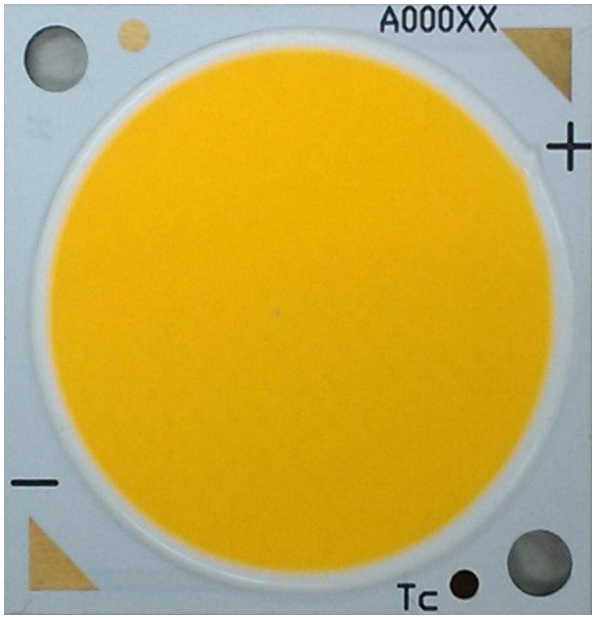
Harvatek High Power LED Datasheet

HT-HT45



Introduction

- The information contained herein is presented only as a guide for the applications of our products. No responsibility is assumed by HARVATEK for any infringements of intellectual property or other rights of the third parties which may result from it use.
- HARVATEK is continually making an effort to improve the quality of its products. Nevertheless, semiconductor devices in general can malfunction or fail due to their inherent electrical sensitivity and vulnerability to physical stress. It is the responsibility of the buyer, when utilizing HARVATEK products, to comply with the standards of safety in making a safe design for the entire system, and to avoid situations in which a malfunction or failure of such HARVATEK products cause loss of human life, bodily injury or damage to property.
- The HARVATEK products listed in this document are intended for usage in general electronics (computer, personal equipment, office equipment, industrial robotics, domestic, etc…) These products are neither intended nor warranted for usage in equipment that requires extraordinarily high quality and/or reliability or a malfunction or failure of which may cause loss of human life or bodily injury.
- In developing your designs, please ensure that HARVATEK products are used within specified operating ranges as set forth in the most recent HARVATEK products specifications.
- Also, please keep in mind of the precautions listed in this document.

Product Specification

	Specification	Material	Quantity
Total Flux	Typical 5225 lm @ 540 mA/Ta = 25°C		
Correlated Color Temperature	Typical 3000 K @ 540 mA/Ta = 25 °C		
V_F	Typical 85 V @ 540 mA/Ta = 25 °C		
I_R	HT standard		
Resin	Warm White	Silicone resin	
Tray	HT standard		
Label	HT standard	Paper	
Carton	HT standard	Paper	Non-specified

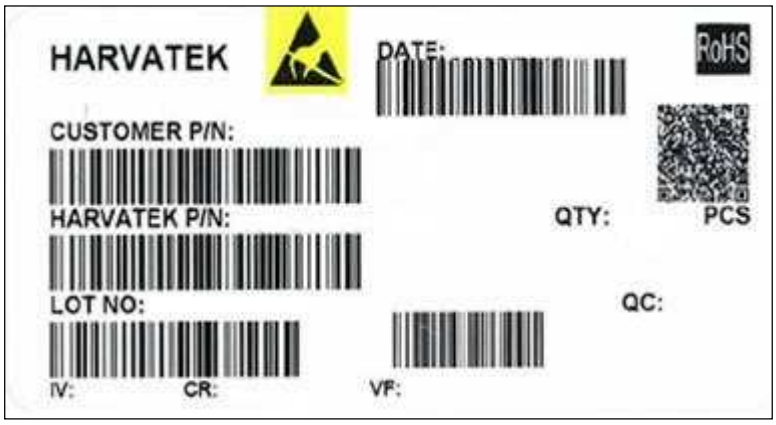
Others:

ATTENTION: Electric Static Discharge (ESD) protection

The symbol shown on the page herein to introduce 'Electro-Optical Characteristics'. ESD protection for GaP and AlGaAs based chips is still necessary even though they are safe in low static-electric discharge. Parts built with AlInGaP, GaN, or/and InGaN based chips are **STATIC SENSITIVE devices**. ESD protection has to considered and taken in the initial design stage.

If manual work/process is needed, please ensure the device is well protected from ESD during all the process.

Label spec.



Description of Model No. and Lot No.

Model No.

H T - H T 4 5

Company	Material	Dice	Package
HT: For Harvatek	H: Aluminum alloy	T: COX	45: 27.35 mm*27.35 mm*1.6 mm, 28S9P

Lot No.

