OptoSupply
Light It Up

Tops 3*1.5W Power Warm White LED

OSM5X5H891E

Ver.0

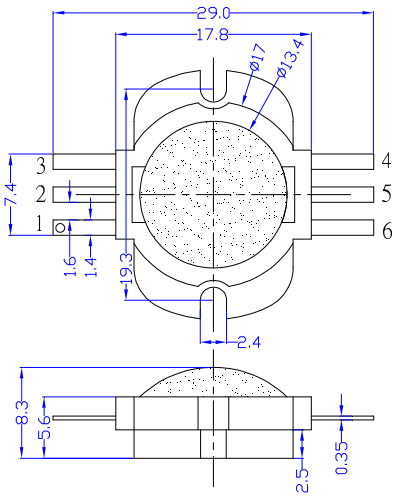
■ Features

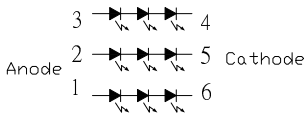
- High-power LED
- Long lifetime operation
- RoHS compliant
- Possible to attach to heat sink directly without using print circuit board.

■ Applications

- Indoor & outdoor lighting
- Stage lighting
- Reading lamps
- Display cases, furniture illumination, marker
- Architectural illumination
- Spotlights

■Outline Dimension





Unit:mm
Tolerance:±0.30mm

Tolerances are for reference only

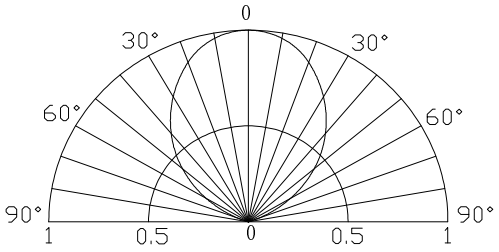
■Absolute Maximum Rating (Ta=25℃)

Item	Symbol	Value	Unit
DC Forward Current *1	I_F	3*175	mA
Pulse Forward Current*2	I_{FP}	3*200	mA
Reverse Voltage	V_R	15	V
Power Dissipation*1	P_D	3*1,890	mW
Operating Temperature	Topr	-30 ~ +85	℃
Storage Temperature	Tstg	-40~ +100	℃
Lead Soldering Temperature	Tsol	260℃/5sec	-

*1, Power dissipation and forward current are the value when the module temperature is set lower than the rating by using an adequate heat sink.

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

■Directivity



■Electrical -Optical Characteristics (Ta=25℃)

Item	Symbol	Condition	Min.	Typ.	Max.	Unit
DC Forward Voltage	V_F	I_F=3*150mA	9.0	9.8	10.8	V
DC Reverse Current	I_R	V_R=15V	-	-	30	μA
Luminous Flux	Φv	I_F=3*150mA	3*145	3*160	-	lm
Color Temperature	CCT	I_F=3*150mA	2700	3000	3300	K
Chromaticity Coordinates*	x	I_F=3*150mA	-	0.44	-	
	y	I_F=3*150mA	-	0.41	-	
50% Power Angle	$2\theta_{1/2}$	I_F=3*150mA	-	90	-	deg

Note: Don't drive at rated current more than 5s without heat sink for High Power series.

*1 Luminous Flux Measurement allowance is ±15%

*2 Chromaticity Coordinates Measurement allowance is ±10%

■Forward Operating Current (DC)

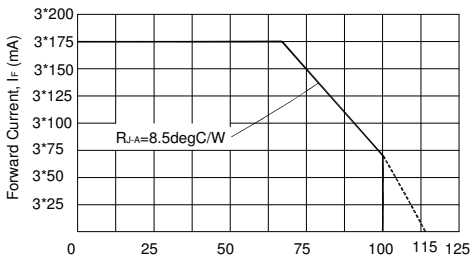


Fig. a

■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.

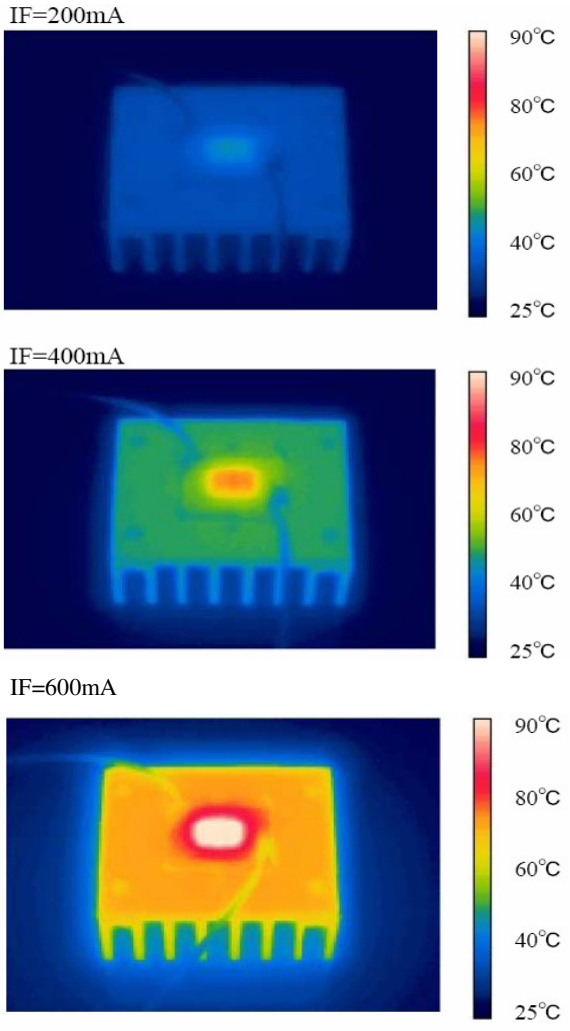
Fig. 1 Configuration pattern examples for board assembly

