

**Harvatek 8.7\*3.5\*5.9mm Reflective Type Sensor****HV-22S087059/829B-F3.3**

Official Product	HV-22S087059/829B-F3.3	Customer Part No.		Data Sheet No.
	*****	*****		HV-22S087059/829B-F3.3
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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 - 22S 087 059 / 829 B - F3.3

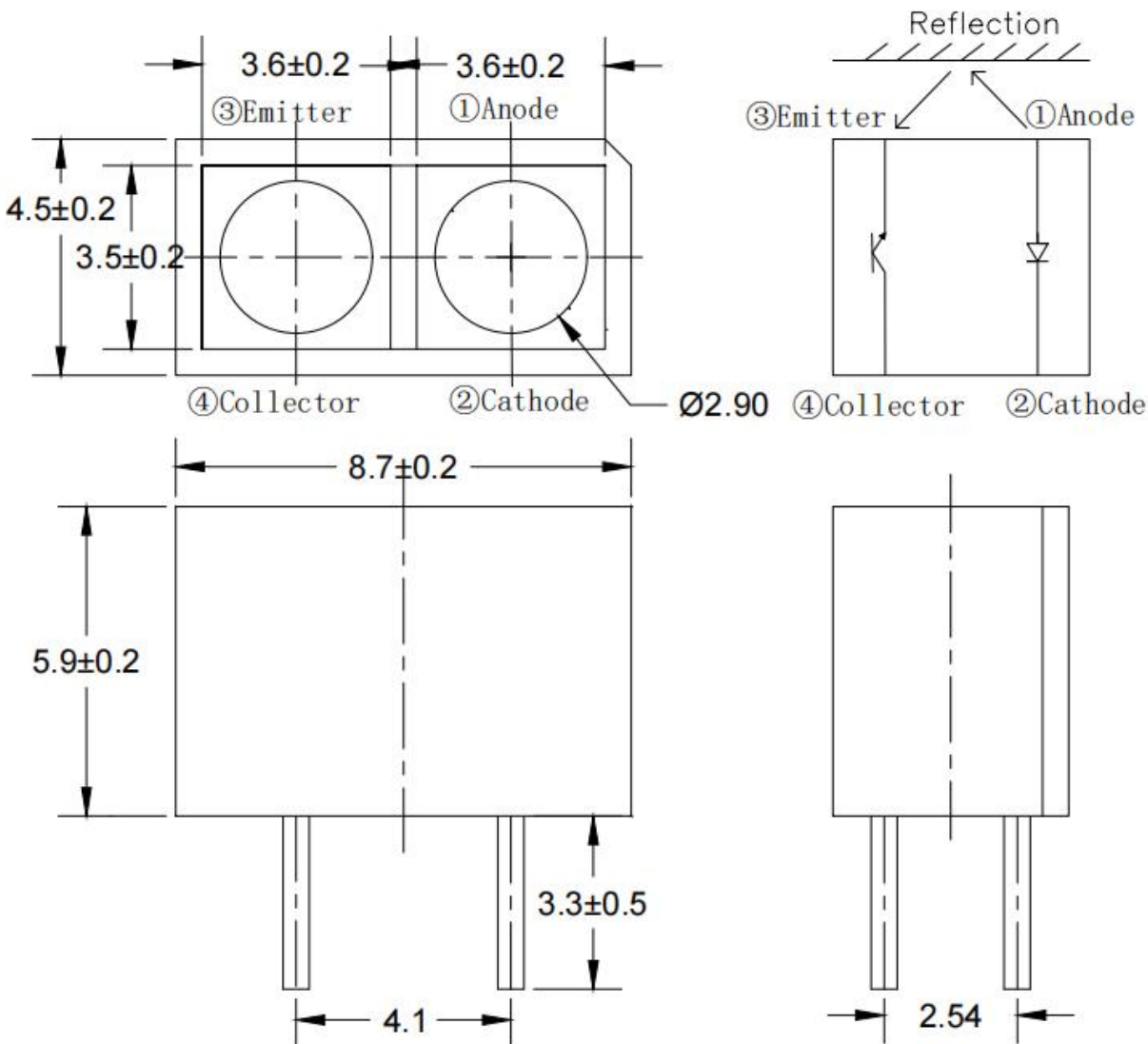
Series Name	Color Code
<b>HV :</b> <b>HARVATEK</b>	<b>22S087059 :</b> <b>8.7*3.5*5.9mm Reflective Type Sensor.</b> <b>With AlGaAs Infrared emitter &amp;</b> <b>Silicon Photo transistor.</b> <b>829 : HARVATEK Part No.</b> <b>B : PT Lens Color is Black.</b> <b>F3.3: HARVATEK Part No.</b>

## Features:

- Low power consumption.
- High analytic.
- Fast response.
- Good look and easy to assembly.

