OptoSupply
Light It Up

MCPCB COB 3W & 5W LED

OSXX1313E1E-XXXX

VER.A.3

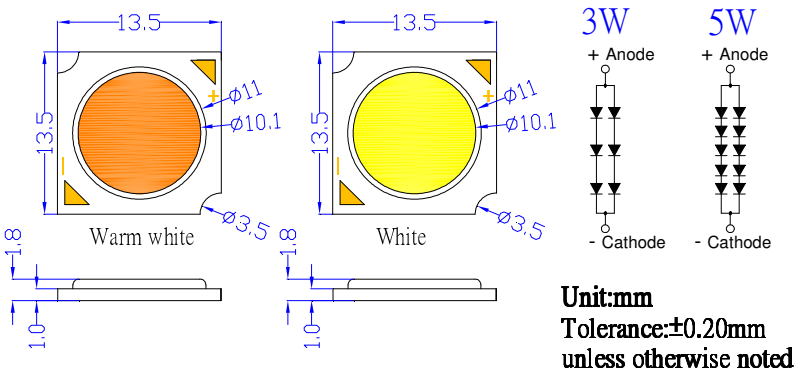
▪Features

- Highest Luminous Flux
- Super Energy Efficiency
- Long Lifetime Operation
- Superior UV Resistance

▪Applications

- Small Area Illuminations
- Back Lighting
- Other Lighting
- Indoor Lighting

▪Outline Dimension



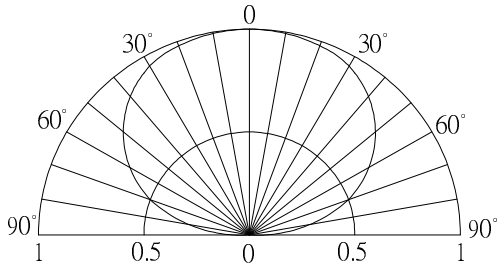
Unit:mm
Tolerance:±0.20mm
unless otherwise noted

▪Absolute Maximum Rating (Ta=25℃)

Item	Symbol	Value		Unit
		3W	5W	
DC Forward Current	I_F	400	400	mA
Pulse Forward Current*	I_{FP}	600	600	mA
Reverse Voltage	V_R	15	25	V
Power Dissipation	P_D	4,560	7600	mW
Operating Temperature	Topr	-30 ~ +85		℃
Storage Temperature	Tstg	-40~ +100		℃
Manual Soldering Temperature	Tsol	350℃/5sec		-

*Pulse width Max 0.1ms, Duty ratio max 1/10

▪Directivity



▪Electrical -Optical Characteristics (Ta=25℃)

	Part Number	Color			V_F (V)			I_R(μA)	Φv(lm)*			CCT(K)			2θ1/2(deg)
					Min.	Typ.	Max.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.	Typ.
3W					I_F=300mA			V_R=15V	I_F=300mA						
	OSW41313E1E-2B3C	White	W		9	10.2	11.4	20	260	300	-	5500-7500			140
	OSM51313E1E-2B3C	Warm White	M		9	10.2	11.4	20	230	260		2800-3200			140

	Part Number	Color			V_F (V)			I_R(μA)	Φv(lm)*			CCT(K)			2θ1/2(deg)
					Min.	Typ.	Max.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.	Typ.
5W					I_F=300mA			V_R=25V	I_F=300mA						
	OSW41313E1E-2B5C	White	W		15	17	19	20	460	500	-	5500-7500			140
	OSM51313E1E-2B5C	Warm White	M		15	17	19	20	430	460		2800-3200			140

*1 Tolerance of measurements of chromaticity coordinate is ±10%
*2 Tolerance of measurements of luminous intensity is ±15%
*3 Tolerance of measurements of forward voltage is±0.1V

■Heat design

The following pictures show some measurements of mounted 5W Led on the heat sink for each board A and B (See Fig 1) with using thermograph to make an observation about heat distribution. Each boards is tested at various current conditions.

As a result, LED needs larger heat sink as much as possible to reduce its own case temperature.

