

Americas

147 Central Avenue
Hackensack, NJ 07601
(201) 489-8989
www.cml-it.com

Europe

Robert Bunsen Str. 1
D-67098 Bad Dürkheim
+49 (6322) 9567-0
www.cml-it.com

***CMDA48xx15D13L Series
Power LED (2.5 Watt)
Technical Datasheet***



CMDA48 Power series is designed for high current operation and high flux output applications. Its thermal management characteristics are better than other LED solutions due to the SMD package design and good thermal emission material.

With these design advantages, it enables the Power LED to be applied in various lighting applications and design solutions, automotive, architectural lighting, and large size LCD backlight etc.

Features

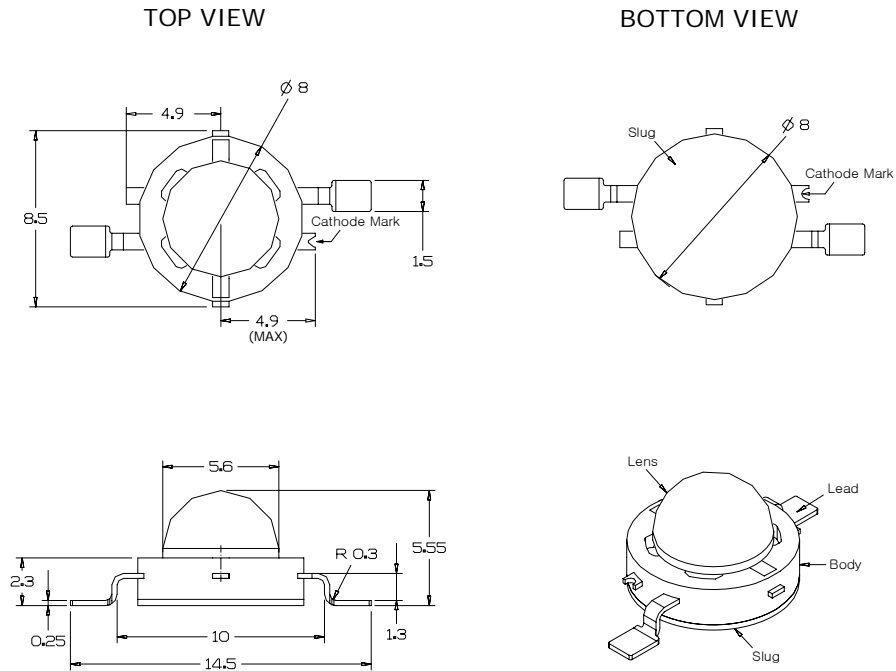
- Super high Flux output and high Luminance
- Designed for high current operation
- Low thermal resistance
- SMT solderability
- Lead Free product
- RoHS compliant

Application

- Mobile phone flash
- Automotive interior / exterior lighting
- Automotive signal lighting
- Automotive forward lighting
- General Torch
- Architectural lighting
- LCD TV / Monitor Backlight
- Projector light source
- Traffic signals
- Task lighting
- Decorative / Pathway lighting
- Remote / Solar powered lighting
- Household appliances

Outline Dimensions

1. Dome Type



Notes :

1. All dimensions are in millimeters.
2. Scale : none
3. This drawing without tolerances are for reference only
4. Slug of package is connected to anode.



Americas
147 Central Avenue
Hackensack, NJ 07601
(201) 489-8989
www.cml-it.com

Europe
Robert Bunsen Str. 1
D-67098 Bad Durkheim
+49 (6322) 9567-0
www.cml-it.com

Americas
 147 Central Avenue
 Hackensack, NJ 07601
 (201) 489-8989
www.cml-it.com

Europe
 Robert Bunsen Str. 1
 D-67098 Bad Durkheim
 +49 (6322) 9567-0
www.cml-it.com

