

# SMD 2835 1 W (6V) Data Sheet

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**India's first LED Chip – Complying International Quality and Lighting Standards.**

## **Description:**

Indo Japan's SMD LED 2835 series products use high quality silica gel packages, which improves the heat dissipation, thus enhancing the performance and reliability of LED Chips.

SMD LED 2835 series has low power consumption, high CRI, wide beam angle, long product life, which makes this series suitable for all forms of lighting applications.

## **Features:**

- RoHS & CE Compliant
- Pb free
- Size : 2.8mm x 3.5mm x 0.65mm
- Viewing Angle : 120°
- White LED 2835
- High Lumen Output
- Low Power Consumption

## **Applications:**

- General Lighting
- Automotive Lighting
- Decorative Lighting
- Indicator Lighting
- Switch Lighting

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## Absolute Maximum Ratings ( $T_{\text{Soldering}} / T_a = 25^{\circ}\text{C}$ )

Parameters	Symbol	Rating	Unit
Forward Current	$I_f$	180	mA
Peak Forward Current (Duty 1/10 @10ms)	$I_{fp}$	300	mA
Power Dissipation	$P_d$	1360	mW
Operating Temperature	$T_{opr}$	-40 ~ +85	$^{\circ}\text{C}$
Storage Temperature	$T_{stg}$	-40 ~ +100	$^{\circ}\text{C}$
Thermal Resistance (Junction / Soldering point)	$R_{th\ J-S}$	21	$^{\circ}\text{C}/\text{W}$
Junction Temperature	$T_j$	125	$^{\circ}\text{C}$
Soldering Temperature	$T_{sol}$	Reflow Soldering : 260 $^{\circ}\text{C}$ for 10 sec. Hand Soldering : 350 $^{\circ}\text{C}$ for 3 sec.	

Note:

1. The products are sensitive to static electricity and must be carefully taken when handling products.

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Luminous Flux	$\Phi$	100	----	140	lm	$I_f = 150\text{mA}$
Forward Voltage	$V_F$	5.6	----	6.8	V	$I_f = 150\text{mA}$
CRI	Ra	70	----	90		$I_f = 150\text{mA}$
Viewing Angle	2 $\theta$ 1/2	----	120	----	deg	$I_f = 150\text{mA}$
Reverse Current	$I_R$	----	----	50	$\mu\text{A}$	$V_r = 5\text{V}$

Notes:

1. Tolerance of Luminous flux:  $\pm 11\%$ .
2. Tolerance of Forward Voltage:  $\pm 0.1\text{V}$ .
3. Tolerance of Colour Rendering Index:  $\pm 2$

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Luminous Flux	Bin Code
115 – 125 lm	L11
125 – 135 lm	L12
135 – 145 lm	L13

