

**Harvatek 5.1\*2.6\*5.7mm Photo diode**  
**HV-1205M53B-L40**

|  |                 |                   |                |                |
|--|-----------------|-------------------|----------------|----------------|
| Official Product   | HV-1205M53B-L40 | Customer Part No. |                | Data Sheet No. |
|  | *****           | *****             |                | CDAE-010-697   |
| Specifications are subject to change without notice. Data and drawings herein are copyrighted. |                 | Nov. 05 2019      | Version of 1.0 | Page 1/10      |

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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 - 12 0 5M5 3 B - L40**

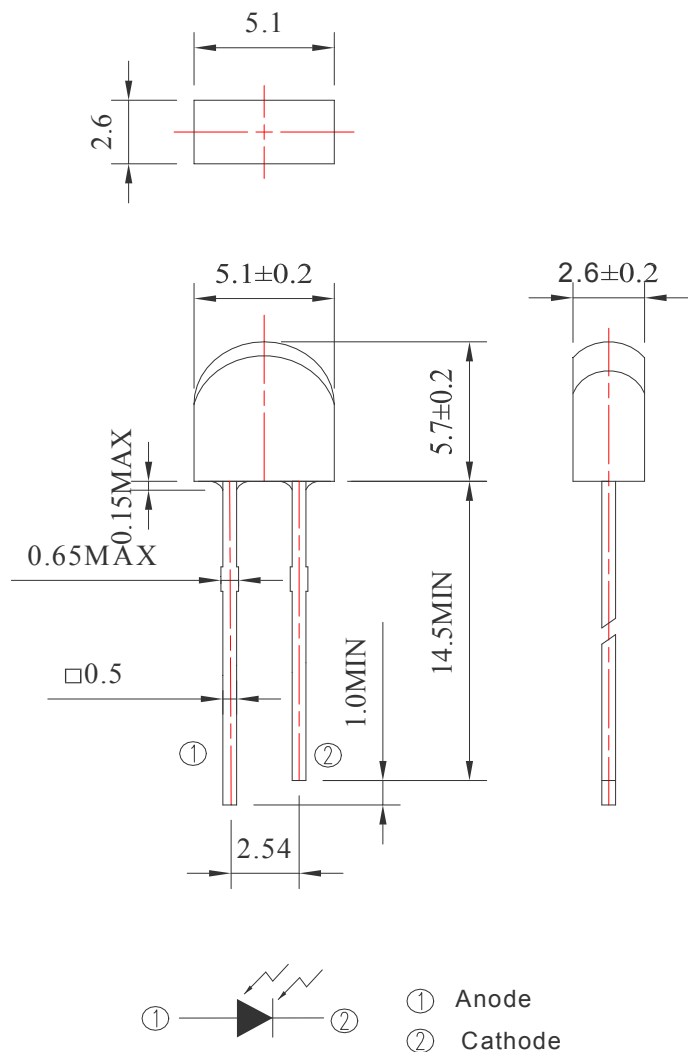
| Series Name      | Color Code  | Remark |
|------------------|---|--------|
| HV :<br>HARVATEK | 120:<br>940nm PD Chip.<br>5M53:<br>5.1*2.6*5.7mm LAMP.<br>B : Black Transparent.<br>L40 : HARVATEK Part No. |        |

## Features:

- Stable Color
- Popular 5.1\*2.6\*5.7mm through hole package, 5.7mm lens height.
- Black Transparent Lens.

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|  |                 |                   | Page 3/10      |

## Package Dimensions:



## Notes:

- 1.All dimensions are millimeters.
- 2.Tolerance is +/-0.25mm unless otherwise noted.
- 3.Specifications are subject to change without notice.

|  |                 |                   |                |
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|  |                 |                   | Page 4/10      |

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

| Parameter               | Symbol    | Rating   | Unit |
|-------------------------|-----------|----------|------|
| Reverse Voltage         | $V_R$     | 32       | V    |
| Operating Temperature   | $T_{opr}$ | -25to+85 | °C   |
| Storage Temperature     | $T_{stg}$ | -25to+85 | °C   |
| Soldering Temperature*1 | $T_{sol}$ | 260      | °C   |
| Power Dissipation       | $P_d$     | 150      | mW   |

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

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## Electrical and Optical Characteristic