2. Electro-Optical Characteristics (at IF=350mA, TA=25°C)

| P/N | Description | Luminous Flux Min./Typ. (lm) | Correlated Color Temperature (Kelvin) | CRI | Dominant Wavelength (nm) Min./Typ./Max. | Forward Voltage (volts) Min./Typ./Max. | View Angle (degrees) | Thermal resistance (°C /W) |
|----------------|-------------|------------------------------------|---|-----|--|--|-------------------------|----------------------------------|
| | Symbol | ΦV [1] | CCT [3] | Ra | λD | V | 2θ 1/2 | Rθ [4] |
| CMDA48CW15D13L | Pure White | 67 / 90 | 6500 | 70 | | 3.0 / 3.4 / 4.3 | 120 | 9 |
| CMDA48WW15D13L | Warm White | 42 / 60 | 3000 | 80 | | 3.0 / 3.4 / 4.3 | 120 | 9 |
| CMDA48CB15D13L | Blue | 8 / 16 | | | 455 / 460 / 475 | 3.0 / 3.4 / 4.3 | 130 | 9 |
| CMDA48AG15D13L | Green | 54 / 84 | | | 520 / 527 / 535 | 3.0 / 3.4 / 4.3 | 130 | 9 |
| CMDA48AR15D13L | Red | 54 / 60 | | | 620 / 625 / 630 | 2.0 / 2.5 / 3.0 | 128 | 13 |
| CMDA48GB15D13L | Cyan | 54 / 71 | | | 500 / 505 / 510 | 3.0 / 3.4 / 4.3 | 130 | 9 |
| CMDA48DY15D13L | Amber | 54 / 68 | | | 585 / 590 / 595 | 2.0 / 2.5 / 3.0 | 128 | 13 |

3. Absolute Maximum Ratings (at TA=25°C)

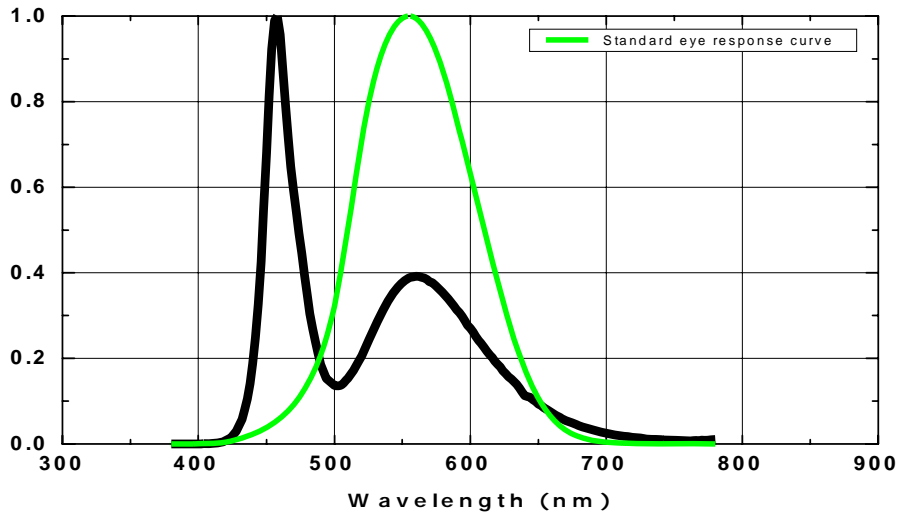
| P/N | Description | Forward Current (A) | Power Dissipation (Watts) | Junction Temperature (°C) | Operating Temperature (°C) | Storage Temperature (°C) |
|----------------|-------------|---------------------|---------------------------|---------------------------|----------------------------|--------------------------|
| | Symbol | I _F | P _D | T _J | T _{opr} | T _{stg} |
| CMDA48CW15D13L | Pure White | 0.8 | 3.2 | 125 | -30~+85 | -40~+120 |
| CMDA48WW15D13L | Warm White | 0.8 | 3.2 | 125 | -30~+85 | -40~+120 |
| CMDA48CB15D13L | Blue | 0.8 | 3.2 | 125 | -30~+85 | -40~+120 |
| CMDA48AG15D13L | Green | 0.8 | 3.3 | 125 | -30~+85 | -40~+120 |
| CMDA48AR15D13L | Red | 0.8 | 2.4 | 100 | -30~+85 | -40~+120 |
| CMDA48GB15D13L | Cyan | 0.8 | 3.2 | 125 | -30~+85 | -40~+120 |
| CMDA48DY15D13L | Amber | 0.8 | 2.4 | 100 | -30~+85 | -40~+120 |