1	2	3	4	5	6	7	8	9	10
E	1	A	1	A	2	2	L	1	2
Code 1 2		Code 3	Code 4	Code 5	Code 6	Code 7	Code 8	Code 9	Code 10
		Mfg. Year	Mfg. Month	Mfg. Date	Consecutive number		Special code		
Internal Tracing Code		2010-A 2011-B 2012-C 2013-D . .	1:Jan. 2:Feb. .... A:Oct. B:Nov. C:Dec.	1:A 2:B 3:C ... 26:Z 27:7 28:8 29:9 30:3 31:4	01~ZZ		000~ZZZ		

Product Feature

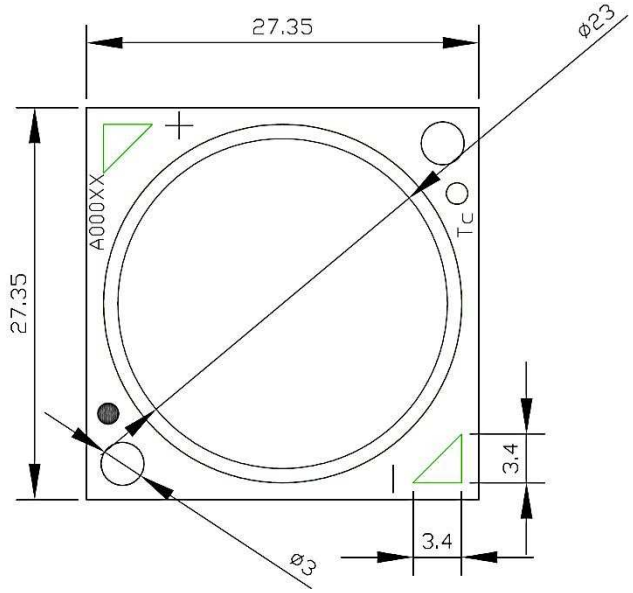
- High efficiency
- Wide view angle
- Easy to be fixed
- No UV
- Long operating time
- High Brightness
- More energy efficient than incandescent and most halogen lamps
- Low thermal resistance
- Color uniformity

Application

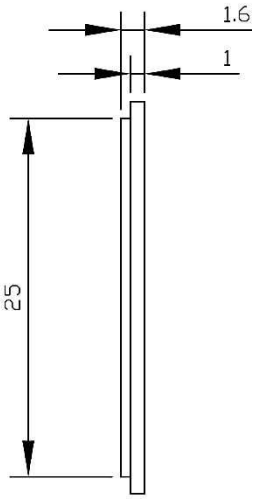
- Bulb light
- Garden lighting
- Road lights
- Architectural lighting
- Spotlight

Product Out Line Dimension

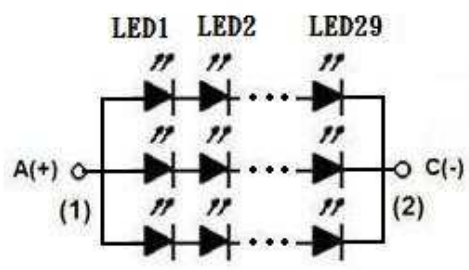
- Top View



- Side View



Tolerance:+/-0.1
Unit:mm



Electro-Optical

Absolute Maximum Ratings

(T_a =25°C)

Parameter	Rating	Unit	Conditions
DC Forward Current*1	540	mA	-
LED junction Temperature	≦125	°C	-
Operating Temperature	-30~+85	°C	-
Storage Temperature	-40~+100	°C	-
Soldering Temperature	260	°C	For 5 sec. Max.

*1: Proper current derating must be observed to maintain junction temperature below the maximum.

Electro-Optical Characteristics

(T_a =25°C)

Parameter	Symbol	Min.	TYP.	Max.	Unit
Viewing angle	$2\theta_{1/2}$	115	-	-	Deg.
Forward Voltage (I_F=540 mA)	V_F	80	85	90	V
Luminous Flux (Tc = 25°C)	Flux	5000	5225	-	lm
Luminous Flux (Tc = 85°C)	Flux	4300	4545	-	lm
Correlated Color Temperature	CCT	2700	3000	-	K
Thermal Resistance Junction to Board (I_F=540 mA)	$R\theta_{J-B}$	-	TBD-	-	°C/W
CRI		80	-	-	

Note: Test data for the warm white.

Luminous Flux Rank

Rank Code	Symbol	Condition	Min.	Typ.	Max.	Unit
Full	ΦV	I_F=540 mA	5000	5225	-	lm

Note: It maintains a tolerance of ±10% on flux.

