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# Helinova Series

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solution ultra high power LED applications. With high luminous flux, ultra high power handling capability and excellent thermal management, Helinova emitter enables you to make the general lighting possible.

Based on ceramic with low thermal resistance, Helinova emitter provides a breakthrough

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## Features

- | LED light engine
- | High power operation
- | Long life operation
- | Superior thermal performance

## Application

- | Decorative lighting
- | Architectural lighting
- | General lighting



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# Product Nomenclature

HC HP - E 5 L W  
 X1 X2 X3 X4 X5 X6

X1 LED Item		X2 Power Classification		X3 Module		X4 Power	
Code	Type	Code	Type	Code	Type	Code	Type
HC	Ceramic	HP	High Power	E	Emitter	5	5W
				S	Star		

X5 Lens Item		X6 Color	
Code	Type	Code	Type
L	Lambertian	W	White
		V	Warm White

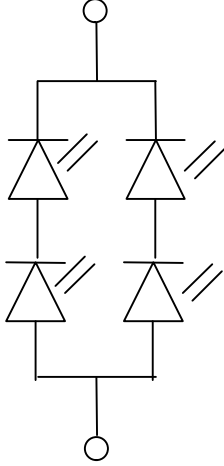
## Part Number Matrix of HELINOVA™-SM

Color	Part Number	Radiation Pattern
White	HCHP-E5LW HCHP-S5LW	Lambertian
Warm White	HCHP-E5LV HCHP-S5LV	

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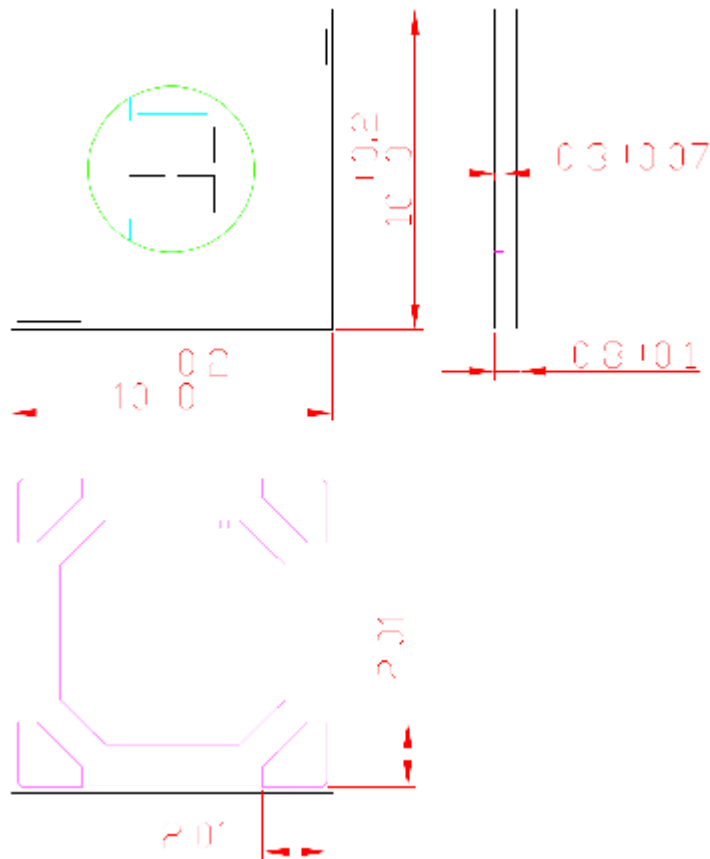
## Circuit Diagram

Color	Part Number	Circuit Diagram
White	HCHP-E5LW HCHP-S5LW	
Warm White	HCHP-E5LV HCHP-S5LV	