***Notes:**

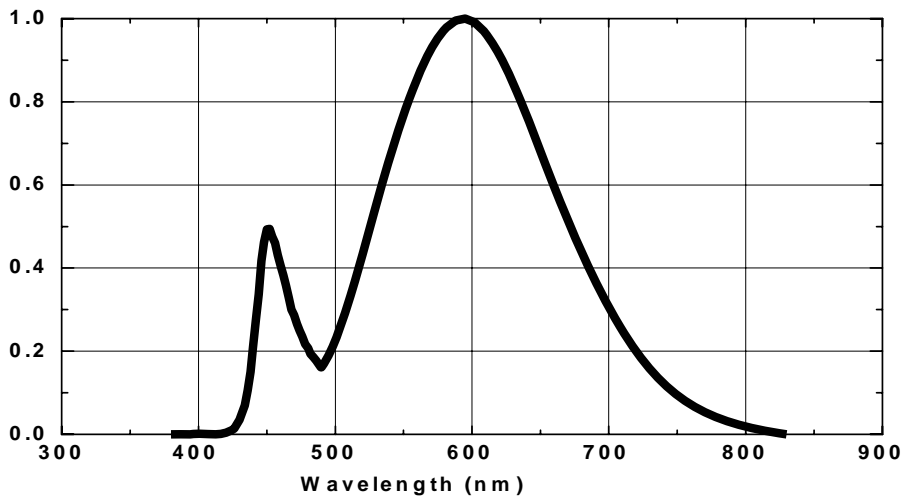
- [1] ΦV is the total luminous flux output as measured with an integrating sphere.
- [2] Zener diode chip included to protect the LED from ESD.
- [3] Rθ is measured with a metal core PCB (25 °C ≤ T_J ≤ 125 °C).
- [4] CML maintains a tolerance of ± 10% on flux and power measurements.
- [5] CCT ± 5% tester tolerance.
- [6] Color Coordinate Measurement allowance is ± 0.005
- [7] A tolerance of ± 0.006V on forward voltage measurements

-----Caution-----
 Please do not drive at rated current more than 5 sec. without proper heat sink

