Harvatek 3.0mm Round Type Arrayed LEDs

HV-313301/230/UTC-U1930

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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

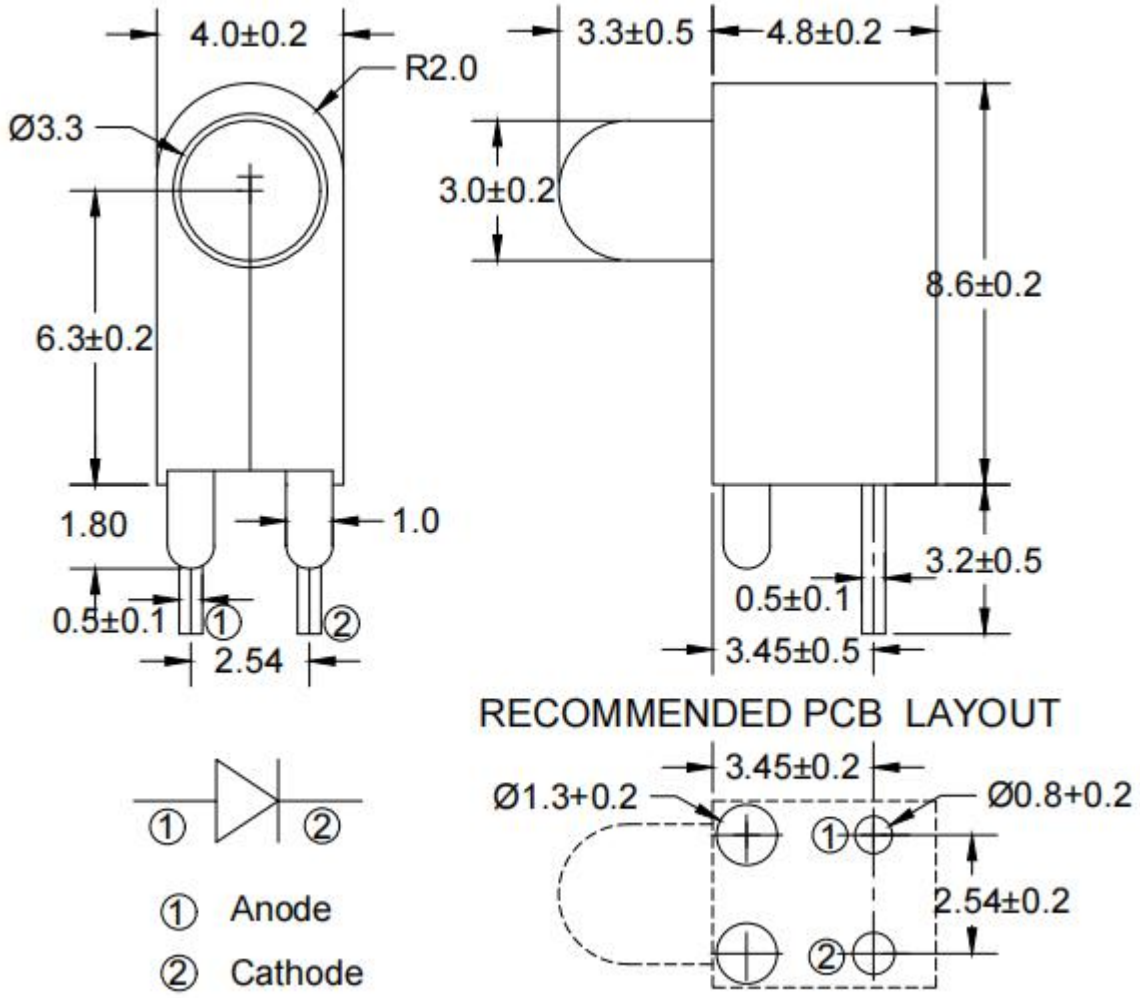
H V - 31 3301 / 2 3 0 / U T C - U1930

Series Name	Color Code	Remark
HV : **HARVATEK**	**31: 1 Lamp** **3301: HARVATEK Part No.** **230:** **3.0mm Round LED LAMP** **UT :** **InGaN 455nm Chip.Emitted color is white** **C : Water clear.**	**U1930:** **Customer Product Code**