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

Parameter		Symbol	Rating	Unit
Emitter	Forward Current	I <sub>F</sub>	50	mA
	Power Dissipation	P <sub>d</sub>	75	mW
	Reverse Voltage	V <sub>R</sub>	5	V
	Peak Forward Current *1	I <sub>FP</sub>	1	A
Receiver	Collector Current	I <sub>c</sub>	20	mA
	Power Dissipation	P <sub>d</sub>	75	mW
	Collector-Emitter Voltage	V <sub>ceo</sub>	30	V
	Emitter-Collector Voltage	V <sub>eco</sub>	5	V
Operating Temperature		T <sub>opr</sub>	-40to+85	°C
Storage Temperature		T <sub>stg</sub>	-40to+85	°C
Soldering Temperature *2		T <sub>sol</sub>	260	°C

\*1: Pulse Width ≤ 100μs and Duty ≤ 1%      \*2: Soldering time ≤ 5 seconds.

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**Electrical and Optical Characteristic at Ta=25°C**

Parameter		Symbol	Condition	Min.	Typ.	Max.	Unit
Emitter	Forward Voltage	$V_F$	$I_F=20\text{ mA}$	/	1.2	1.5	V
	Reverse Current	$I_R$	$V_R=5\text{ V}$	/	/	10	$\mu\text{A}$
	Peak Wavelength	$\lambda_p$	$I_F=20\text{ mA}$	930	940	/	nm
Receiver	Dark Current	$I_d$	$V_{CE}=20\text{V}$	/	/	100	nA
	C-E Saturation	$V_{ce(sat)}$	$I_C=0.5\text{mA}$ $I_F=20\text{ mA}$	/	/	0.4	V
Transfer Characteristics	Collect Current	$I_{C(ON)}$	$V_{CE}=5\text{V}$ $I_F=20\text{ mA}$	0.2	/	/	mA
	Rise time	$T_r$	$V_{CE}=5\text{V}$ $I_C=1\text{mA}$ $R_L=1\text{K}\Omega$	/	15	/	$\mu\text{sec}$
	Fall time	$T_f$		/	15	/	$\mu\text{sec}$

