High Power LEDs

Edixeon® K Series Datasheet

Edixeon® emitters are built with packages designed specifically for High Power LED K series, the latest addition to Edixeon® family, utilize the advanced special manufacturing process by Edison Opto and the sophisticated EZ Bright 1000 chip from Cree Inc. KLC8 series can be driven at a current rating from 350mA to 1000mA (White) as you desire. With its versatility and exceptional luminous flux output, KLC8 series is simply the ideal choice for your various illumination needs.

Features :

- More energy efficient than incandescent and most halogen lamps
- Low voltage operation
- Instant light
- Long operating life

Typical Applications

- Reading lights
- Portable flashlight
- Up-lights and Down-lights
- LCD Backlights
- General lighting
- Contour lights
- Ceiling lights
- Garden lighting
- Decoration lights
- Architectural lighting
- Beacon light

EDISON

Lighting Design Manufacturing Service

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Lighting Design Manufacturing Service

Product Nomenclature

The following table describes the available color, power, and lens type. For more flux and forward voltage information, please consult the Bin Group document.

Table 1. Edixeon® K series nomenclature

E D	E	W	-	K	L	C	8	-	B	1	-	A	B	16
X1	X2	X3		X4	X5	X6	X7		X8	X9		X10	X11	X12

X1 LED Item		X2 Module		X3 Emitting Color		X4 Power		X5 Lens Item		X6 Housing Item	
Code	Type	Code	Type	Code	Type	Code	Type	Code	Type	Code	Type
ED	Edixeon®	E	Emitter	W	Cool White	K	Cree Chip	L	Lambertan	C	Black-2
		S	Star	H	Neutral White					D	Black-3
				X	Warm White						
				B	Blue						
				D	Dental Blue						
				C	Royal Blue						

X7~X8 Serial No.	X9 Testing Current		X10 Shape Item		X11 AI PCB Color		X12 Thickness	
	Code	Type	Code	Type	Code	Type	Code	Type
	1	350mA	A	Star	W	White	10	1.0mm
	3	700mA	B	Square(25x25mm)	G	Green	16	1.6mm
	5	1000mA	C	Square(30x30mm)	B	Black	20	2.0mm

Environmental Compliance

Edixeon® K series are compliant to the Restriction of Hazardous Substances Directive or RoHS. The restricted materials including lead, mercury cadmium hexavalent chromium, polybrominated biphenyls (PBB) and polybrominated diphenyl ether (PBDE) are not used in Edixeon® K series to provide an environmentally friendly product to the customers.

LED Package Dimensions and Polarity

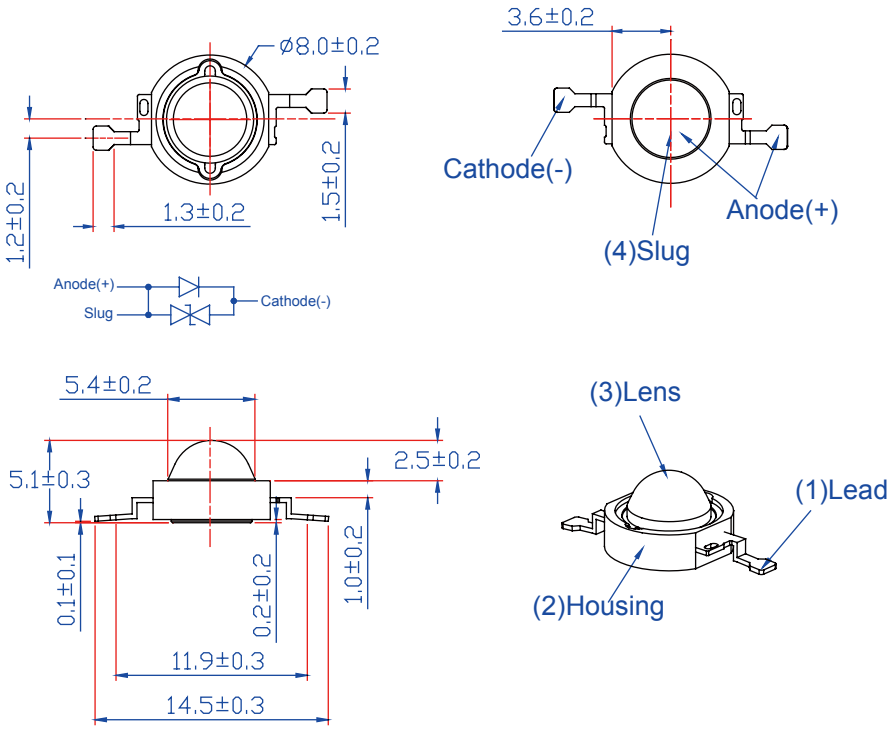
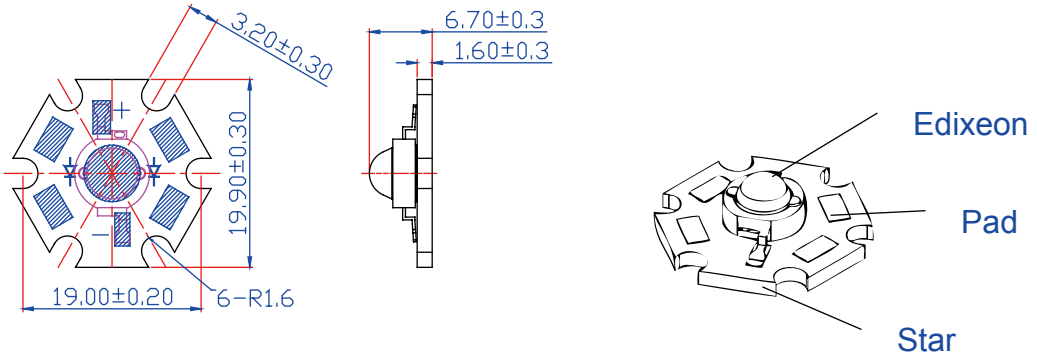


Figure 1. Edixeon® KLCx series dimensions

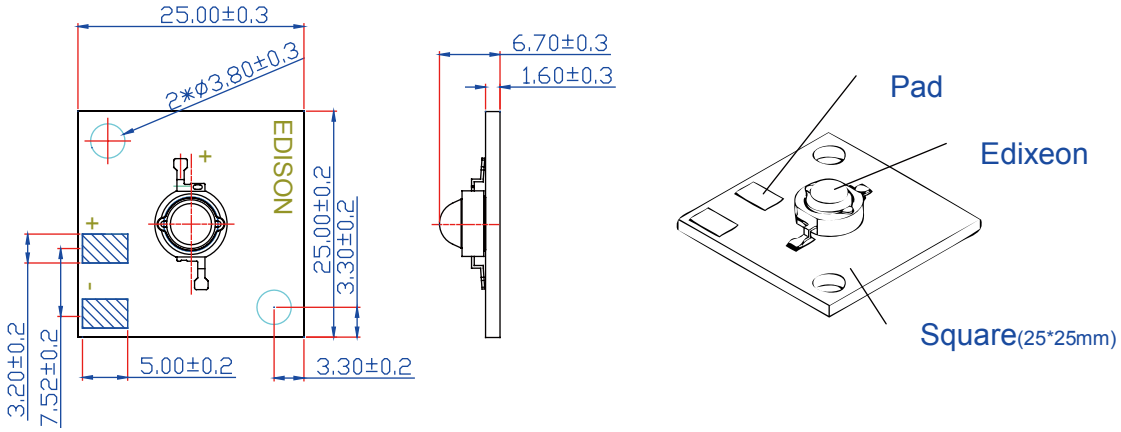
Notes:
1. All dimensions are in mm.
2. Drawings are not to scale.
3. It is strongly recommended to apply on electrically isolated heat conducting film between the slug and contact surfaces.

