

Harvatek 5.04*2.45*8.6mm Photo Transistor LED LAMP
HV-1305M82B

| | | | | |
|--|-------------|-------------------|----------------|----------------|
| Official Product | HV-1305M82B | Customer Part No. | | Data Sheet No. |
| | ***** | ***** | | CDAE-010-702 |
| Specifications are subject to change without notice. Data and drawings herein are copyrighted. | | Nov. 06 2019 | Version of 1.0 | Page 1/10 |

DISCLAIMER

HARVATEK reserves the right to make changes without further notice to any products herein to improve reliability, function or design. HARVATEK does not assume any liability arising out of the application or use of any product or circuit described herein; neither does it convey any license under its patent rights, nor the rights of others.

LIFE SUPPORT POLICY

HARVATEK's products are not authorized for use as critical components in life support devices or systems without the express written approval of the President of HARVATEK or HARVATEK INTERNATIONAL. As used herein:

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.

| | | | | |
|--|--------------|-------------------|-----------|----------------|
| Official Product | HV-1305M82B | Customer Part No. | | Data Sheet No. |
| | ***** | ***** | | CDAE-010-702 |
| Specifications are subject to change without notice. Data and drawings herein are copyrighted. | Nov. 06 2019 | Version of 1.0 | Page 2/10 | |

Compliance and Certification

ISO9002, QS9000 and ISO14001 Certified

RoHS Compliant



Orderable Information

H V - 13 0 5M8 2 B



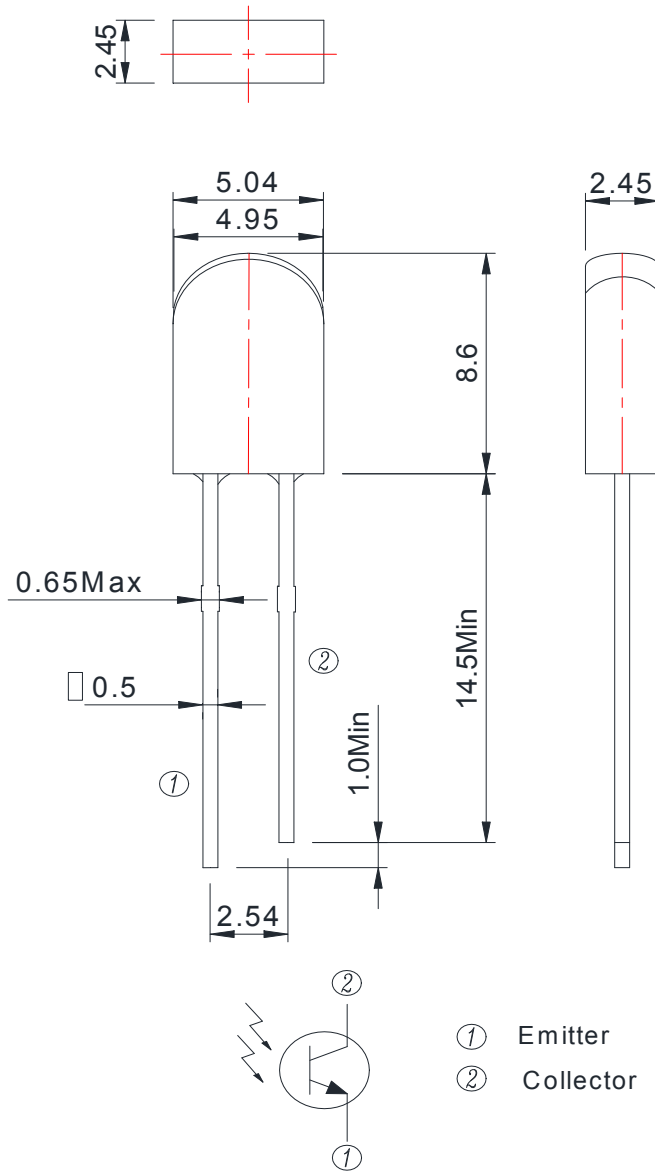
| Series Name | Color Code | Remark |
|------------------------------------|---|--------|
| HV : HARVATEK | 130: 940nm Silicon PT Chip. 5M82: 5.04*2.45*8.6mm LAMP. B : Black Transparent. | |

Features:

- Stable Color
- Popular 5.04*2.45*8.6mm through hole package, 8.6mm lens height.
- Black Transparent Lens.