Electrical Rank

Rank Code	Symbol	Condition	Min.	Typ.	Max.	Unit
Full	V_F	I_F=540 mA	80	85	90	V

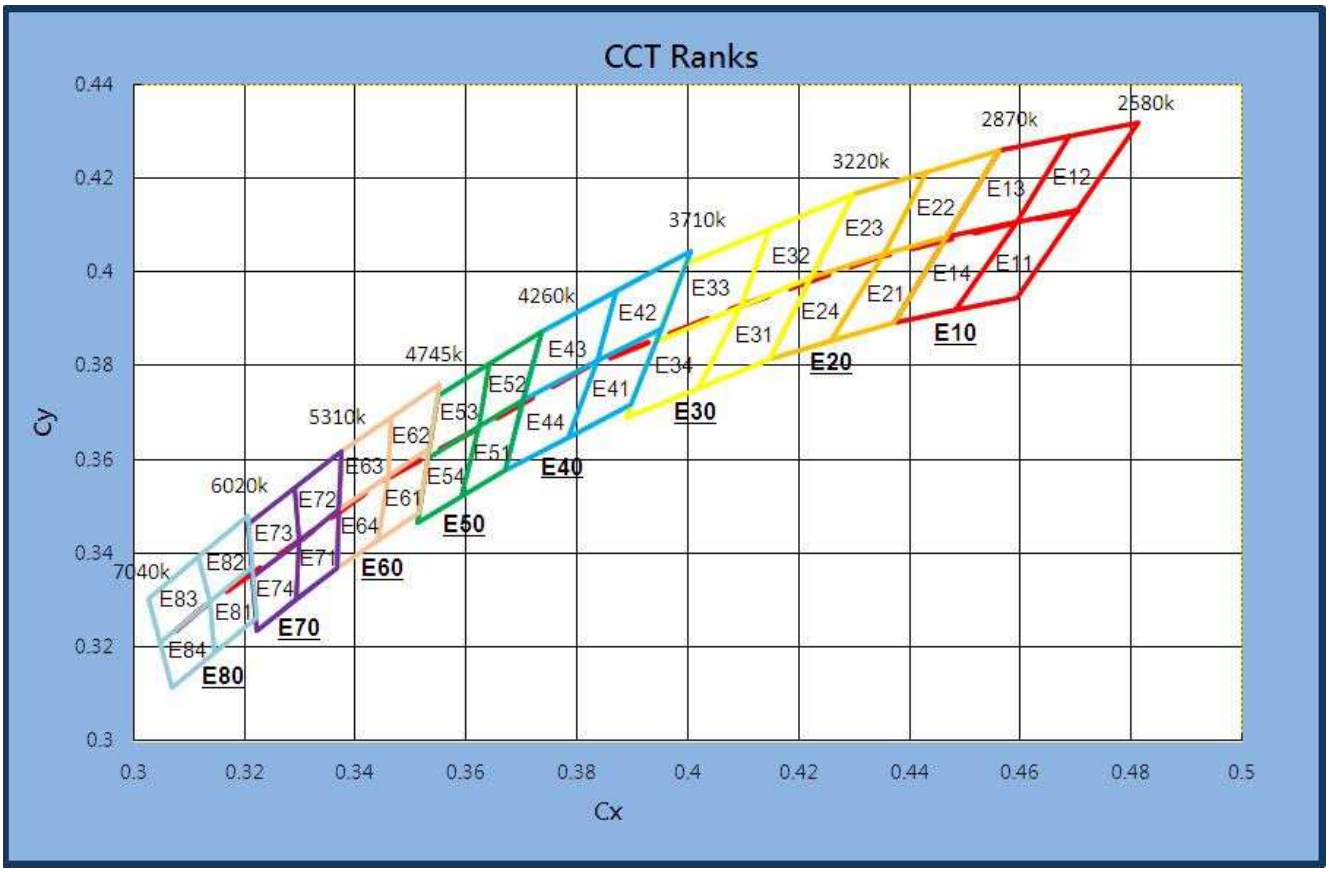
Note: It maintains a tolerance of ±0.1V on forward voltage measurements.