LED Package with Star Dimensions and Polarity

EDSx-KLxx-xx-Ax16



EDSx-KLxx-xx-Bx16



EDSx-KLxx-xx-Cx16

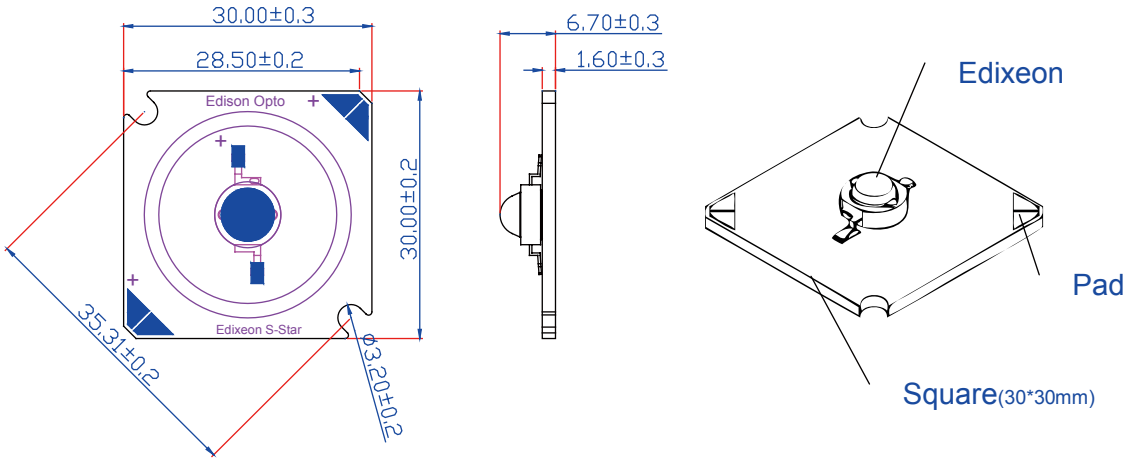


Figure 2. Edixeon® star dimensions

Note:

All dimensions are in mm.

Absolute Maximum Ratings

The following tables describe the characteristics of Edixeon® K Series under various current.

Table 2. Absolute maximum ratings for Edixeon®K series

Parameter	Rating	Unit	Symbol
DC Forward Current(KLC8)	1,000	mA	I_F
Peak pulse current; (tp˚C100μs, Duty cycle=0.25)(KLC8)	1,500	mA	
Reverse Voltage	5	V	V_R
Drive Voltage	5	V	V_S
LED junction Temperature	125	˚C	T_J
Operating Temperature	-30 ~ +110	˚C	
Storage Temperature	-40 ~ +120	˚C	
Soldering Temperature	60	%	
ESD Sensitivity	4,000	V	V_B
Manual Soldering Time at 260˚C(Max.)	5	Sec.	

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.
3. tp: Pulse width time

The following tables describe thermal resistance of Edixeon® K series under various current and different color.

Table 3. Thermal Resistance Junction to Case Characteristics at T_J=25˚C for Edixeon® K series

Part Name	$R\theta_{J-B}$	Unit
	Typ.	
EDEx-KLC8-xx	8	˚C/W

Luminous Flux Characteristic

The following tables describe flux of Edixeon® K Series under various current and different color.

Table 4. Luminous flux and radiometric power characteristic at I_F=350mA and T_J=25°C

Lens Item	Part Name	Color	Flux/ Radiometric Power[1]			Unit
			Min.	Typ.	Max.	
Lambertian	EDEW-KLC8-F1	Cool White	66.5	100.0	--	lm
	EDEW-KLC8-B1	Cool White	51.2	85.0	--	lm
	EDEH-KLC8-E1	Neutral White	39.4	70.0	--	lm
	EDEX-KLC8-E1	Warm White	30.3	60.0	--	lm
	EDEB-KLC8-01	Blue	13.8	25.0	--	lm
	EDED-KLC8-01	Dental Blue[1]	170.9	320.0	--	mW
	EDEC-KLC8-01	Royal Blue[1]	170.9	320.0	--	mW
	EDEW-KLC8-D1	Cool White	39.4	50.0	--	lm
	EDEH-KLC8-D1	Neutral White	23.3	40.0	--	lm
	EDEX-KLC8-D1	Warm White	23.3	35.0	--	lm

Table 5. Luminous flux and radiometric power characteristic at I_F=700mA and T_J=25°C

Lens Item	Part Name	Color	Flux/ Radiometric Power[1]			Unit
			Min.	Typ.	Max.	
Lambertian	EDEW-KLC8-F3	Cool White	112.5	170.0	--	lm
	EDEW-KLC8-B3	Cool White	112.5	140.0	--	lm
	EDEH-KLC8-E3	Neutral White	86.5	120.0	--	lm
	EDEX-KLC8-E3	Warm White	66.5	100.0	--	lm
	EDEB-KLC8-03	Blue	23.3	36.0	--	lm
	EDED-KLC8-03	Dental Blue[1]	256.3	600.0	--	mW
	EDEC-KLC8-03	Royal Blue[1]	256.3	600.0	--	mW
	EDEW-KLC8-D3	Cool White	51.2	75.0	--	lm
	EDEH-KLC8-D3	Neutral White	51.2	65.0	--	lm
	EDEX-KLC8-D3	Warm White	39.4	60.0	--	lm

Note:
Flux is measured with an accuracy of ± 10%
Blue power light source represented here is IEC60825 class 2 for eye safety.

Forward Voltage Characteristic

The following tables describe forward voltage of Edixeon® K Series emitter under various current.

Table 6. Forward voltage characteristic at I_F=350mA, I_F=700mA and T_J=25°C

Lens Item	Part Name	Color	Flux/ Radiometric Power[1]			Unit
			Min.	Typ.	Max.	
Lambertian	EDEx-KLC8-x1	350	2.8	--	3.7	V
	EDEx-KLC8-x3	700	3.1	--	4.0	V

Note:
Forward voltage is measured with an accuracy of ± 0.1V

Emission Angle Characteristic

The following tables describe Color Rand Index of Edixeon® K Series emitter under various current.

Table 7. Emission angle characteristic at T_J=25°C

Lens Item	Part Name	2Θ½(Typ.)	Unit
		Lambertian	
Lambertian	EDEx-KLC8-xx	120	Deg.

JEDEC Information

JEDEC has defined a moisture sensitivity classification. So that the users can properly store and handle the devices and to avoid subsequent thermal and mechanical damage during the assembly reflow attachment or repair operation.

The present moisture sensitivity standard contains six levels, the lower the level ,the longer the devices floor life. Edixeon® K series are certified at level 2a. This means Edixeon® K series have a floor life of 4 weeks before K series need to re-baked.