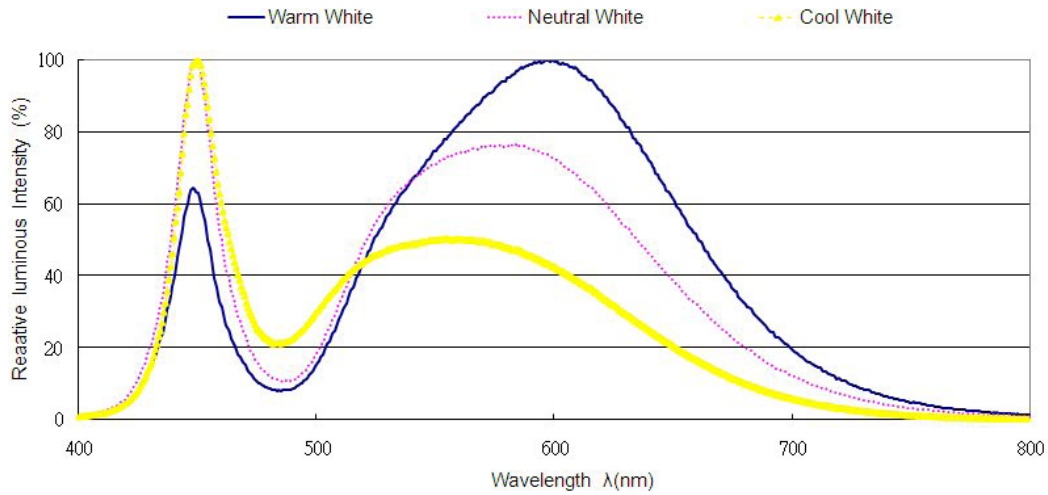
Voltage	Bin Code
6.1 – 6.6	V6

Bin Code	Lumens	Voltage	CCT
L11V6A1	115 – 125 lm	8.4 – 8.9V	2700 – 3000K
L11V6A2	115 – 125 lm	8.4 – 8.9V	3000 – 3300K
L12V6A1	125 – 135 lm	8.4 – 8.9V	2700 – 3000K
L12V6A2	125 – 135 lm	8.4 – 8.9V	3000 – 3300K
L12V6B1	125 – 135 lm	8.4 – 8.9V	3900 – 4200K
L12V6B2	125 – 135 lm	8.4 – 8.9V	4200 – 4500K
L12V6C1	125 – 135 lm	8.4 – 8.9V	5800 – 6200K
L12V6C2	125 – 135 lm	8.4 – 8.9V	6200 – 6600K
L12V6C3	125 – 135 lm	8.4 – 8.9V	6600 – 7000K
L13V6C1	135 – 145 lm	8.4 – 9.4V	5800 – 6200K
L13V6C2	135 – 145 lm	8.4 – 9.4V	6200 – 6600K
L13V6C3	135 – 145 lm	8.4 – 9.4V	6600 – 7000K

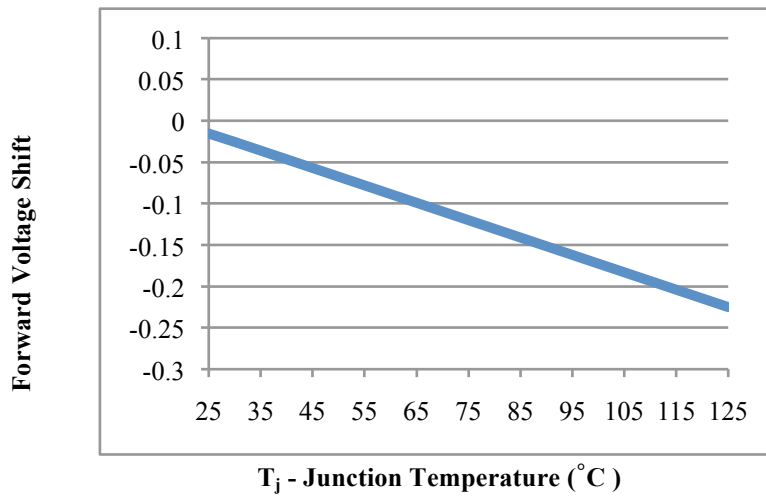
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## Spectrum Distribution



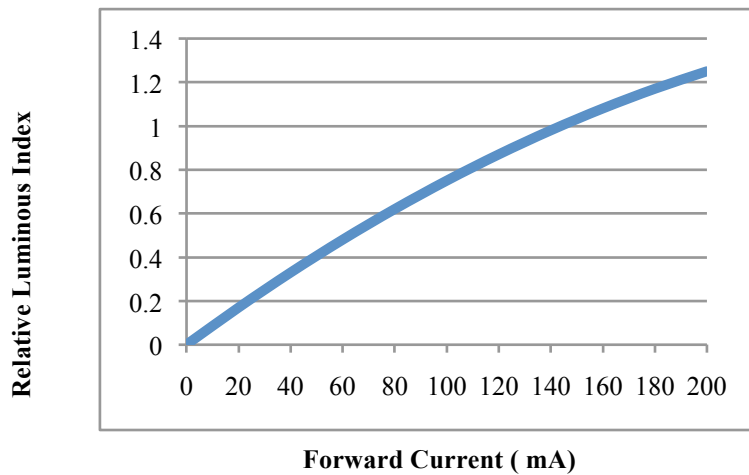
## Forward Voltage Shift vs Junction Temperature