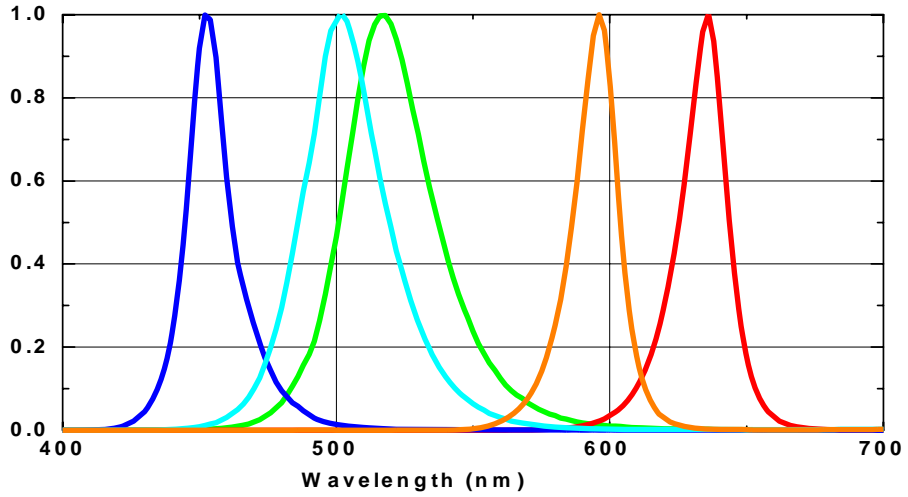
1. Pure White



2. Warm White



3. Blue, Cyan, Green, Amber, Red

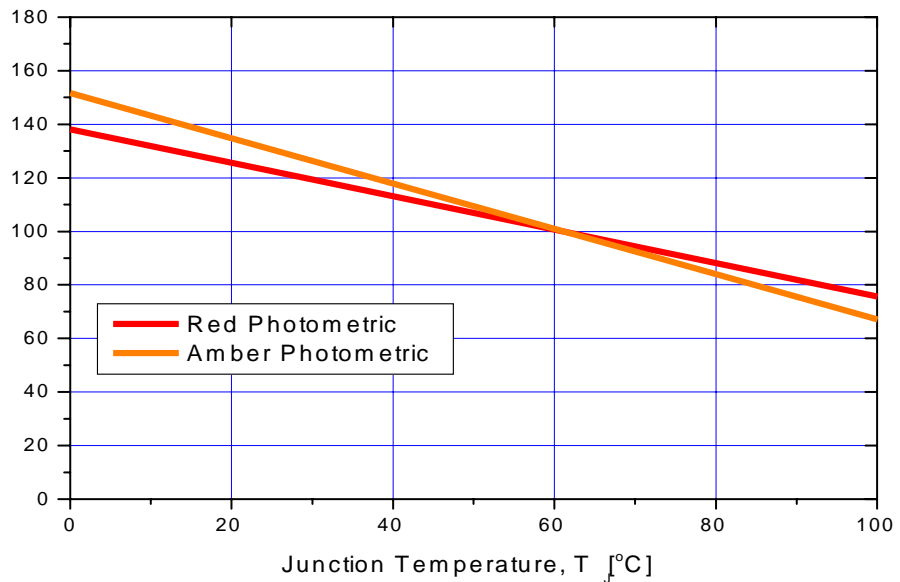
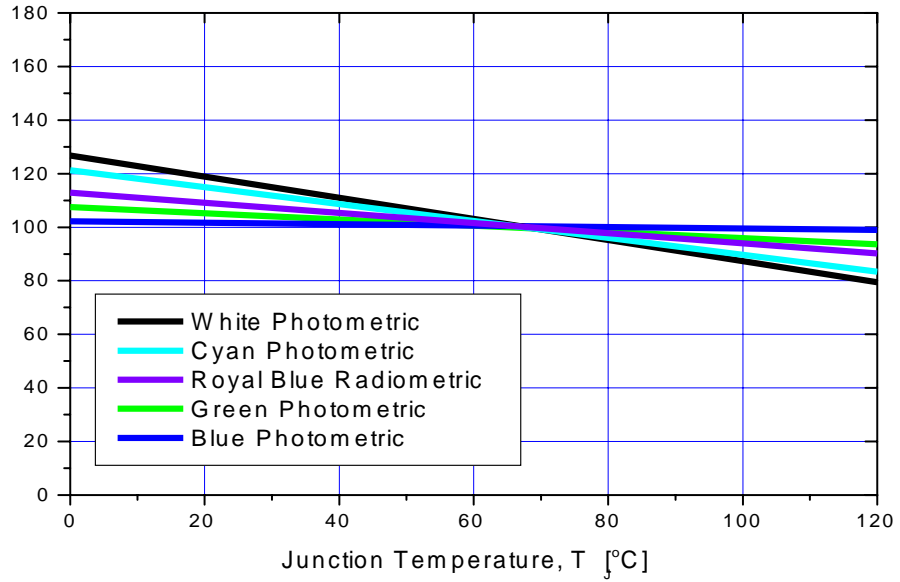


Americas
147 Central Avenue
Hackensack, NJ 07601
(201) 489-8989
www.cml-it.com

Europe
Robert Bunsen Str. 1
D-67098 Bad Durkheim
+49 (6322) 9567-0
www.cml-it.com

