CML INNOVATIVE TECHNOLOGIES, INC.
WHERE INNOVATION COMES TO LIGHT

Americas
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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 characteristic 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 solution, 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

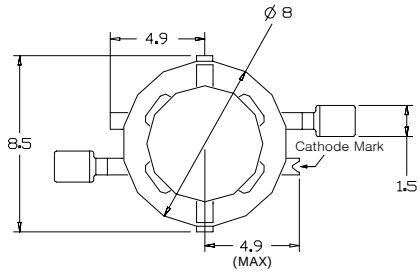
Application

- 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

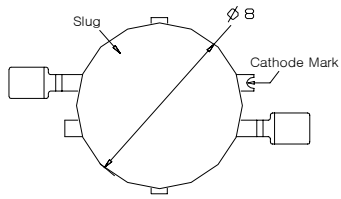
Outline Dimensions

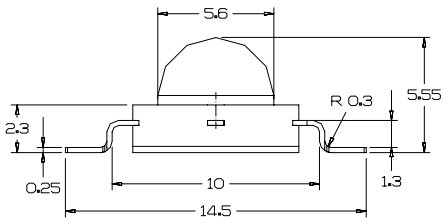
1. Dome Type

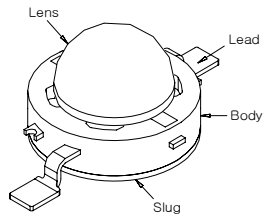
TOP VIEW



BOTTOM VIEW







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.

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

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 (ºC /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=25ºC)

P/N	Description	Forward Current (A)	Power Dissipation (Watts)	Junction Temperature (ºC)	Operating Temperature (ºC)	Storage Temperature (ºC)
	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:**

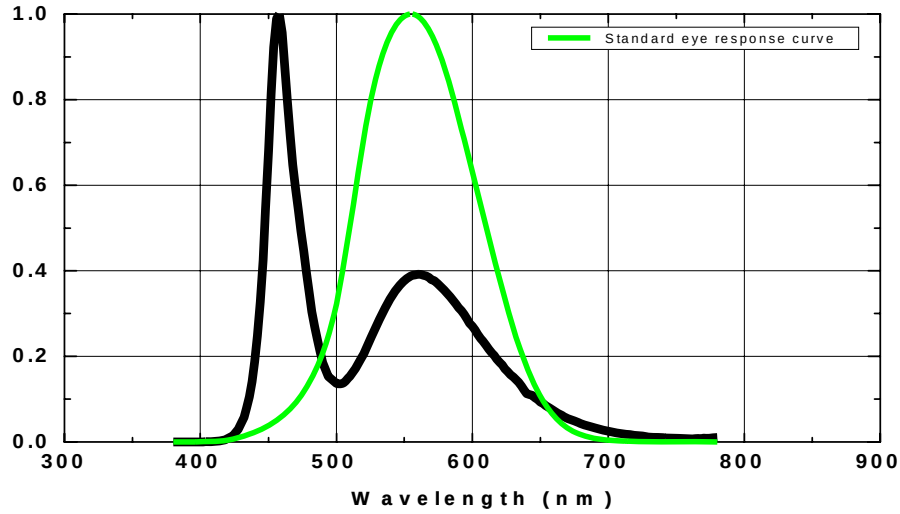
[1] ΦV is the total luminous flux output as measured with an integrating sphere.
[2] Zener diode chip included to protect the LED from ESD.
[3] Rθ is measured with a metal core PCB (25 ºC ≤TJ ≤ 125 ºC).
[4] CML maintains a tolerance of ± 10% on flux and power measurements.
[5] CCT ± 5% tester tolerance.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

----------Caution----------

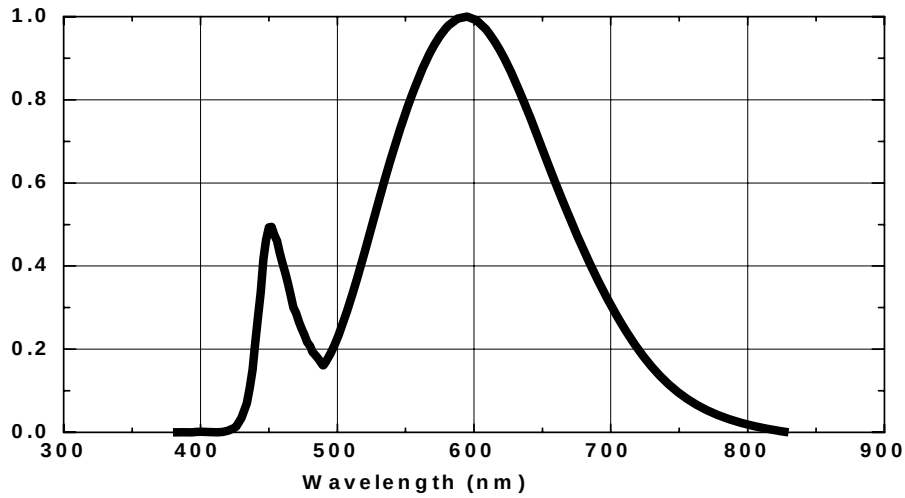
Please do not drive at rated current more than 5 sec. without proper heat sink