Features:

- Stable Color
- Popular 3.0mm through hole package
- Water clear Lens

Package Dimensions:



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	-25to+85	℃
Storage Temperature	Tstg	-25to+85	℃
Soldering Temperature*1	Tsol	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

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Forward Voltage	V_F	I_F=20 mA	2.6	3.2	3.6	V
Reverse Current	I_R	V_R= 5 V	／	／	10	μA
Luminous Intensity	I_V	I_F=20 mA	／	4500	／	mcd
Chromaticity Coordinates	X	I_F=20 mA	／	0.27	／	／
	Y	I_F=20 mA	／	0.25	／	／
Viewing Angle	2θ½	I_F=20 mA	／	30	／	deg

Notes:

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

Specifications for Bin Grading:

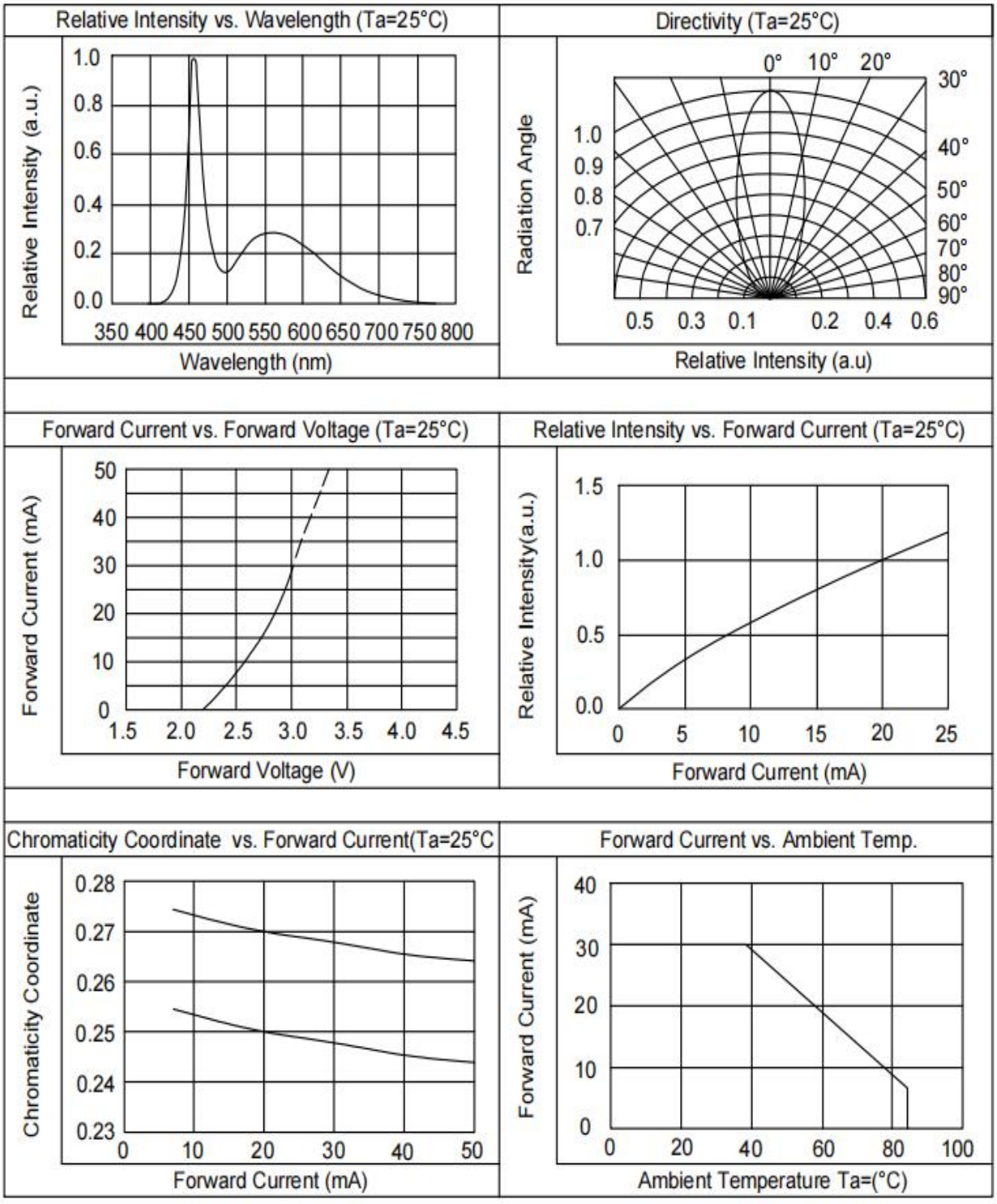
VF (V)			Test Condition
Grade	Min	Max	IF=20mA
1	2.6	3	
2	2.9	3.2	
3	3.1	3.4	
4	3.3	3.6	

