

Harvatek 5.0mm Round PT LED LAMP**HV-1303303B**

Official Product	HV-1303303B	Customer Part No.		Data Sheet No.
	*****	*****		HV-1303303B
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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 - 1 3 0 3 3 0 3 B

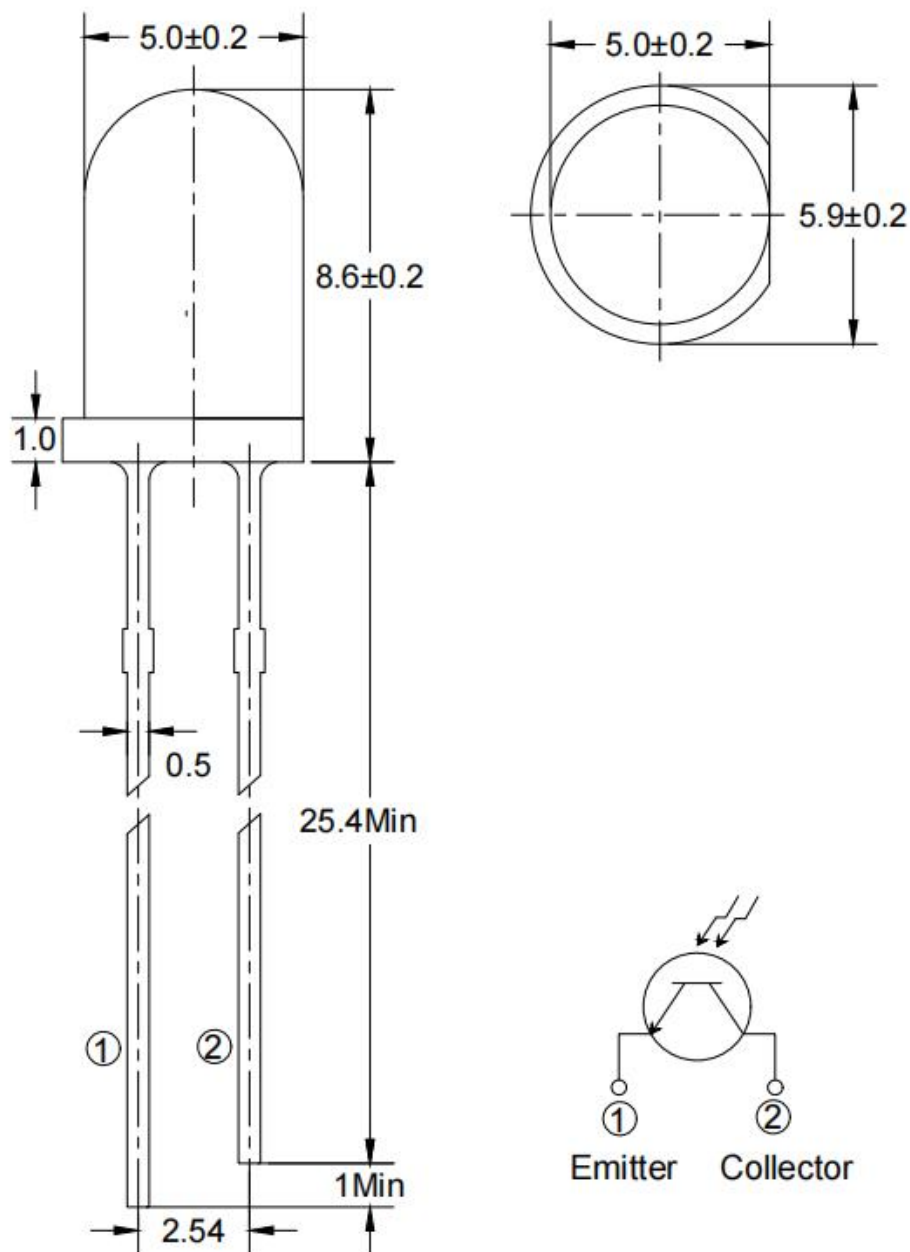
Series Name	Color Code	Remark
HV : HARVATEK	130: 840-1100nm Silicon PT Chip. 3303: 5.0mm Round Lamp, 8.6mm Lens. B : Black.	

Features:

- Stable Color.
- Popular 5.0mm through hole package, 8.6mm lens height.
- Black lens.