White color spectrum, T_A=25°C

1. Pure White



2. Warm White

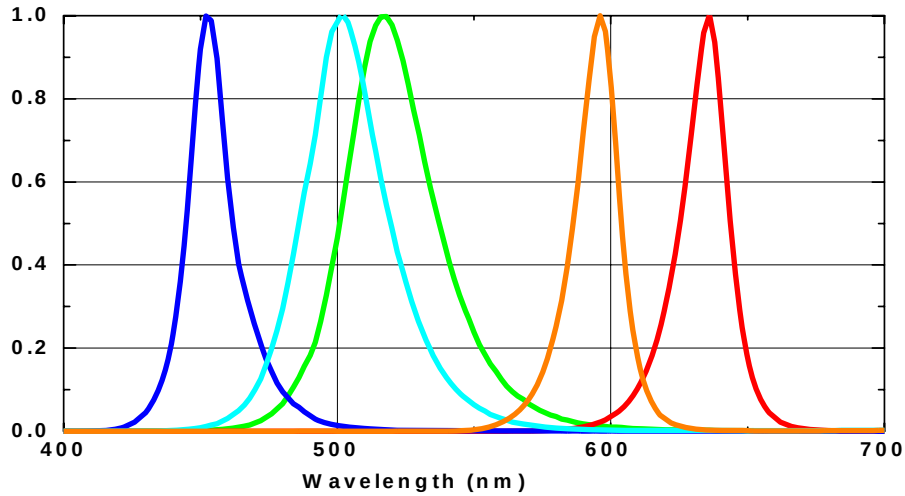


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3. Blue, Cyan, Green, Amber, Red



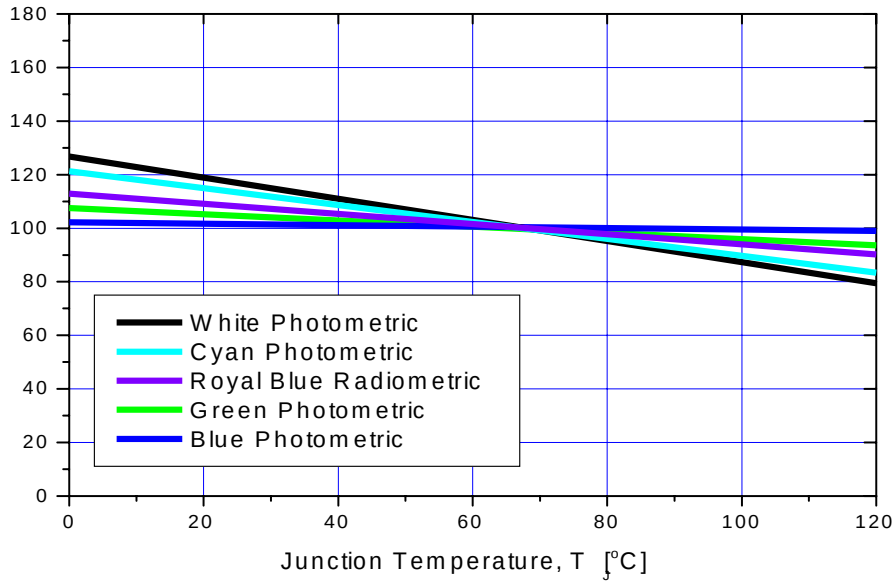
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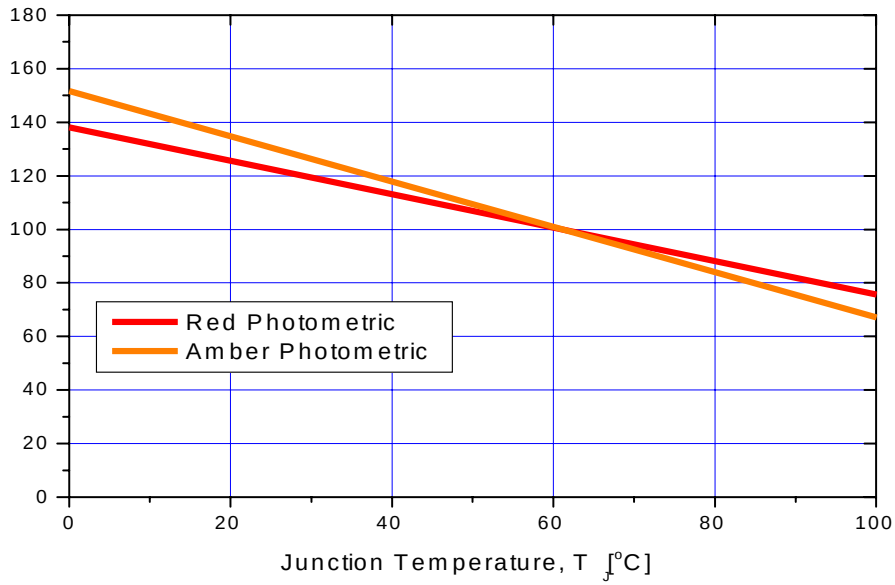
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Light Output Characteristics