Table 8. JEDEC characteristics at T_J=25°C for Edixeon® K series

Level	Floor Life		Soak Requirements			
	Time	Conditions	Standard		Accelerated Environment	
			Time (hours)	Conditions	Time (hours)	Conditions
2a	4 weeks	≤30˚C /60% RH	696[1] +5/-0	30˚C/60% RH	120 +1/-0	60˚C/60% RH

Leve	Floor Life		Soak Requirements			
			Standard		Accelerated Environment	
	Time	Condition	Time (hours)	Condition	Time (hours)	Condition
1	Unlimited	≤30˚C /85% RH	168 +5/-0	85˚C/85% RH		
2	1 year	≤30˚C /60% RH	168 +5/-0	85˚C/60% RH		
2a	4 weeks	≤30˚C /60% RH	696[1] +5/-0	30˚C/60% RH	120 +1/-0	60˚C/60% RH
3	168 hours	≤30˚C /60% RH	192[1] +5/-0	30˚C/60% RH	40 +5/-0	60˚C/60% RH
4	72 hours	≤30˚C /60% RH	96[1] +5/-0	30˚C/60% RH	20 +5/-0	60˚C/60% RH
5	48 hours	≤30˚C /60% RH	72[1] +5/-0	30˚C/60% RH	15 +5/-0	60˚C/60% RH
5a	24 hours	≤30˚C /60% RH	48[1] +5/-0	30˚C/60% RH	10 +5/-0V	60˚C/60% RH
6	Time on tabel (TOL)	≤30˚C /60% RH	TOL	30˚C/60% RH		

Note:
The standard soak time includes a default value of 24 hours for semiconductor manufacturer's exposure time (MET) between bake and bag, and includes the maximum time allowed out of the bag at the distributor's facility.

Reliability Items and Failure Measures

Reliability test

The following table describes operating life, mechanical, and environmental tests performed on Edixeon® K series package.

Table 9. Operating life, mechanical, and environmental characteristics at I_F=350mA~1000mA and T_J=25˚C for Edixeon® K series

Stress Tes	Stress Conditions	Stress Duration	Failure Criteria
Room Temperature Operating Life	25˚C, I_F =I_F Max DC (Note 1)	1,000 hours	Note 2
High Temperature High Humidity	85˚C / 85%RH	1,000 hours	Note 2
Temperature Cycle	-40˚C/100˚C ,30 min dwell /<5min transfer	500 cycles	Note 2
High Temperature Storage Life	110˚C	1,000 hours	Note 2
Low Temperature Storage Life	-40˚C	1,000 hours	Note 2
Thermal Shock	-40 / 125˚C 15 min dwell /<10 sec transfer	1,000 cycles	No catastrophics
Mechanical Shock	1500 G, 0.5 msec pulse, 5 shocks each of 6 axis		No catastrophics
Solder Heat Resistance (SHR)	260˚C ± 5˚C, 10 sec		No catastrophics

ASSIST FORM for high power LED reliability (Ex: Edixeon® @350mA)

Table 10. Different junction temperature characteristic

	Ts=45oC	Ts=65oC	Ts=85oC
Voltage	3.3V	3.3V	3.3V
Current	350mA	350mA	350mA
Wattage	1.15W	1.15W	1.15W
Heat	0.92W	0.92W	0.92W
Rth	10 oC/W	10 oC/W	10 oC/W
T_J	54.2 oC	74.2 oC	94.2 oC
$L_{70\%}$	64,000hrs	34,000hrs	19,500hrs

Notes:
1. Depending on the maximum derating curve.
2. Failure Criteria:
   Electrical failures
   VF shift >=10%
   Light Output Degradation
   % Iv shift >= 30% @1,000hrs or 200cycle
   Visual failures
   Broken or damaged package or lead
   Solderability < 95% wetting
   Dimension out of tolerance

Color Spectrum and Radiation Pattern

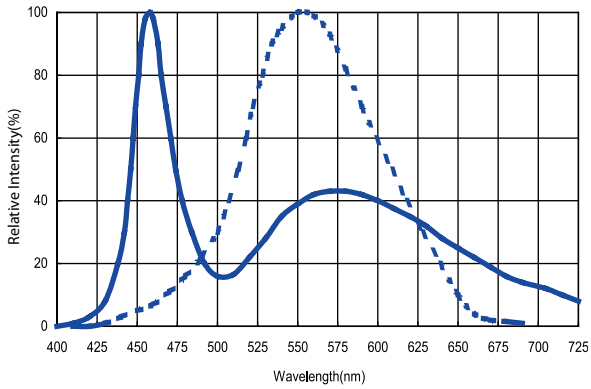


Figure 3. Color spectrum of typical CCT, standard eyes response to dotted curve line at T_J=25˚C. for KLC8-Fx & KLC8-Bx Edixeon® K series cool white

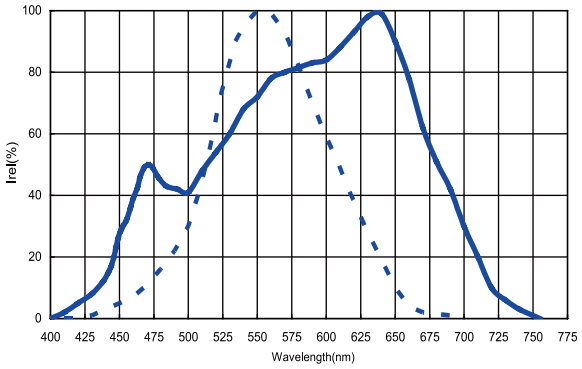


Figure 4. Color spectrum of typical CCT, standard eyes response to dotted curve line at T_J=25˚C. for KLC8-Ex Edixeon® K series neutral white, warm white

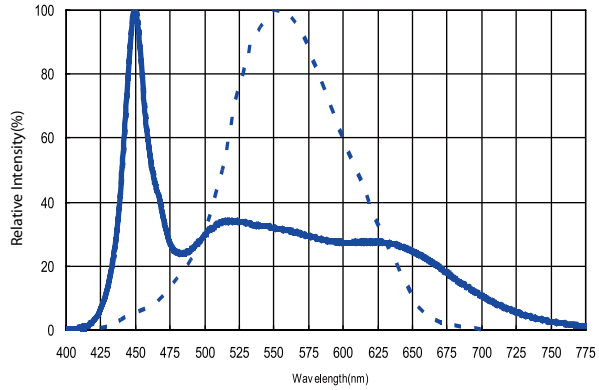


Figure 5. Color spectrum of typical CCT, standard eyes response to dotted curve line at T_J=25˚C. for KLC8-Dx Edixeon® K series cool white

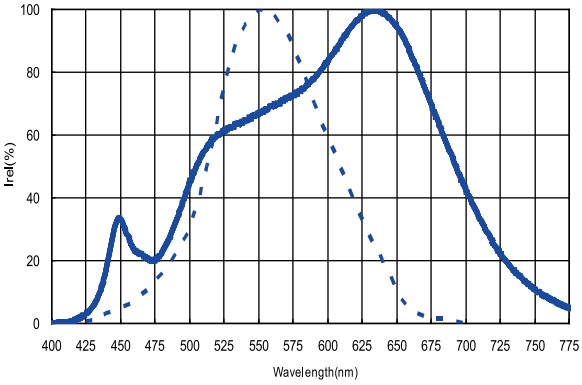


Figure 6. Color spectrum of typical CCT, standard eyes response to dotted curve line at T_J=25˚C. for KLC8-Dx Edixeon® K series neutral white ,and warm white

