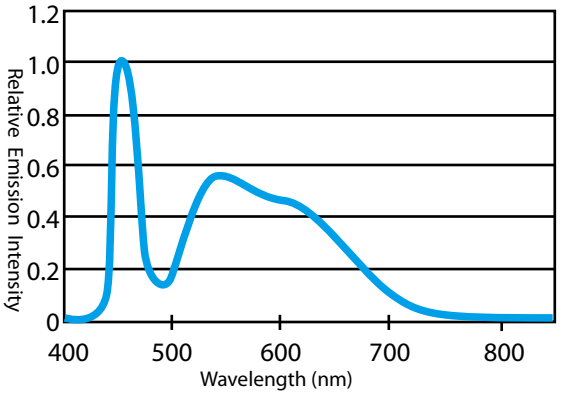
Solder Pad



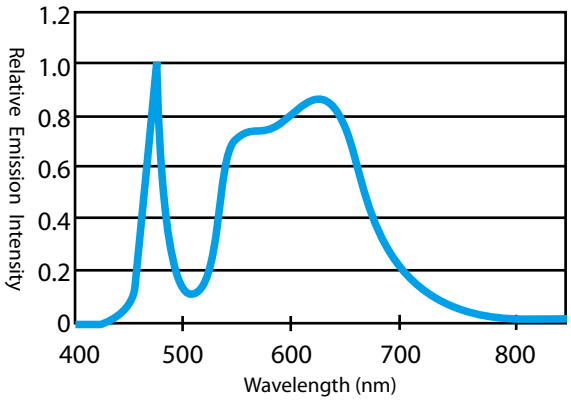
Notes:
1. All dimensions are measured in mm.
2. Tolerance : ± 0.20 mm.

Characteristic Curve

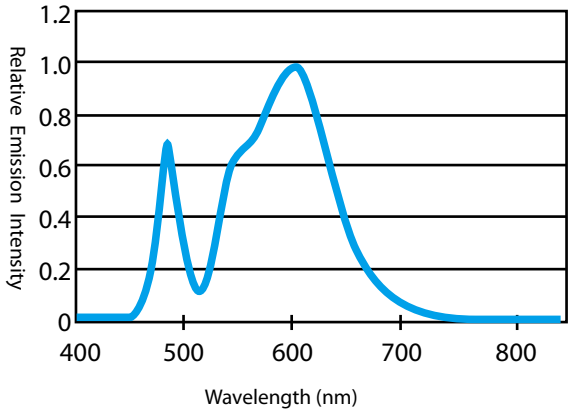
Spectrum



Color Spectrum at a typical CCT for Cool White PLCC 3535

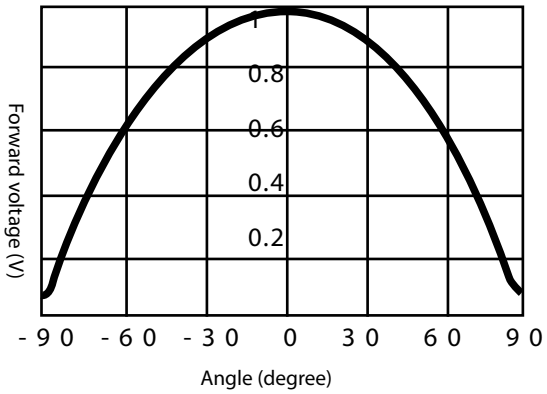


Color Spectrum at a typical CCT for Neutral White PLCC 3535



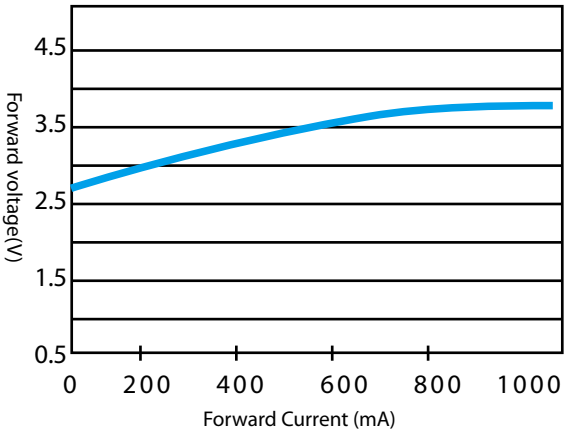
Color Spectrum at a typical CCT for Warm White PLCC 3535