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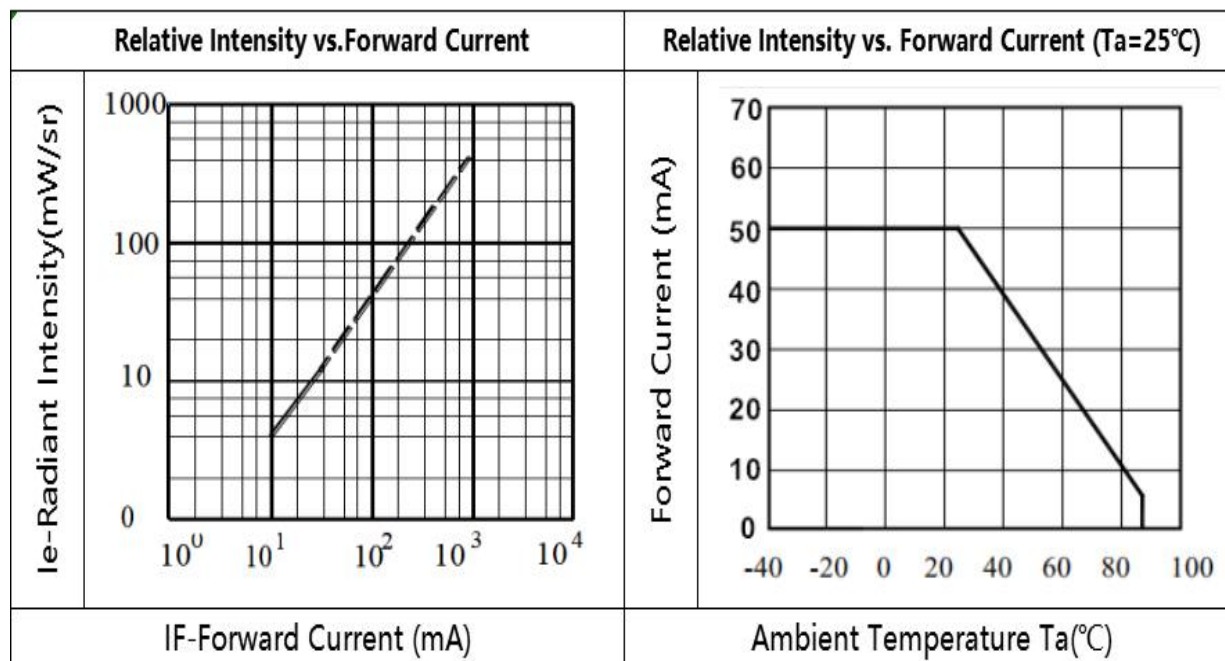
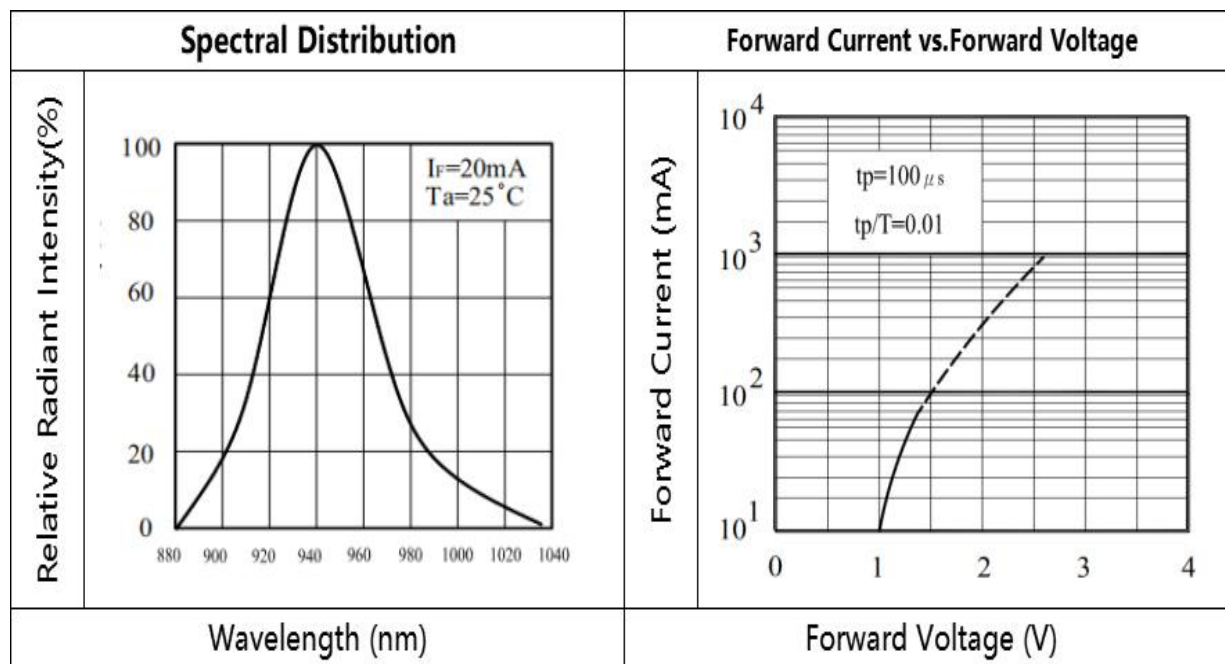
**Specifications for Bin Grading:**

Ic(mA)		
Grade	Min.	Max.
E	0.2	0.87
F	0.4	1.35
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