Correlated Color Temperature Rank

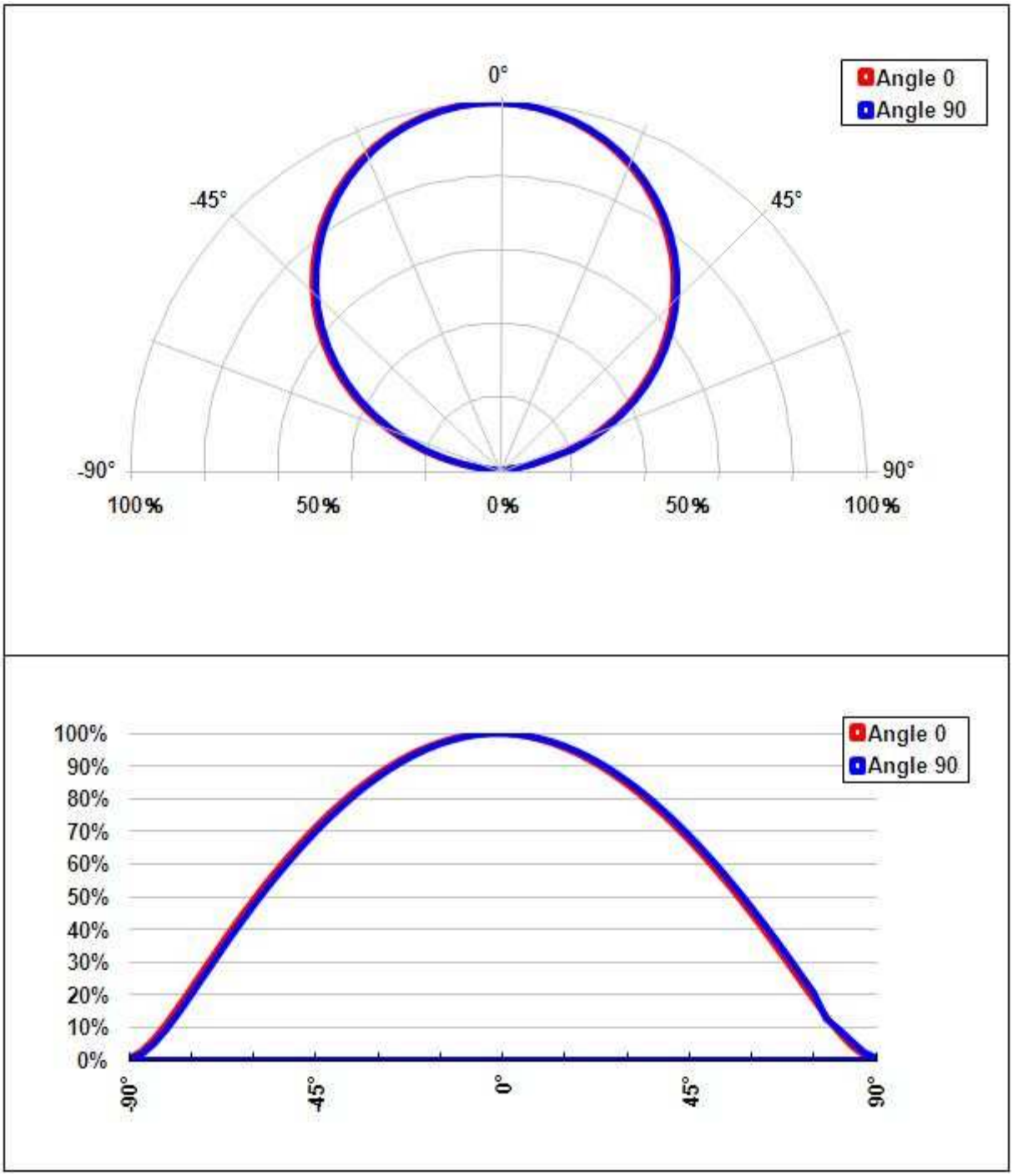
Color	Condition	BIN Code	Nominal CCT(K)	Secondary BIN No.	Min.	Typ.	Max.	Unit
Warm White	I_F=210 mA	E10	2700	E11	2580	-	2725	K
				E12	2580	-	2725	
				E13	2725	-	2870	
				E14	2725	-	2870	
		E20	3000	E21	2870	-	3045	
				E22	2870	-	3045	
				E23	3045	-	3220	
				E24	3045	-	3220	
		E30	3500	E31	3220	-	3465	
				E32	3220	-	3465	
				E33	3465	-	3710	
				E34	3465	-	3710	
Neutral White		E40	4000	E41	3710	-	3985	
				E42	3710	-	3985	
				E43	3985	-	4260	
				E44	3985	-	4260	
		E50	4500	E51	4260	-	4502.5	
				E52	4260	-	4502.5	
				E53	4502.5	-	4745	
				E54	4502.5	-	4745	
Cool White		E60	5000	E61	4745	-	5027.5	
				E62	4745	-	5027.5	
				E63	5027.5	-	5310	
				E64	5027.5	-	5310	
		E70	5700	E71	5310	-	5665	
				E72	5310	-	5665	
				E73	5665	-	6020	
				E74	5665	-	6020	
		E80	6500	E81	6020	-	6530	
				E82	6020	-	6530	
				E83	6530	-	7040	
				E84	6530	-	7040	

