

**Harvatek 3.0mm Round Type Arrayed LEDs****HV-313401/230/UTC -U1930**

Official Product	HV-313401/230/UTC-U1930	Customer Part No.		Data Sheet No.
	*****	*****		HV-313401/230/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.

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## Compliance and Certification

ISO9002, QS9000 and ISO14001 Certified  
RoHS Compliant



## Orderable Information

**H V - 31 3401 / 230 / U T C - U1930**

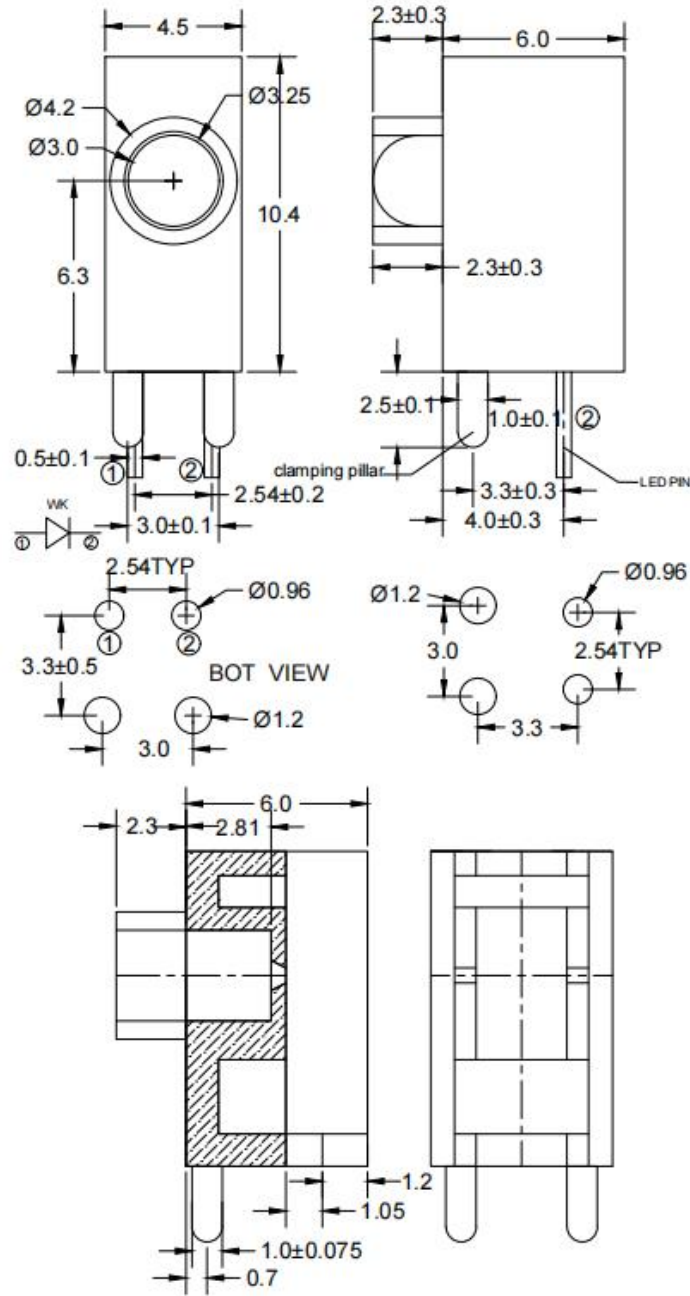
Series Name	Color Code	Remark
HV : HARVATEK	31: 1 Lamp 3401: HARVATEK Part No. 230: 3.0mm Round LED LAMP UT : InGaN 455nm Chip.Emitted color is white C : Water clear.	U1930: Customer Product Code

## Features:

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

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## Package Dimensions:



### Notes:

1. All dimensions are millimeters.
2. Tolerance is  $\pm 0.25$  mm unless otherwise noted.
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## Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Rating	Unit
Forward Current	I <sub>F</sub>	30	mA
Operating Temperature	T <sub>opr</sub>	-25to+85	°C
Storage Temperature	T <sub>stg</sub>	-30to+100	°C
Soldering Temperature*1	T <sub>sol</sub>	260±5	°C
Power Dissipation	P <sub>d</sub>	100	mW
Reverse Voltage	V <sub>R</sub>	5	V
Peak Forward Current*2	I <sub>FP</sub>	100	mA

\*1:Soldering time ≅ 5 seconds. \*2:Pulse Width ≅ 100 μ s and Duty ≅ 1%

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**Electrical and Optical Characteristic**

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Forward Voltage	$V_F$	$I_F=20\text{ mA}$	2.6	3.2	3.6	V
Reverse Current	$I_R$	$V_R= 5\text{ V}$	/	/	10	$\mu\text{A}$
Luminous Intensity	$I_V$	$I_F=20\text{ mA}$	1600	4500	/	mcd
Chromaticity Coordinates	X	$I_F=20\text{ mA}$	/	0.27	/	/
	Y	$I_F=20\text{ mA}$	/	0.25	/	/
Viewing Angle	$2\theta_{1/2}$	$I_F=20\text{ mA}$	/	40	/	deg

Notes:

$\theta_{1/2}$  is the angle from optical centerline where the luminous intensity is 1/2 the optical centerline value.

