

High Power LED
Chip on Board

COB AI Series Full Spectrum

Features & Benefits

- High lumen output
- Simple assembly reduces manufacturing cost
- Low thermal resistance
- InGaN/GaN MQW LED with long time reliability

Applications

- Film production
- Still photography
- Outdoor Illumination

Table of Contents

1.	Characteristics	-----	3
2.	Product Code Information	-----	4
3.	Typical Characteristics Graphs	-----	7
4.	Outline Drawing & Dimension	-----	9
5.	Reliability Test Items & Conditions	-----	10
6.	Label Structure	-----	11
7.	Packing Structure	-----	12
8.	Precautions in Handling & Use	-----	13

1. Characteristics

a) Absolute Maximum Rating

Item	Symbol	Rating	Unit	Condition
Ambient / Operating Temperature	T_a	-40 ~ +85	°C	-
Storage Temperature	T_{stg}	-40 ~ +105	°C	-
LED Junction Temperature	T_j	115	°C	-
Forward Current	I_F	1350	mA	-
Power Dissipation	P_D	50	W	-

b) Electro-optical Characteristics ($I_F = 1350 \text{ mA}$, $T_s = 25 \text{ °C}$)

Item	Unit	Rank	Min.	Typ.	Max.
Forward Voltage (V_F)	V	V0	35.0	-	40.0
Color Temperature(CCT)	K		3500	-	4000
Color Rendering Index (R_a)	-		80	-	-
Luminous Flux (Φ_v)	lm		5800	-	6800

Note:

Ledstar maintains measurement tolerance of: forward voltage = $\pm 0.1 \text{ V}$, luminous flux = $\pm 5 \%$, CRI = ± 3

2. Product Code Information

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
L	D	R	-	1	9	1	7	B	A	A	1	4	1	0	-	0	0	5	0	-	3	7	K	9	8	0

Digit	PKG Information	Code	Specification
1 2 3	Ledstar Package Middle Power	LDR	
5 6 7 8	Package Model and Size	19 17	dimension: 19.0 x19.0x 0.9mm lens: Φ17mm
9	Product Category	B	COB
10	Bractek Type	A	Al
11	Version	A	
12 13 14 15	Tandem mode	14 10	14 series 10 parallel
17 18 19 20	Power	0050	50W
22 23 24 25	Nominal CCT/Color	37K9	3500-4000K
26 27	Ra	80	Ra>80

a) Voltage Bins ($I_F = 1350 \text{ mA}$, $T_s = 25^\circ\text{C}$)

Product Code	Voltage Rank	Voltage Range (V)
LDR-1917BAA1410-0050-37K980	V0	35.0 ~ 40.0