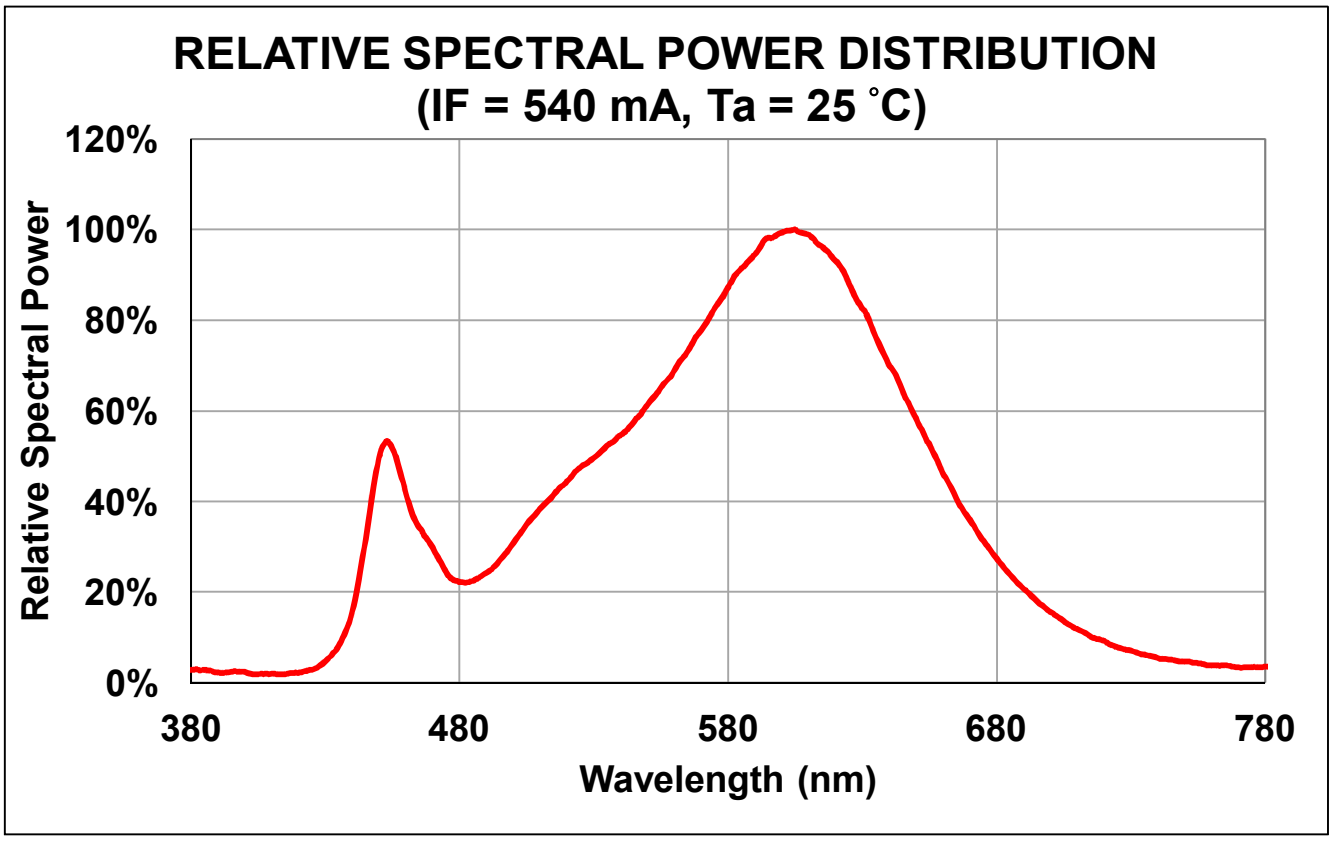
Note:It maintains a tolerance of ±5% on CCT.

