Harvatek 3.0mm Round LED LAMP with Holder

HV-329872/260/SURUYSUGMSUGM-U1909

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LIFE SUPPORT POLICY

HARVATEK's products are not authorized for use as critical components in life support devices or systems without the express written approval of the President of HARVATEK or HARVATEK INTERNATIONAL. As used herein:

1. Life support devices or systems are devices or systems which, (a) are intended for surgical implant into the body, or (b) support or sustain life, and (c) whose failure to perform when properly used in accordance with instructions for use provided in the labeling, can be reasonably expected to result in a significant injury of the user.

2. A critical component in any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.

Compliance and Certification

ISO9002, QS9000 and ISO14001 Certified

RoHS Compliant

Orderable Information

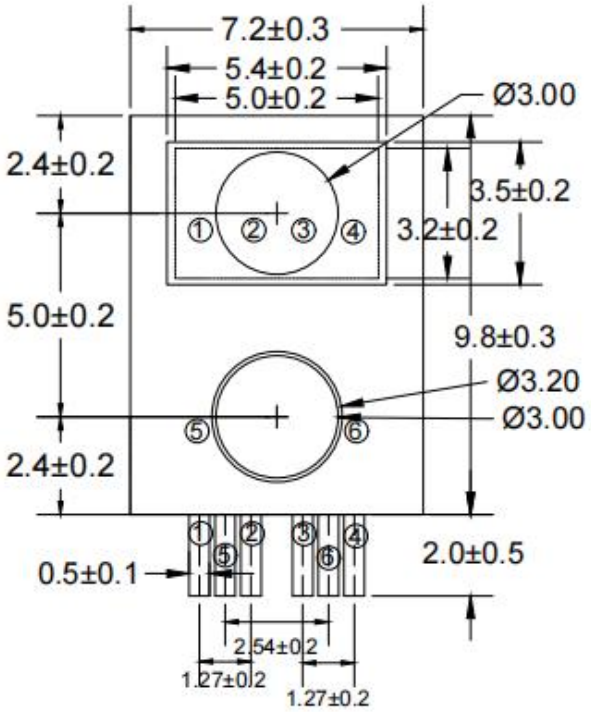
H V - 329872 / 260 / SURUYSUGMSUGM - U1909

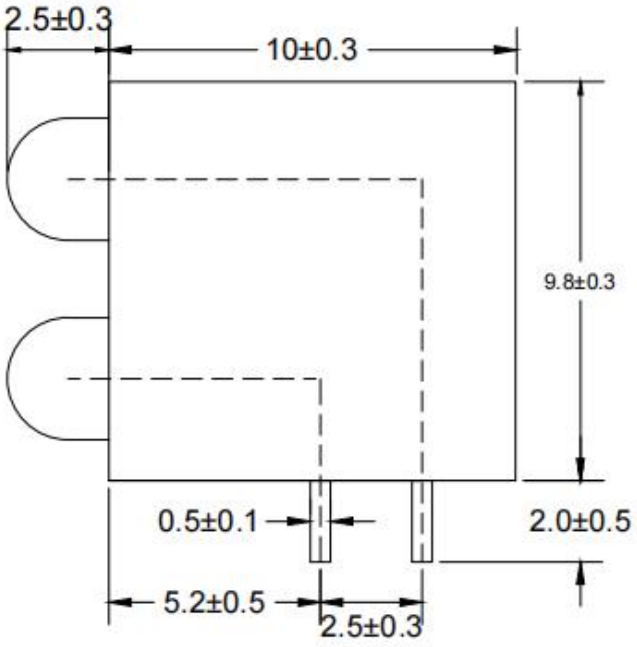
Series Name	Color Code	Remark
HV : **HARVATEK**	**329872:Array 2 Lamp** **260:3.0mm Round LED LAMP.** **SURUYSUG:** **AlGaInP 620nm Red Chip.** **AlGaInP 590nm Yellow Chip.** **InGaN 520nm Green Chip.** **SUG:InGaN 520nm Green Chip.** **M: White Diffused.**	**U1909:** **Customer Product Code**

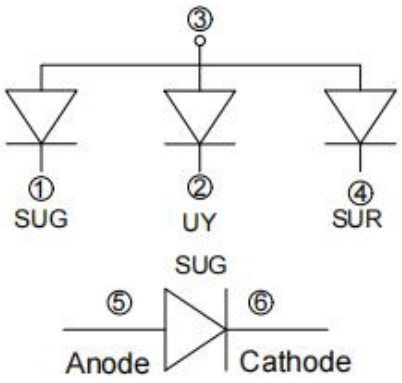
Features:

- Stable Color
- Popular 3.0mm through hole package.
- White Diffused Lens.

