

**Harvatek 4.7mm Round IR LED LAMP**  
**HV-94I4493**

Official Product	HV-94I4493	Customer Part No.		Data Sheet No.
	*****	*****		CDAE-010-685
Specifications are subject to change without notice. Data and drawings herein are copyrighted.		Mar.27 2020	Version of 1.1	Page 1/11

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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.

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## Compliance and Certification

ISO9002, QS9000 and ISO14001 Certified

RoHS Compliant



## Orderable Information

**HV - 94 I4493**

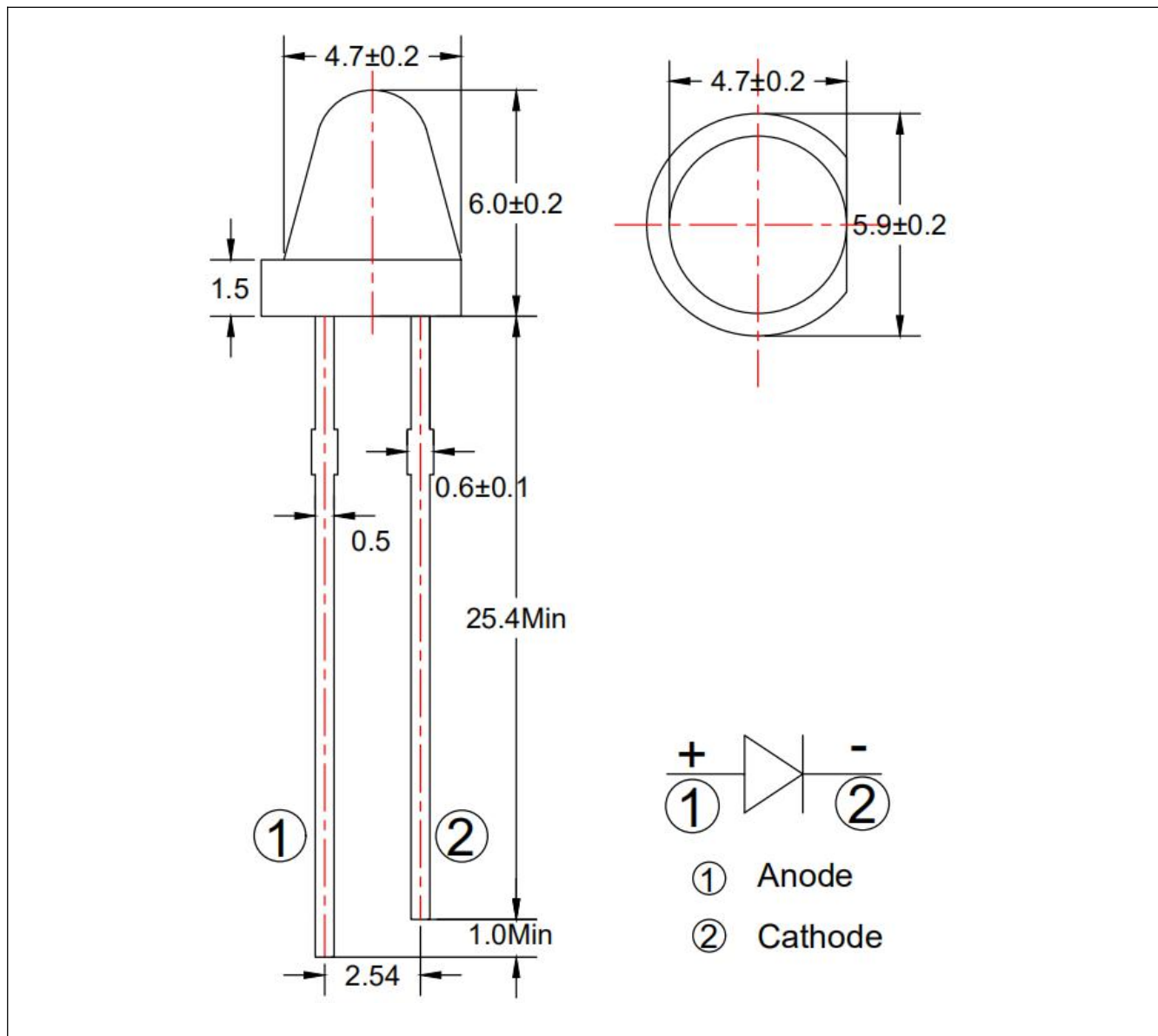
Series Name	Color Code	Remark
HV : HARVATEK	94I: 940nm AlGaAs IR Chip. 4493: 4.7mm Round Lamp, 6.0mm Lens	