Light Output Characteristics

1. Relative Light Output vs. Junction Temperature at $I_F=700\text{mA}$, $T_A=25^\circ\text{C}$

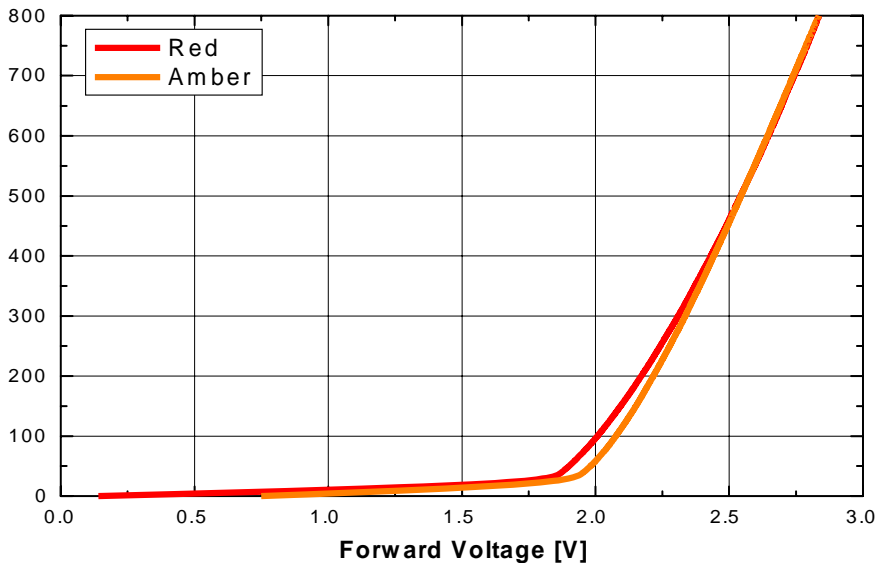
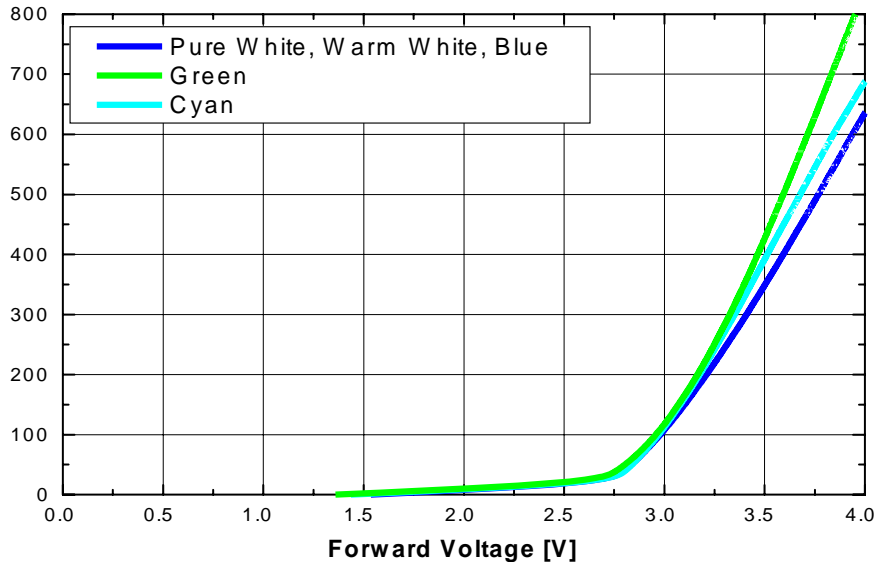


Americas
 147 Central Avenue
 Hackensack, NJ 07601
 (201) 489-8989
www.cml-it.com

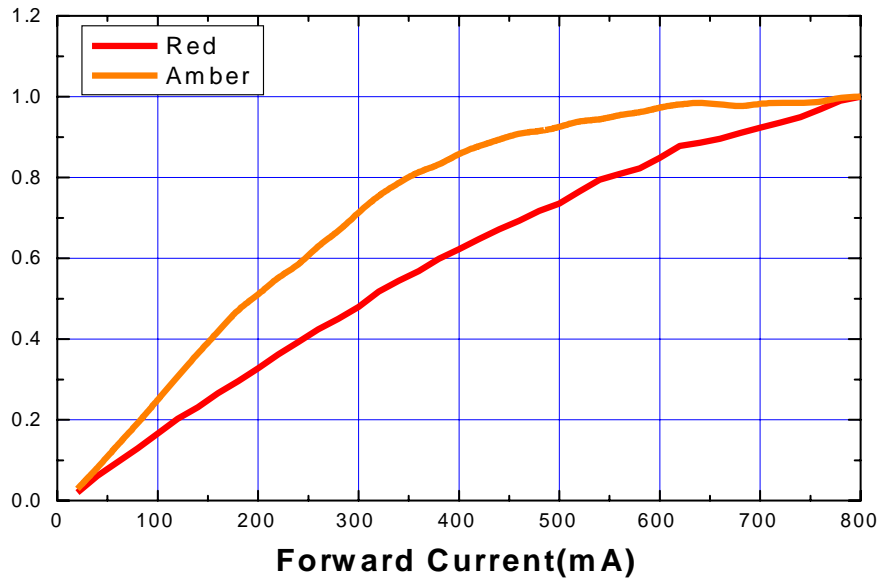
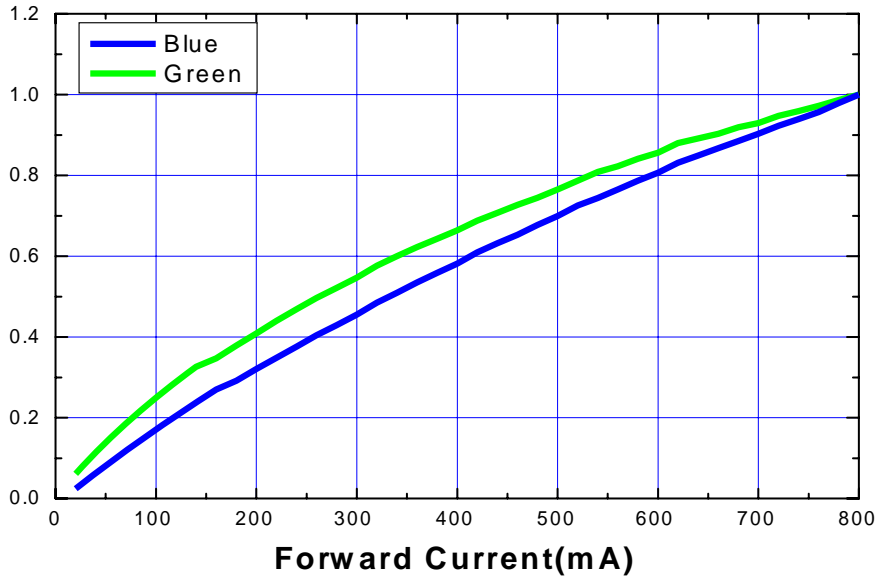
Europe
 Robert Bunsen Str. 1
 D-67098 Bad Durkheim
 +49 (6322) 9567-0
www.cml-it.com