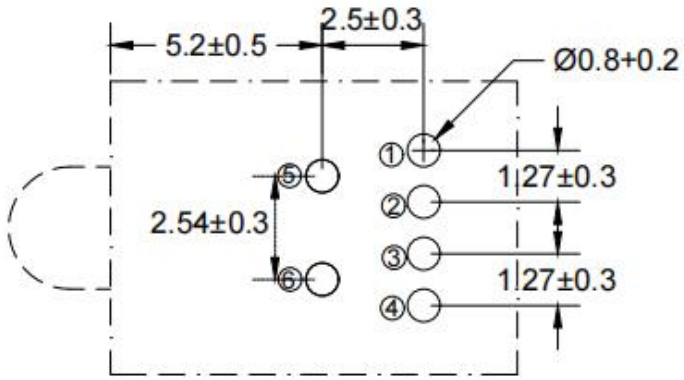
Package Dimensions:







RECOMMENDED PCB LAYOUT



Notes:

1.All dimensions are millimeters.

2.Tolerance is +/-0.25mm unless otherwise noted.

3.Specifications are subject to change without notice.

Absolute Maximum Ratings at Ta=25℃

Parameter	Symbol			Rating	Unit
Forward Current	I_F			30	mA
Operating Temperature	Topr			-40to+85	℃
Storage Temperature	Tstg			-40to+85	℃
Soldering Temperature*1	Tsol			260±5	℃
Power Dissipation	P_d	SUR/ UY/ SUG	SUR	75	mW
			UY	75	
			SUG	100	
Reverse Voltage	V_R			5	V
Peak Forward Current*2	I_{FP}	SUR/ UY/ SUG	SUR	80	mA
			UY	80	
			SUG	100	

*1:Soldering time ≦ 5 seconds.

*2:Pulse Width≦ 100 μ s and Duty≦ 1%

Electrical and Optical Characteristic

Parameter	Symbo	Condition			Min.	Typ.	Max.	Unit
Forward Voltage	V_F	I_F=20 mA	SUR /UY/ SUG	SUR	/	2.0	2.5	V
				UY	/	2.0	2.5	
				SUG	/	3.0	3.5	
Reverse Current	I_R	V_R= 5 V			/	/	10	μA
Luminous Intensity	I_V	I_F=20 mA	SUR /UY/ SUG	SUR	250	600	/	mcd
				UY	400	800	/	
				SUG	400	1000	/	
Viewing Angle	$2\theta_{1/2}$	I_F=20 mA	SUR /UY/ SUG	SUR	/	40	/	deg
				UY	/	45	/	
				SUG	/	110	/	
Peak Wavelength	λρ	I_F=20 mA	SUR /UY/ SUG	SUR	/	630	/	nm
				UY	/	595	/	
				SUG	/	515	/	
Dominant Wavelength	λ_d	I_F=20 mA	SUR /UY/ SUG	SUR	/	620	/	nm
				UY	/	590	/	
				SUG	/	520	/	
Spectrum Radiation Bandwidth	Δλ	I_F=20 mA	SUR /UY/ SUG	SUR	/	20	/	nm
				UY	/	20	/	
				SUG	/	25	/	

Notes:

θ1/2 is the angle from optical centerline where the luminous intensity is 1/2 the optical centerline value.

Absolute Maximum Ratings at Ta=25℃(SUG)

Parameter	Symbol	Rating	Unit
Forward Current	I_F	30	mA
Operating Temperature	T_{opr}	-40to+85	℃
Storage Temperature	T_{stg}	-40to+85	℃
Soldering Temperature*1	T_{sol}	260±5	℃
Power Dissipation	P_d	100	mW
Reverse Voltage	V_R	5	V
Peak Forward Current*2	I_{FP}	100	mA

*1:Soldering time ≦ 5 seconds.

*2:Pulse Width≦ 100 μ s and Duty≦ 1%.