## Features:

- Stable Color
- Popular 4.7mm through hole package, 6.0mm lens height.
- Blue 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>	100	mA
Operating Temperature	Topr	-40to+85	°C
Storage Temperature	Tstg	-40to+100	°C
Soldering Temperature*1	Tsol	260±5	°C
Power Dissipation	P <sub>d</sub>	150	mW
Reverse Voltage	V <sub>R</sub>	5	V
Peak Forward Current*2	I <sub>FP</sub>	1.0	A

\*1:Soldering time  $\leq$  5 seconds. \*2 Pulse Width  $\leq$  100  $\mu$  s and Duty  $\leq$  1%.

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## Electrical and Optical Characteristic

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Forward Voltage	$V_F$	$I_F=20\text{ mA}$	/	1.2	1.6	V
Reverse Current	$I_R$	$V_R=5\text{ V}$	/	/	100	$\mu\text{A}$
Luminous Intensity	$I_e$	$I_F=20\text{ mA}$	7.5	15.5	/	mW/sr
Viewing Angle	$2\theta_{1/2}$	$I_F=20\text{ mA}$	/	30	/	deg
Peak Wavelength	$\lambda_p$	$I_F=20\text{ mA}$	935	940	/	nm
Spectrum Radiation Bandwidth	$\Delta\lambda$	$I_F=20\text{ mA}$	/	45	/	nm