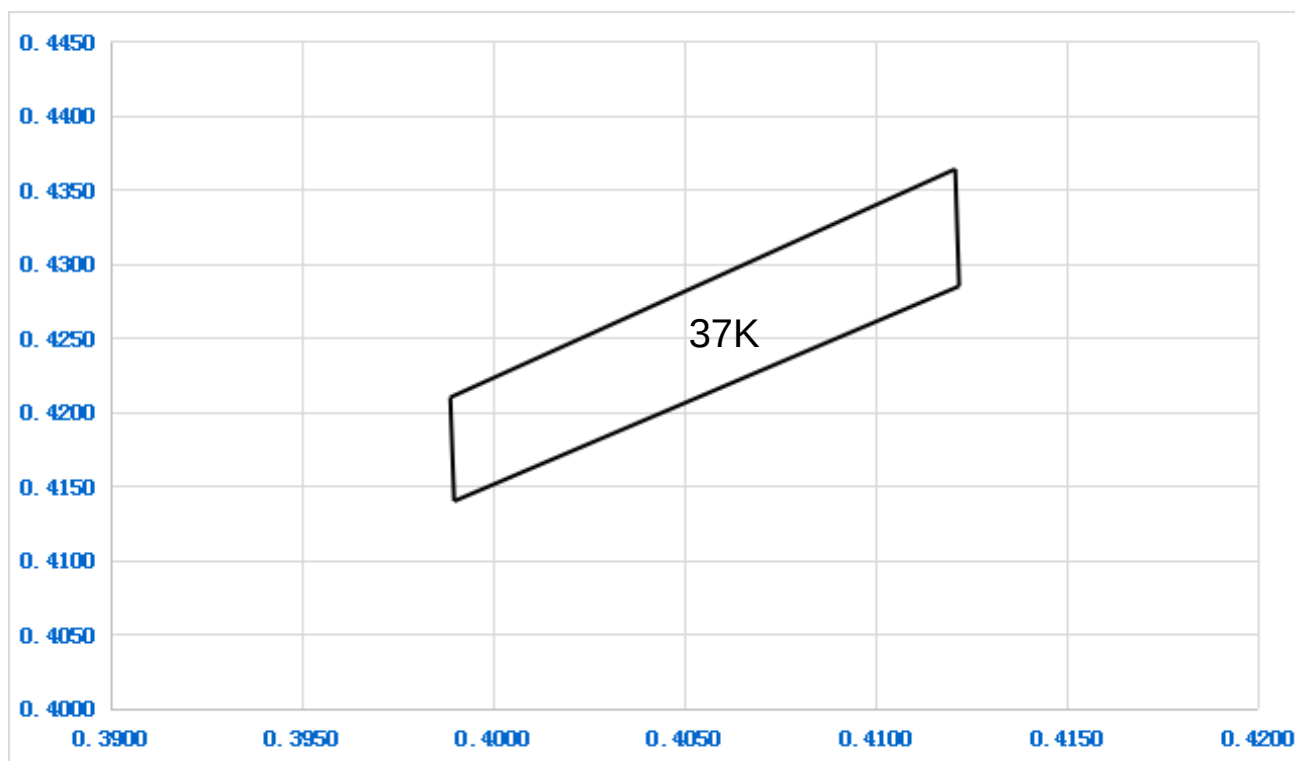
b) Color Bins ($I_F = 1350 \text{ mA}$, $T_s = 25^\circ\text{C}$)

Product Code	BIN	CCT Range (K)
LDR-1917BAA1410-0050-37K980	37K	3500 ~ 4000

c) Luminous Flux Bins ($I_F = 1350 \text{ mA}$, $T_s = 25^\circ\text{C}$)

Product Code	Flux Range (Φ_v , lm)
LDR-1917BAA1410-0050-37K980	5800 ~ 6800

d) Chromaticity Region & Coordinates ($I_f = 1350 \text{ mA}$, $T_s = 25^\circ\text{C}$)



e) Chromaticity Region & Coordinates ($I_f = 1350 \text{ mA}$, $T_s = 25^\circ\text{C}$)

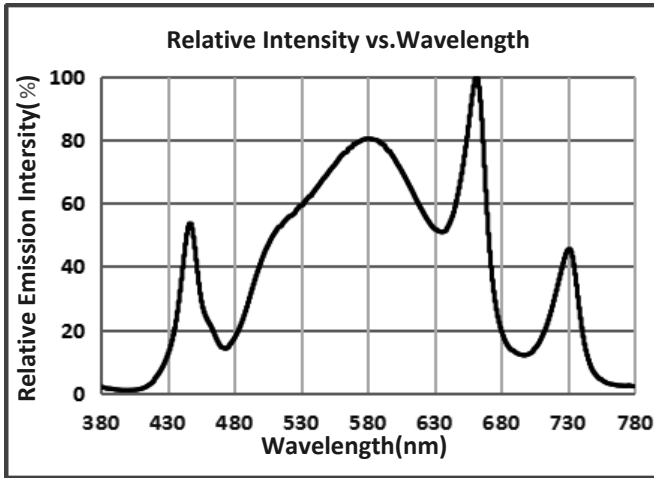
CCT	CIE-X	CIE-Y	BIN
3500-4000K	0.3989	0.4210	37K
	0.4121	0.4364	
	0.4122	0.4285	
	0.3990	0.4140	