1. Relative Light Output vs. Junction Temperature at I_F=700mA, T_A=25℃





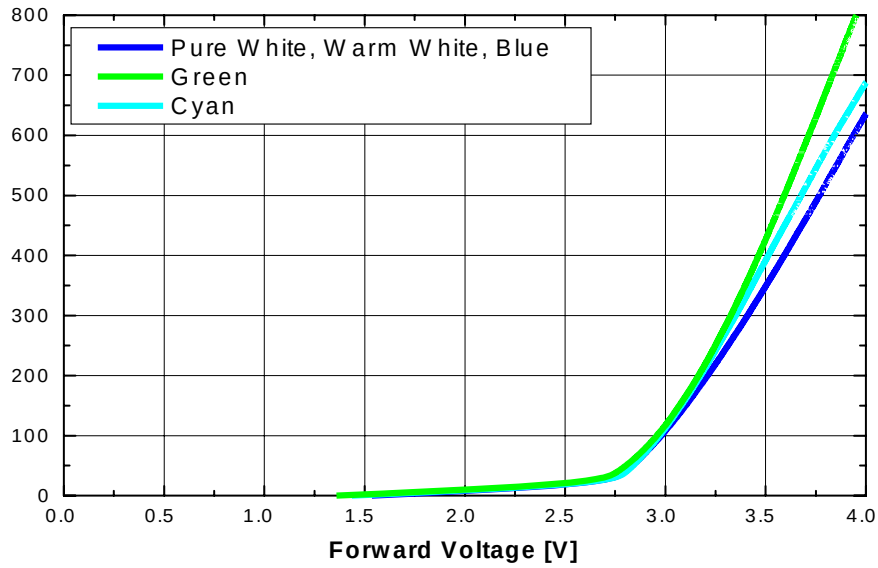
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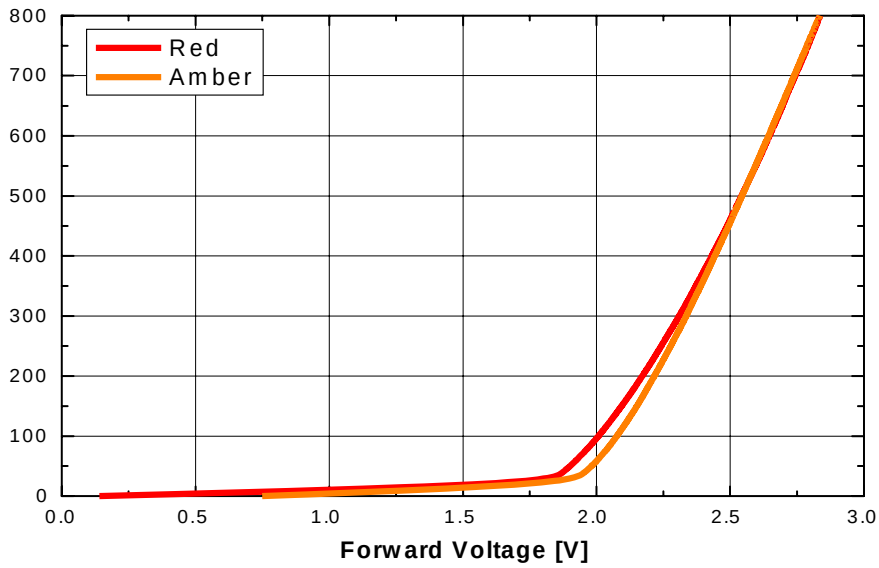
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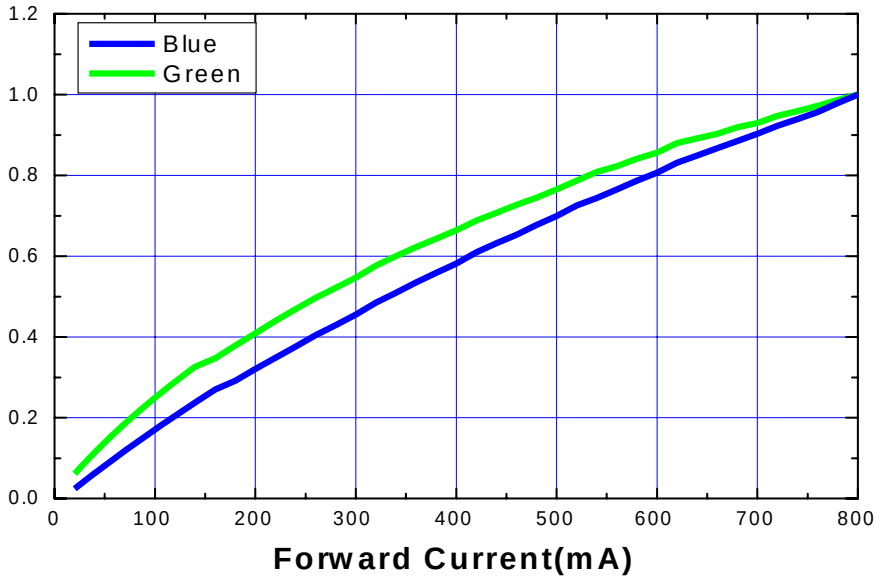
Forward Current Characteristics