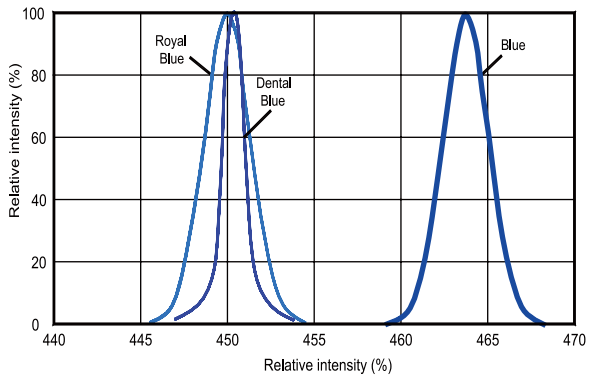


Figure 7. Blue and royal blue typical wavelength at T_J=25˚C

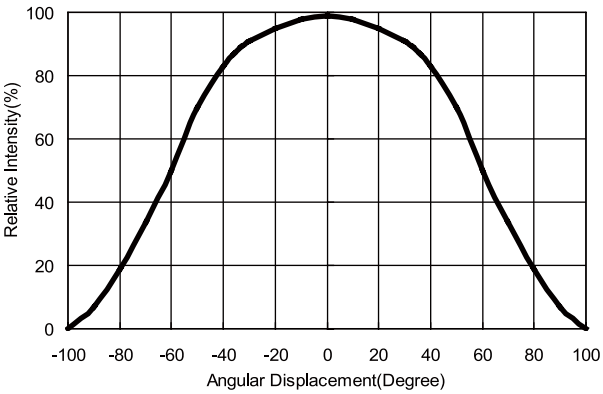


Figure 8. Lambertain for all colors at T_J=25˚C

Color Temperature or Wavelength Characteristic

Table11. Dominant Wavelength, Peak wavelength[1] or Color Temperature Characteristic at T_J =25˚C

Lens Item	Part Name	Color	λd/λp[1]/CCT			Unit
			Min.	Typ.	Max.	
Lambertian	EDEW-KLC8-Fx	Cool White	5,000	--	10,000	K
	EDEW-KLC8-Bx	Cool White	5,000	--	10,000	K
	EDEW-KLC8-Dx	Cool White	5,000	--	10,000	K
	EDEH-KLC8-Ex	Neutral White	3,800	--	5,000	K
	EDEH-KLC8-Dx	Neutral White	3,800	--	5,000	K
	EDEX-KLC8-Ex	Warm White	2,670	--	3,800	K
	EDEX-KLC8-Dx	Warm White	2,670	--	3,800	K
	EDEB-KLC8-0x	Blue	460	--	475	nm
	EDED-KLC8-0x	Dental Blue[1]	450	--	470	nm
	EDEC-KLC8-0x	Royal Blue[1]	440	--	460	nm

CRI Characteristic

Table 12. CRI characteristic at T_J=25˚C

Lens Item	Part Name	Color	CRI
			Typ.
Lambertian	EDEW-KLxx-Bx	Cool White	75
	EDEW-KLxx-Dx	Cool White	90
	EDEH-KLxx-Ex	Neutral White	80
	EDEH-KLxx-Dx	Neutral White	90
	EDEX-KLxx-Ex	Warm White	80
	EDEX-KLxx-Dx	Warm White	90

