

**Harvatek 4.8x2.5x4.5mm SIDE LOOK PT LED  
HV-1302559B-L2**

|                                                                                                |                |                   |                |                |
|------------------------------------------------------------------------------------------------|----------------|-------------------|----------------|----------------|
| Official Product                                                                               | HV-1302559B-L2 | Customer Part No. |                | Data Sheet No. |
|                                                                                                | *****          | *****             |                | CDAE-040-050   |
| Specifications are subject to change without notice. Data and drawings herein are copyrighted. |                | Nov. 11 2019      | Version of 1.1 | Page 1/11      |

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## LIFE SUPPORT POLICY

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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

**H V - 1 3 0 2 5 5 9 B - L2**

| Series Name      | Color Code                                                                                                                 | Remark |
|------------------|----------------------------------------------------------------------------------------------------------------------------|--------|
| HV :<br>HARVATEK | 130 :<br>940 nm Silicon PT Chip<br>2559:<br>4.8x2.5x4.5mm Side Look LED.<br>B : Black Transparent.<br>L2:HARVATEK Part No. |        |

## Features:

- Stable Color
- Popular 4.8x2.5x4.5mm through hole package.
- Water Clear Lens.

|                                                                                                |                |                   |                |
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**Absolute Maximum Ratings at Ta=25°C**

| Parameter                 | Symbol | Rating    | Unit |
|---------------------------|--------|-----------|------|
| Collector Current         | Ic     | 20        | mA   |
| Operating Temperature     | Topr   | -40to+85  | °C   |
| Storage Temperature       | Tstg   | -40to+100 | °C   |
| Soldering Temperature*1   | Tsol   | 260±5     | °C   |
| Power Dissipation         | Pd     | 75        | mW   |
| Collector-Emitter Voltage | Vceo   | 30        | V    |
| Emitter-Collector Voltage | Veco   | 5         | V    |

\*1: Soldering time  $\leq$  5 seconds.

|                                                                                                |                |                   |                |                |
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## Electrical and Optical Characteristic

| Parameter                             | Symbol          | Condition                                    | Min. | Typ. | Max. | Unit    |
|---------------------------------------|-----------------|----------------------------------------------|------|------|------|---------|
| On State Collector Current            | $I_{C(on)}$     | $V_{ce}=5V$<br>$E_e=0.555mW/cm^2$            | 129  | /    | 1085 | uA      |
| Collector Dark Current                | $I_d$           | $V_{ce}=20V$                                 | /    | /    | 100  | nA      |
| Collector – Emitter Breakdown Voltage | $BV_{ceo}$      | $I_c=100uA$                                  | 30   | /    | /    | V       |
| Emitter-Collector Breakdown Voltage   | $B V_{eco}$     | $I_e=100uA$                                  | 5    | /    | /    | V       |
| Collector-Emitter Saturation Voltage  | $V_{ce(sat)}$   | $I_c=0.5mA$<br>$I_F=20 mA$                   | /    | /    | 0.4  | V       |
| Peak Wavelength                       | $\lambda_p$     | /                                            | /    | 940  | /    | nm      |
| Rang of Spectral Bandwidth            | $\Delta\lambda$ | /                                            | 760  | 940  | 1100 | nm      |
| Rise Time                             | $t_r$           | $V_{CE}=5V$<br>$I_C=1mA$<br>$R_L=1000\Omega$ | /    | 15   | /    | $\mu S$ |
| Fall Time                             | $t_f$           |                                              | /    | 15   | /    | $\mu S$ |