Electrical and Optical Characteristic(SUG)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Forward Voltage	V_F	I_F=20 mA	/	3.0	3.5	V
Reverse Current	I_R	V_R= 5 V	/	/	10	μA
Luminous Intensity	I_V	I_F=20 mA	1000	3000	/	mcd
Viewing Angle	$2\theta_{1/2}$	I_F=20 mA	/	70	/	deg
Dominant Wavelength	λd	I_F=20 mA	/	520	/	nm
Peak Wavelength	λρ	I_F=20 mA	/	515	/	nm
Spectrum Radiation Bandwidth	Δλ	I_F=20 mA	/	25	/	nm

Notes:

θ1/2 is the angle from optical centerline where the luminous intensity is 1/2 the optical centerline valu

Specifications for Bin Grading:(SUR/UY/SUG:SUR)

Iv (mcd)		
Grade	Min.	Max.
T	250	500
U	400	800
V	630	1250
W	1000	2000
X	1600	3200

Notes:

1.Luminous intensity:+/-15%.

Specifications for Bin Grading:(SUR/UY/SUG:UY)

Iv (mcd)		
Grade	Min.	Max.
U	400	800
V	630	1250
W	1000	2000
X	1600	3200

λd (nm)		
Grade	Min.	Max.
3	585	588
4	587	590
5	589	592
6	591	594
7	593	595

Notes:

1.Luminous intensity:+/-15%.

2.Wavelength: +/-1nm.

Specifications for Bin Grading:(SUR/UY/SUG:SUG)

Iv (mcd)		
Grade	Min.	Max.
U	400	800
V	630	1250
W	1000	2000
X	1600	3200
Y	2500	4500

λd (nm)		
Grade	Min.	Max.
1	516.5	519.5
2	518.5	521.5
3	520.5	523.5
4	522.5	525.5
5	524.5	527.5

Notes:

1.Luminous intensity:+/-15%.

2.Wavelength: +/-1nm.

Specifications for Bin Grading:(SUG)

Iv (mcd)		
Grade	Min.	Max.
W	1000	2000
X	1600	3200
Y	2500	4500

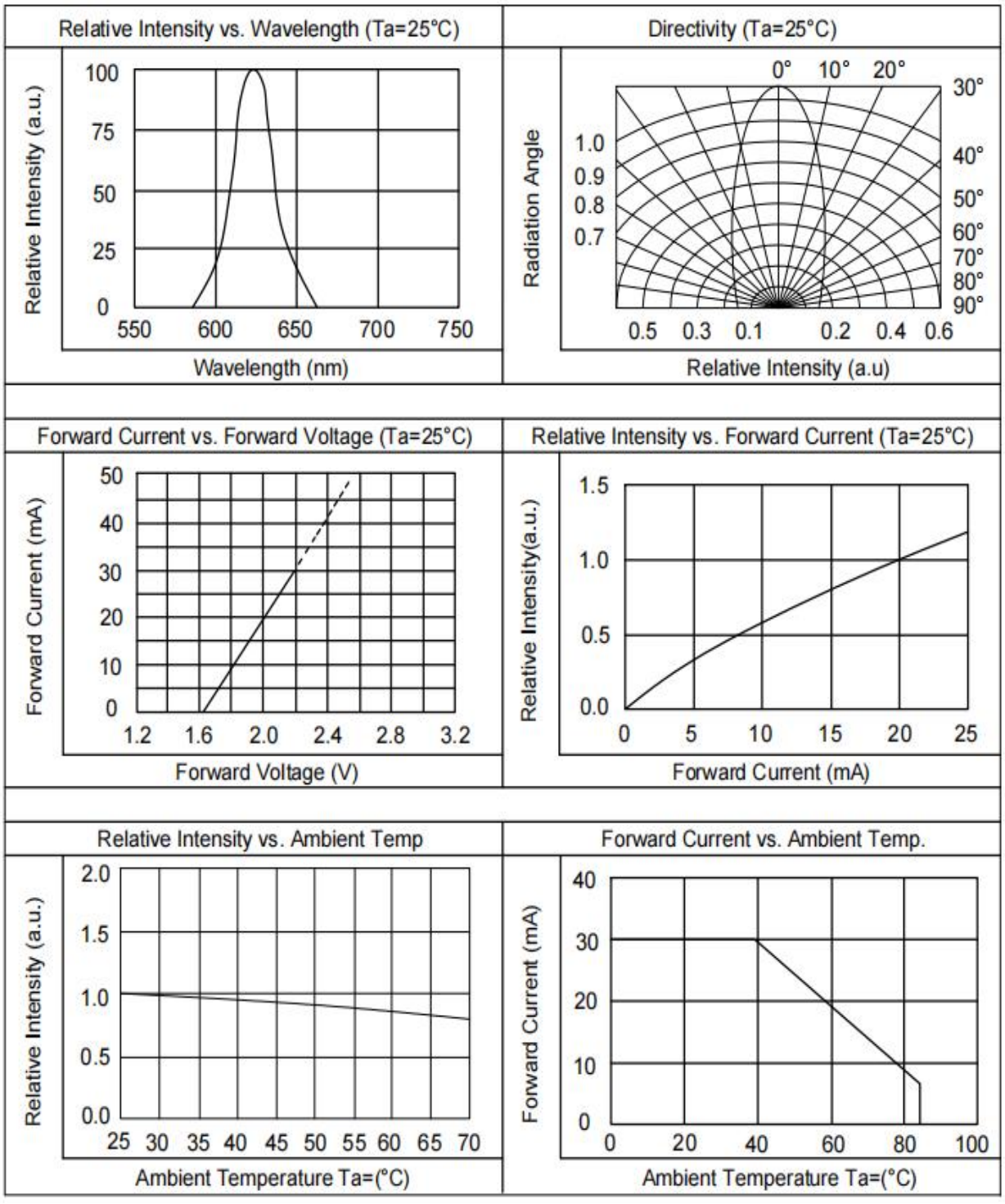
λd (nm)		
Grade	Min.	Max.
1	516.5	519.5
2	518.5	521.5
3	520.5	523.5
4	522.5	525.5