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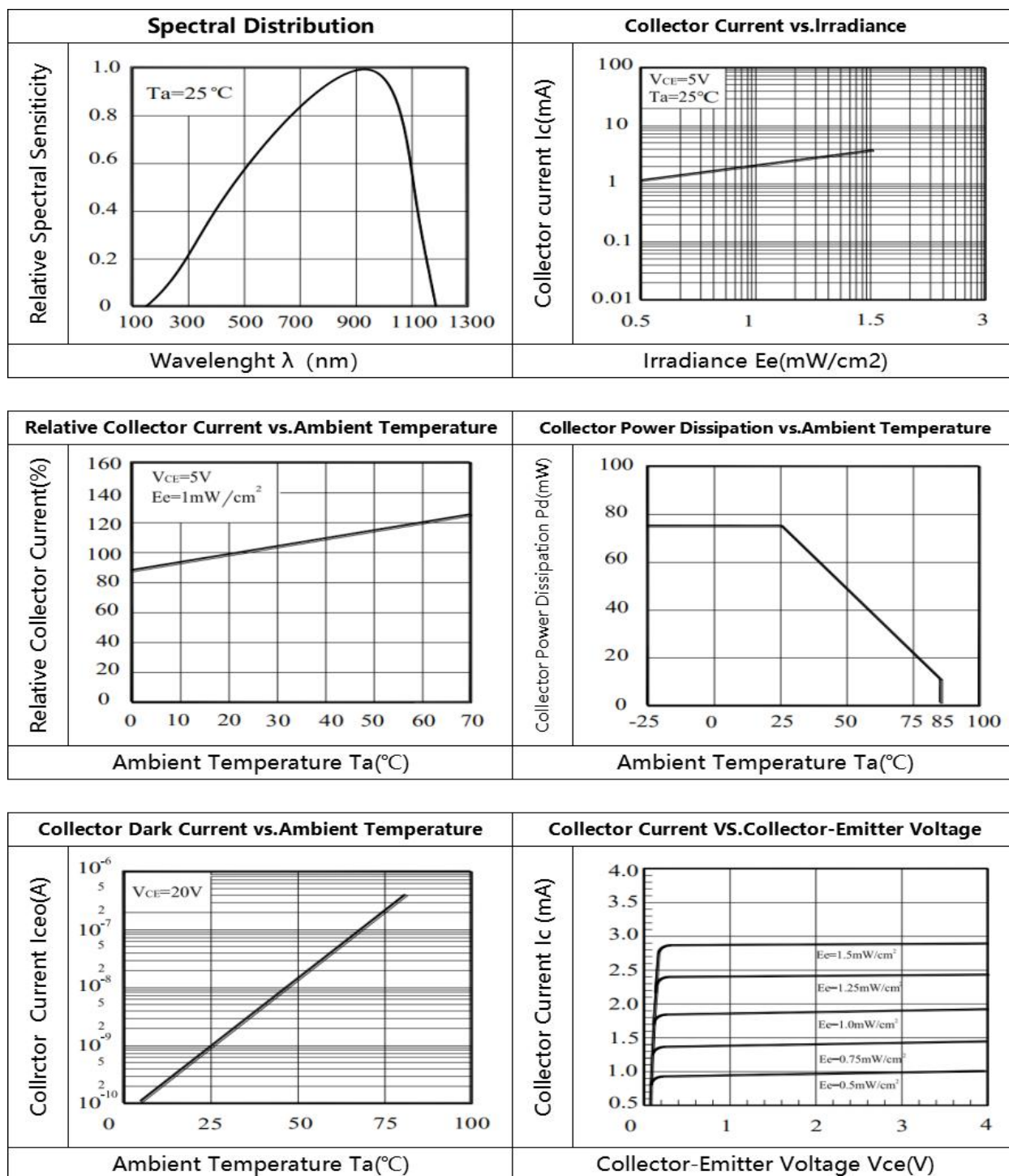
## Typical Electro-Optical Characteristics Curves For IR



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## Typical Electro-Optical Characteristics Curves For PT