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# Package Dimensions

## SMT Form



### Note:

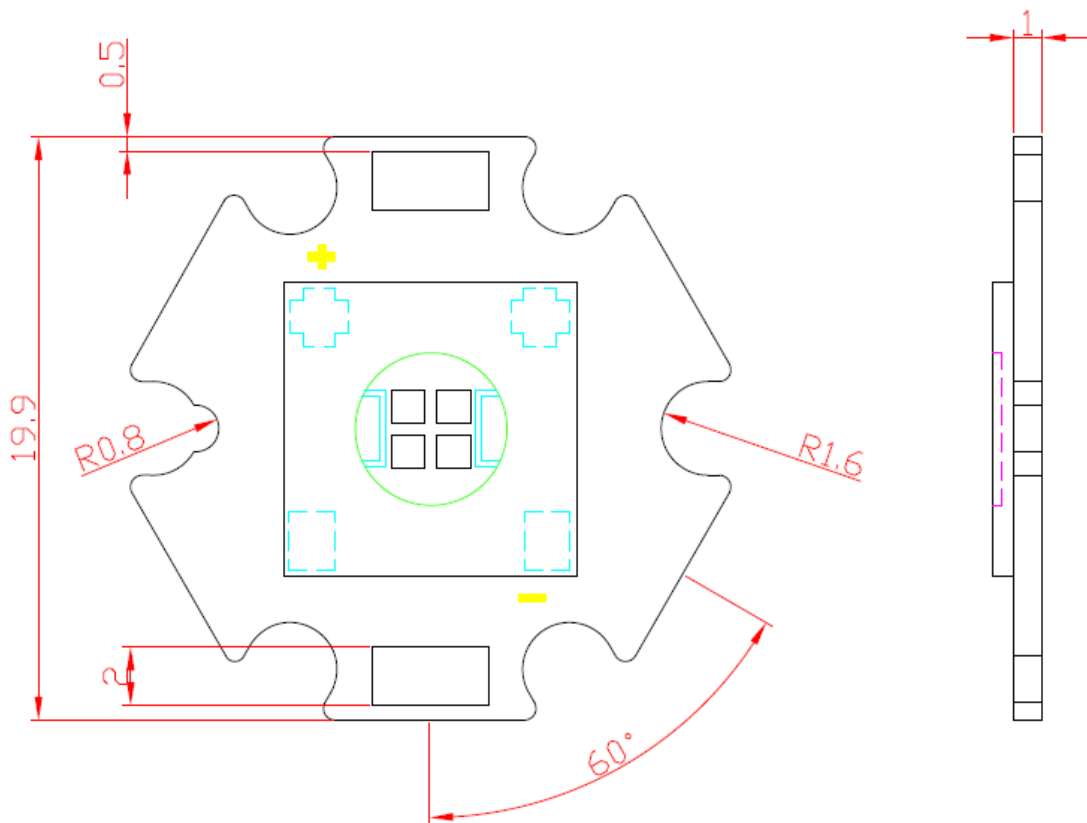
1. Drawings are not to scale.
2. All dimensions are all in millimeter.
3. All dimensions without tolerance are for reference only.
4. Specifications are subject to change without notice.

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# Package Dimensions

## Star MCPCB Form



### Note:

1. Slots in aluminum-core PCB for M3 mounting screw.
2. Electrical interconnection pads labeled on the aluminum-PCB with “+” and “-“ to denote positive and negative, respectively.
3. Drawings are not to scale.
4. All dimensions are in millimeters.

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## Characteristics for Helinova emitter

### HCHP-E5LW

Characteristics at  $I_F = 700\text{mA}$  ( $T_a=25^\circ\text{C}$ ):

Parameter	Symbol	Value			Unit
		Min	Typical	Max	
Luminous flux <sup>(1)</sup>	$\Phi_v^{(2)}$	200	260	--	lm
CRI	$R_a$	--	70	--	
View angle	$2\Theta_{1/2}$	--	<b>120</b>	--	degree
Correlated color temperature <sup>(3)</sup>	CCT	5000	--	5650	K
Forward voltage <sup>(4)</sup>	$V_F$	6.4	--	7.8	V
Power dissipation	$P_D$	4.48	--	5.46	W
Junction temperature	$T_J$	--	--	120	Deg.
Operation temperature	$T_{OP}$	-40~+105			$^\circ\text{C}$
Storage temperature	$T_{ST}$	-40~+120			$^\circ\text{C}$