Notes:

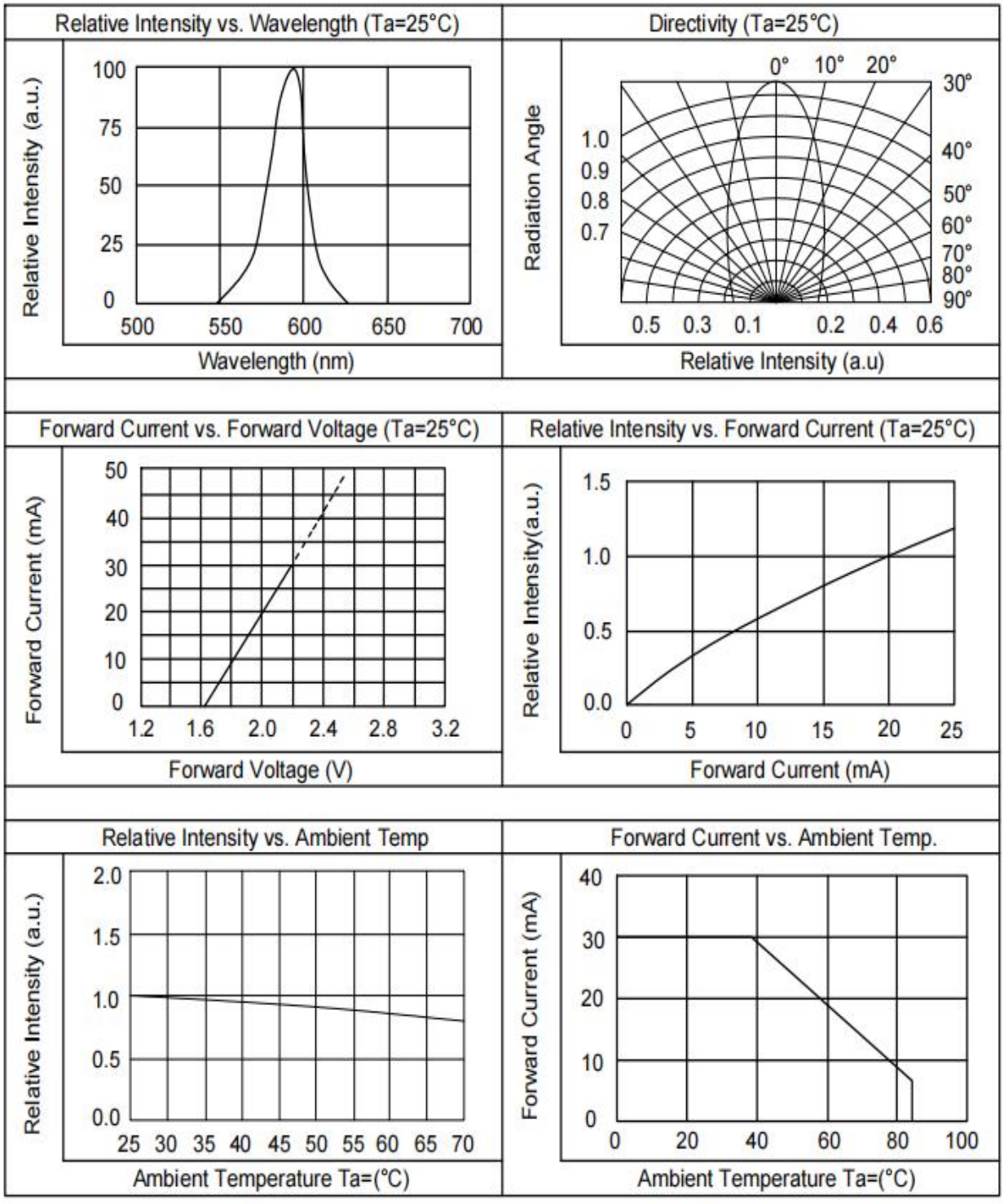
1.Luminous intensity:+/-15%.