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## 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	

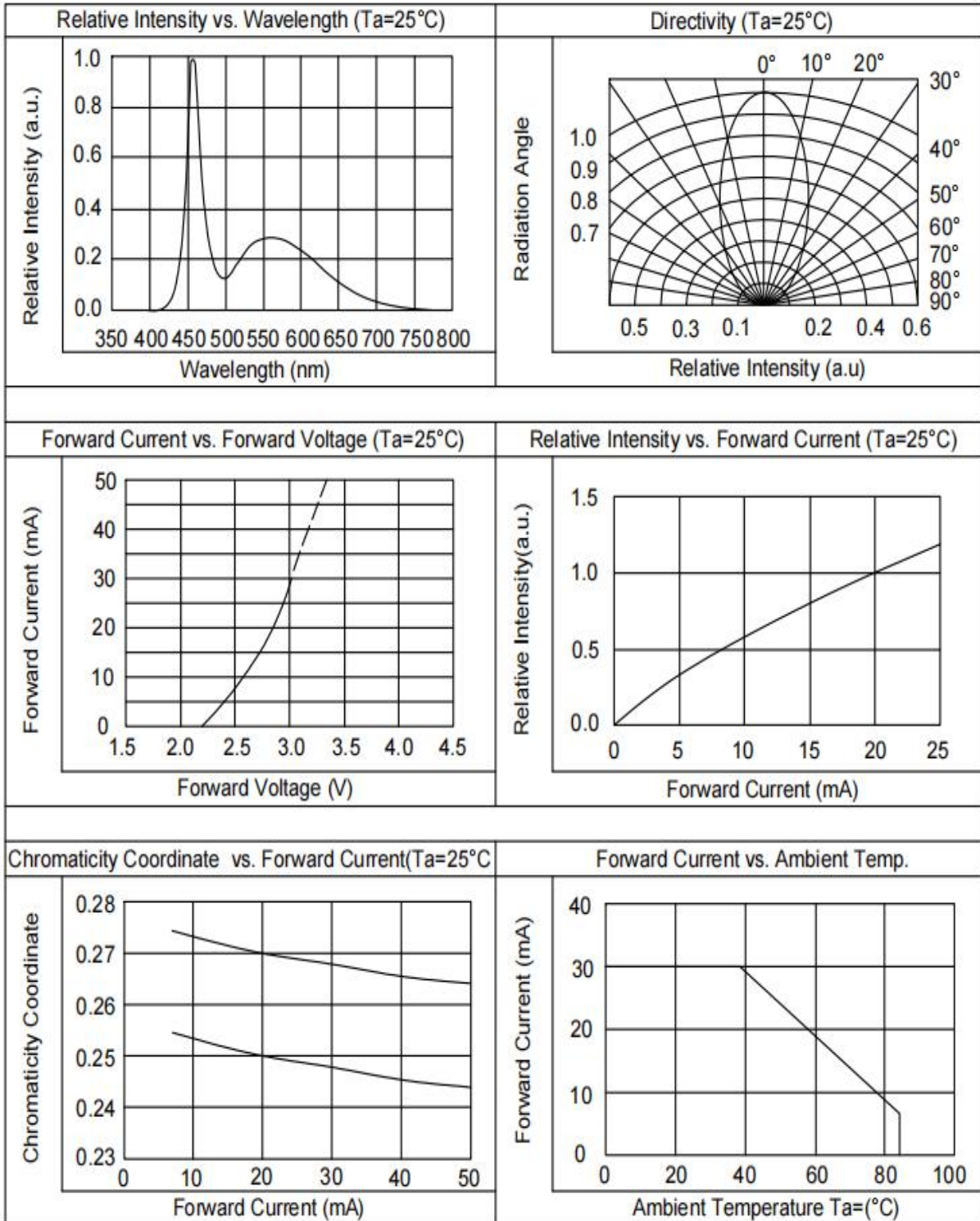
Note: Voltage difference+ /-0.1V

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%.