| | | | |
|--|----------------------|----------------------------|--------------------------------|
| Official Product | HV-1305M82B ***** | Customer Part No. ***** | Data Sheet No. CDAE-010-702 |
| Specifications are subject to change without notice. Data and drawings herein are copyrighted. | | Nov. 06 2019 | Version of 1.0 |
| | | | 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.

| | | | |
|--|--------------|-------------------|----------------|
| Official Product | HV-1305M82B | Customer Part No. | Data Sheet No. |
| | ***** | ***** | CDAE-010-702 |
| Specifications are subject to change without notice. Data and drawings herein are copyrighted. | Nov. 06 2019 | Version of 1.0 | Page 4/10 |

Absolute Maximum Ratings at Ta=25°C

| Parameter | Symbol | Rating | Unit |
|---------------------------|--------|----------|------|
| Collector Current | Ic | 20 | mA |
| Operating Temperature | Topr | -25to+85 | °C |
| Storage Temperature | Tstg | -25to+85 | °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 ≅ 5 seconds.

| | | | | |
|--|-------------|-------------------|----------------|----------------|
| Official Product | HV-1305M82B | Customer Part No. | | Data Sheet No. |
| | ***** | ***** | | CDAE-010-702 |
| Specifications are subject to change without notice. Data and drawings herein are copyrighted. | | Nov. 06 2019 | Version of 1.0 | Page 5/10 |