2.Wavelength: +/-1nm.

Typical Electrical / Optical Characteristics Curves(SUR/UY/SUG:SUR)

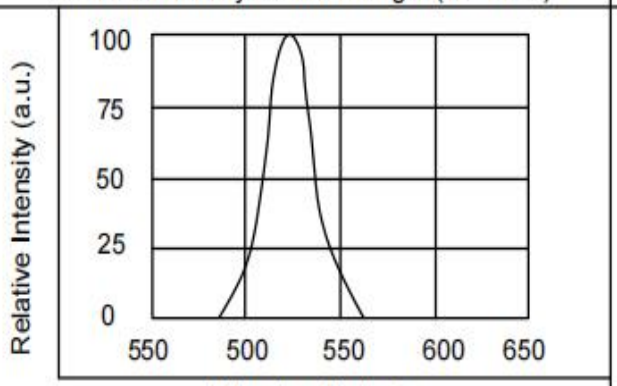


Typical Electrical / Optical Characteristics Curves(SUR/UY/SUG:UY)

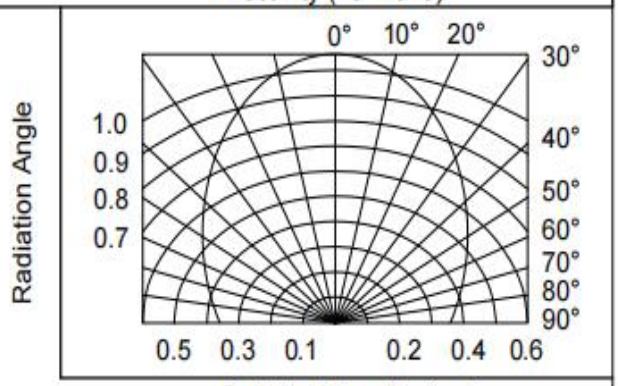


Typical Electrical / Optical Characteristics Curves(SUR/UY/SUG:SUG)

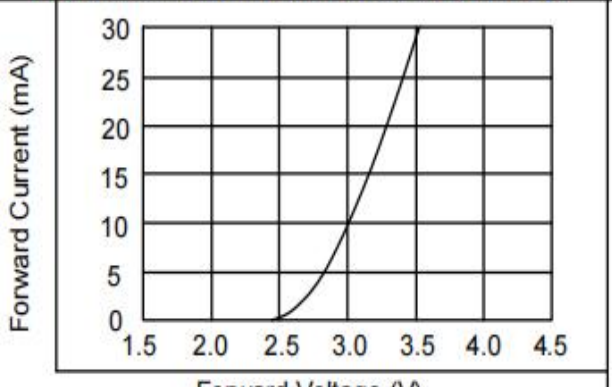
Relative Intensity vs. Wavelength (Ta=25°C)