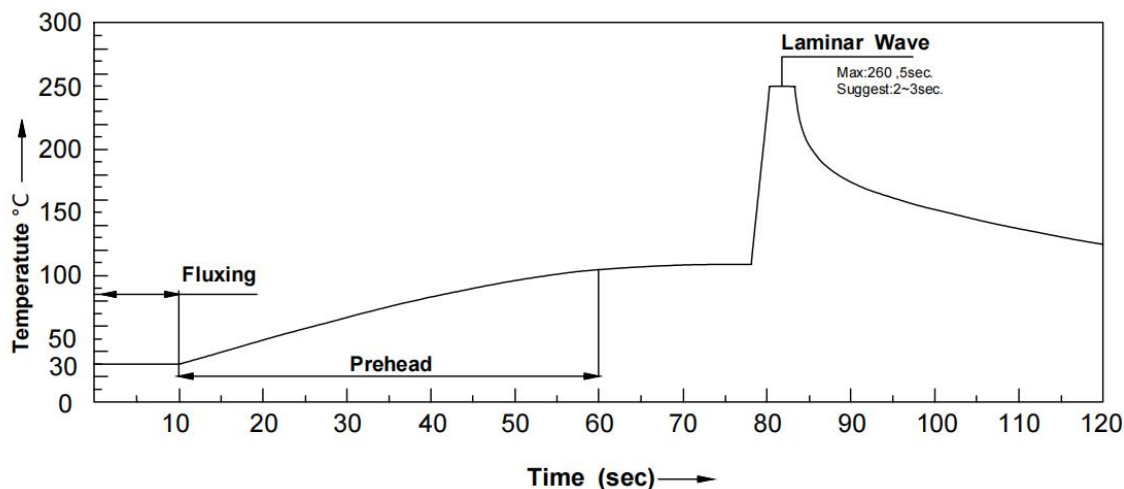
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## Soldering condition

- 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.
- Avoiding applying any stress to the lead frame while the LED are at high temperature particularly when soldering.
- Dip and hand soldering should not be done more than one time.
- After soldering the LED, the epoxy bulb should be protected from mechanical shock or vibration until the LED return to room temperature.
- A rapid-rate process is not recommended for cooling the LED down from the peak temperature.
- 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.
- 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.	100°C Max. (60 sec Max.)
Soldering time	3 sec Max.	Bath temp. & time	260°C 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℃±5℃	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℃ 15min ∫ 5min L:-40℃ 15min	300 CYCLES	76 PCS		0/1
3	Thermal Shock	H:+100℃ 5min ∫ 10sec L:-10℃ 5min	300 CYCLES	76 PCS		0/1
4	High Temperature Storage	TEMP:100℃	1000 HRS	76 PCS		0/1
5	Low Temperature Storage	TEMP:-40℃	1000 HRS	76 PCS		0/1
6	DC Operating Life	TEMP:25℃ IF=20mA	1000 HRS	76 PCS		0/1
7	High Temperature / High Humidity	85℃/85%RH	1000 HRS	76 PCS		0/1

Note:  $I_{ct}$ : To test  $I_c$  value of the chip before the reliability test.

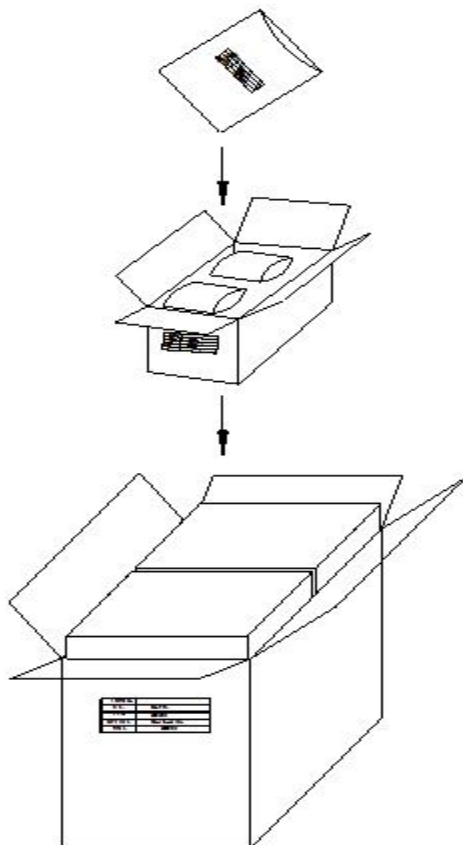
$I_c$ : The test value of the chip that has completed the reliability test.

U: Upper Specification Limit.

L: Lower Specification Limit.

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## Packing Specification:



1000PCS/Bag

4000PCS/In-Carton

40000PCS/Out-Carton

	<b>HARVATEK</b>	
CPN:		<b>RoHs</b>
P/N:		
		
<b>HV-22S087059/829B-F3.3</b>		
QTY:	CAT:	
	HUE:	
LOT NO:	REF:	
		

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## Revision History

Revision	Page	Version No.	Revision Date
Initial Release		1.0	11-05-2023

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