Note: Voltage difference+ /-0.1V

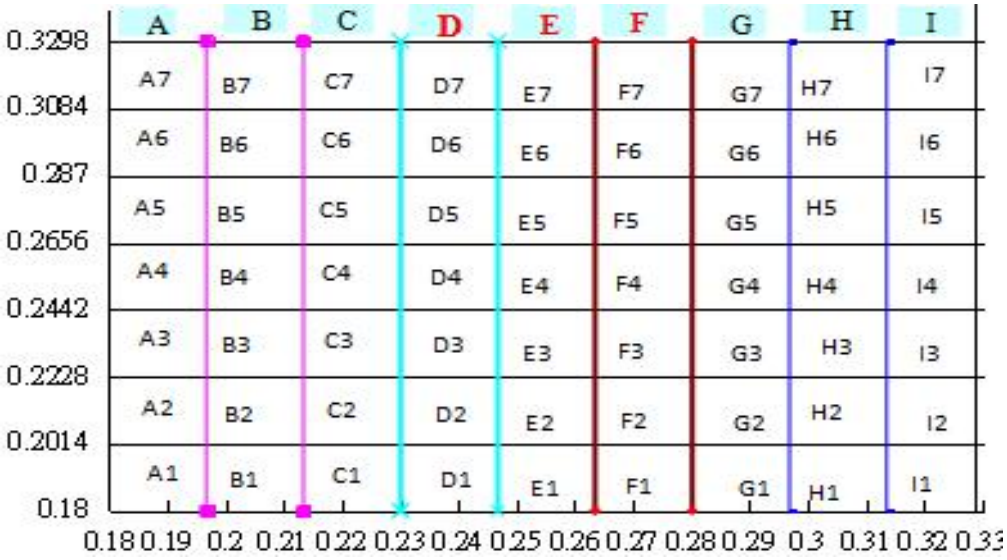
IV (mcd)			Test Condition
Grade	Min	Max	IF=20mA
X	1600	3200	
Y	2500	4500	
Z	3900	8500	
Z1	6700	12000	
Z2	10000	18000	

Notes:Luminous intensity:+/-15%.

Typical Electrical / Optical Characteristics Curves



C.I.E. Chromaticity Diagram



A	X	0.18	0.18	0.1967	0.1967	0.18
	Y	0.18	0.33	0.18	0.33	0.18
B	X	0.1967	0.1967	0.2134	0.2134	0.1967
	Y	0.18	0.33	0.18	0.33	0.18
C	X	0.2134	0.2134	0.2301	0.2301	0.2134
	Y	0.18	0.33	0.18	0.33	0.18
D	X	0.2301	0.2301	0.2468	0.2468	0.2301
	Y	0.18	0.33	0.18	0.33	0.18
E	X	0.2468	0.2468	0.2635	0.2635	0.2468
	Y	0.18	0.33	0.18	0.33	0.18
F	X	0.2635	0.2635	0.2802	0.2802	0.2635
	Y	0.18	0.33	0.18	0.33	0.18
G	X	0.2802	0.2802	0.2969	0.2969	0.2802
	Y	0.18	0.33	0.18	0.33	0.18
H	X	0.2969	0.2969	0.3136	0.3136	0.2969
	Y	0.18	0.33	0.18	0.33	0.18
I	X	0.3136	0.3136	0.33	0.33	0.3136
	Y	0.18	0.33	0.18	0.33	0.18