#### Note:

1. The typical luminous flux of Helixeon will be upgraded per season.
2.  $\Phi_v$ , minimum luminous flux performance guaranteed within published operating conditions. HELIO maintains a tolerance of  $\pm 10\%$  luminous flux measurements.
3. The correlated color temperature of Helixeon is divided into three main bins. In case of customized CCT, this detail information will be discussed in meeting. The tester tolerance of CCT is  $\pm 5\%$ .
4. HELIO maintains a tolerance of  $\pm 0.06\text{V}$  on forward voltage measurements.



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## Characteristics for Helinova emitter

### HCHP-E5LV

Characteristics at  $I_F = 700\text{mA}$  ( $T_a = 25^\circ\text{C}$ ):

Parameter	Symbol	Value			Unit
		Min	Typical	Max	
Luminous flux <sup>(1)</sup>	$\Phi_v$ <sup>(2)</sup>	140	200	--	lm
CRI	$R_a$	--	53	--	
View angle	$2\theta_{1/2}$	--	<b>120</b>	--	degree
Correlated color temperature <sup>(3)</sup>	CCT	2850	--	3250	K
Forward voltage <sup>(4)</sup>	$V_F$	6.4	--	7.8	V
Power dissipation	$P_D$	4.48	--	5.46	W
Junction temperature	$T_J$	--	--	120	Deg.
Operation temperature	$T_{OP}$	-40~+105			$^\circ\text{C}$
Storage temperature	$T_{ST}$	-40~+120			$^\circ\text{C}$

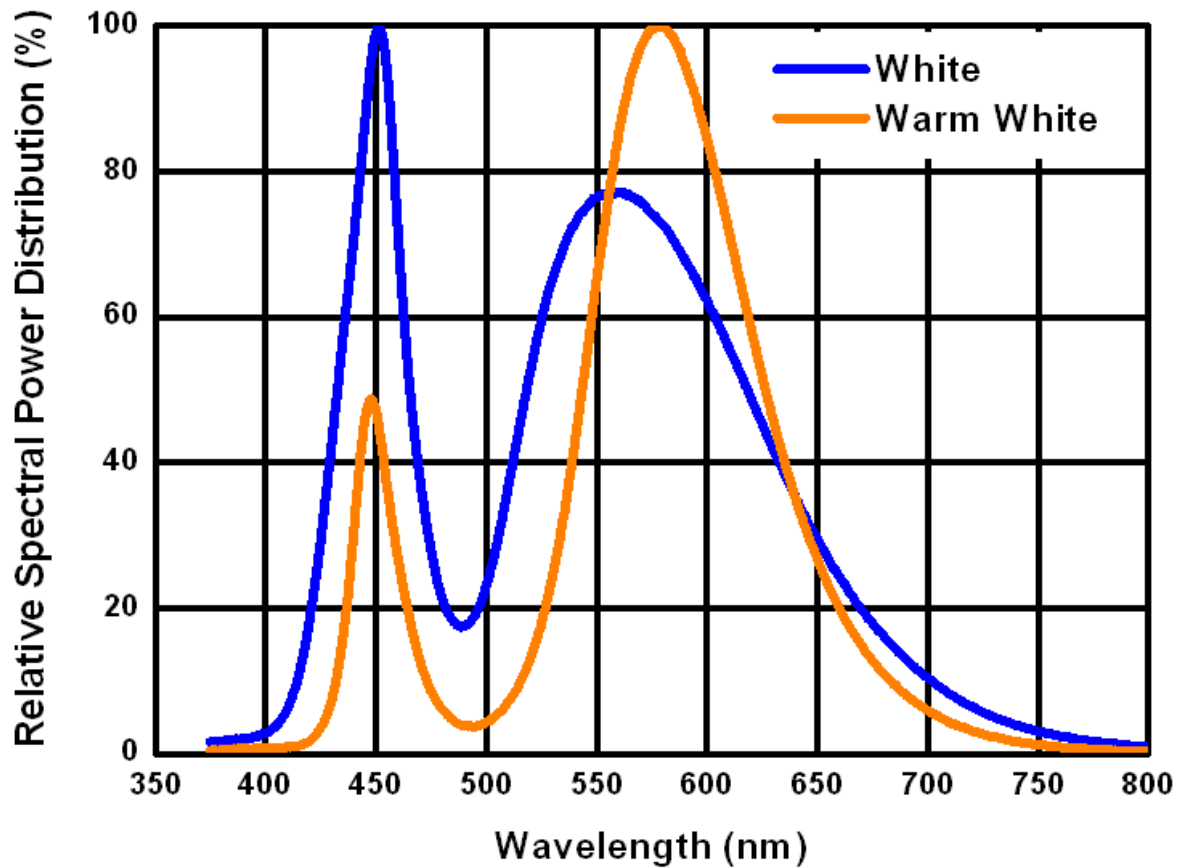
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## Wavelength Characteristics