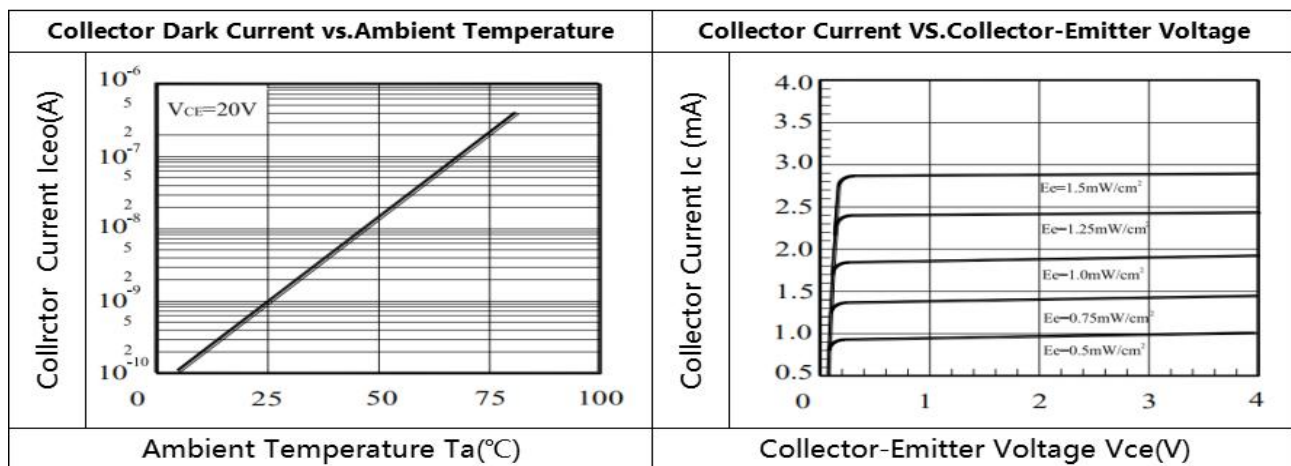
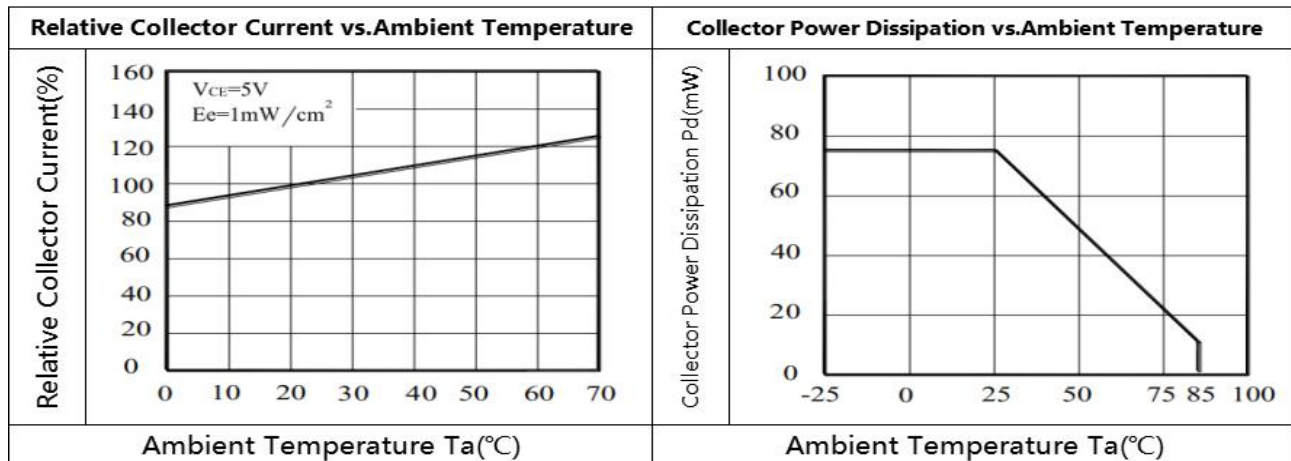
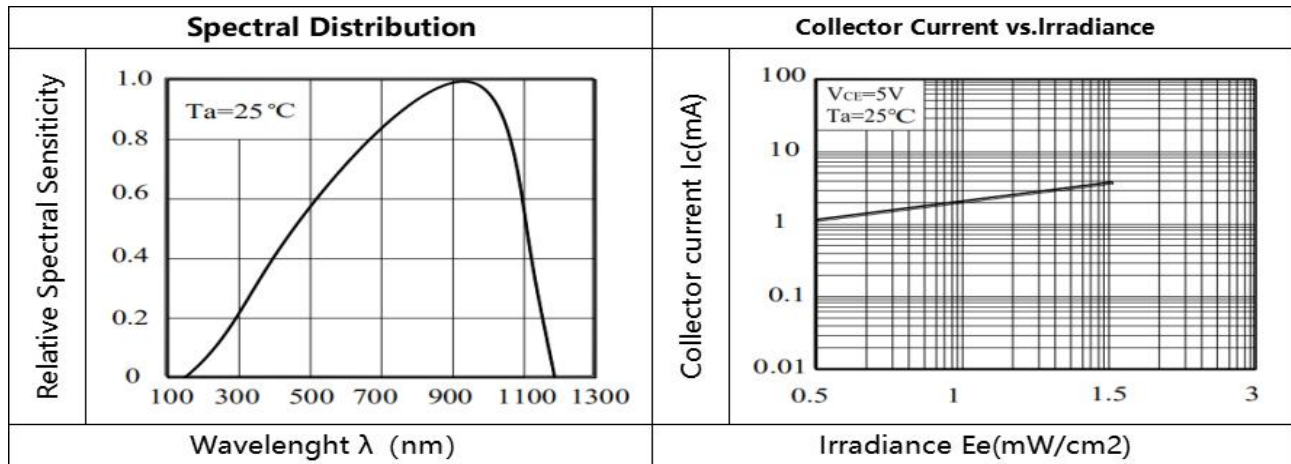
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**Specifications for Bin Grading:**

| Ic(mA) |       |       |
|--------|-------|-------|
| Grade  | Min.  | Max.  |
| A1     | 0.129 | 0.25  |
| A2     | 0.17  | 0.322 |
| A3     | 0.242 | 0.384 |
| A4     | 0.304 | 0.458 |
| A5     | 0.378 | 0.532 |
| A6     | 0.452 | 0.607 |
| A7     | 0.527 | 0.682 |
| A8     | 0.602 | 0.767 |
| A9     | 0.767 | 0.843 |
| A10    | 0.763 | 0.916 |
| A11    | 0.836 | 0.987 |
| A12    | 0.907 | 1.085 |

|                                                                                                |                |                   |                |                |
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## Typical Electro-Optical Characteristics Curves



|                                                                                                |                |                   |                |
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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      | $I_v \leq I_{vt} * 0.5$<br>or<br>$V_f \geq U$<br>or<br>$V_f \leq L$ | 0/1   |
| 2  | Temperature Cycle                | H:+100°C 15min<br>∫ 5min<br>L:-40°C 15min | 300 CYCLES       | 76 PCS      |                                                                     | 0/1   |
| 3  | Thermal Shock                    | H:+100°C 5min<br>∫ 10sec<br>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<br>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.