Note:

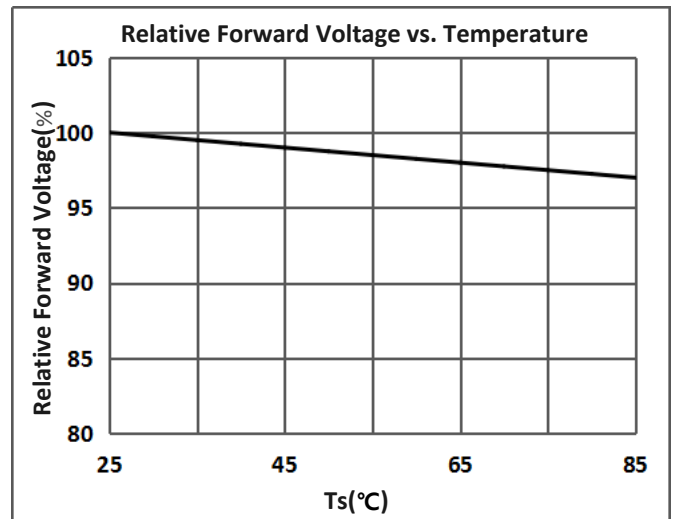
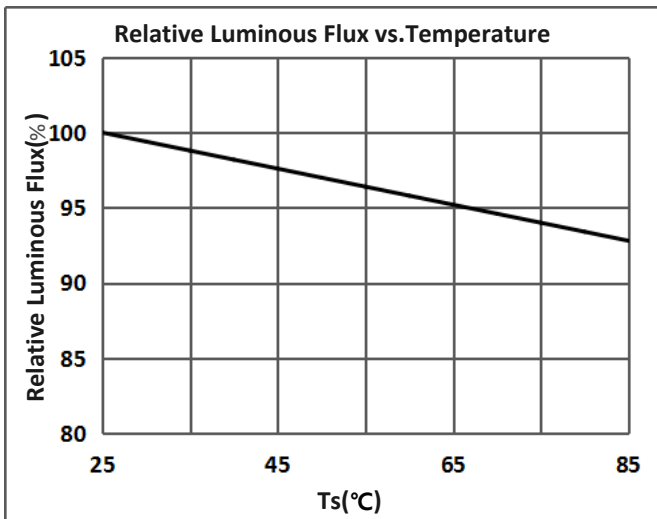
Ledstar maintains measurement tolerance of: $C_x, C_y = \pm 0.005$

3. Typical Characteristics Graphs

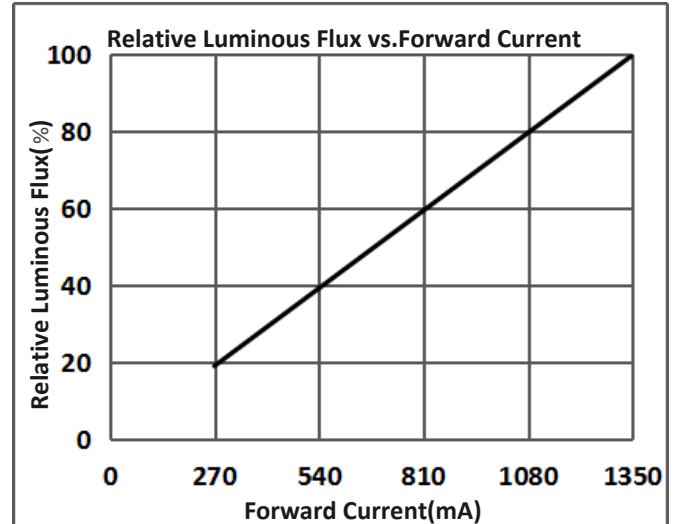
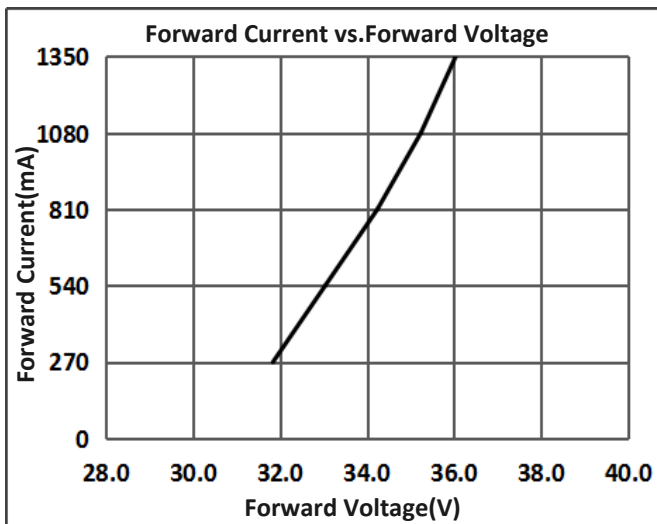
a) Spectrum Distribution ($I_F = 1350 \text{ mA}$, $T_s = 25^\circ\text{C}$)