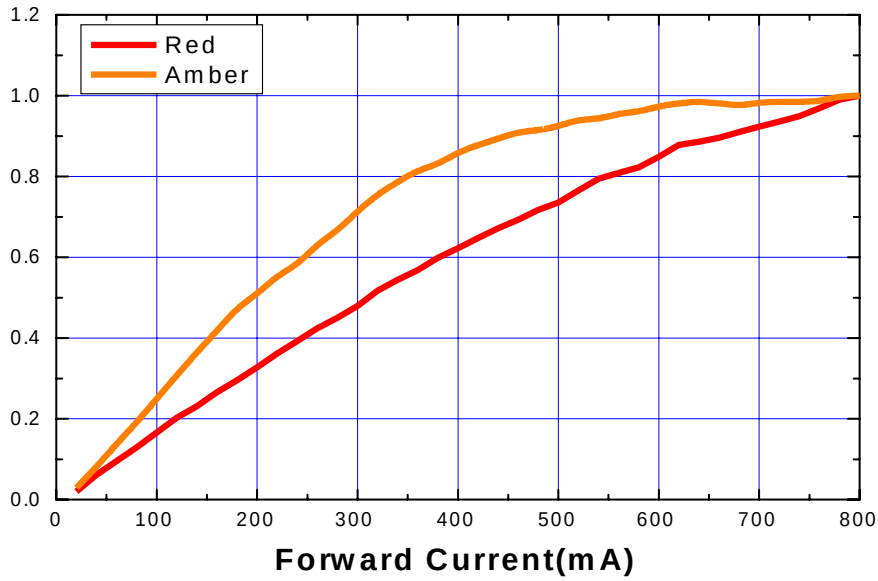
1. Forward Voltage vs. Forward Current, T_A=25℃