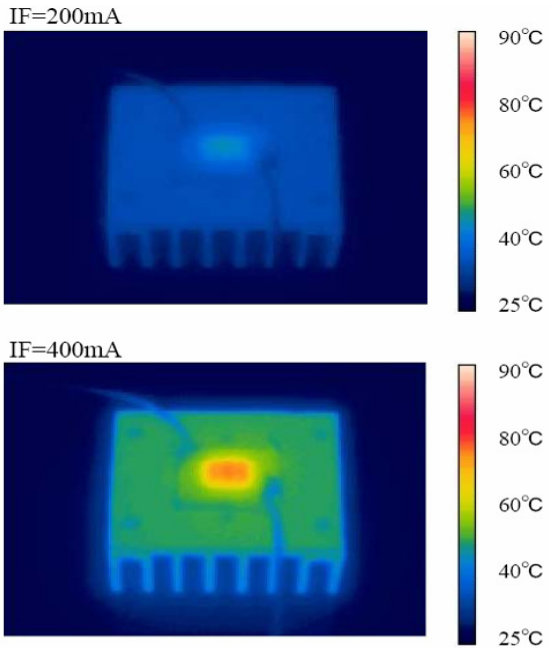
Fig. 1 Configuration pattern examples for board assembly

Board	LED power	Material	Surface area (㎟) Min.
A	5W	Al	10,300
B	10W	Al	20,600
C	25W	Al	51,500
D	50W	Al	103,000
E	100W	Al	206,000
F	200W	Al	412,000
G	300W	Al	618,000

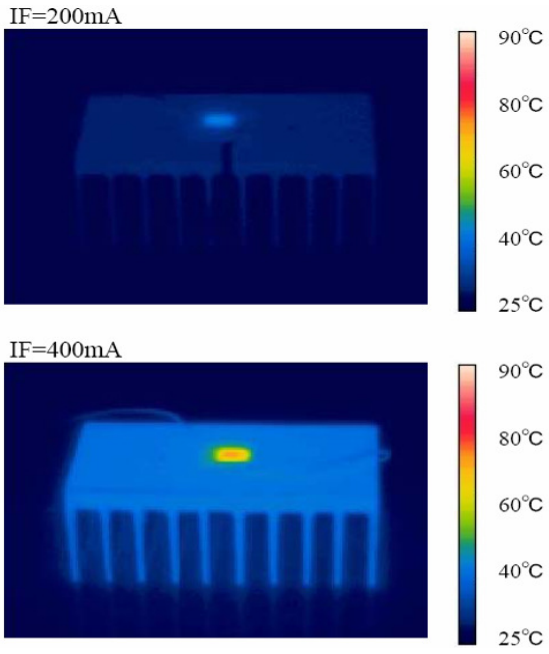
Above tested LED device is attached with adhesive sheet to the heatsink.

For reference's sake, Tj absolute maximum rating is defined at 115℃ as a prerequisite on design process of 5W LED.

<Fig.2> Board A (surface area=10,300㎟)



<Fig.3> Board B (surface area=20,600㎟)



■Heat design→Design flow chart

1. Mounting LED(s) on the board

2. Built-in
2-1. Building on to the lighting fixture module.
2-2. Setting on the actual using condition

3. How to measure Tc
3-1. With using thermo couple. (*a,*b)
3-2. Chose the measured LED device which assumed the highest Tc in the mounted LEDs. (*b)
3-3. Under stable temperature condition.

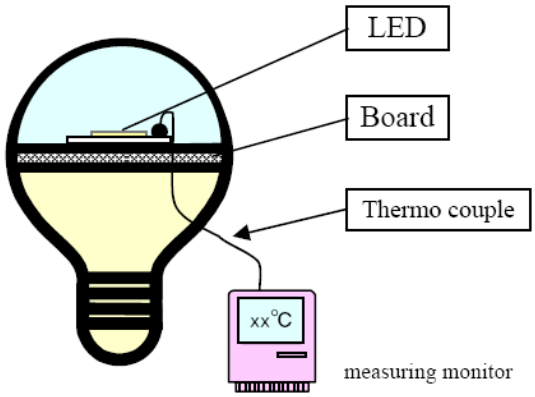
4. Judgment of Tc
4-1. Not over the temperature of your standard rated ?
4-2. Not over the temperature of specified on LED device specification sheet ? (See Fig.a)

if NOT, go back to procedure No.1 and reconsider.

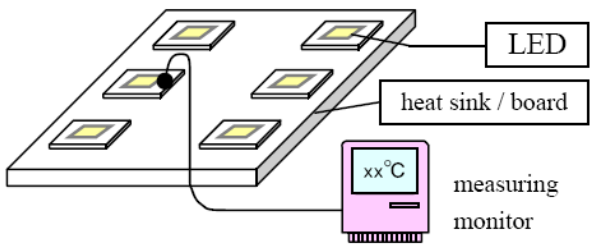
5. Implemented above condition
*Possible to use as it stands.

5. NOT implemented
*Reducing forward current
*Reconsider its design of thermal resistance

Use in the singular (*a)



Use in the plural (*b)



-When measuring Tc, measured LED should be built on to the lighting fixture module.
-Chose the measured LED device which assumed the highest Tc in the mounted LEDs.