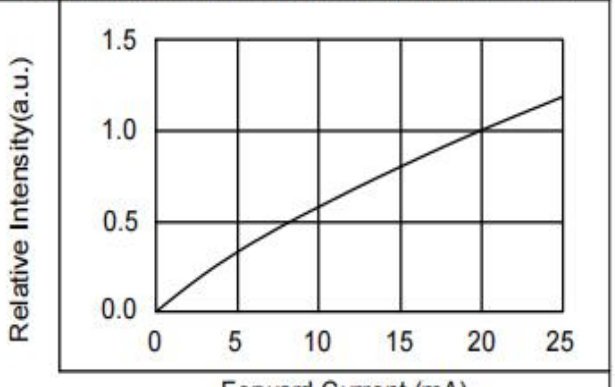
Directivity (Ta=25°C)



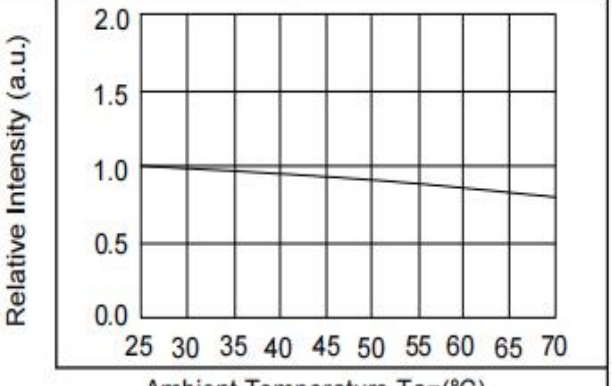
Forward Current vs. Forward Voltage (Ta=25°C)



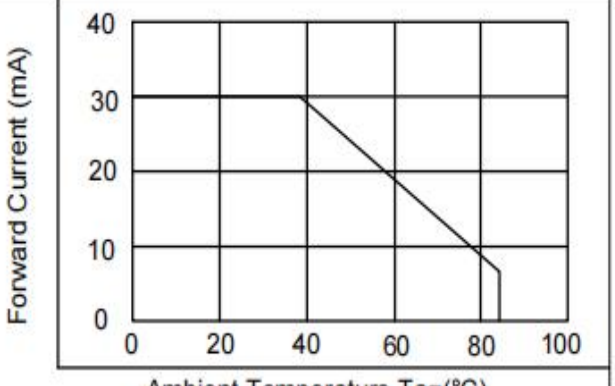
Relative Intensity vs. Forward Current (Ta=25°C)