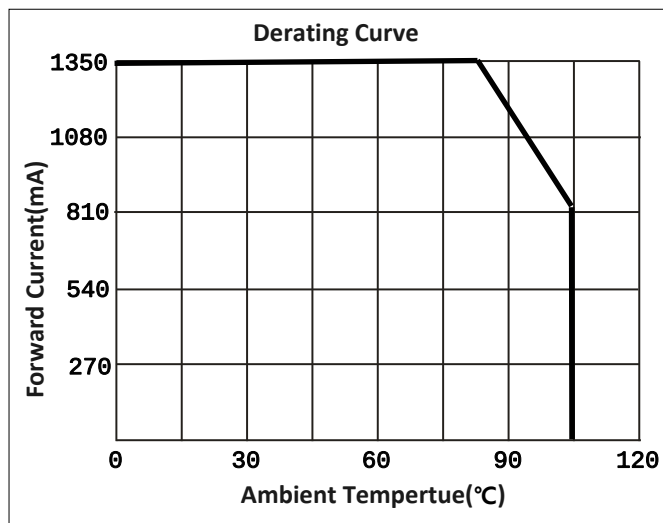
b) Temperature Characteristics ($I_F = 1350 \text{ mA}$)



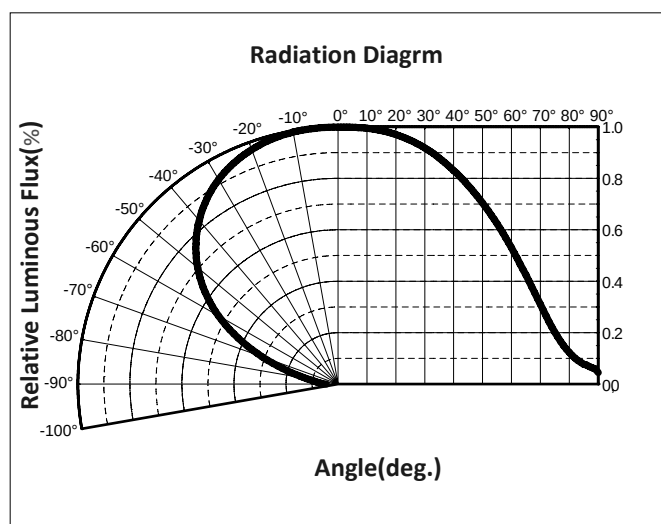
c) Forward Current Characteristics ($T_s = 25^\circ\text{C}$)