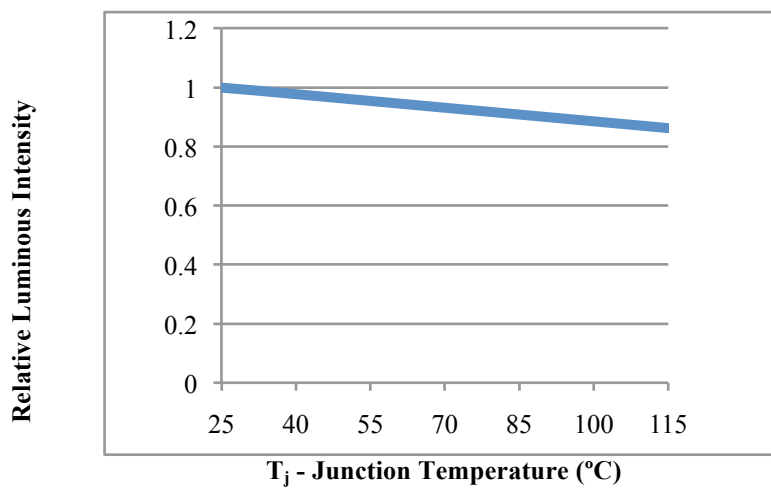
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## Relative Luminous Intensity vs Forward Current



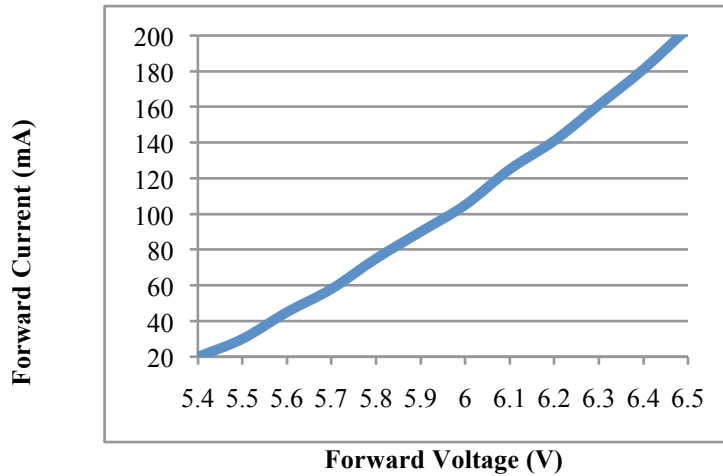
## Relative Luminous Intensity vs Junction Temperature



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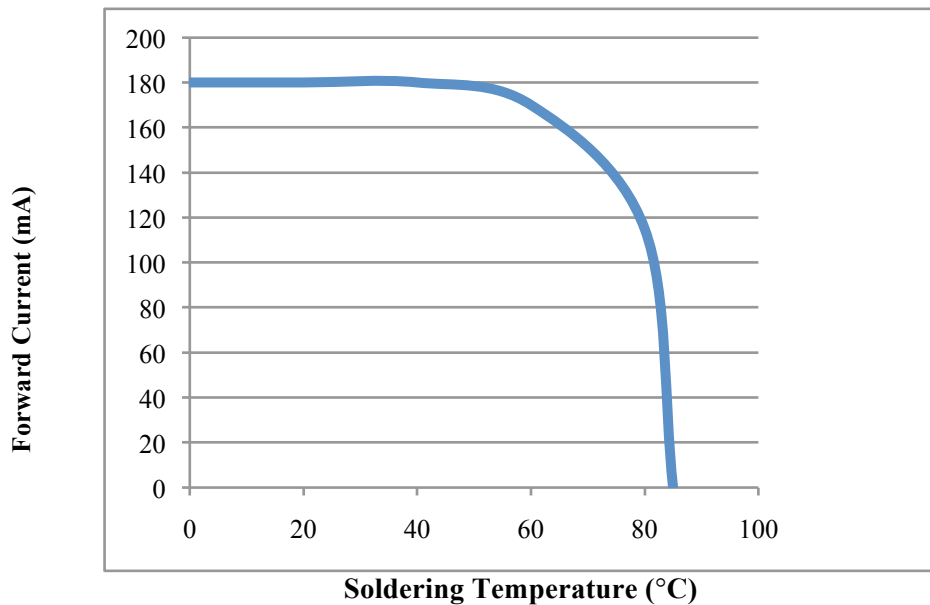