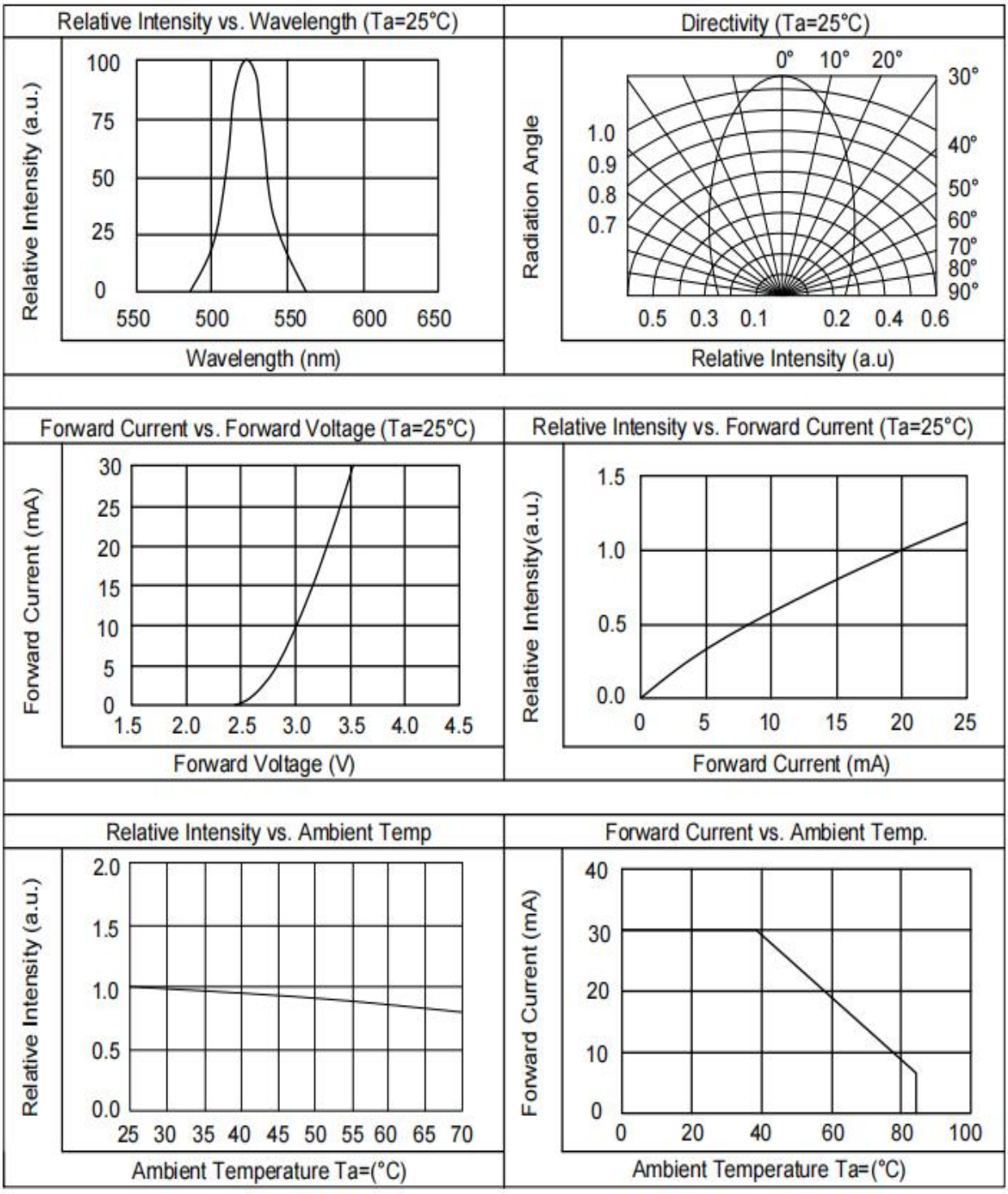
Relative Intensity vs. Ambient Temp



Forward Current vs. Ambient Temp.



Typical Electrical / Optical Characteristics Curves(SUG)

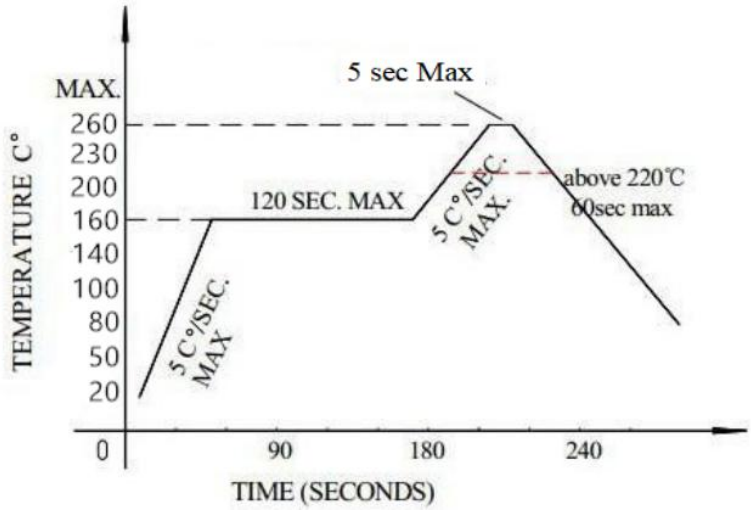


Soldering condition

1. Careful attention should be paid during soldering. When soldering, leave more then 2mm from solder joint to Led, and soldering beyond the base of the tie bar is recommended.
2. Avoiding applying any stress to the lead frame while the LED are at high temperature particularly when soldering.
3. Dip and hand soldering should not be done more than one time.
4. After soldering the LED, the epoxy bulb should be protected from mechanical shock or vibration until the LED return to room temperature.
5. A rapid-rate process is not recommended for cooling the LED down from the peak temperature.
6. Although the recommended soldering conditions are specified in the above table, dip or hand soldering at the lowest possible temperature is desirable for the LED.
7. Wave soldering parameter must be set and maintain according to recommended temperature and dwell time in the solder wave.

- **Recommended soldering conditions**

Hand Soldering		Wave Soldering	
Temp. at tip of iron	300°C Max. (30W Max.)	Preheat temp.	160°C Max. (120 sec Max.)
Soldering time	3 sec Max.	Bath temp. & time	260 Max., 5 sec Max
Distance	2mm Min.(From solder joint to Led)	Distance	2mm Min. (From solder joint to Led)



Reliability test items and conditions：

The reliability of products shall be satisfied with items listed below.