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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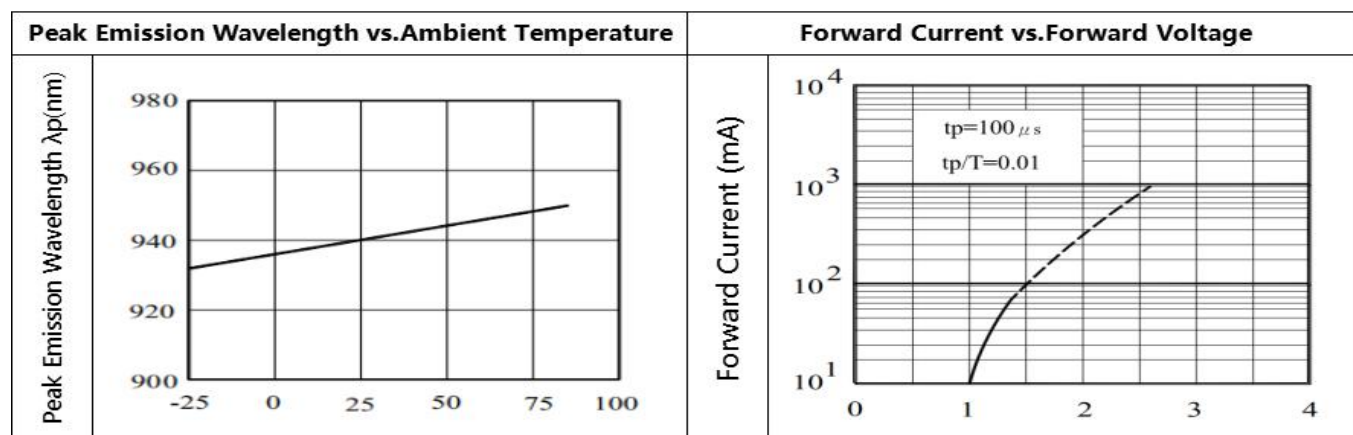
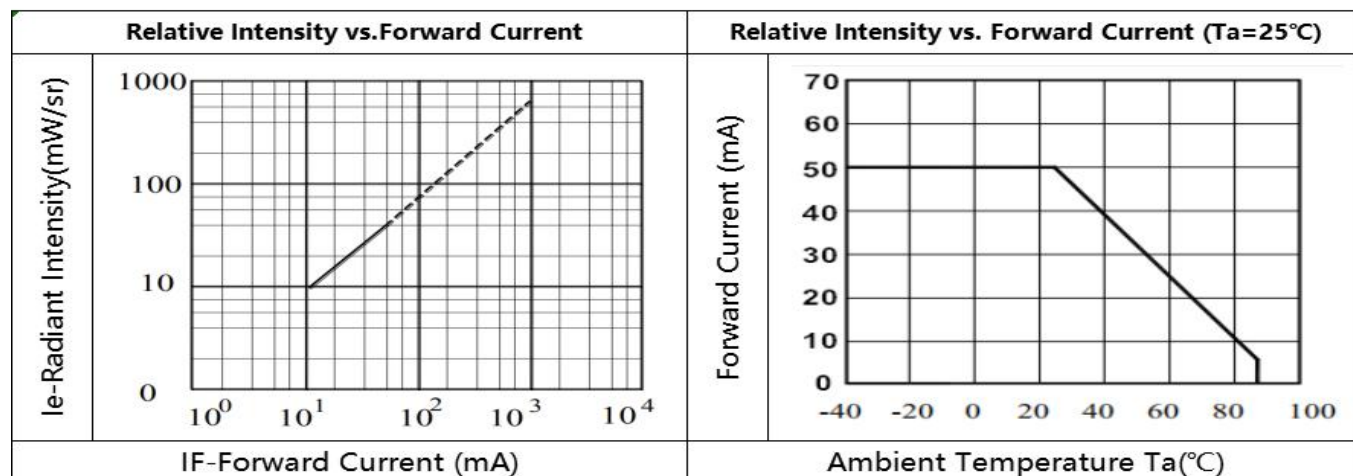
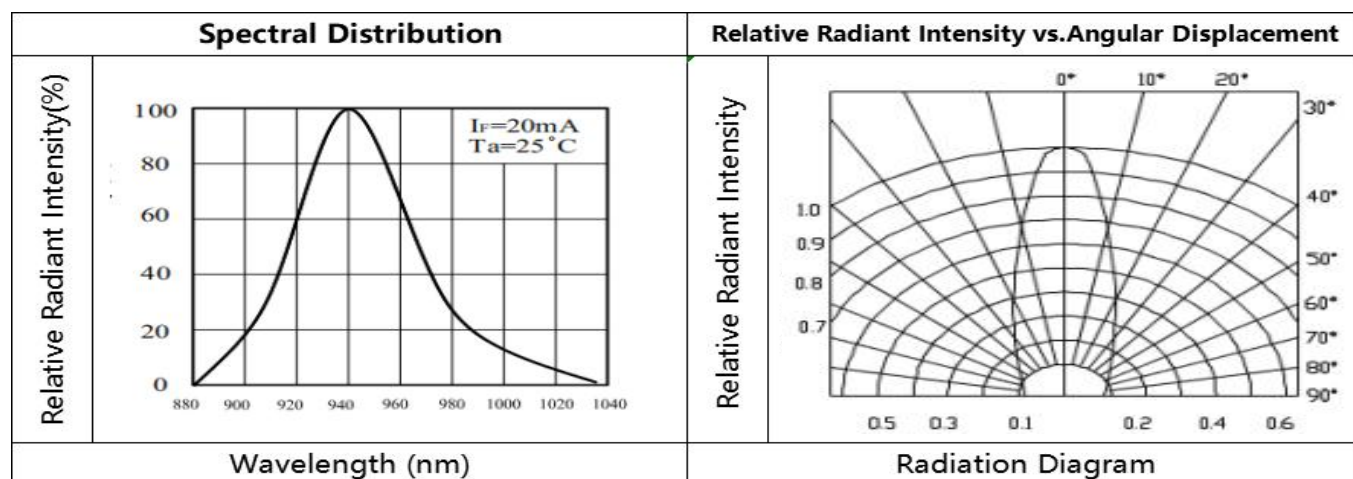
**Specifications for Bin Grading:**