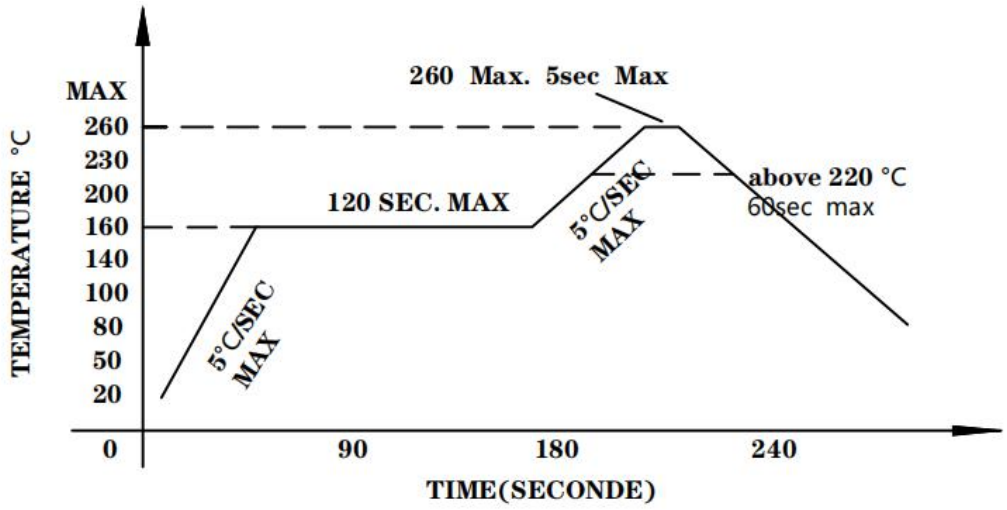
Note: Tolerance of each bin limit is ±0.01

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

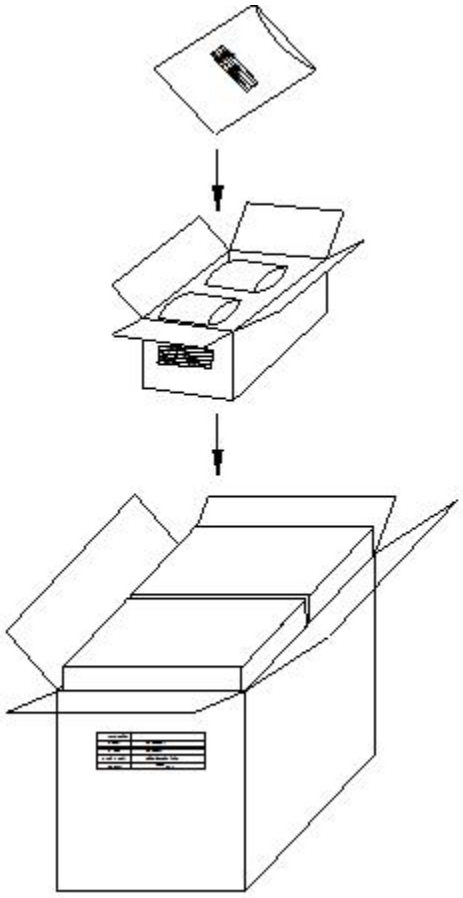
Note：Ivt：To test Iv value of the chip before the reliability test.

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

HARVATEK

CPN:

RoHs

P/N:

HV-313301/230/UTC-U1930

CAT:

QTY:

HUE:

LOT NO:

REF:

Revision History

Revision	Page	Version No.	Revision Date
Initial Release		1.0	08-12-2021