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**Typical Electrical / Optical Characteristics Curves**

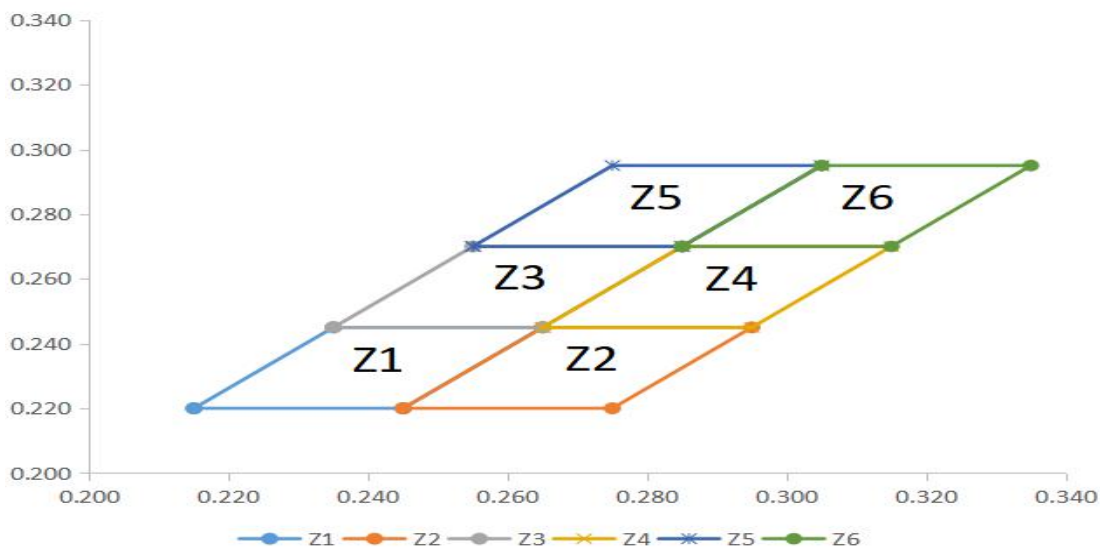


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## C.I.E. Chromaticity Diagram

Z1	X	0.215	0.235	0.265	0.245	0.215
	Y	0.220	0.245	0.245	0.220	0.220
Z2	X	0.245	0.265	0.295	0.275	0.245
	Y	0.220	0.245	0.245	0.220	0.220
Z3	X	0.235	0.255	0.285	0.265	0.235
	Y	0.245	0.270	0.270	0.245	0.245
Z4	X	0.265	0.285	0.315	0.295	0.265
	Y	0.245	0.270	0.270	0.245	0.245
Z5	X	0.255	0.275	0.305	0.285	0.255
	Y	0.270	0.295	0.295	0.270	0.270
Z6	X	0.285	0.305	0.335	0.315	0.285
	Y	0.270	0.295	0.295	0.270	0.270



**Note:**

1. Test current is  $I_F = 20\text{mA}$
2. CIE(X, Y) coordinates for each angle measurement, the difference between the maximum measured value and the minimum measured value X can not exceed 0.04, and Y can not exceed 0.05.

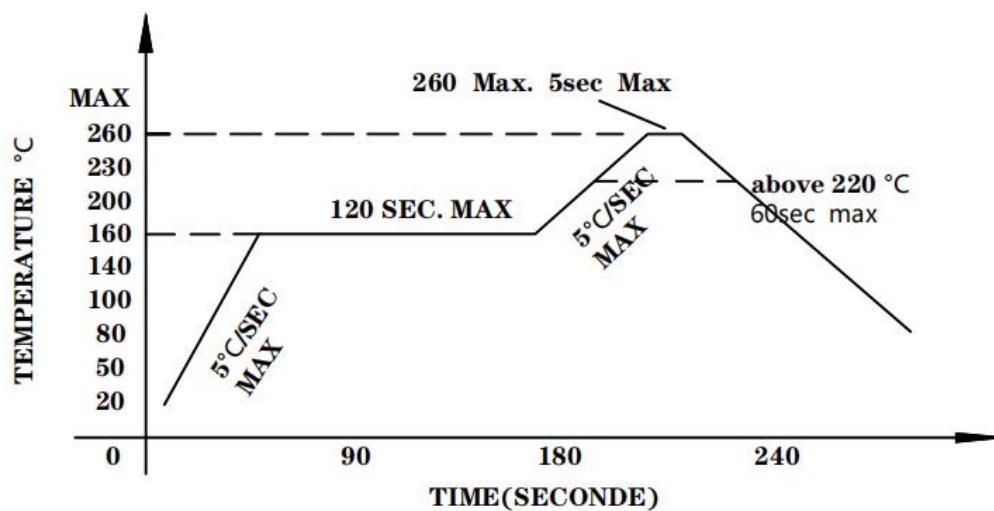
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## Soldering condition