Forward Current Characteristics

1. Forward Voltage vs. Forward Current, $T_A=25^\circ\text{C}$



2. Forward Current vs. Normalized Relative Luminous Flux, $T_A=25^\circ\text{C}$

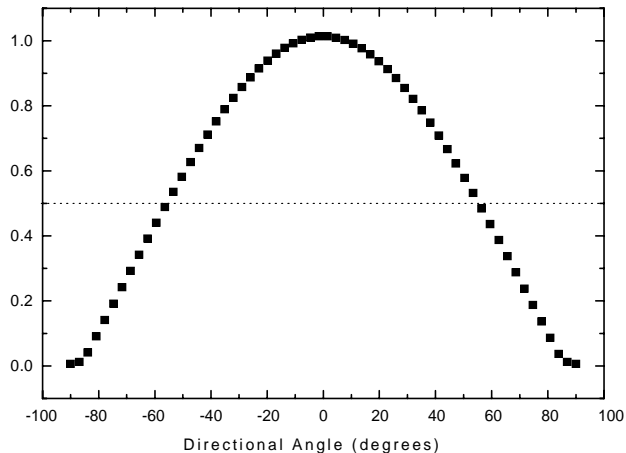


Americas
147 Central Avenue
Hackensack, NJ 07601
(201) 489-8989
www.cml-it.com

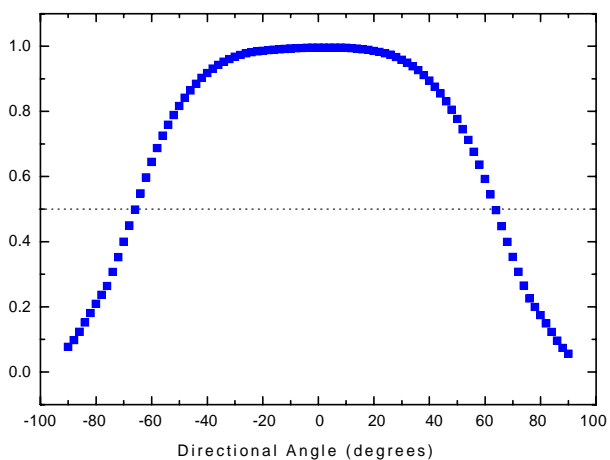
Europe
Robert Bunsen Str. 1
D-67098 Bad Durkheim
+49 (6322) 9567-0
www.cml-it.com