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Package Dimensions:



Notes:

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

Parameter	Symbol	Rating	Unit
Collector Current	I _c	20	mA
Operating Temperature	T _{opr}	-40to+85	°C
Storage Temperature	T _{stg}	-40to+85	°C
Soldering Temperature*1	T _{sol}	260	°C
Power Dissipation	P _d	75	mW
Collector-Emitter Voltage	V _{ceo}	30	V
Emitter-Collector Voltage	V _{eco}	5	V

*1:Soldering time ≦ 5 seconds.

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Electrical and Optical Characteristic

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
On State Collector Current	IC(on)	Vce=5V Ee=1mW/cm2	0.7	3.0	/	mA
Collector Dark Current	Id	Vce=10V Ee=0mW/cm2	/	/	100	nA
Collector – Emitter Breakdown Voltage	BVceo	Ic=100uA Ee=0mW/cm2	30	/	/	V
Emitter-Collector Breakdown Voltage	B Veco	Ie=100uA Ee=0mW/cm2	5	/	/	V
Collector-Emitter Saturation Voltage	Vce(sat)	Ic=2mA Ee=1mW/cm2	/	/	0.4	V
Wavelength of Peak Sensitivity	λ_p	/	/	940	/	nm
Viewing Angle	$2\theta_{1/2}$	Vce=5V	/	40	/	deg
Rang of Spectral Bandwidth	$\lambda_{0.5}$	/	840	/	1100	nm
Rise Time	tr	VCE=5V IC=1mA RL=1000Ω	/	15	/	μS
Fall Time	tf		/	15	/	μS

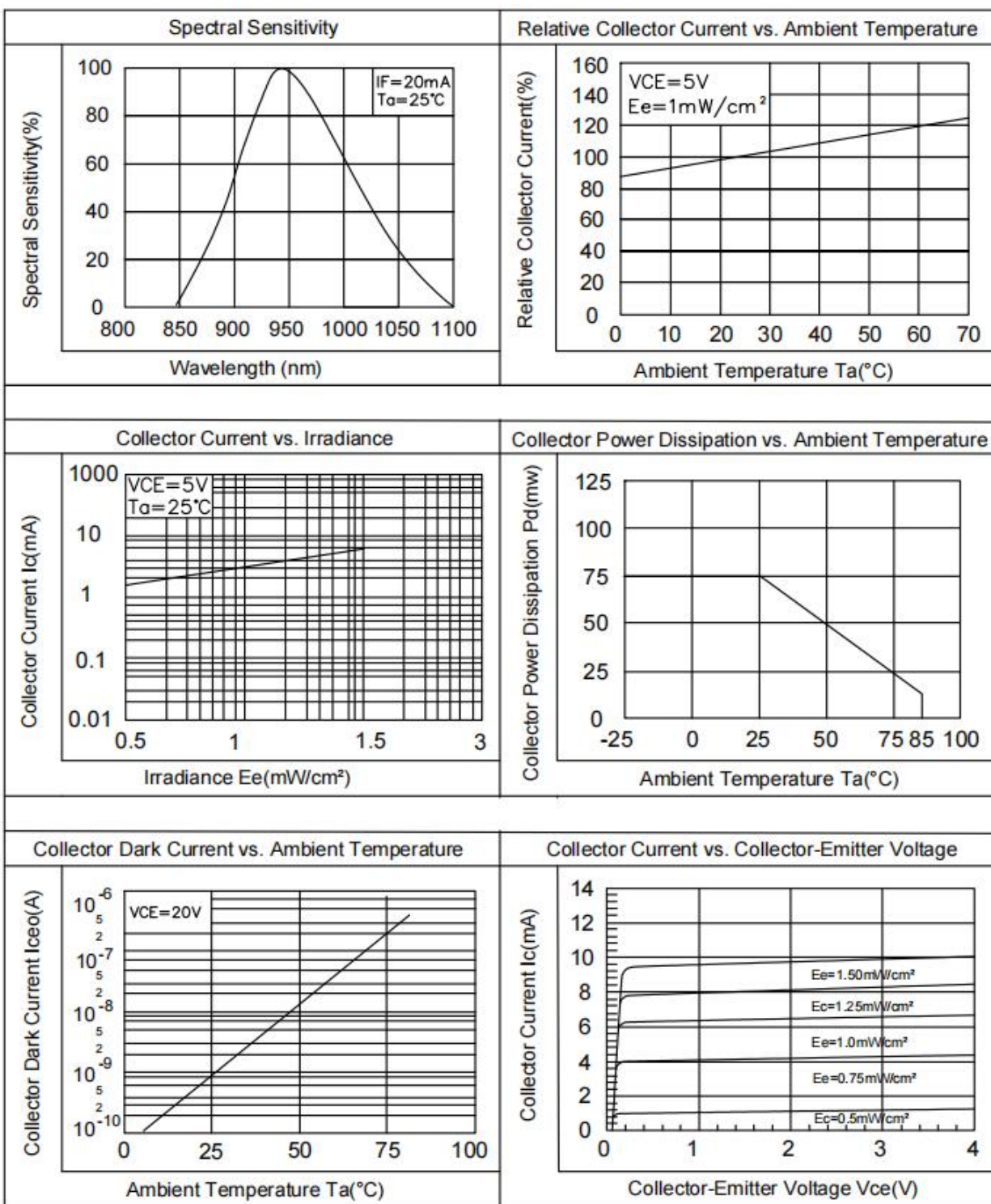
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Specifications for Bin Grading:

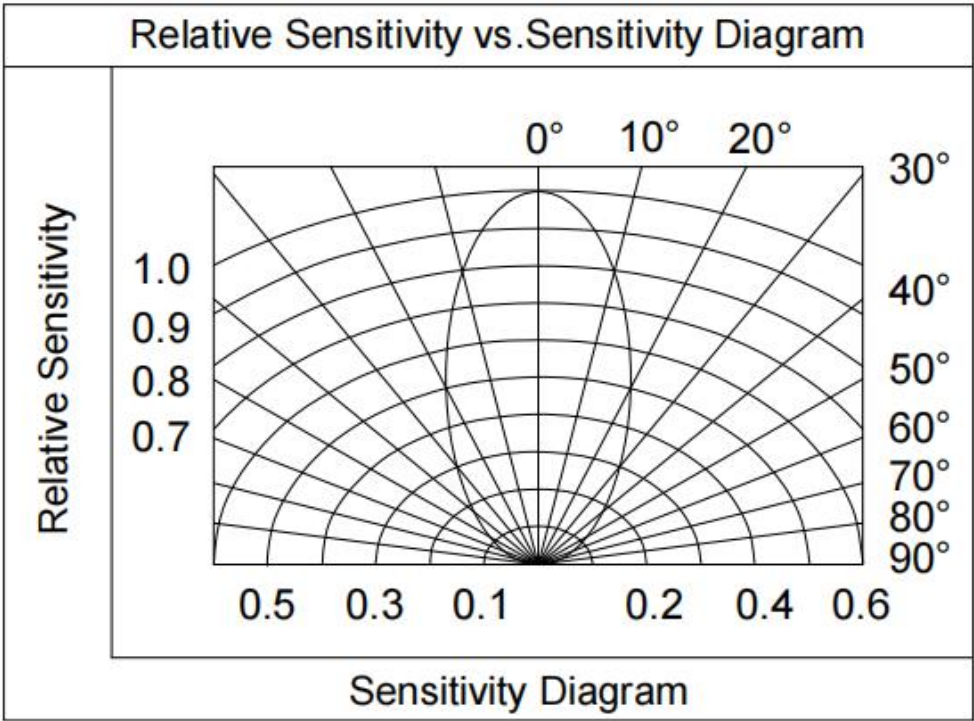
Ic(mA)		
Grade	Min.	Max.
G	0.7	1.9
H	1.14	2.6
J	1.77	3.61
K	2.67	5.07
L	4.18	7.07
M	5.68	8.48
N	7.18	9.98
P	8.68	11.5

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Typical Electro-Optical Characteristics Curve