Confidence level：97%

LTPD:3%

No	Item	Test Conditions	Test Hours/Cycle	Sample Size	Failure Judgment Criteria	Ac/Er
1	Solder Heat	TEMP:260℃±5 ℃	10 SEC	76 PCS	Iv≦Ivt*0.5 or Vf≧U or Vf≦L	0/1
2	Temperature Cycle	H:+100℃ 15min ∫ 5min L:-40℃ 15min	300 CYCLES	76 PCS		0/1
3	Thermal Shock	H:+100℃ 5min ∫ 10sec L:-10℃ 5min	300 CYCLES	76 PCS		0/1
4	High Temperature Storage	TEMP:100℃	1000 HRS	76 PCS		0/1
5	Low Temperature Storage	TEMP:-40℃	1000 HRS	76 PCS		0/1
6	DC Operating Life	TEMP:25℃ IF=20mA	1000 HRS	76 PCS		0/1
7	High Temperature / High Humidity	85℃/85%RH	1000 HRS	76 PCS		0/1

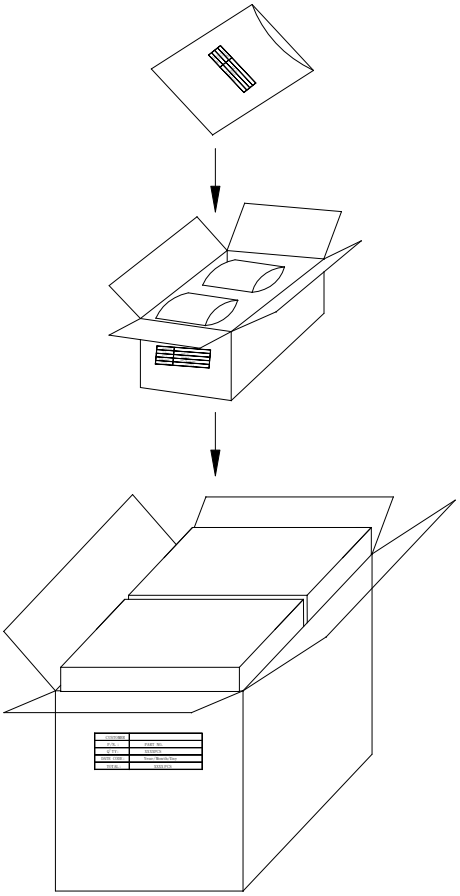
Note：Ivt：To test Iv value of the chip before the reliability test.

Iv：The test value of the chip that has completed the reliability test

U：Upper Specification Limit

L：Lower Specification Limit

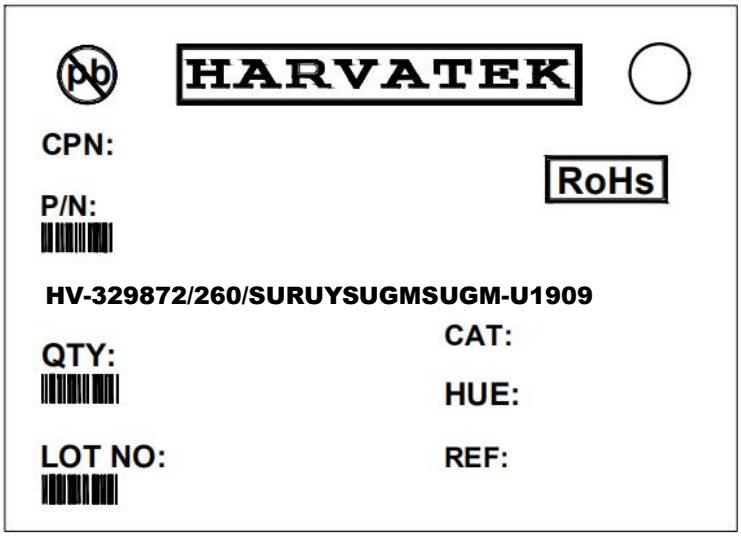
Packing Specification:



250PCS/Bag

1000PCS/In-Carton

10000PCS/Out-Carton



Revision History

Revision	Page	Version No.	Revision Date
Initial Release		1.0	10-15-2020
Change surface dimensions	4	1.1	05-13-2021
Change the brightness and grade and Characteristic curve diagram	6/8/9/10 /11/12	1.2	07-06-2021
Modify the surface dimensions	4	1.2	07-06-2021