Optical & Electrical Characteristics

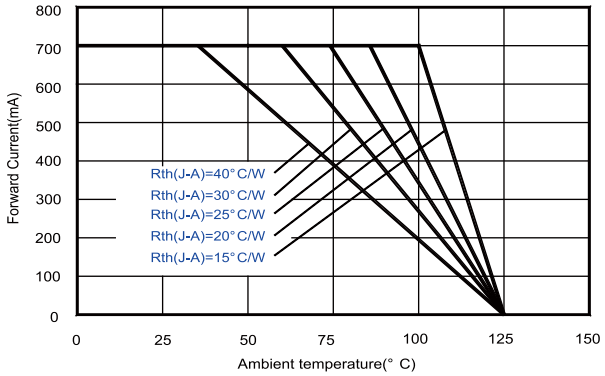


Figure 9. Forward current & ambient temperature for KLC8 at 700mA

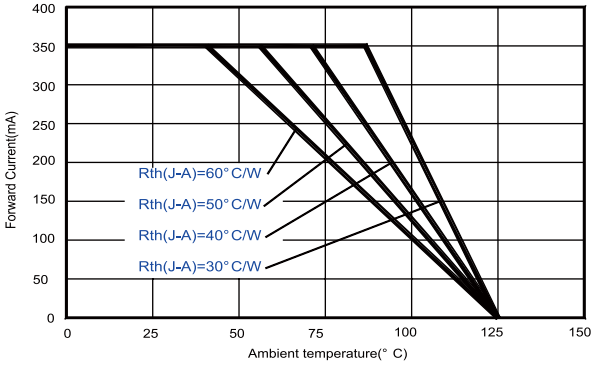


Figure 10 Forward current & ambient temperature for KLC8 at 350mA

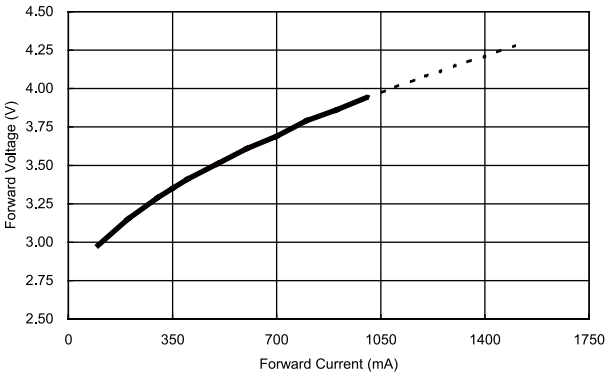


Figure 11. Forward current & forward voltage for KLC8 at T_J=25˚C

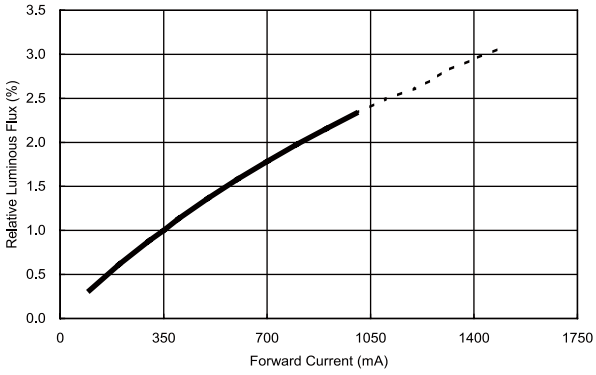


Figure 12. Forward current & relative luminous for KLC8 at T_J=25˚C

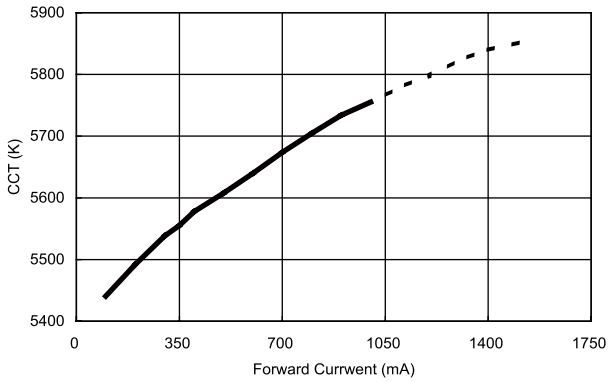


Figure 13. Forward current & CCT for cool white at T_J=25˚C

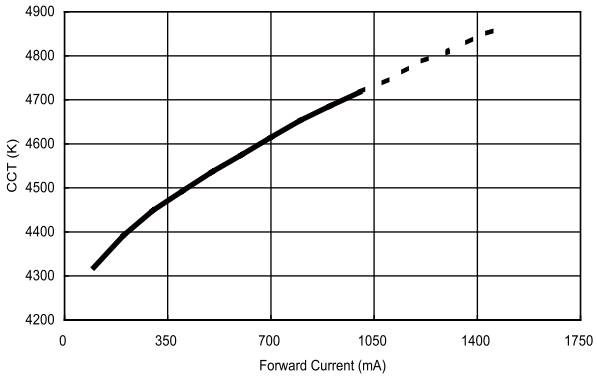


Figure 14. Forward current & CCT for neutral white at T_J=25˚C

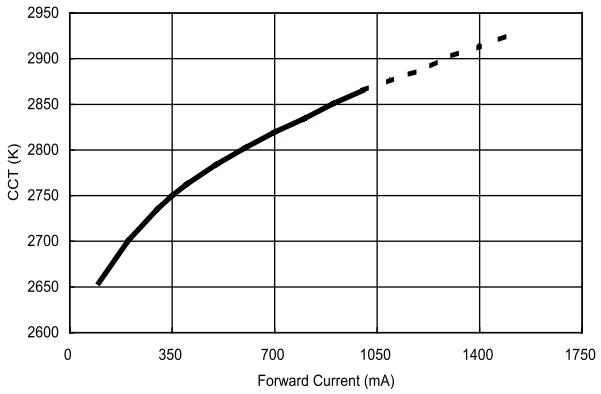


Figure 15. Forward Current & CCT at T_J=25˚C for Warm White

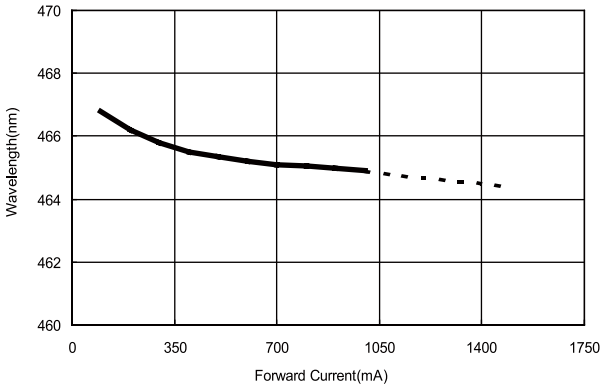
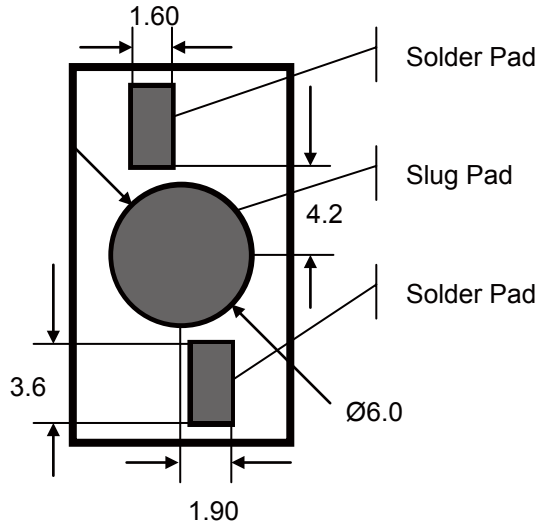


Figure 16. JForward current & wavelength for KLC8 blue, royal blue at T_J=25˚C

Product Soldering Instruction

The central circle pad at the bottom face of the package provides the main path for heat dissipation from the LED to the heat sink (heat sink contact).



Notes:
1. All dimensions are measured in mm.
2. Solder pad cannot be connected to slug pad.
3. MCPCB material with a thermal conductivity greater than 3.0 W/mK.
4. Please avoid touching the Edixeon® lens during assembly processes .This may cause pollution or scratch on the surface of lens.

Figure 17. Pad dimensions

The choice of solder and the application method will dictate the specific amount of solder. For most consistent results, an automated dispensing system or a solder stencil printer is recommended. Positive results will be used solder thickness that results in 50µm. The lamp can be placed on the PCB simultaneously with any other required SMD devices and reflow completed in a single step. Automated pick-and-place tools are recommended.

The central slug at the bottom face of the package provides the main path for heat dissipation from the LED to the heat sink (heat sink contact). A key feature of Edixeon® K Series is an electrically neutral heat path that is separate from the LED's electrical contacts. This electrically isolated thermal pad makes Edixeon® K Series perfect for use with either FR4 circuit boards with thermal via or with metal-core printed circuit boards (MCPCB).

Recommend Solder Steps

To prevent mechanical failure of LEDs in the soldering process, a carefully controlled pre-heat and post-cooling sequence is necessary. The heating rate in an IR furnace depends on the absorption coefficients of the material surfaces and on the ratio of the component's mass to its irradiated surface. The temperature of parts in an IR furnace, with a mixture of radiation and convection, cannot be determined in advance. Temperature measurement may be performed by measuring the temperature of a specific component while it is being transported through the furnace. Influencing parameters on the internal temperature of the component are as follows:

- Time and power
- Mass of the component (for Edixeon® K series on MCPCB)
- Size of the component
- Size of the printed circuit board
- Absorption coefficient of the surfaces and MCPCB
- Packing density

Peak temperatures can vary greatly across the PC board during IR processes. The variables that contribute to this wide temperature range include the furnace type and the size, mass and relative location of the components on the board. Profiles must be carefully tested to determine the hottest and coolest points on the board. The hottest and coolest points should fall within the recommended temperatures. The profile of the reflow system should be based on design needs, the selected solder system and the solder-paste manufacturer's recommended reflow profile.

Reflow Profile

The following reflow soldering profiles are provided for reference. It is recommended that users follow the recommended soldering profile provided by the manufacturer of the solder paste used

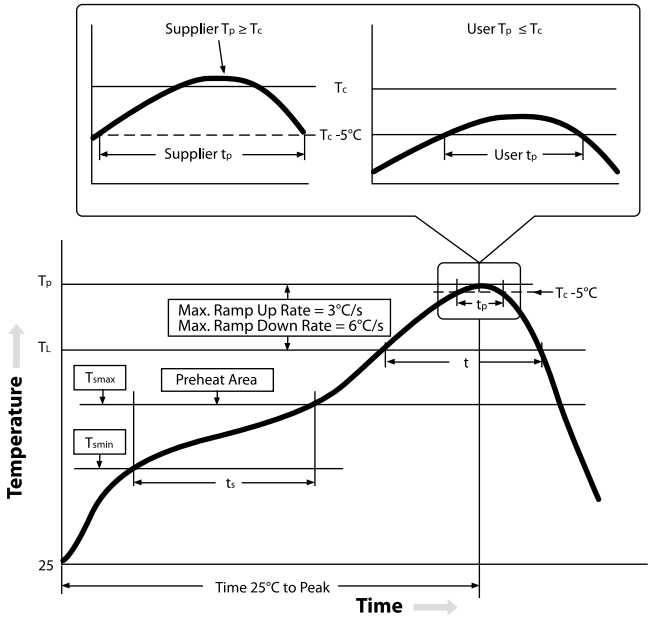


Figure 18. Reflow Profiles

Table 13. Table of Classification Reflow Profiles

Profile Feature	Sn-Pb Eutectic Assembly	Pb-Free Assembly
Preheat & Soak Temperature min (Tsmin) Temperature max (Tsmax) Time (Tsmin to Tsmax) (ts)	100°C 150°C 60-120 seconds	150 °C 200 °C 60-120 seconds
Average ramp-up rate (Tsmax to Tp)	3°C/second max.	3 °C/second max.
Liquidous temperature (TL) Time at liquidous (tL)	183 °C 60-150 seconds	217 °C 60-150 seconds
Peak package body temperature (Tp)*	230 °C ~235°C *	255 °C ~260 °C *
Classification temperature (Tc)	235°C	260 °C
Time (tp)** within 5 °C of the specified classification temperature (Tc)	20** seconds	30** seconds
Average ramp-down rate (Tp to Tsmax)	6°C/second max.	6°C/second max.
Time 25°C to peak temperature	6 minutes max.	8 minutes max.