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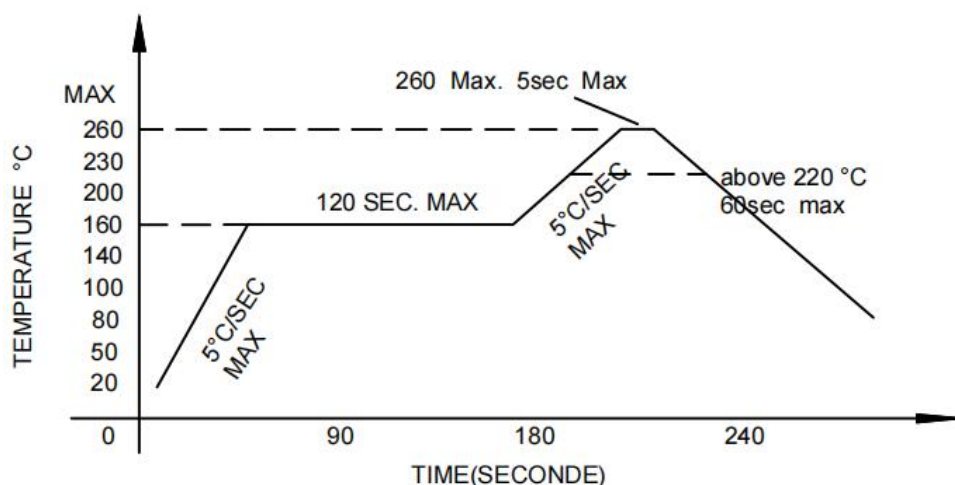
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Soldering condition

1. 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.
2. Avoiding applying any stress to the lead frame while the LED are at high temperature particularly when soldering.
3. Dip and hand soldering should not be done more than one time.
4. After soldering the LED, the epoxy bulb should be protected from mechanical shock or vibration until the LED return to room temperature.
5. A rapid-rate process is not recommended for cooling the LED down from the peak temperature.
6. 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.
7. 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	$I_c \leq I_{ct} * 0.5$ 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_{ct} : To test I_c value of the chip before the reliability test.

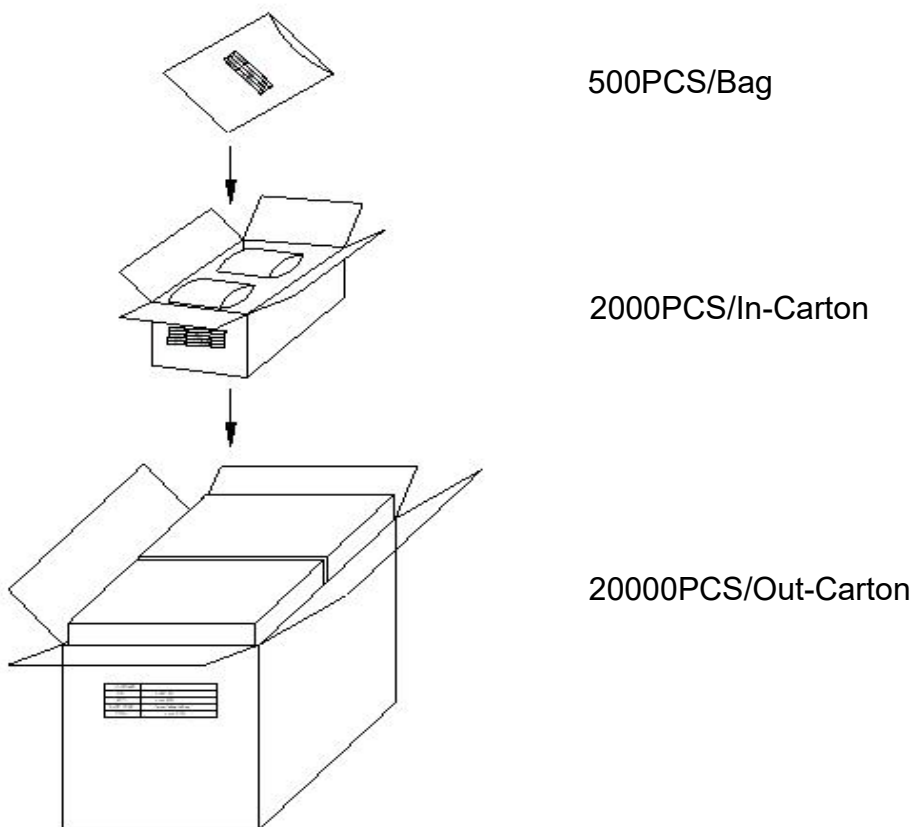
I_c : The test value of the chip that has completed the reliability test.






U: Upper Specification Limit.

L: Lower Specification Limit.

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Packing Specification:



	HARVATEK	
CPN:		RoHs
P/N:		
		
HV-1303303B		
QTY:		CAT:
		HUE:
LOT NO:		REF:
		

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Revision History

Revision	Page	Version No.	Revision Date
Initial Release		1.0	11-05-2019
Modification of electrical units	6	1.1	11- 11-2020
Increase angle diagram and furnace conditions	9/10	1.2	07-06-2022

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