## Forward Current vs. Forward Voltage



## Max Driving Forward Current vs Soldering Temperature

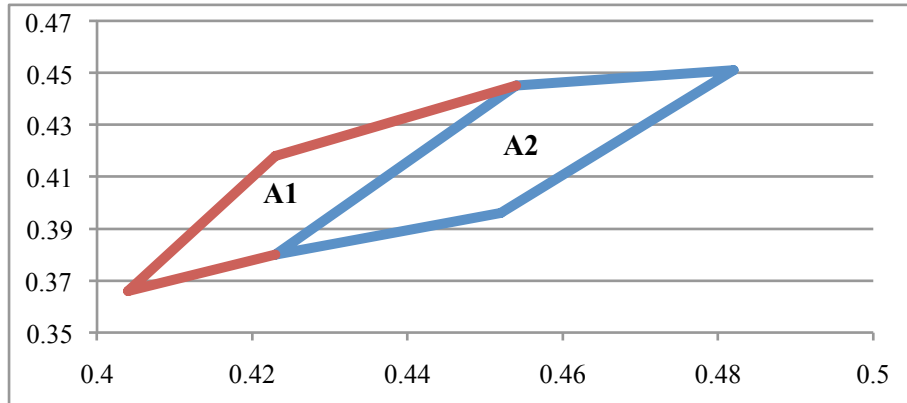
$R_{th\ j-S=15}$  °C/W



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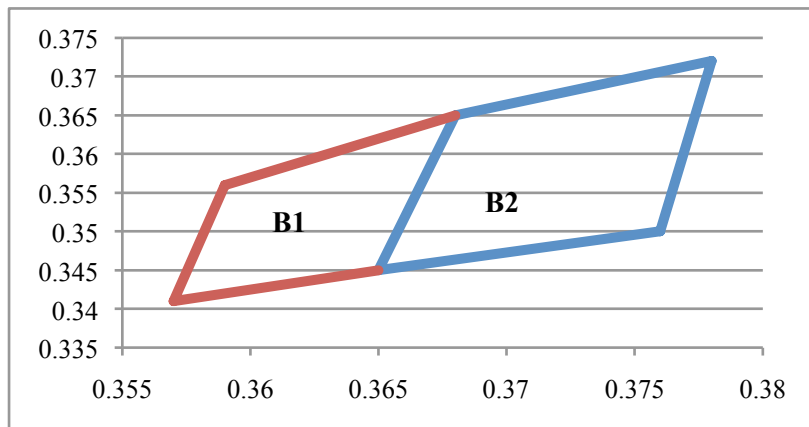


## CCT – BIN FOR WARM WHITE LIGHT



<b>BIN A 1</b>	<b>2700 – 3000K</b>
<b>BIN A 2</b>	<b>3000 – 3300K</b>
<b>BIN A 3</b>	<b>3300 – 3600K</b>
<b>BIN A 4</b>	<b>3600 – 3900K</b>

## CCT – BIN FOR NATURAL WHITE

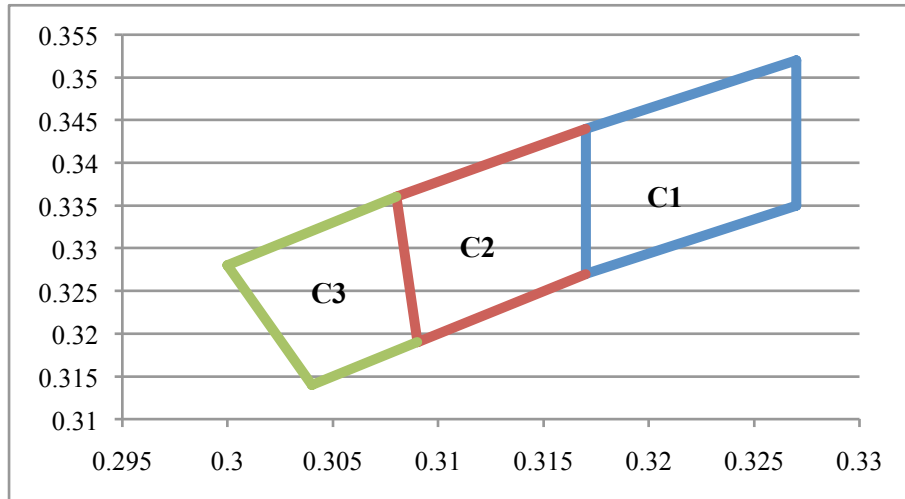


<b>BIN B 1</b>	<b>3900 – 4200K</b>
<b>BIN B 2</b>	<b>4200 – 4500K</b>
<b>BIN B 3</b>	<b>4500 – 4800K</b>
<b>BIN B 4</b>	<b>4800 – 5300K</b>
<b>BIN B 5</b>	<b>5300 – 5800K</b>