- Careful attention should be paid during soldering. When soldering, leave more than 2mm from solder joint to Led, and soldering beyond the base of the tie bar is recommended.
- Avoiding applying any stress to the lead frame while the LED are at high temperature particularly when soldering.
- Dip and hand soldering should not be done more than one time.
- After soldering the LED, the epoxy bulb should be protected from mechanical shock or vibration until the LED return to room temperature.
- A rapid-rate process is not recommended for cooling the LED down from the peak temperature.
- 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.
- 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)



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## 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°C±5°C	10 SEC	76 PCS	Iv ≦ Ivt*0.5 or Vf ≧ U or Vf ≧ L	0/1
2	Temperature Cycle	H:+100°C 15min ∫ 5min L:-40°C 15min	300 CYCLES	76 PCS		0/1
3	Thermal Shock	H:+100°C 5min ∫ 10sec L:-10°C 5min	300 CYCLES	76 PCS		0/1
4	High Temperature Storage	TEMP:100°C	1000 HRS	76 PCS		0/1
5	Low Temperature Storage	TEMP:-40°C	1000 HRS	76 PCS		0/1
6	DC Operating Life	TEMP:25°C IF=20mA	1000 HRS	76 PCS		0/1
7	High Temperature / High Humidity	85°C/85%RH	1000 HRS	76 PCS		0/1

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

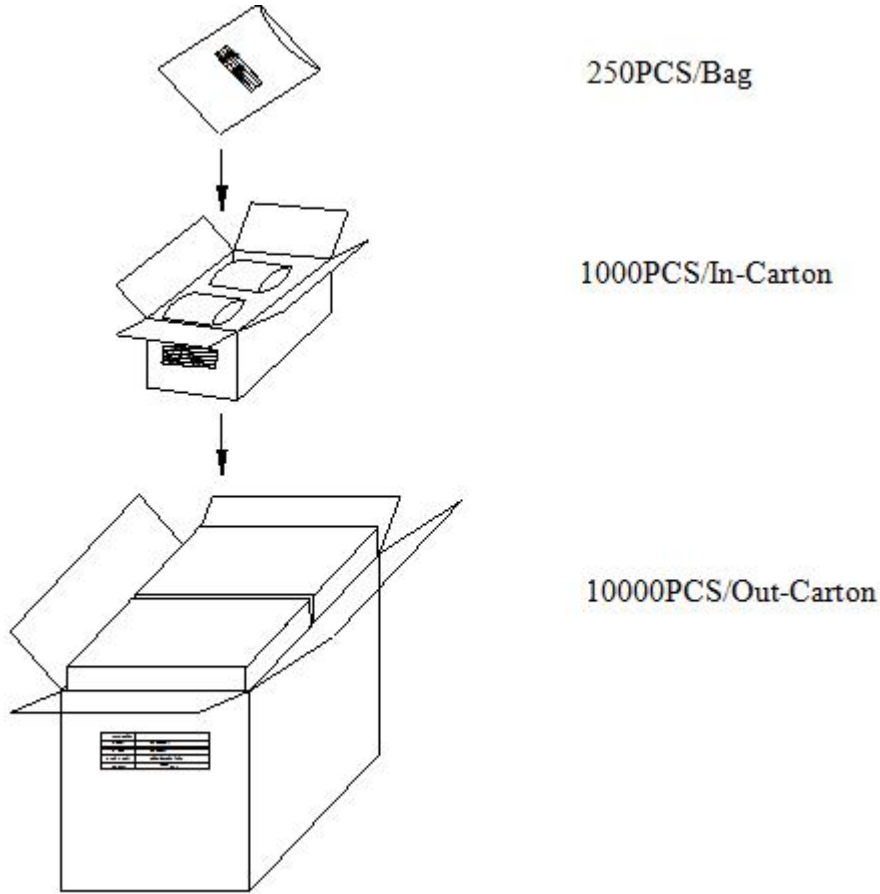
Iv: The test value of the chip that has completed the reliability test

U: Upper Specification Limit

L: Lower Specification Limit

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## Packing Specification:



	<b>HARVATEK</b>	
CPN:		<b>RoHS</b>
P/N:		
<b>HV-313401/230/UTC-U1930</b>		
QTY:		CAT:
		HUE:
LOT NO:		REF:

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**Revision History**

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

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