White and Warm White Color Spectrum of Typical CCT, Junction Temperature at 25°C



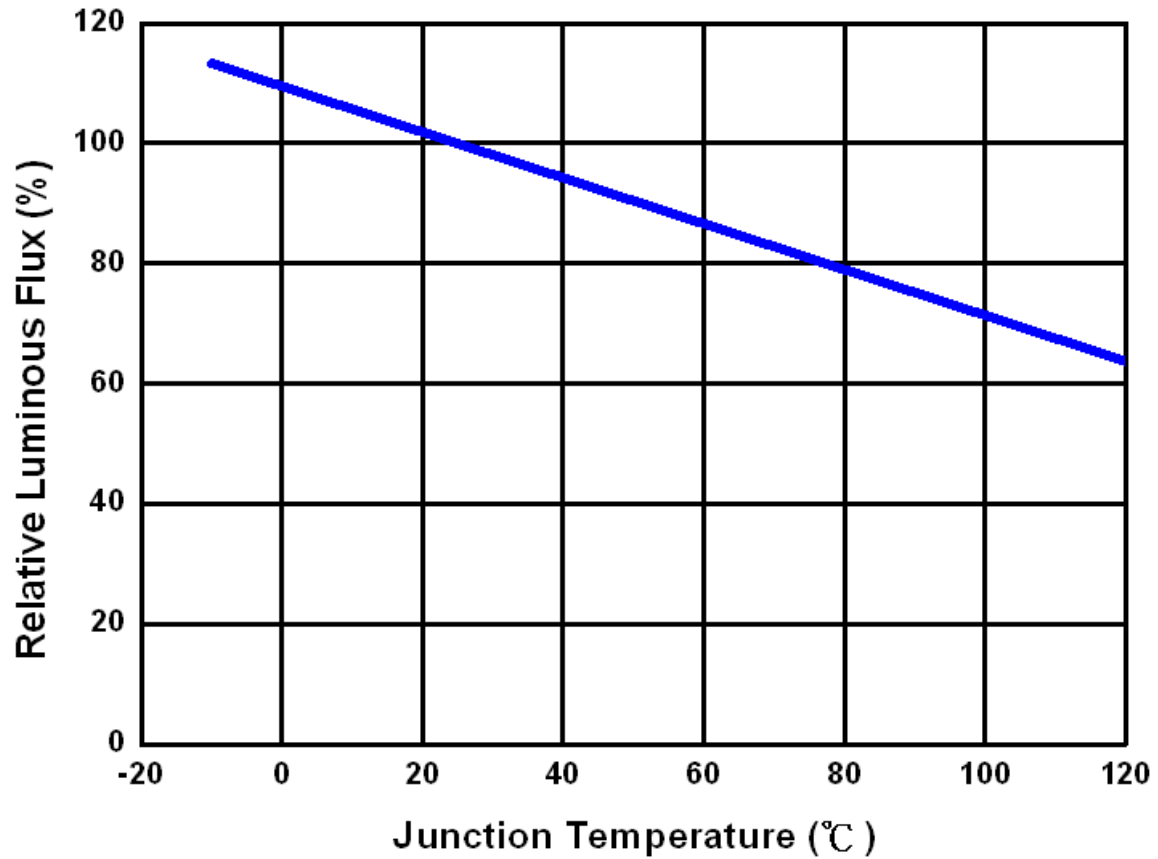
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## Typical Light Output Characteristics over Temperature