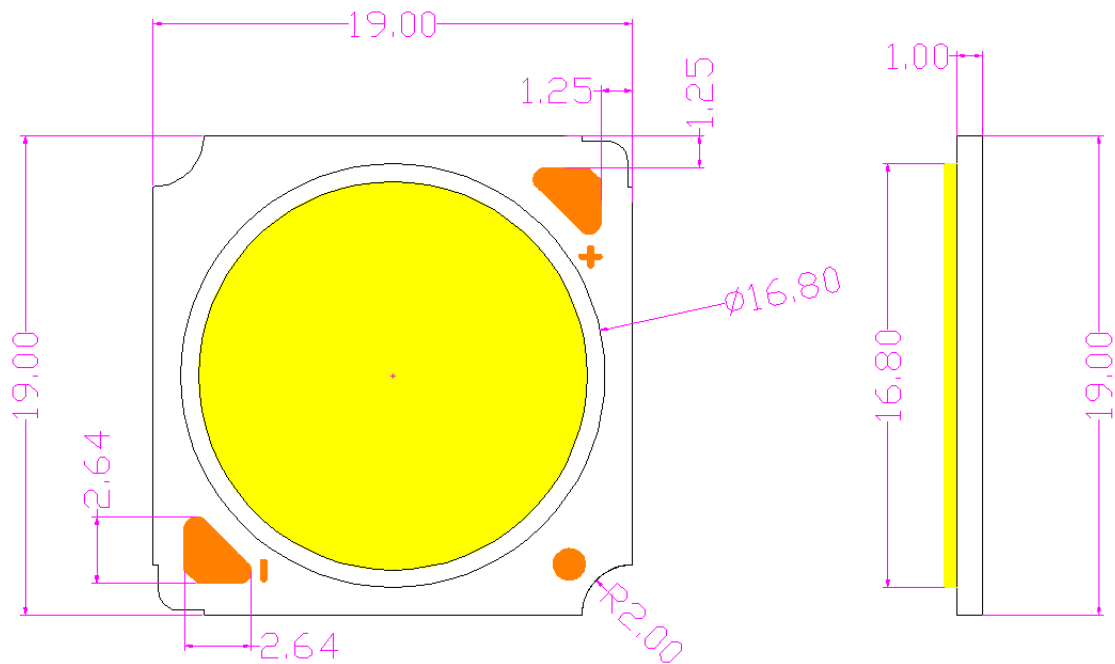
d) Derating Curve



e) Beam Angle Characteristics ($T_j = 25^\circ\text{C}$, $I_f = 1350\text{ mA}$)



4. Outline Drawing & Dimension



Circuit mode :14 series 10 parallel

Notes:

T_s point and measurement method:

- ① Measure one point at the cathode pad, if necessary remove PSR of PCB to reach T_s point.
- ② All pads must be soldered to the PCB to dissipate heat properly, otherwise the LED can be damaged.
- ③ All dimensions in mm. Tolerances unless mentioned is $\pm 0.2\text{mm}$.

Precautions:

- 1) Pressure on the LEDs will influence to the reliability of the LEDs. Precautions should be taken to avoid strong pressure on the LEDs. Do not put stress on the LEDs during heating.
- 2) Re-soldering should not be done after the LEDs have been soldered. If re-soldering is unavoidable, LED's characteristics should be carefully checked before and after such repair.
- 3) Do not stack assembled PCBs together. Since materials of LEDs is soft, abrasion between two PCB assembled with LED might cause catastrophic failure of the LEDs.

5. Reliability Test Items & Conditions

a) Test Items

Test Item	Test Condition	Test Hour / Cycle	Sample No.
Room Temperature Life Test	25°C, DC 1350 mA	1000 h	10
High Temperature Life Test	55°C, DC 1350 mA	1000 h	10
High Temperature Humidity Life Test	55°C, 85 % RH, DC 1350 mA	1000 h	10
Low Temperature Life Test	-40°C, DC 1350 mA	1000 h	10
Powered Temperature Cycle Test	-40 °C ~ 85°C, each 10 min, On/Off 5min , Temp. Change Time 20min, DC 1350 mA	100 cycles	10
Thermal Cycle	-40°C / 15 min ↔ 105°C / 15 min → Hot plate 180°C	100 cycles	10
High Temperature Storage	105°C	1000 h	10
Low Temperature Storage	-40°C	1000 h	10

b) Criteria for Judging the Damage

Item	Symbol	Test Condition (Ts = 25°C)	Limit	
			Min	Max
Forward Voltage	V_F	$I_F = 1350 \text{ mA}$	Init. Value * 0.9	Init. Value * 1.1
Luminous Flux	Φ_v	$I_F = 1350 \text{ mA}$	Init. Value * 0.7	Init. Value * 1.1