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## CCT – BIN FOR COOL WHITE



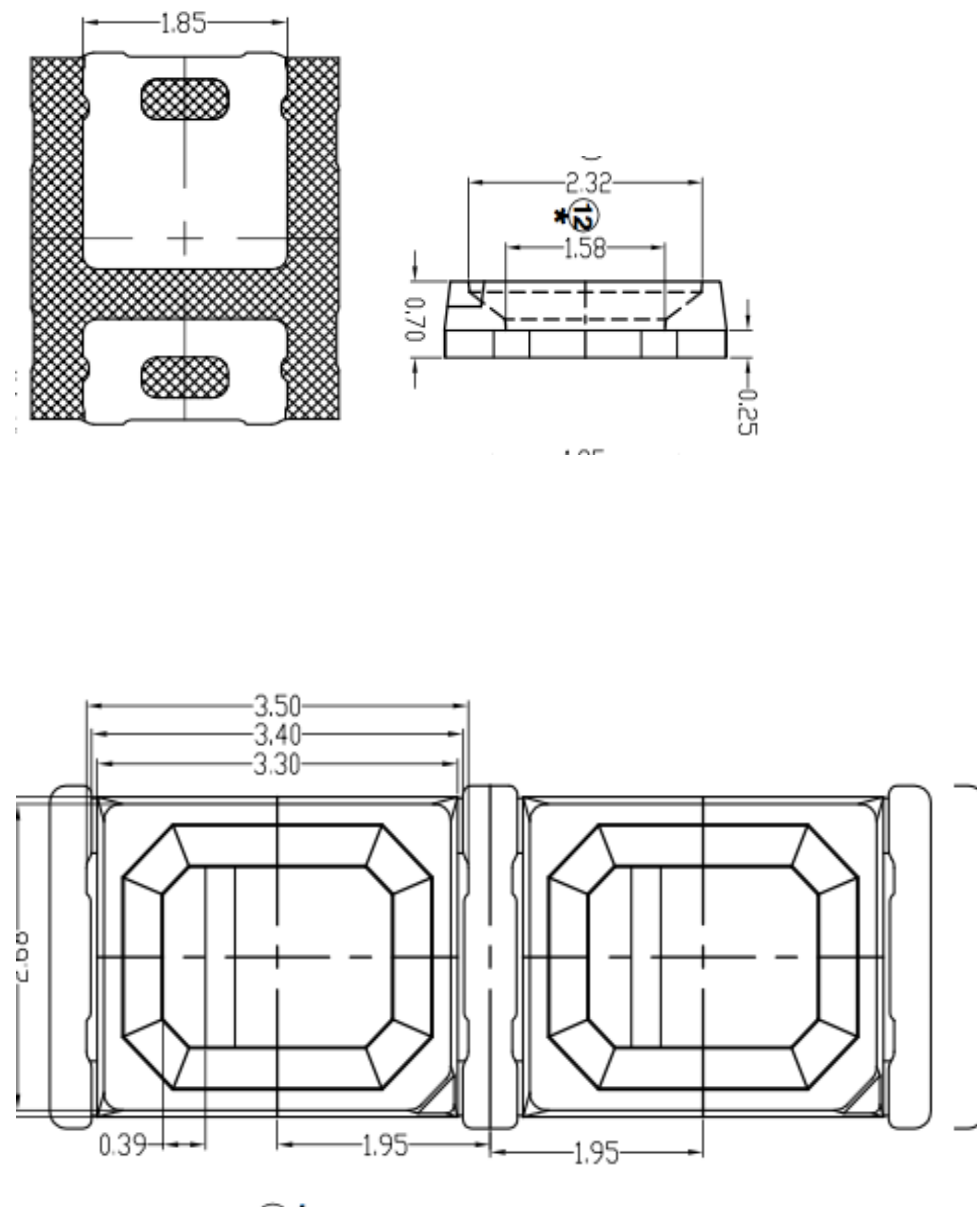
<b>BIN C 1</b>	<b>5800 – 6200K</b>
<b>BIN C 2</b>	<b>6200 – 6600K</b>
<b>BIN C 3</b>	<b>6600 – 7000K</b>
<b>BIN C 4</b>	<b>7000 – 7500K</b>