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

Product Thermal Application Information

Thermal grease should be evenly speeded with a thickness <100um.
When assembling on MCPCB or heat sink carrier.

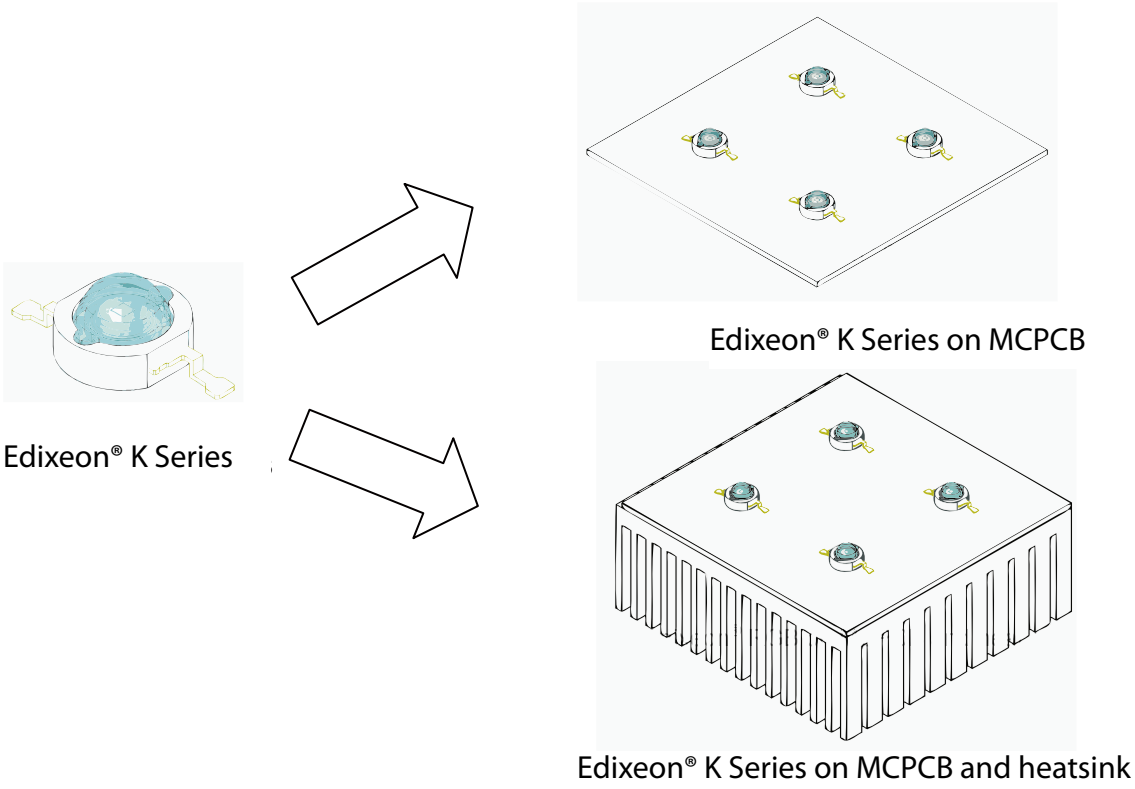


Figure 19. Edixeon® K series heat sink application

It is strongly recommanded the heat sink should be anodized

even there is thermal greased, it is easily short if no anodization

Please ensure the heat sink is flat enough to prevent the bad heat conductivity.

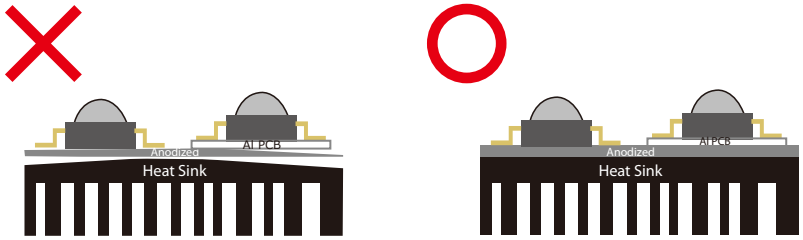
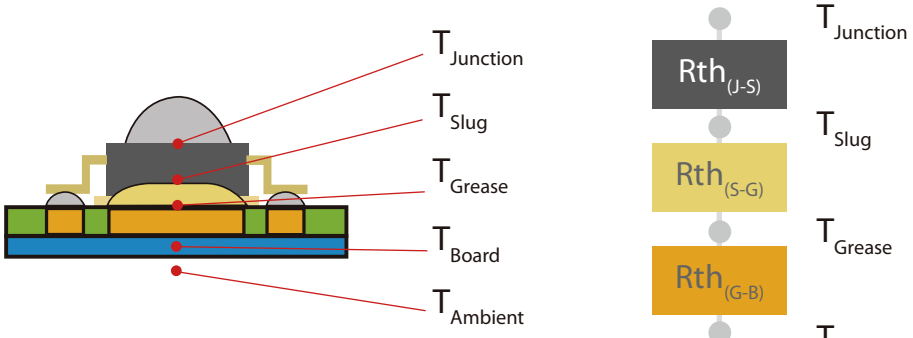


Figure 20. Edixeon® K series assemble with heat sink

Thermal Resistance Application



$$Rth_{(J-A)} = Rth_{(J-S)} + Rth_{(S-G)} + Rth_{(G-B)} + Rth_{(B-A)}$$

$$T_{Junction} = T_{Ambient} + Rth_{(J-A)} + P_{Dissipation}$$

$$(T_J = T_A + Rth_{(J-A)} + P_{Dissipation})$$

Figure 21. Rth and T_J for Edixeon® K series

Suggested Adhesive for Selection(such as thermal grease)

Ease of use
Non-solvent, One-part

Fast tack free
3 minutes at 25°C

No corrosion
Alcohol type of room temperature vulcanization (RTV)

Low volatility
Low weight loss of silicone volatiles

Adhesion
Excellent adhesion to most materials without use of a primer

Dielectric properties
Cured rubber exhibits good dielectric properties

Excellent thermal stability and cold resistance
Cured rubber provides wide service temperature range

Table 14. Specification for adhesive properties

Specification	Suggested Properties
Take-free time	3~10 minutes
Specific gravity	< 3 g/cm^2
Thermal conductivity	> 2.5 W/mK
Rth in using	< 1.8 °C/W
Volume resistance	> 1x10^{14}
Lap shear adhesion strength	> 200 N/ cm^2
Tensile strength	> 4 Mpa

Thermal Resistance Calculation

The thermal resistance between two points is defined as the ratio of the difference in temperature to the power dissipated. For calculations in the following units used are °C/W. In the case of LEDs, the resistance of two important thermal paths affects the junction temperature:

From the LED junction to the thermal contact at the bottom of the package, this thermal resistance is governed by the package design. It is referred to as the thermal resistance between junction and slug ($Rth_{(J-S)}$)

From the thermal contact to ambient conditions, this thermal resistance is defined by the path between the slug ,board ,and ambient. It is referred to as the thermal resistance between slug and board ($Rth_{(S-B)}$) and between board and ambient ($Rth_{(B-A)}$)).