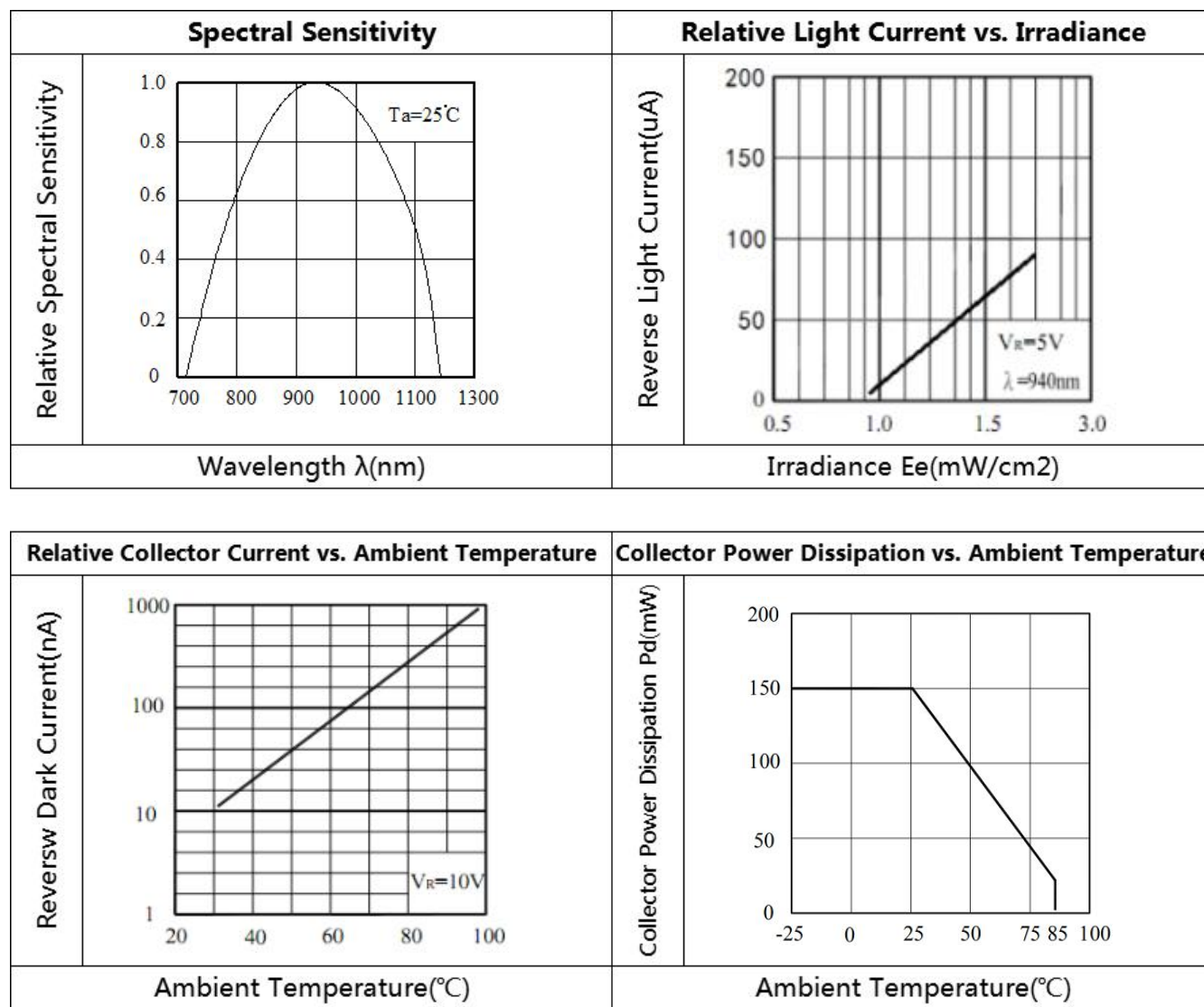
| Parameter                  | Symbol          | Condition   | Min. | Typ. | Max. | Unit    |
|----------------------------|-----------------|---|------|------|------|---------|
| Reverse Breakdown Voltage  | $BV_R$          | $E_e=0, I_R=100\mu A$   | 32   | /    | /    | V       |
| Open Circuit Voltage       | $V_{oc}$        | $E_e=5\text{mw}/\text{cm}^2$<br>$\lambda_p=940\text{nm}$                | /    | 0.44 | /    | V       |
| Dark Current               | $I_d$           | $E_e=0, V_R=10\text{V}$   | /    | /    | 100  | nA      |
| Reverse Light Current      | $I_L$           | $E_e=1\text{mw}/\text{cm}^2$<br>$\lambda_p=940\text{nm } V_R=5\text{V}$ | /    | 1.0  | /    | $\mu A$ |
| Total Capacitance          | $C_t$           | $E_e=0$<br>$V_R=5\text{V } f=1\text{mHz}$                               | /    | 4.2  | /    | pF      |
| Peak Wavelength            | $\lambda_p$     | $I_F=20\text{ mA}$  | /    | 940  | /    | nm      |
| Rang of Spectral Bandwidth | $\lambda_{0.5}$ | $I_F=20\text{ mA}$  | 760  | /    | 1100 | nm      |
| Rise Time                  | $t_r$           | $V_{CE}=10\text{V}$<br>$R_L=100\Omega$                                  | /    | 10   | /    | nS      |
| Fall Time                  | $t_f$           |   | /    | 10   | /    | nS      |