Radiation Characteristic



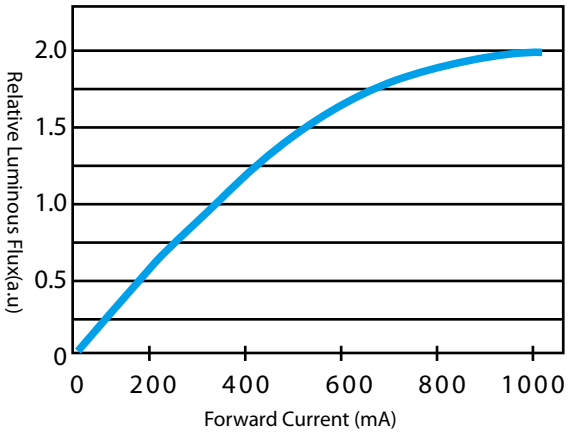
Radiation diagram for PLCC 3535

Forward Voltage vs. Forward Current



Forward voltage vs. forward current for PLCC 3535 series

Relative Luminons Flux vs. Forward Current



Forward current vs. relative intensity for PLCC 3535 series

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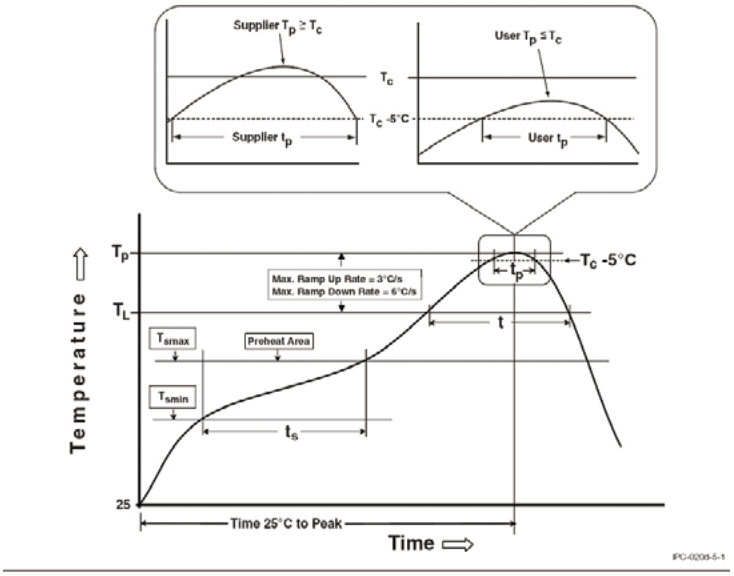
Reflow Profile

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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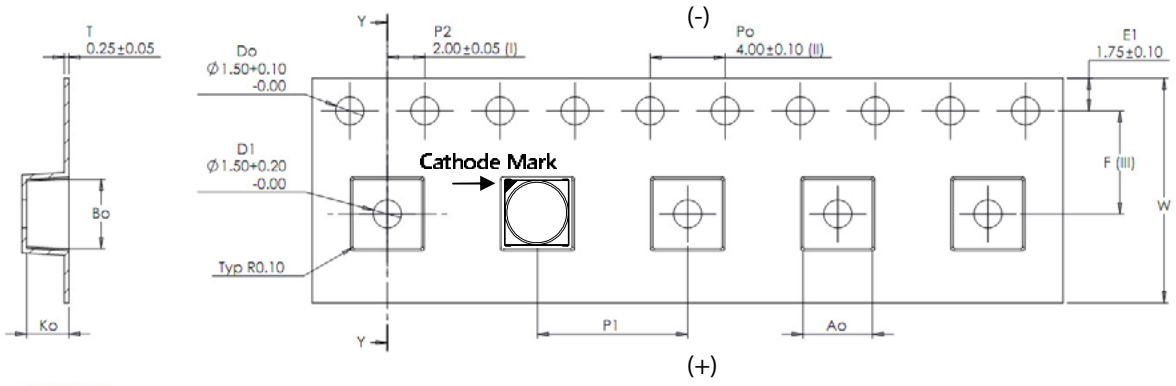
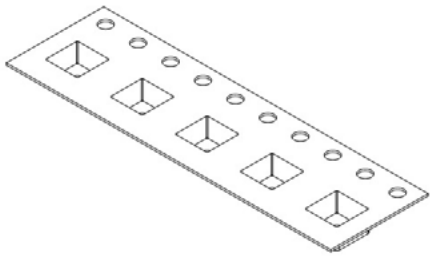
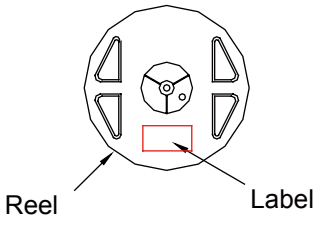
Product Packaging Information



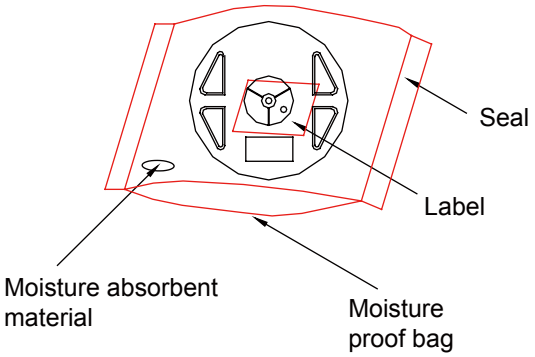
SECTION Y-Y
SCALE 4.5 : 1



Ao	3.70	+/- 0.10
Bo	3.70	+/- 0.10
Ko	2.25	+/- 0.10
F	5.50	+/- 0.05
P1	8.00	+/- 0.10
W	12.00	+0.30/-0.10



Taping reel dimensions



Package & label

Item	Quantity	Total	Dimensions(mm)
Reel	800pcs	800pcs	R=180
Bag	1 reels	800pcs	520*255*285
Starting with 50pcs empty,and 50pcs empty at the end			

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Revision History

Versions	Description	Release Date
1	Establish order code information	2012/11/26
2	Update the Voltage Bin Structure	2013/04/17

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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