The overall thermal resistance between the LED junction and ambient ($Rth_{(J-A)}$) can be modeled as the sum of the series resistances $Rth_{(J-S)}$, $Rth_{(S-B)}$.,and $Rth_{(B-A)}$.

The following will show how to calculate Rth for each part of LED module.

1. $Rth_{(J-S)}$
Assume Edixeon® $Rth_{(J-S)}$=10 °C/W

2. $Rth_{(S-G)}$
If the thickness of thermal grease is 100um and area is (6.4/2)2π mm^2.
Thermal conductivity of thermal grease is 2.6 W/mK.

$$\text{The Formula of Rth is } \frac{\text{Thickness(um)}}{\text{Thermal Conductivity (W/mK) x Area(mm}^2\text{)}}$$

Therefore $Rth_{(S-G)} = \frac{100}{2.6 \text{ X } (6.4/2)^2\pi} = 1.2\ ^{\circ}C/W$

3. $Rth_{(G-B)}$
The Rth of standard MCPCB is 1.5 °C/W

4. $Rth_{(B-A)}$
The Rth between board and air is mainly dependent on the total surface area.

Therefore $Rth_{(B-A)} \div \frac{500}{Area(cm)^2}$

If Area is $30cm^2$ Rth=16.7 $Rth_{(J-A)}$ =10+1.2+1.5+16.7 =29.4 °C/W
If Area is $60cm^2$ Rth=8.3 $Rth_{(J-A)}$ =10+1.2+1.5+8.3 =21°C/W
If Area is $90cm^2$ Rth=5.5 $Rth_{(J-A)}$ =10+1.2+1.5+5.5 =18.2°C/W

Junction Temperature Calculation

The total power dissipated by the LED is the product of the forward voltage (V_F) and the forward current (I_F) of the LED.

The temperature of the LED junction is the sum of the ambient temperature and the product of the thermal resistance from junction to ambient and the power dissipated.

$T_{Junction} = T_{Air} + Rth_{(J-A)} \times P_{Dissipation}$
If one white Edixeon® in room temperature (25°C) operated 350mA and V_F=3.3V,
the $P_{Dissipation}$=0.35 x 3.3=1.155W

And junction temperature is
$T_{Junction}$ = 25°C+ 18.2 x 1.155 = 46.021°C (total surface area =$90cm^2$)
$T_{Junction}$ = 25°C+ 21 x 1.155 = 49.255 °C (total surface area =$60cm^2$)
$T_{Junction}$ = 25°C+ 29.4 x 1.155 = 58.957 °C (total surface area =$30cm^2$)

Example : Junction Temperature Calculation

One white LED is used under ambient temperature ($T_{Ambient}$) of 30°C.
This LED is soldered on MCPCB (Area=10cm^2). Calculate junction temperature.

Assuming a forward voltage of VF=3.3V at 350mA and total power dissipated is
$P_{Dissipation}$=1x 0.35 x 3.3= 1.155 W.
LED $Rth_{(J-S)}$=10 °C/W.

With good design, $Rth_{(S-G)}$ can be minimized to 1 oC/W.
$Rth_{(G-B)}$ of a standard MCPCB can be 1.5 °C/W.

The Rth between board and air is mainly dependent on the total surface area.

Therefore it can be calculated in formula

$$Rth_{(B-A)}= \frac{500}{10} = 50\ ^{\circ}C/W.$$

Following the formula $T_{Junction} = T_{Ambient} + Rth_{(J-A)} \times P_{Dissipation}$
$T_{Junction}$=30 °C + (10 °C/W +1 °C/W +1.5 °C/W +50 °C/W) x 1.155W =102.1875 °C

That means this LED emitter is operated under good condition($T_{Junction}$<125 °C).

It's strongly recommended to keep the junction temperature under 125 °C
Or keep the temperature of emitter lead not exceed 55 °C

Product Electrical Application Information

Following graphs and descriptions show how to connect LED or LED module and plug to AC outlet.

Step1: Connect the wires of LED Module to the DC output of the driver.

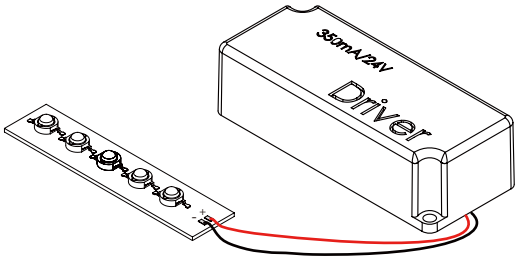


Figure 22. LED Module connect to the DC output of the driver

Step2 : Plug the driver to AC outlet.

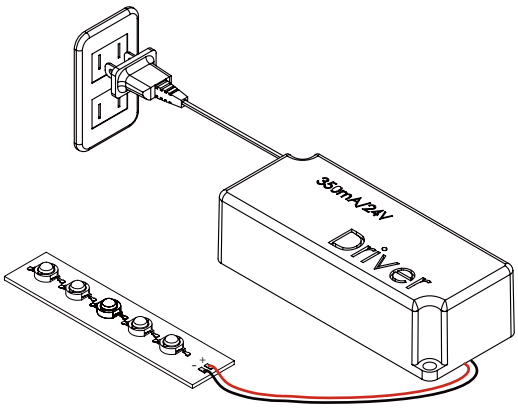
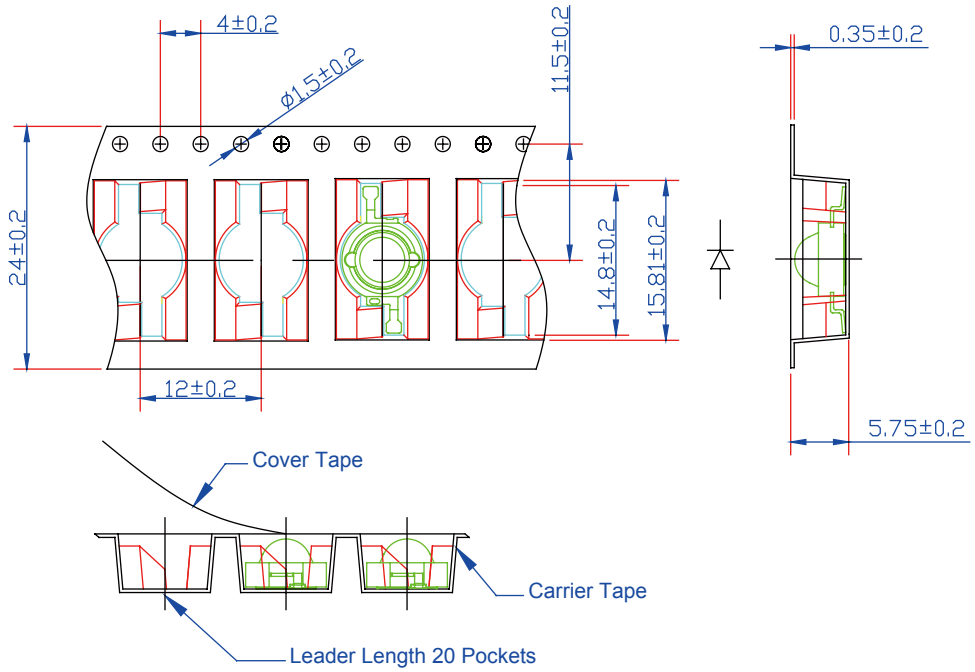


Figure 23. Plug the AC output of the driver to AC outlet

Caution: Never plug the driver to AC outlet before the LED Module is properly connected as this may generate transient voltage damage the LEDs permanently with a short or open circuit.