Electrical and Optical Characteristic

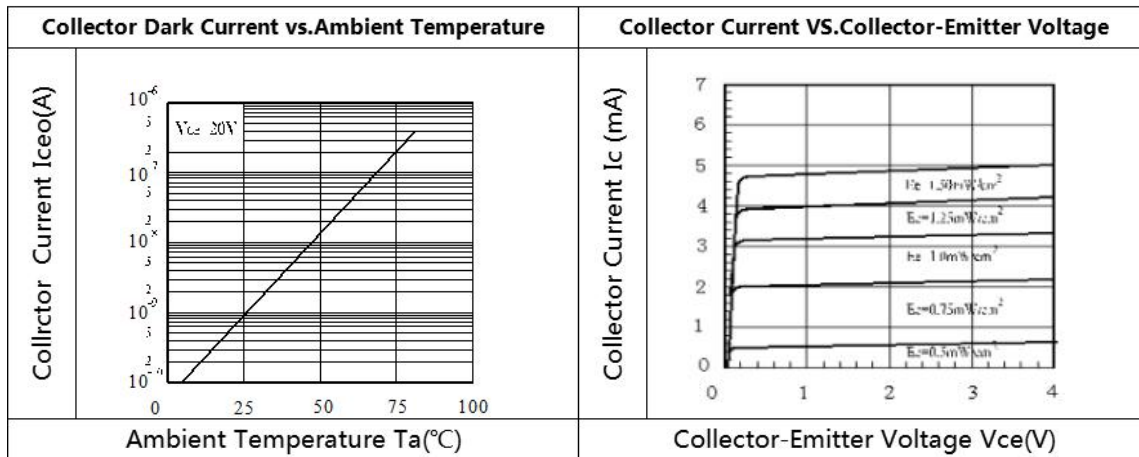
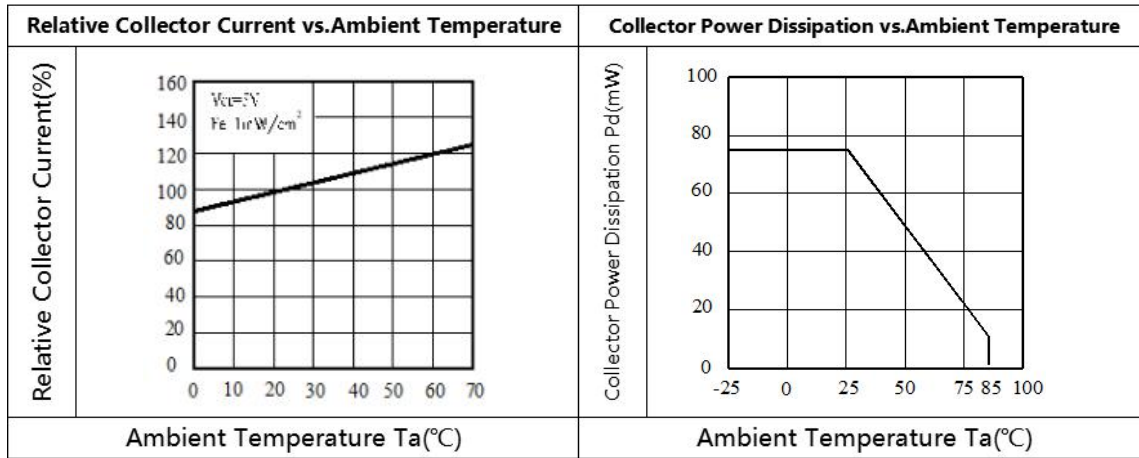
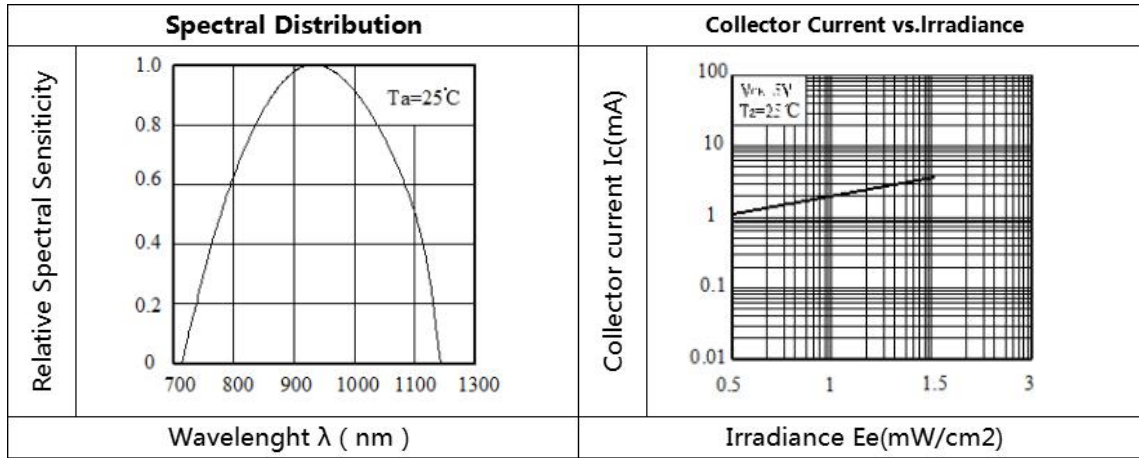
| Parameter | Symbol | Condition | Min. | Typ. | Max. | Unit |
|---------------------------------------|-----------------|--|------|------|------|---------|
| On State Collector Current | $I_{C(on)}$ | $V_{ce}=5V$ $E_e=1mW/cm^2$ | / | 7.6 | / | mA |
| Collector Dark Current | I_d | $V_{ce}=20V$ | / | / | 100 | nA |
| Collector – Emitter Breakdown Voltage | BV_{ceo} | $I_c=100\mu A$ | 30 | / | / | V |
| Emitter-Collector Breakdown Voltage | BV_{eco} | $I_e=100\mu A$ | 5 | / | / | V |
| Collector-Emitter Saturation Voltage | $V_{ce(sat)}$ | $I_c=0.5mA$ $I_F=20 mA$ | / | / | 0.4 | V |
| Peak Wavelength | λ_p | / | / | 940 | / | nm |
| Rang of Spectral Bandwidth | $\Delta\lambda$ | / | 760 | / | 1100 | nm |
| Rise Time | t_r | $V_{CE}=5V$ $I_C=1mA$ $R_L=1000\Omega$ | / | 15 | / | μS |
| Fall Time | t_f | | / | 15 | / | μS |

Specifications for Bin Grading:

| I_c (mA) | | |
|------------|------|------|
| Grade | Min. | Max. |
| 17# | 3.36 | 7.8 |
| 18# | 5.2 | 10.8 |
| 19# | 7.2 | 13.8 |

| | | | | |
|--|-------------|-------------------|----------------|----------------|
| Official Product | HV-1305M82B | Customer Part No. | | Data Sheet No. |
| | ***** | ***** | | CDAE-010-702 |
| Specifications are subject to change without notice. Data and drawings herein are copyrighted. | | Nov. 06 2019 | Version of 1.0 | Page 6/10 |

Typical Electro-Optical Characteristics Curves



| | | | |
|--|-------------|-------------------|----------------|
| Official Product | HV-1305M82B | Customer Part No. | Data Sheet No. |
| | ***** | ***** | CDAE-010-702 |
| Specifications are subject to change without notice. Data and drawings herein are copyrighted. | | Nov. 06 2019 | Version of 1.0 |
| | | | 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 | $I_v \leq I_{vt} * 0.5$ 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_{vt} : To test I_v value of the chip before the reliability test.