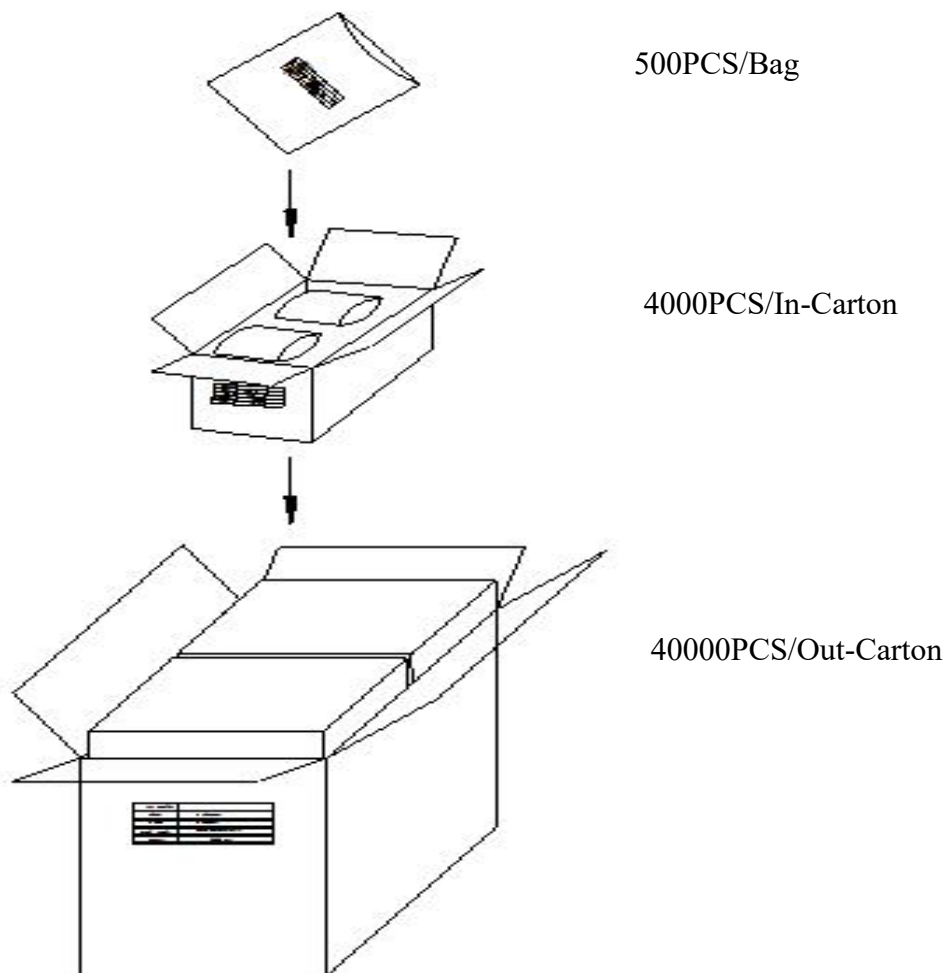
I<sub>v</sub>: The test value of the chip that has completed the reliability test

U: Upper Specification Limit

L: Lower Specification Limit

|                                                                                                |                |                   |                |                |
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## Packing Specification:



|                                                                                     |                 |                                                                                       |
|-------------------------------------------------------------------------------------|-----------------|---------------------------------------------------------------------------------------|
|  | <b>HARVATEK</b> |  |
| CPN:                                                                                |                 | <b>RoHs</b>                                                                           |
| P/N:                                                                                |                 |                                                                                       |
|                                                                                     |                 |                                                                                       |
| HV-1302559B-L2                                                                      |                 |                                                                                       |
| QTY:                                                                                |                 | CAT:                                                                                  |
|                                                                                     |                 | HUE:                                                                                  |
| LOT NO:                                                                             |                 | REF:                                                                                  |
|                                                                                     |                 |                                                                                       |

|                                                                                                |                |                   |                |
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**Revision History**

| Revision                                       | Page | Version No. | Revision Date |
|------------------------------------------------|------|-------------|---------------|
| Initial Release                                |      | 1.0         | 09-10-2018    |
| Modifies Electrical and Optical Characteristic | 6    | 1.1         | 11-11-2019    |
|                                                |      |             |               |
|                                                |      |             |               |
|                                                |      |             |               |
|                                                |      |             |               |
|                                                |      |             |               |

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