I <sub>e</sub> (mcd)		
Grade	Min.	Max.
M	7.5	12.8
N	10.7	18
O	14.6	26
P	19	36
Q	30	42

Notes: Luminous intensity: +/-15%.

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## Typical Electro-Optical Characteristics Curve



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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	$I_v \leq I_{vt} * 0.5$ or $V_f \geq U$ or $V_f \leq L$	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: I<sub>vt</sub>: To test I<sub>v</sub> value of the chip before the reliability test.

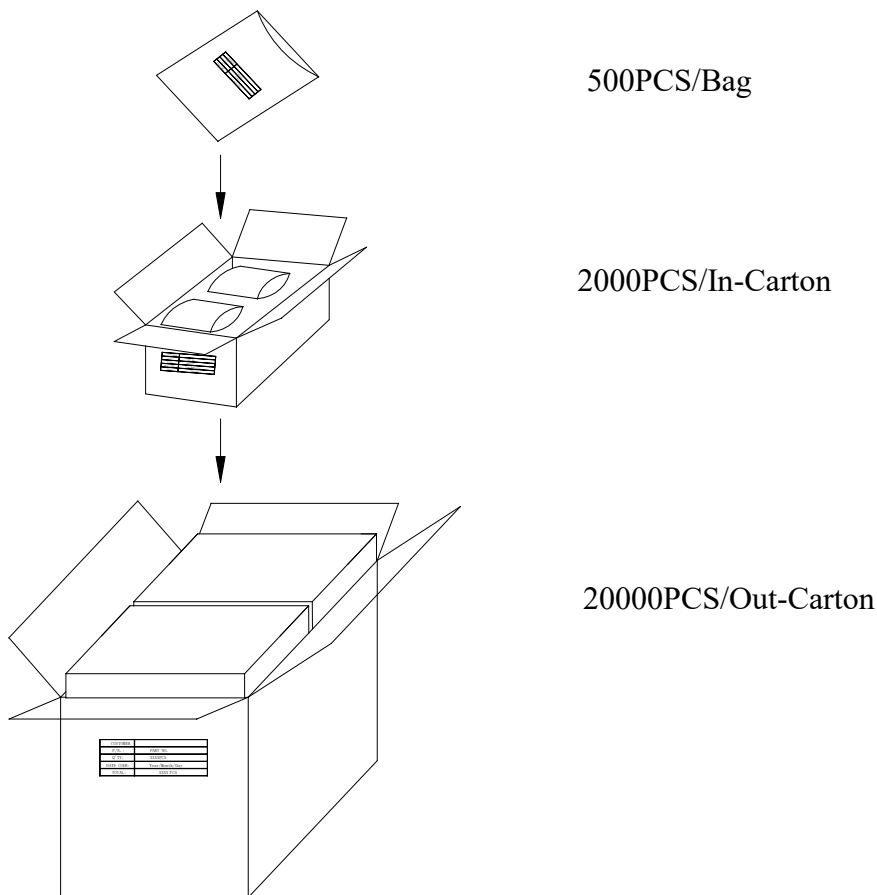
I<sub>v</sub>: The test value of the chip that has completed the reliability test

U: Upper Specification Limit

L: Lower Specification Limit

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## Packing Specification:



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**Revision History**

Revision	Page	Version No.	Revision Date
Initial Release		1.0	11-05-2019
Modify drawing and Electrical and Optical Characteristic	4	1.1	03-27-2020

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