Typical Dome Type Radiation pattern

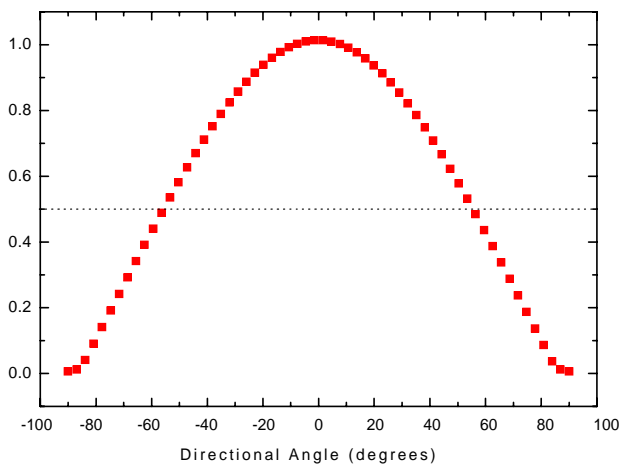
1. Pure White, Warm White



2. Royal Blue, Blue, Cyan, Green

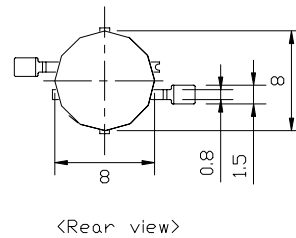
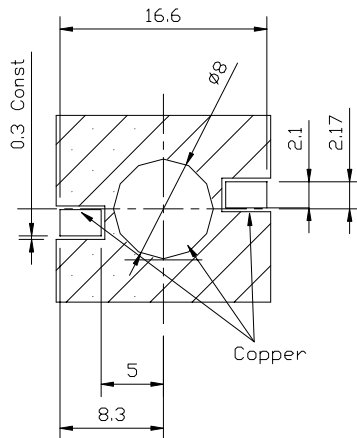
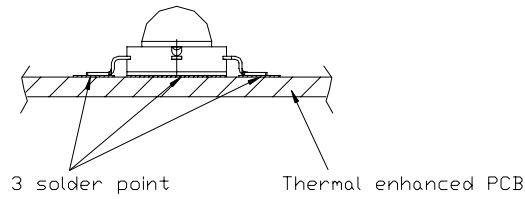


3. Amber, Red

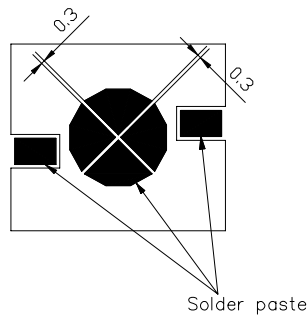


Recommended Soldering

1. Solder pad



2. Solder paste pattern



1. Paste thickness : 0.2mm

Note :

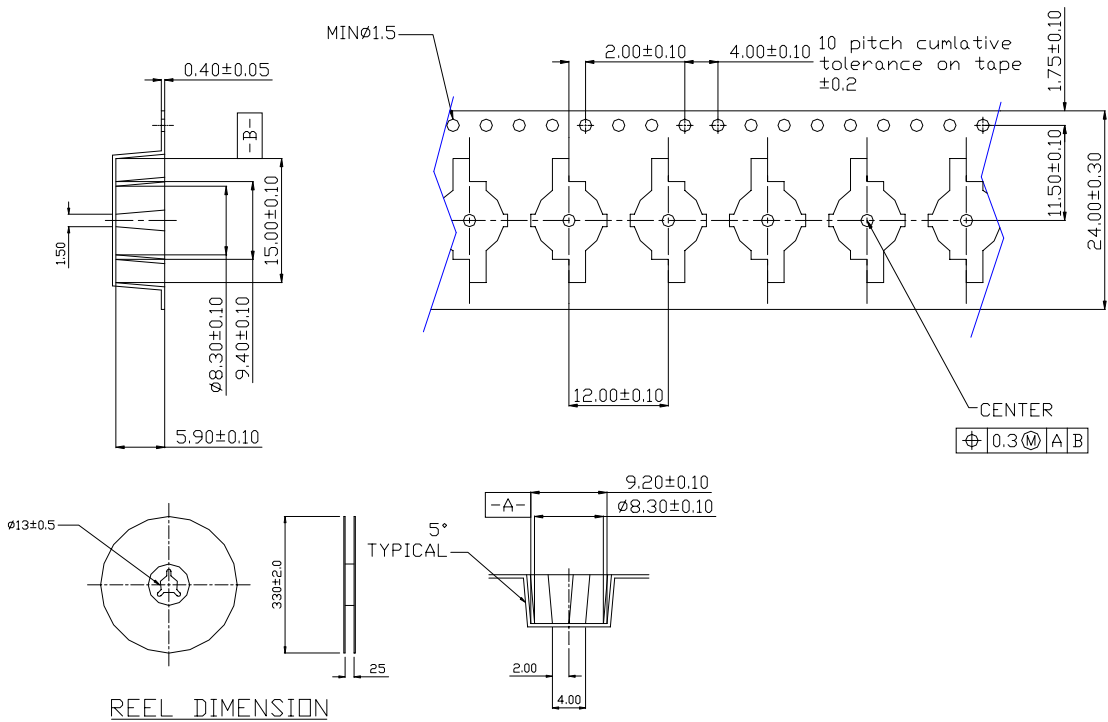
1. All dimensions are in millimeters
2. Scale none
3. This drawing without tolerances are for reference only