## Specifications for Bin Grading:

| $I_L (\mu A)$ |      |      |
|---------------|------|------|
| Grade         | Min. | Max. |
| G             | 0.4  | 1.2  |
| H             | 0.8  | 2.26 |
| J             | 1.5  | 3.54 |

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## Typical Electro-Optical Characteristics Curves



|  |                 |                   |                |
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|  |                 |                   | Page 7/10      |

# ◆ 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:  $I_{vt}$ : To test  $I_v$  value of the chip before the reliability test.

$I_v$ : The test value of the chip that has completed the reliability test

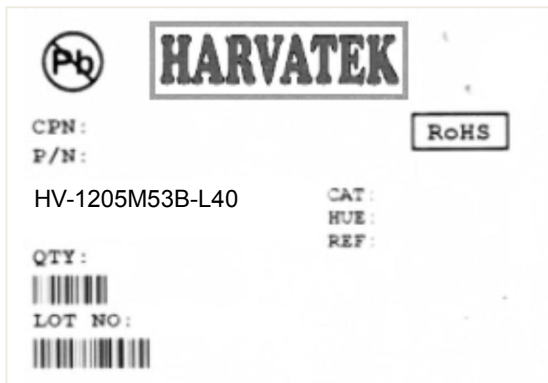
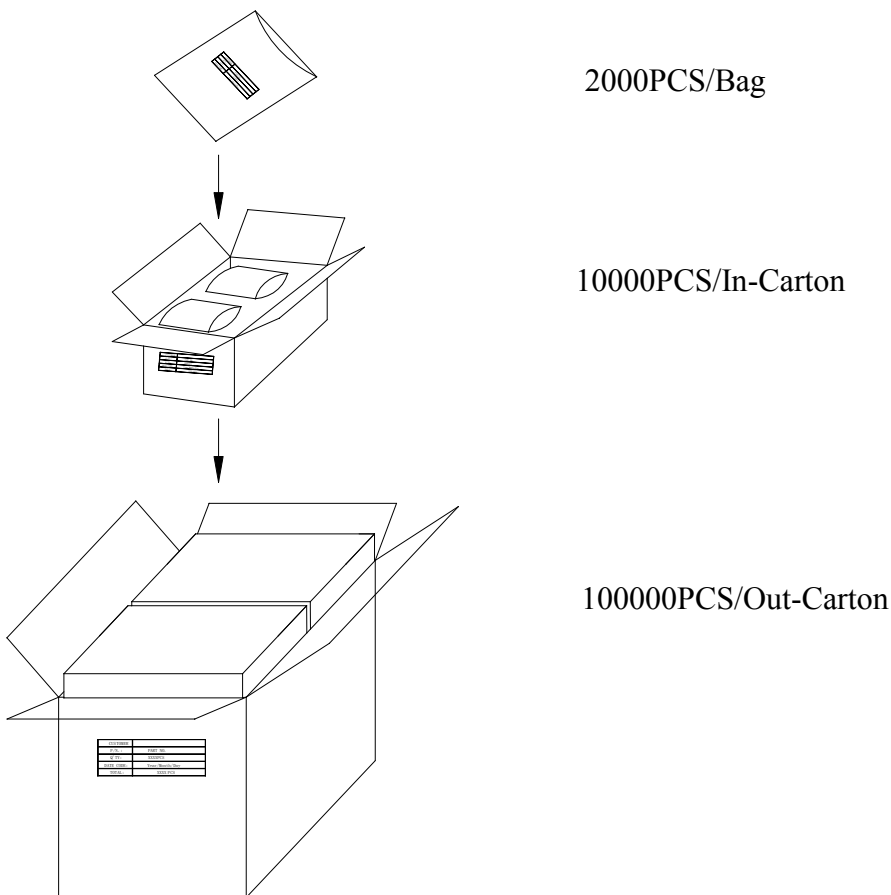
U: Upper Specification Limit

L: Lower Specification Limit

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## Packing Specification:



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|  | *****           | *****             |                | CDAE-010-697   |
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**Revision History**

| Revision        | Page | Version No. | Revision Date |
|-----------------|------|-------------|---------------|
| Initial Release |      | 1.0         | 11-05-2019    |
|                 |      |             |               |
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