2. Forward Current vs. Normalized Relative Luminous Flux, T_A=25℃





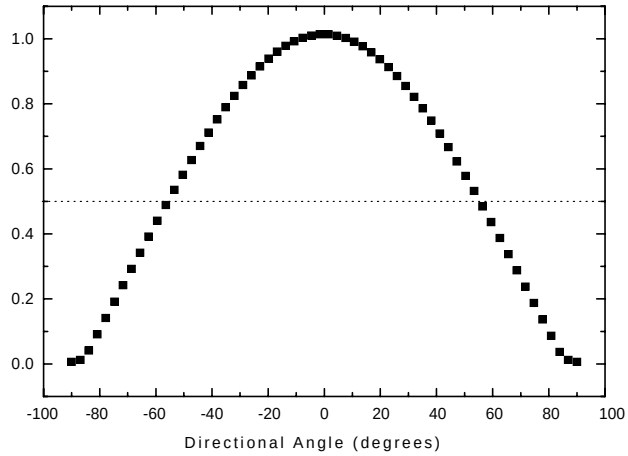
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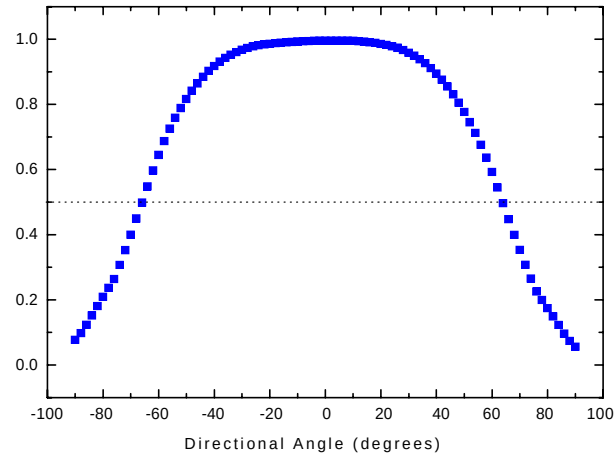
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Typical Dome Type Radiation pattern

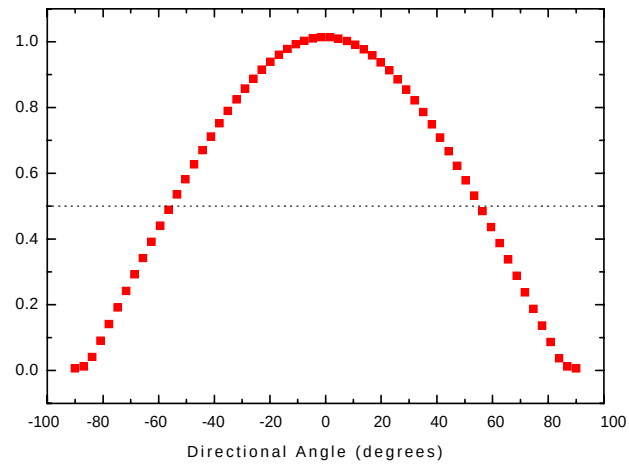
1. Pure White, Warm White



2. Royal Blue, Blue, Cyan, Green



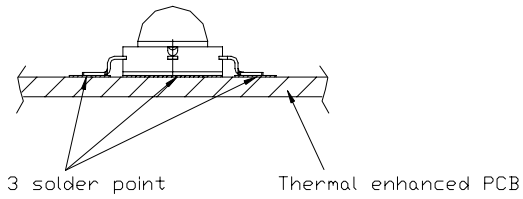
3. Amber, Red

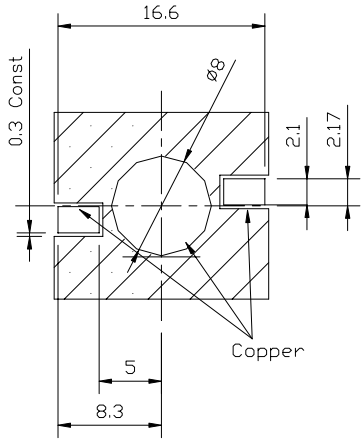


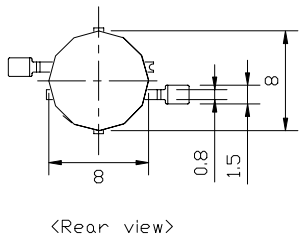
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Recommended Soldering

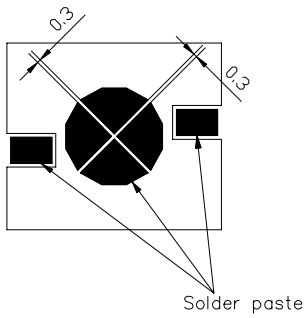
1. Solder pad







2. Solder paste pattern



1. Paste thickness : 0.2mm

Note :