Product Packaging Information



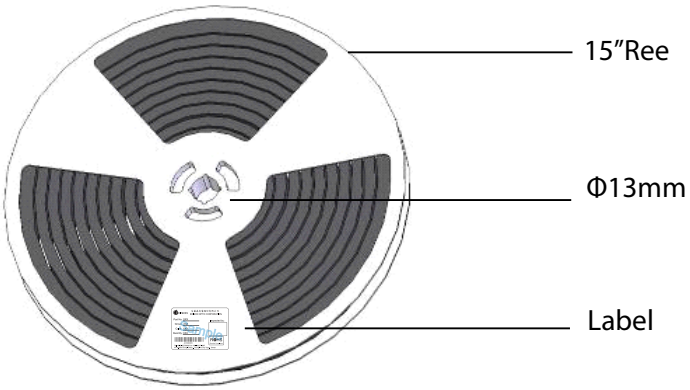


Figure 24. Taping reel dimensions

The Label

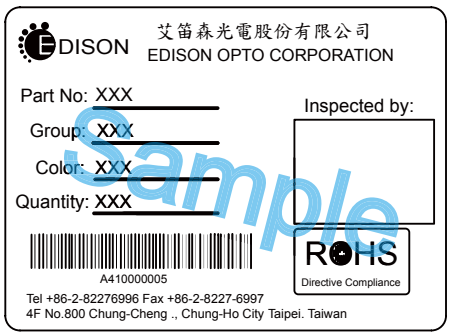
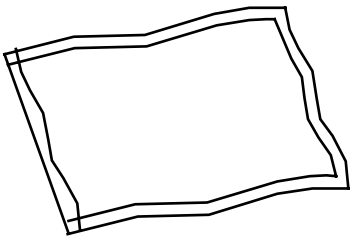
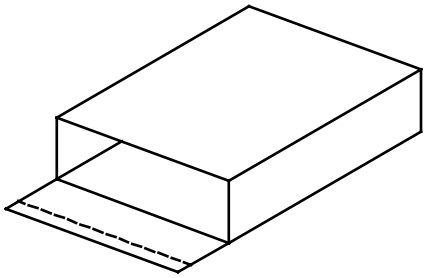


Figure 25. Label on taping reel

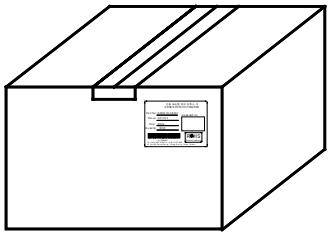
Packaging Steps



1 reel in a bag.



2 bags in a box.



2 inner boxes in a carton.

Figure 26. Packaging steps

Notes:
1. All dimensions are in mm.
2. There are 1000pcs emitters in a full reel.
3. There is one reel in a bag.
4. There are 2 bags in a box.
5. There are 2 inner boxes in a carton.
6. A bag contains one humidity indicator card and drying agent.

Product Packaging Information

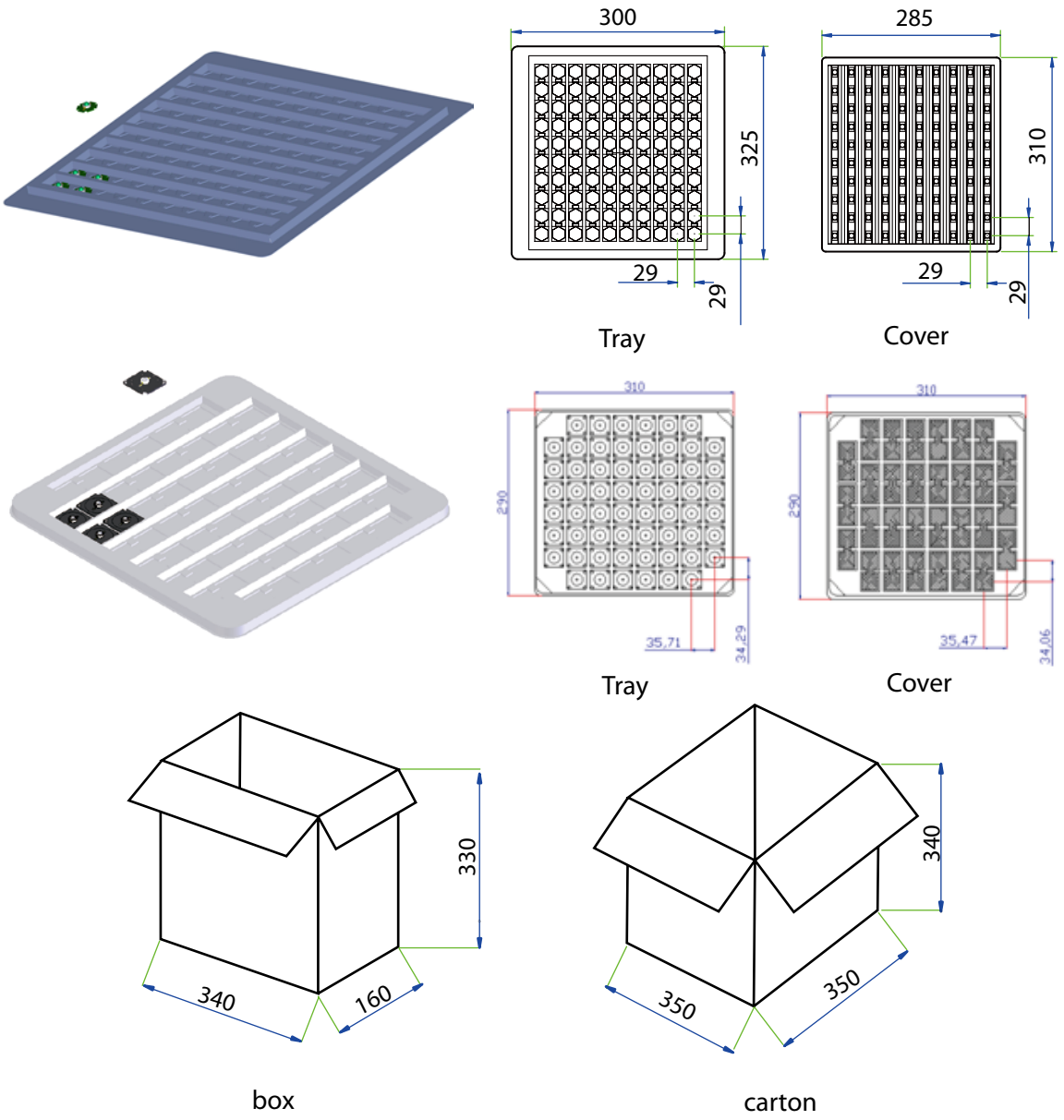


Figure 27. Edixeon® Star package and dimensions

Notes:
1. All Dimensions are in mm.
2. There are 100 pcs stars in a tray.(Tray+Cover)
3. There are 10 trays in a box.
4. There are 2 inner boxes in a carton.