6. Label Structure

a) Label Structure



Part No.:LDR-1917BAA1410-0050-37K980
(1919Customized spectrum 50W Lateral COB)

IF: 1350mA	Bin Code:
VF: 35-40V	C/N:16610048
Flux : 5800-6800 lm	Remark:
CCT: 3500-4000K	QTY:25pcs
Date:: 20231207	Lot No :LDR20231207002

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Note: Denoted bin code and product code above is only an example (see description on page 5)

b) Label Explannation

Part No.:Product Code

IF:Testing Current

VF:Forward Voltage Range

Flux:Luminous Flux Range

CCT:Color Temperature Range

Date:Packing Date

Bin Code:Rank

C/N:Internal Identification Code

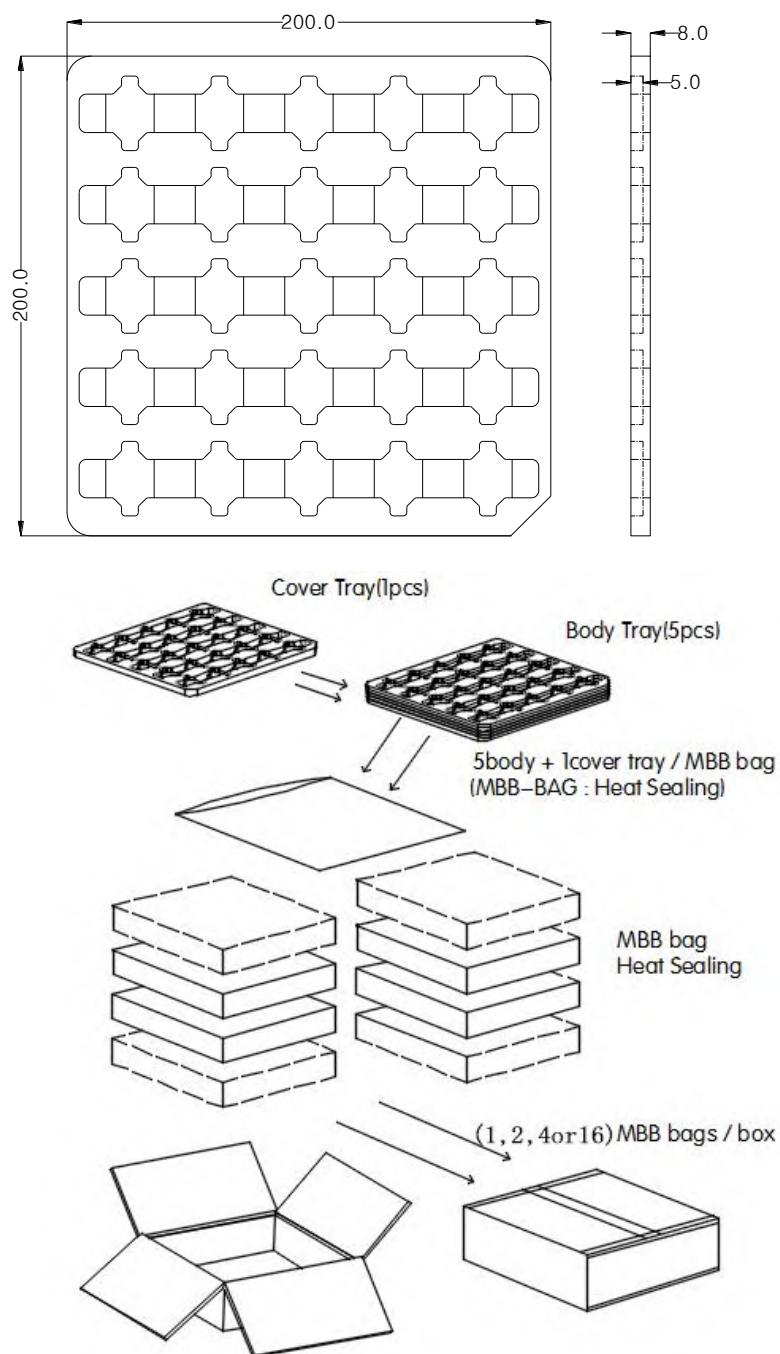
Remark:Special Remark

QTY:Quantity

Lot No.:Production batch Number

7. Packing Structure

a) Packing Process

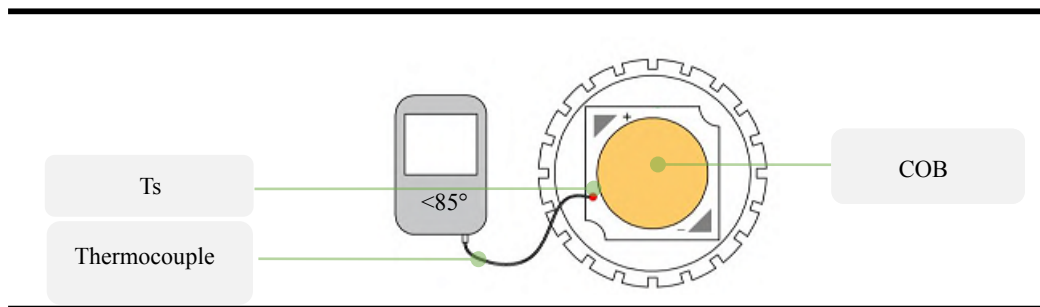


Notes:

- ① An empty tray is placed on top a 5-tier tray which contain 25 PCS each.(Smallset packing unit:125 PCS)
- ② A label whit product name,quantity and lot number is placed on the upper empty.(Tray Dimension:200*200*8mm)

8. Precautions in Handling & Use

- 1) Store the parts in a dry, nitrogen-purged cabinet or container that actively maintains the temperature at 20°C-30°C and the RH at no greater than 60%.
- 2) By using anti-static-electricity bracelets/ cushions/ overalls/ shoes/gloves and anti-static-electricity containers, it can effectively prevent static electricity and surge. The soldering iron point should be properly grounded. Use soldering by hand: Soldering bit temperature shall be 280°C or less Heatin time: 10 seconds or less.