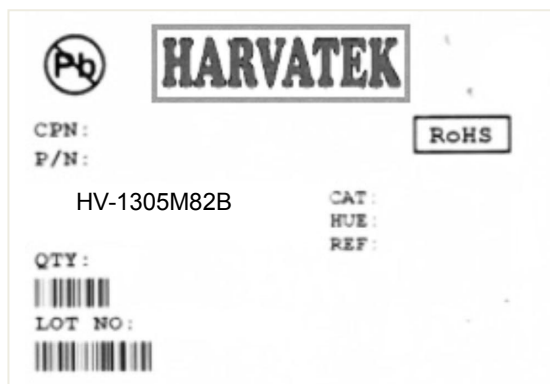
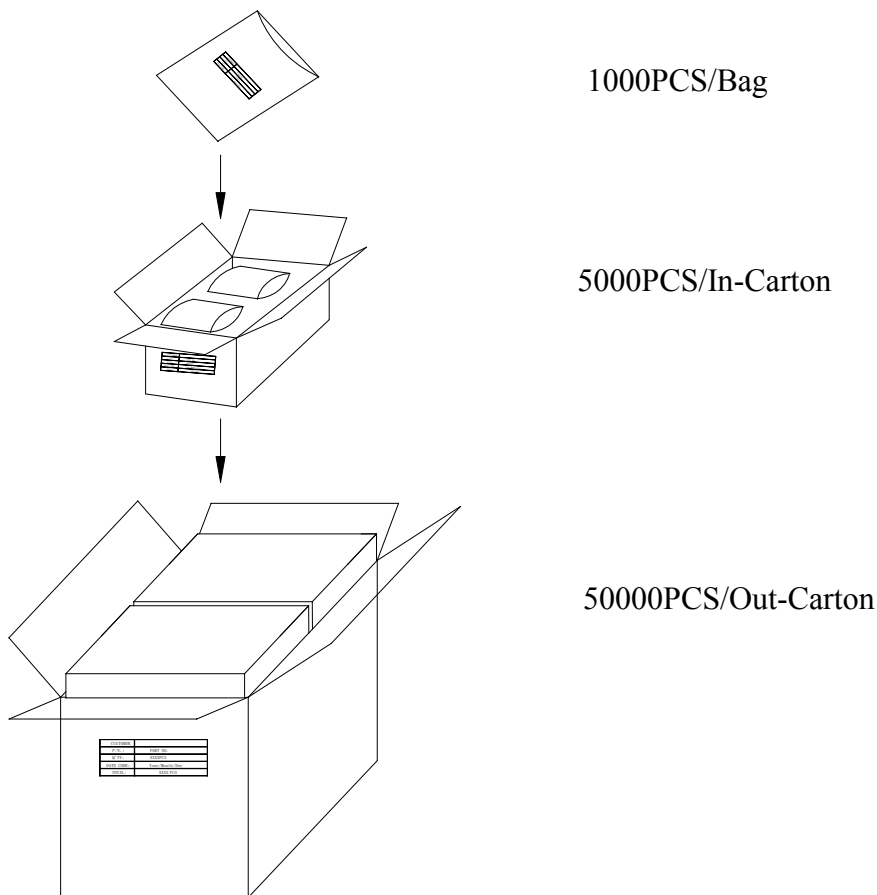
I_v : The test value of the chip that has completed the reliability test

U: Upper Specification Limit

L: Lower Specification Limit

| | | | | |
|--|-------------|-------------------|----------------|----------------|
| Official Product | HV-1305M82B | Customer Part No. | | Data Sheet No. |
| | ***** | ***** | | CDAE-010-702 |
| Specifications are subject to change without notice. Data and drawings herein are copyrighted. | | Nov. 06 2019 | Version of 1.0 | Page 8/10 |

Packing Specification:



| | | | | |
|--|-------------|-------------------|----------------|----------------|
| Official Product | HV-1305M82B | Customer Part No. | | Data Sheet No. |
| | ***** | ***** | | CDAE-010-702 |
| Specifications are subject to change without notice. Data and drawings herein are copyrighted. | | Nov. 06 2019 | Version of 1.0 | Page 9/10 |

Revision History

| Revision | Page | Version No. | Revision Date |
|-----------------|------|-------------|---------------|
| Initial Release | | 1.0 | 11-06-2019 |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

| | | | |
|--|-------------|-------------------|----------------|
| Official Product | HV-1305M82B | Customer Part No. | Data Sheet No. |
| | ***** | ***** | CDAE-010-702 |
| Specifications are subject to change without notice. Data and drawings herein are copyrighted. | | Nov. 06 2019 | Page 10/10 |