White at Test Current



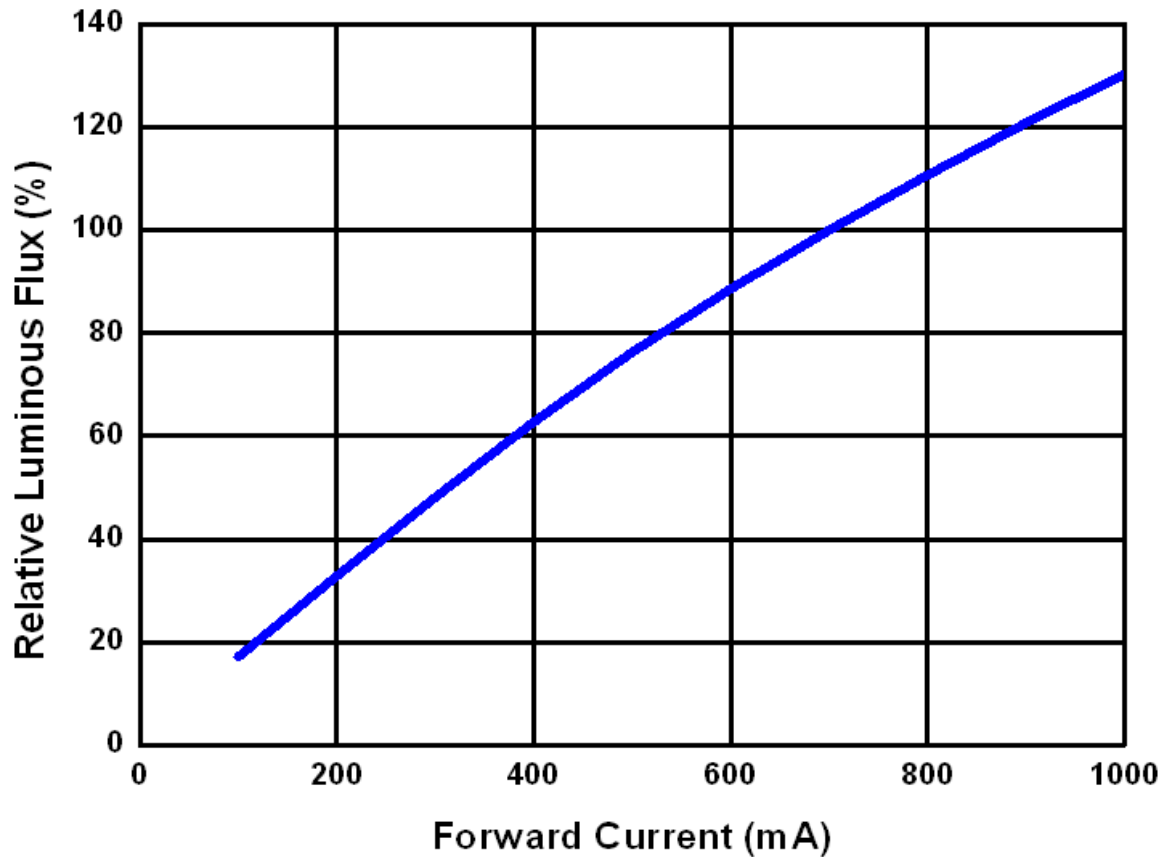
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## Typical Light Output Characteristics over Forward Current