Americas
147 Central Avenue
Hackensack, NJ 07601
(201) 489-8989
www.cml-it.com

Europe
Robert Bunsen Str. 1
D-67098 Bad Durkheim
+49 (6322) 9567-0
www.cml-it.com

Emitter Reel Packaging



Note :

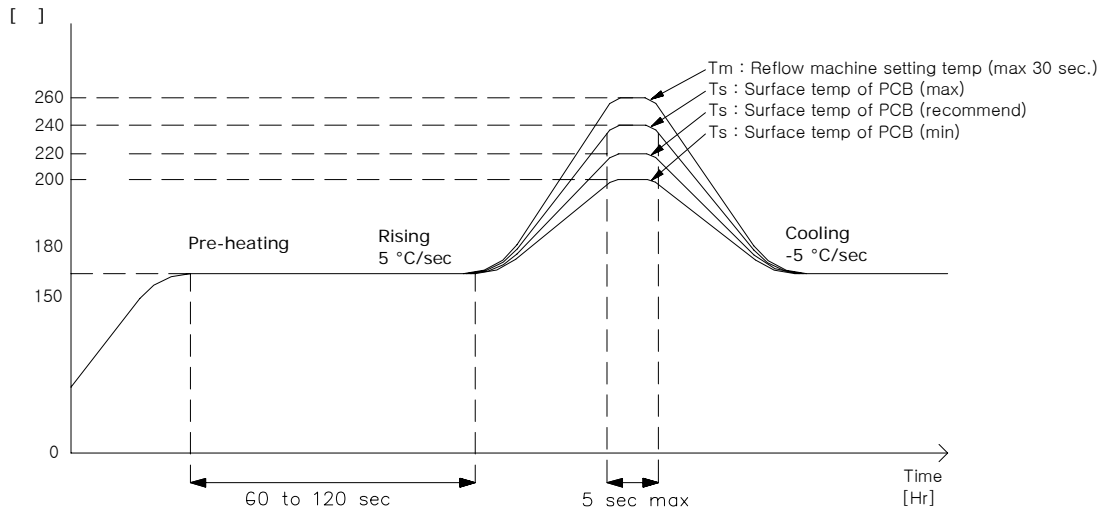
1. The number of loaded products in the reel is 250ea
2. All dimensions are in millimeters
3. Scale none
4. This drawing without tolerances are for reference only



Americas
147 Central Avenue
Hackensack, NJ 07601
(201) 489-8989
www.cml-it.com

Europe
Robert Bunsen Str. 1
D-67098 Bad Durkheim
+49 (6322) 9567-0
www.cml-it.com

1. Reflow Soldering Conditions / Profile



2. Hand Soldering conditions

Lead : Not more than 3 seconds @MAX280°C
Slug : Use a thermal-adhesives

* Caution

1. Reflow soldering should not be done more than one time.
2. Repairing should not be done after the LEDs have been soldered. When repairing is unavoidable, suitable tools have to be used.
3. Die slug is to be soldered.
4. When soldering, do not put stress on the LEDs during heating.
5. After soldering, do not warp the circuit board.
6. Recommend to use a convection type reflow machine with 7 ~ 8 zones.