Board	LED power	Material	Surface area (㎟) Min.
A	5W	Al	20,600
B	10W	Al	41,200
C	25W	Al	103,000
D	50W	Al	206,000
E	100W	Al	412,000
F	200W	Al	824,000
G	300W	Al	1236,000

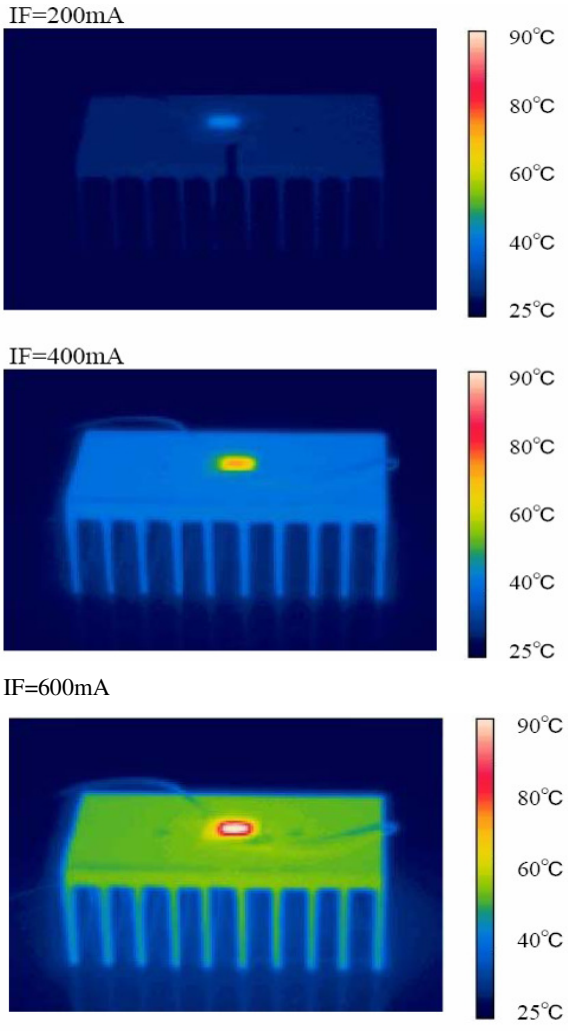
Above tested LED device is attached with adhesive sheet to the heatsink.

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㎟)



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■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

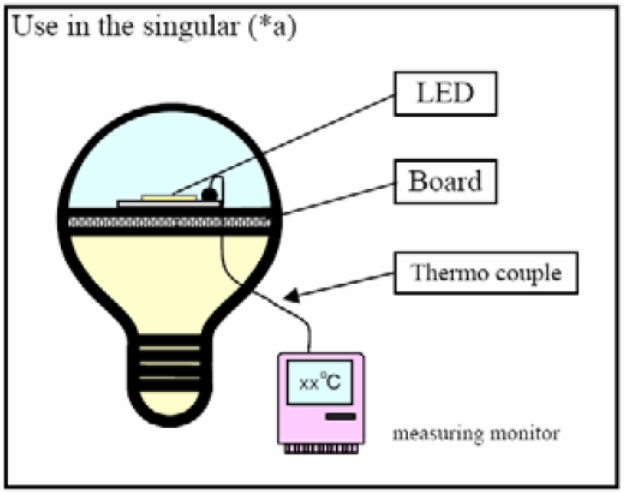
3. How to measure Tc
3-1. With using thermo couple. (*a,*b)
3-2. Chose the measured LED device which assumed the highest Tc in the mounted LEDs. (*b)
3-3. Under stable temperature condition.

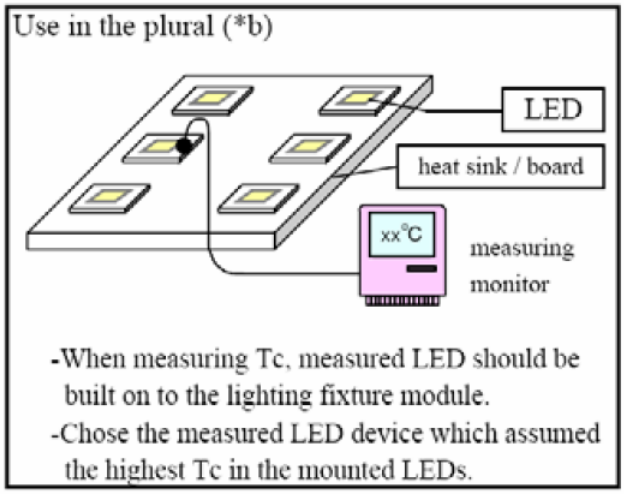
4. Judgment of Tc
4-1. Not over the temperature of your standard rated ?
4-2. Not over the temperature of specified on LED device specification sheet ? (See Fig.a)

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





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REACH The new EU chemicals legislation
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