White and Warm White, Junction Temperature at 25°C



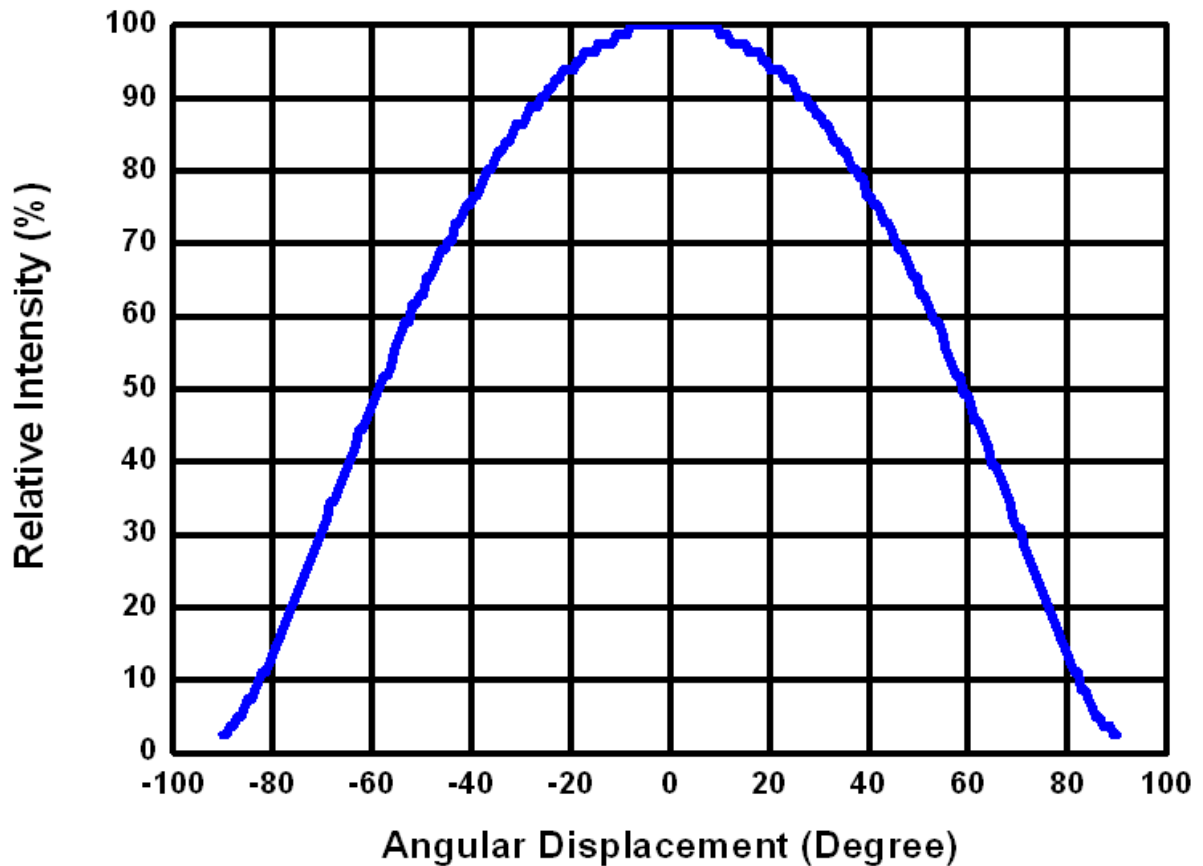
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## Typical Radiation Patterns

Typical Representative Spatial Radiation Pattern for White and Warm White Lambertian