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## Package Dimension



Note:

Tolerance unless mentioned is  $\pm 0.15$  mm; Unit = mm

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## Reel Dimensions



Note:

Tolerances unless mentioned  $\pm 0.1$  mm. Unit = mm

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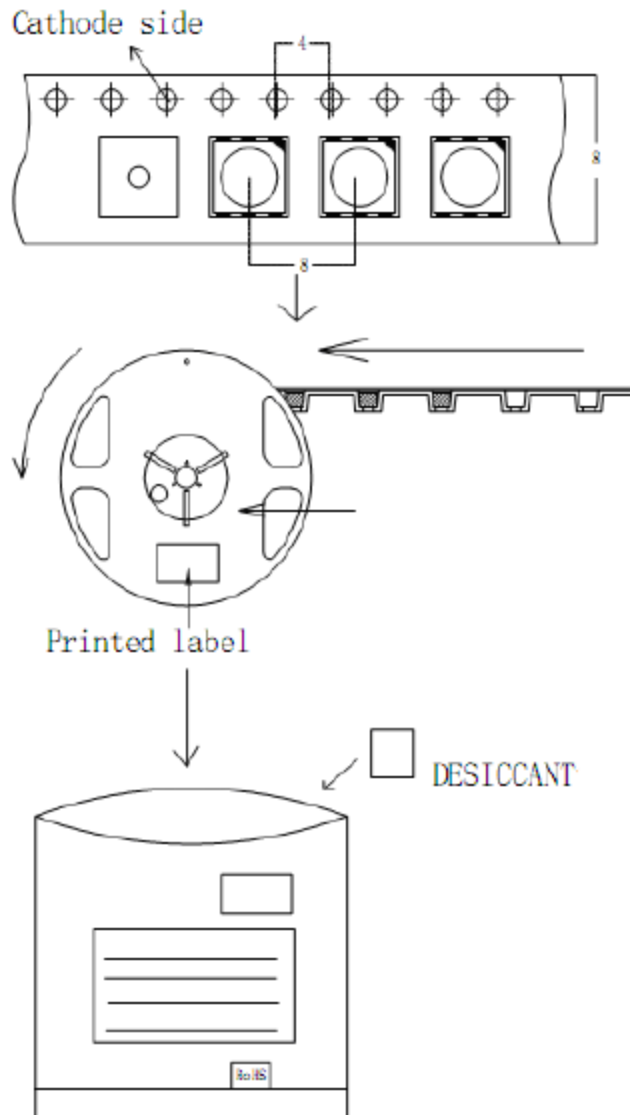
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## Moisture Resistant Packing Process



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## Notes for Reflow Soldering

- Reflow soldering should not be done more than twice.
- To ensure the reliability, quality and high performance the LED's have been encapsulated with silica gel. It not recommended to put any kind of pressure on the Chip.
- Use of high precision nozzles to avoid any sort of damage to Chips is recommended
- Use of anti-static apparels while operating on LED Chips is recommended
- Ensure high quality earthing/ground wiring.

## Notes for Hand Soldering

- Hand Soldering Parameters - 300°C for not more than 3 seconds
- Hand Soldering shouldn't be done more than once.
- Avoid using sharp objects for compressing LEDs
- Use of anti-static apparels while operating on LED Chips is recommended

## Storage

### Before opening vacuum packing

- LEDs can be stored for one year under temperature and humidity not exceeding 30°C and 60% RH.

### After opening vacuum packing

- The LED's floor life is 168 Hrs under 30°C or less and 60% RH or less. Unused LEDs should be stored in moisture proof packages.