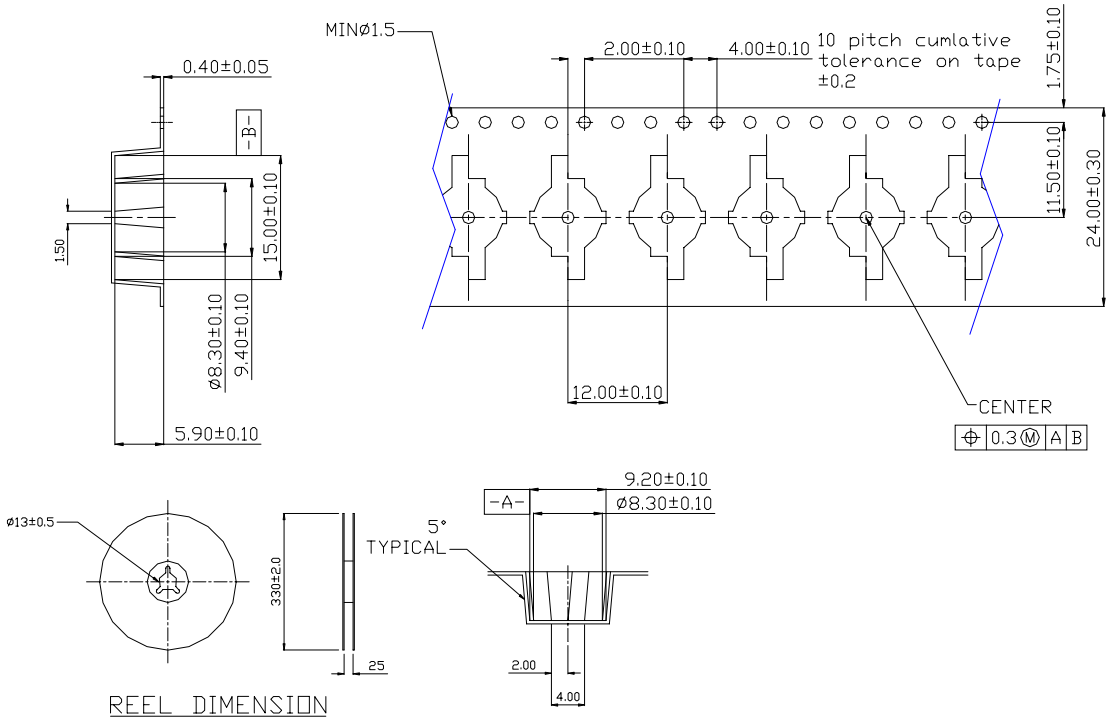
1. All dimensions are in millimeters
2. Scale none
3. This drawing without tolerances are for reference only

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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

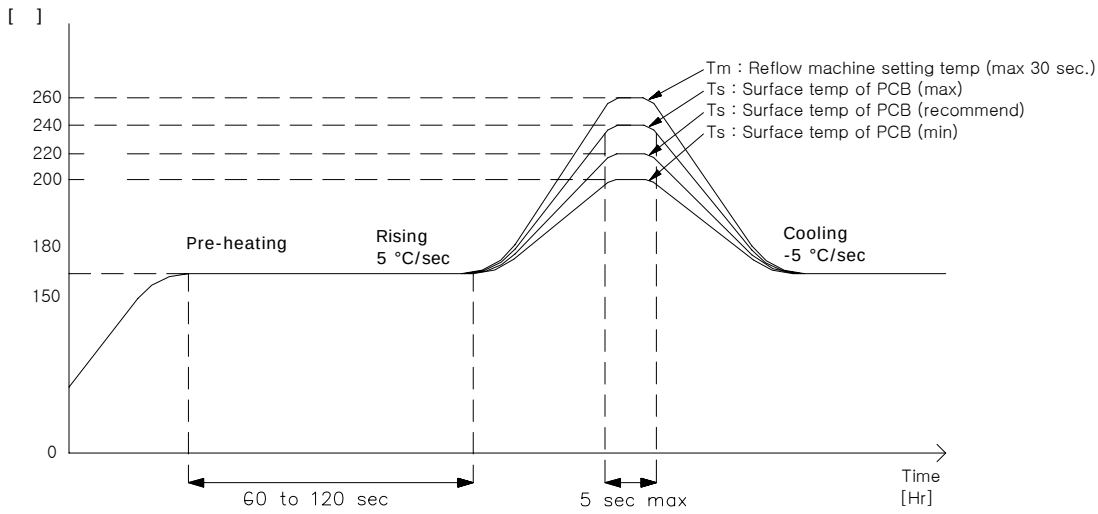
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Soldering profile, T_A=25°C

1. Reflow Soldering Conditions / Profile



2. Hand Soldering conditions

Lead : Not more than 3 seconds @MAX280℃
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.**