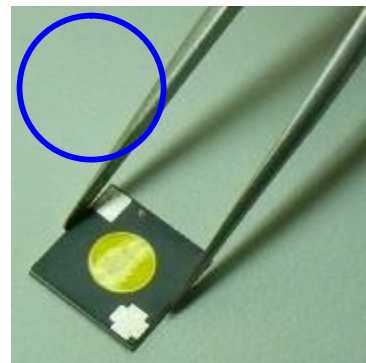
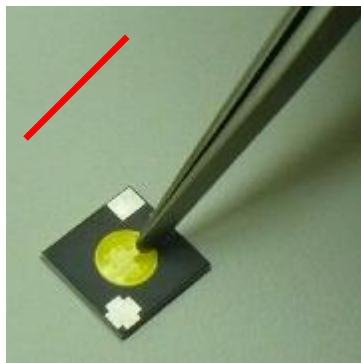
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## Handling Precaution

The softness and dust affinity of silicone constrain the handling of LED. Thus, some handling indications of HELINOVA emitters are presented for possible damage prevention and excellent reliability.

- l Do not use sharp tools to touch the encapsulated silicone resin parts because scratches will influence the brightness and light pattern.
- l The LEDs should only be picked up by making contact with the sides of the LED body.
- l Avoiding dropping LEDs without the MCPCB protection or forcing impact on the ceramic parts.
- l When populating in SMT production, the pick-and-place nozzle pressure on the silicone resin parts should be prevented.



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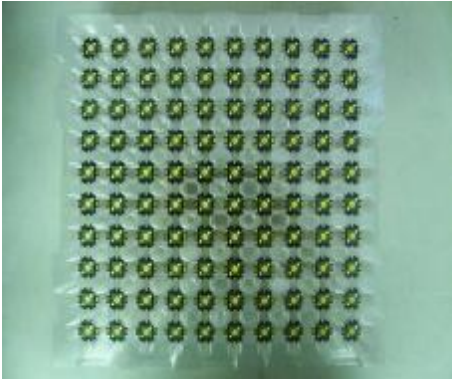
## Reliability Test List

Test Item	Standard Test Method	Test Conditions	Note	Number of Damaged
Resistance to soldering heat (reflow soldering)	JEITA ED-4701 300 301	Ta=260°C, 10sec. (Pre treatment 25°C, 70%, 168hrs.)	2 times	0/10
Solderability (reflow soldering)	JEITA ED-4701 300 303	Tsld=215±5°C, 3sec. (Lead Solder)	1 time over 95%	0/10
Steady state operating life		Ta=25°C, I <sub>F</sub> =700mA Tested with Helio standard circuit board	1000 hrs.	0/10
Steady state operating life of high humidity heat		85°C, RH=85%, I <sub>F</sub> = 700mA Tested with Helio standard circuit board	1000 hrs.	0/10
Temperature cycle	JEITA ED-4701 100 105	-40°C ~ 25°C ~ 100°C ~ 25°C 30min. 5min. 30min. 5min.	100 cycles	0/10
Thermal shock	JEITA ED-4701 300 307	0°C ~ 100°C 15sec. 15sec.	20 cycles	0/10
High temperature storage	JEITA ED-4701 200 201	Ta=100°C	1000 hrs.	0/10
Low temperature storage	JEITA ED-4701 200 202	Ta=-40°C	1000 hrs.	0/10
Vibration		2000 Hz, 2directions	60min.	0/10

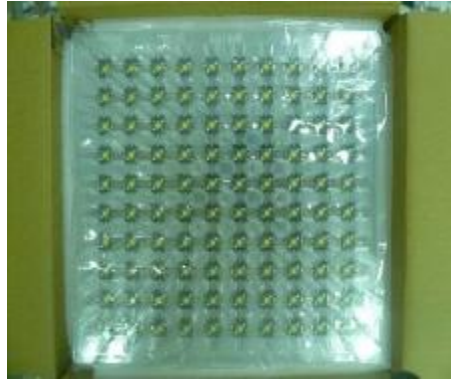
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## Package Specifications



Tray



Antistatic Bag



35mm\*35mm\*47.5mm

Box

### Note:

1. There are 100pcs emitters or stars in a tray.
2. There are 40 trays in an inner box.