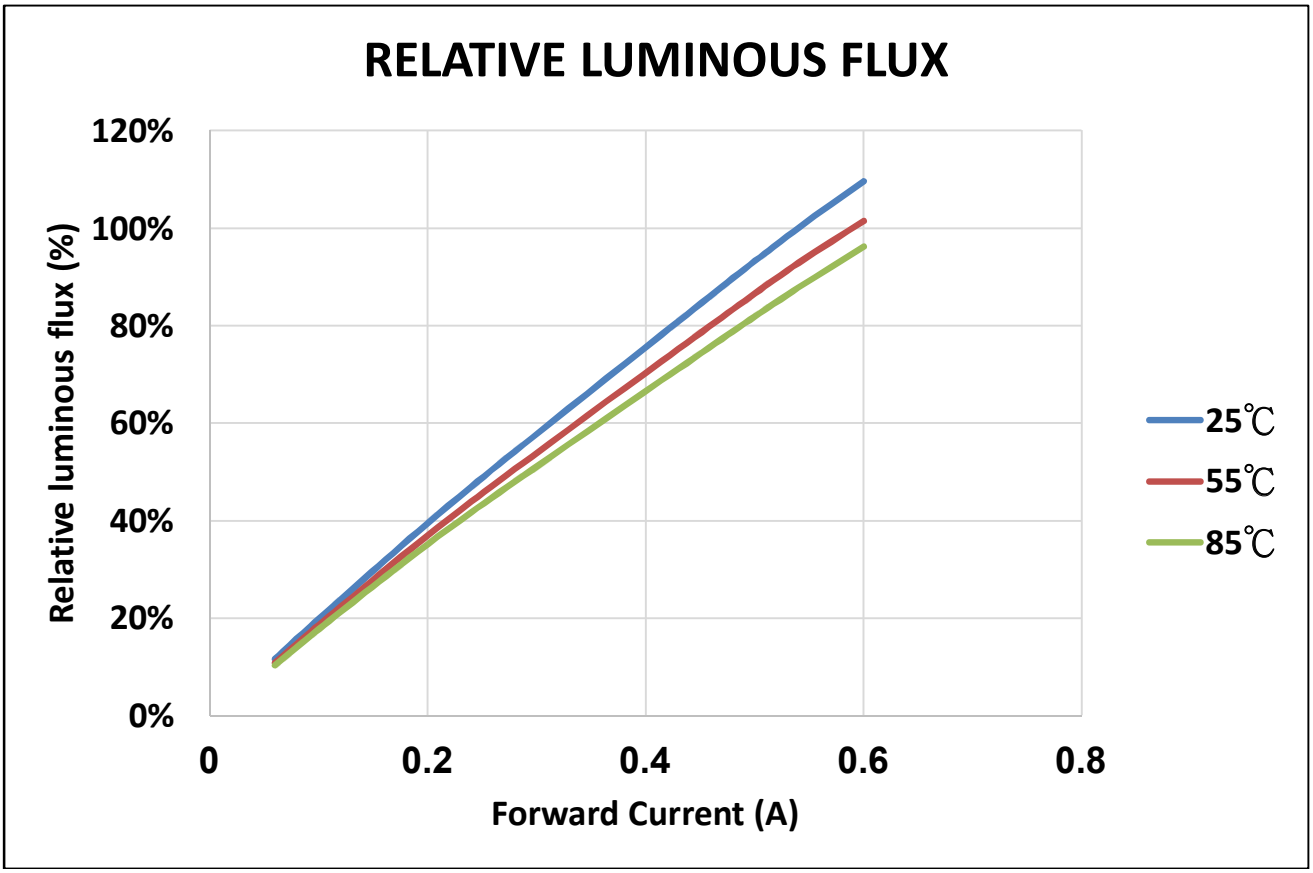
Color Temperature Coordinates

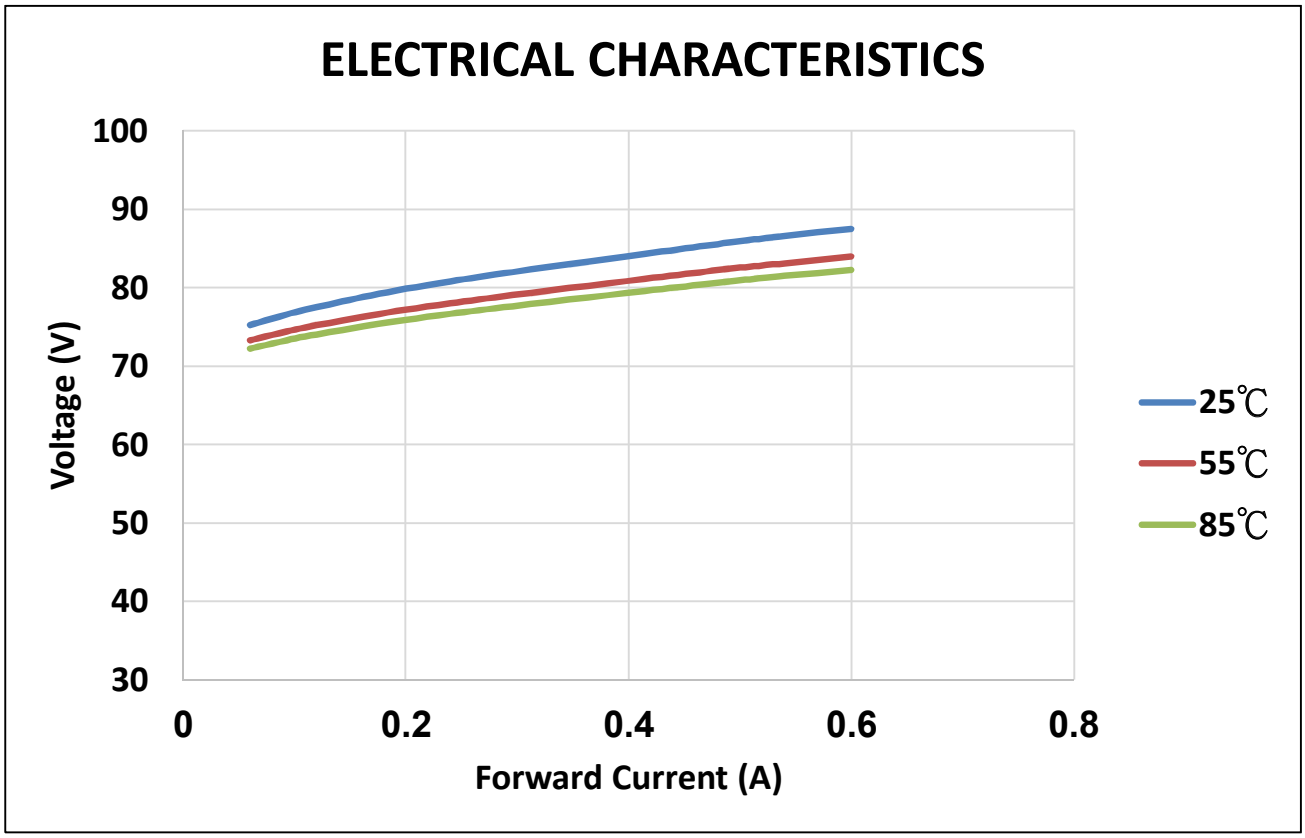


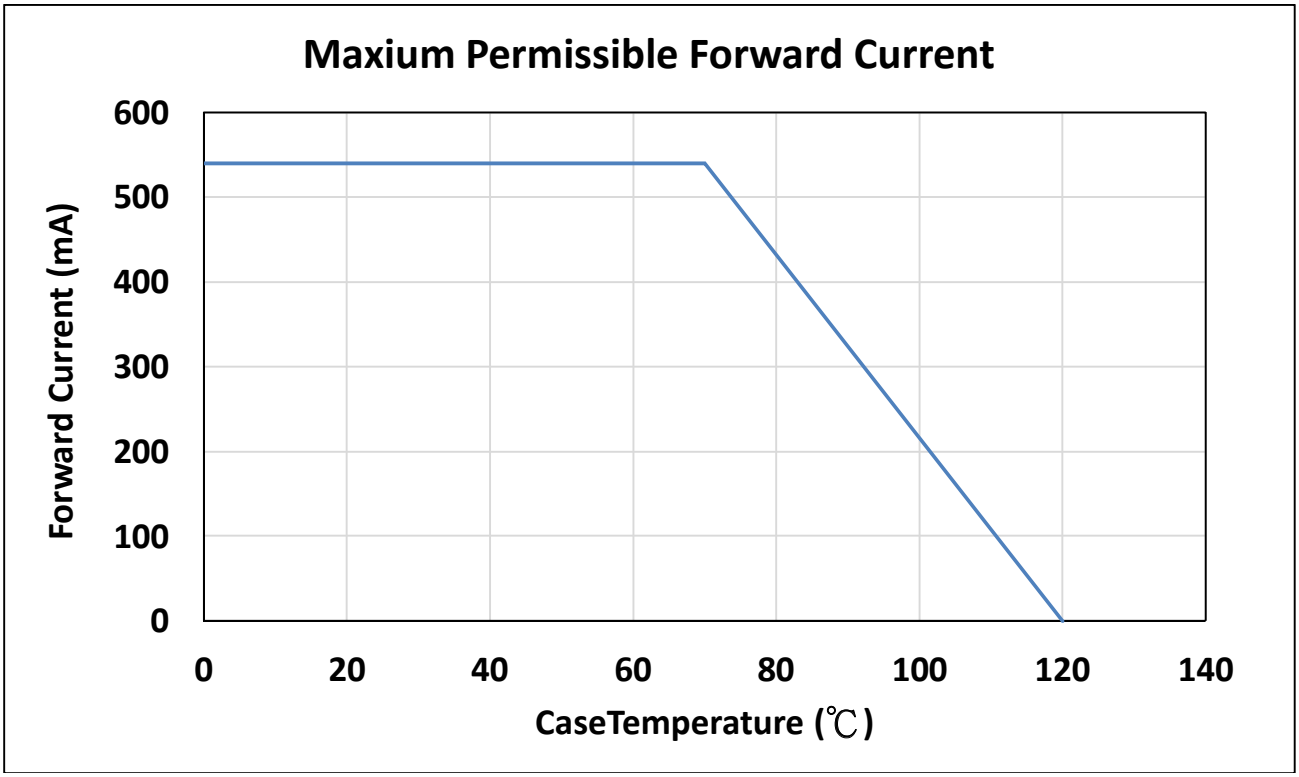
Characteristics Curve




RELATIVE SPECTRAL POWER DISTRIBUTION
(IF = 540 mA, Ta = 25 ˚C)
Relative Spectral Power
120%
100%
80%
60%
40%
20%
0%
380
480
580
680
780
Wavelength (nm)