- 3) You need to take the protective measures for the product being sensitive to static electricity. It can lead to product damage or even the total invalid when the high voltage current made by static electricity is beyond the maximum rating. The ground resistance can't beyond 10Ω.
- 4) Please do not make the thermal grease, oil exposed to the light-emitting surface, air gun can be used to remove dirt. Guns Pressure: 0.5MPa, Time: 1 to 2 seconds, Distance: more than 20cm.
- 5) Any time, don't press colloid part, lest product surface come to be damaged or even invalid. It is recommended to design PCB with ground circuit. Pay special attention to the use environment of the products: Humidity must be between 50% and 80%, or else electrostatic breakdown and overcurrent damage would occur. The use temperature is -40°C~85°C. When using this product, please observe the absolute maximum ratings and the instructions for using outlined in these data sheets. LEDTEEN assumes no responsibility for any damage resulting from use of the product which does not comply with the absolute maximum ratings and the included in these data sheets.



- 6) The thermal design to draw heat away from the LED junction is most critical parameter for an LED illumination system. High operating temperatures at the LED junction adversely affect the performance of LED's light output and lifetime. Therefore the LED junction temperature should not exceed the absolute maximum rating in LED illumination system.
- 7) During using this product, the country relative safety standards (eg. GB7000.1-2007) should be accorded with. We will not be liable for the users' acts of non-observance of the country safety standards.