RELATIVE LUMINOUS FLUX
Relative luminous flux (%)
120%
100%
80%
60%
40%
20%
0%
0
0.2
0.4
0.6
0.8
Forward Current (A)
25℃
55℃
85℃





LEDs and Eye Safety:

In the 1993 edition of IEC-60825-1, LEDs were included: “Throughout this part 1 light emitting diodes (LED) are included whenever the word “laser” is used.”The CENELEC document EN 60825-1 contains all the technical content of the IEC standard.
The scope of the IEC standard status that “…products which are sold to other manufacturers for use as components of any system for subsequent sale are not subject to IEC 60825-1, since the final product will itself be subject to this standard. ”Therefore, it is important to determine the Laser Safety Class of the final product. However, it is important that employees working with LEDs are trained to use them safely.
Most of the products containing LEDs will fall in either Class 1 or Class 2. A Class 1 label is optional:
CLASS 1 LED PRODUCT
If a label is not used, this description must be included in the information for the user.
Amendment 2 to IEC 60825-1 is expected to be published in January 2001. The CENELEC equivalent is expected to follow three months after the IEC publication. This document contains increased Class 1 and Class 2 limits, as well as the introduction of less restrictive Class 1M and Class 2M.
For the exact classification and further information, the IEC document can be used:

IEC-60825-1 ISBN 2-8318-4169-0

Storage

It’s recommended to store the products in the following conditions:
Humidity: 60 %RH Max.
Temperature: 5℃ ~30℃ (41℉~86℉)

PRECAUTIONS

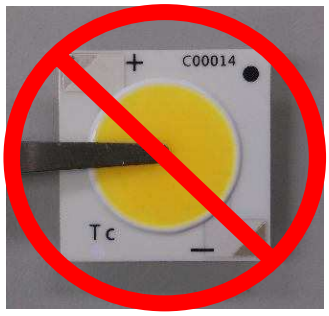
1. Avoid exposure to moisture at all times during transportation or storage.
2. It is suggested to connect the unit with a current limiting resistor of the proper size. Avoid applying a reverse voltage beyond the specified limit.
3. Avoid operation beyond the limits as specified by the absolute maximum ratings.
4. Avoid direct contact with the surface through which the LED emits light.
5. If possible, assemble the unit in a clean room or dust-free environment.

Cautions of Pick and Place

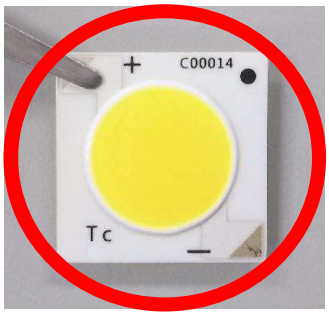
- Avoid stress on the resin at elevated temperature.
- Avoid rubbing or scraping the resin by any object.
- Electric-static may cause damage to the component. Please ensure that the equipment is properly grounded. Use of an ionizer fan is recommended.

Handling of Silicone Resin for LEDs

(1)During processing, mechanical stress on the surface should be minimized as much as possible. Sharp objects of all types should not be used to pierce the sealing compound.



(2)In general, LEDs should only be handled from the side. By the way, this also applies to LEDs without a silicone sealant, since the surface can also become scratched.



(3)Silicone differs from materials conventionally used for the manufacturing of LEDs. These conditions must be considered during the handling of such devices. Compared to standard encapsulants, silicone is generally softer, and the surface is more likely to attract dust. As mentioned previously, the increased sensitivity to dust requires special care during processing. In cases where a minimal level of dirt and dust particles cannot be guaranteed, a suitable cleaning solution must be applied to the surface after the soldering of wire.

(4)SSC suggests using isopropyl alcohol for cleaning. In case other solvents are used, it must be assured that these solvents do not dissolve the package or resin. Ultrasonic cleaning is not recommended. Ultrasonic cleaning may cause damage to the LED.

(5)Please do not mold this product into another resin (epoxy, urethane, etc) and do not handle this product with acid or sulfur material in sealed space.

(6)Avoid leaving fingerprints on silicone resin parts.