

Harvatek 3.0mm Round LED LAMP with Holder**HV-31210/230/SYGUYM**

Official Product	HV-31210/230/SYGUYM	Customer Part No.		Data Sheet No.
	*****	*****		CDAE-020-417
Specifications are subject to change without notice. Data and drawings herein are copyrighted.		Mar.27 2020	Version of 1.0	Page 1/14

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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 - 31210 / 230 / SYGUYM

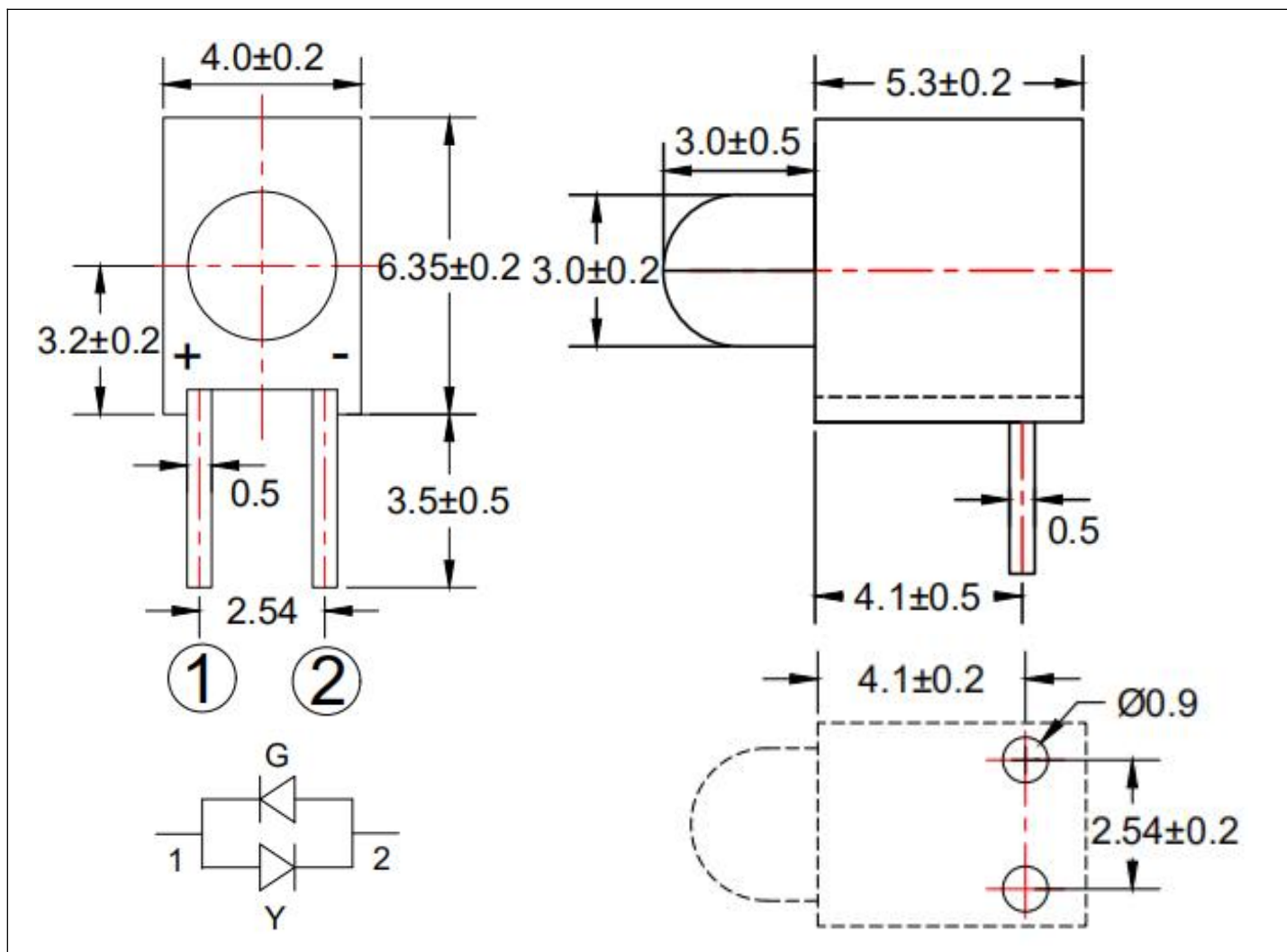
Series Name	Color Code	Remark
HV : HARVATEK	31210:Array 1 Lamp 230: 3.0mm Round LED LAMP. SYGUY : AlGaInP 569nm Green Chip. AlGaInP 589nm Yellow Chip. M: White diffused	

Features:

- Stable Color
- Popular 3.0mm through hole package.
- White diffused Lens.

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Package Dimensions:



Notes:

- 1.All dimensions are millimeters.
- 2.Tolerance is ± 0.25 mm 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
Forward Current	I _F	30	mA
Operating Temperature	T _{opr}	-40to+85	°C
Storage Temperature	T _{stg}	-40to+100	°C
Soldering Temperature*1	T _{sol}	260±5	°C
Power Dissipation	P _d	75	mW
Reverse Voltage	V _R	5	V
Peak Forward Current*2	I _{FP}	0.1	A

*1:Soldering time \leq 5 seconds. *2:Pulse Width \leq 100 μ s and Duty \leq 1%

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Electrical and Optical Characteristic

Parameter	Symbol	Condition		Min.	Typ.	Max.	Unit
Forward Voltage	V_F	$I_F=20\text{mA}$		/	2.0	2.5	V
Reverse Current	I_R	$V_R=5\text{ V}$		/	/	10	μA
Luminous Intensity	I_V	$I_F=20\text{mA}$	Y	10	30	/	mcd
			G	10	30	/	
Viewing Angle	$2\theta_{1/2}$	$I_F=20\text{mA}$		/	70	/	deg
Peak Wavelength	λ_p	$I_F=20\text{mA}$	Y	580	585	/	nm
			G	656	570	/	
Dominant Wavelength	λ_d	$I_F=20\text{mA}$	Y	583	590	/	nm
			G	564	569	/	
Spectrum Radiation Bandwidth	$\Delta\lambda$	$I_F=20\text{mA}$	Y	/	20	/	nm
			G	/	15	/	

Notes: $\theta_{1/2}$ is the angle from optical centerline where the luminous intensity is 1/2 the optical centerline value.

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Specifications for Bin Grading:(Y)

Iv (mcd)		
Grade	Min.	Max.
L	10	20
M	16	32
N	25	50
P	40	80
Q	63	125

λd (nm)		
Grade	Min.	Max.
2	583	586
3	585	588
4	587	590
5	589	592
6	591	594

Notes:

- 1.Luminous intensity: +/-15%.
- 2.Wavelength: +/-1nm.

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Specifications for Bin Grading:(G)

I _v (mcd)		
Grade	Min.	Max.
L	10	20
M	16	32
N	25	50
P	40	80
Q	63	125

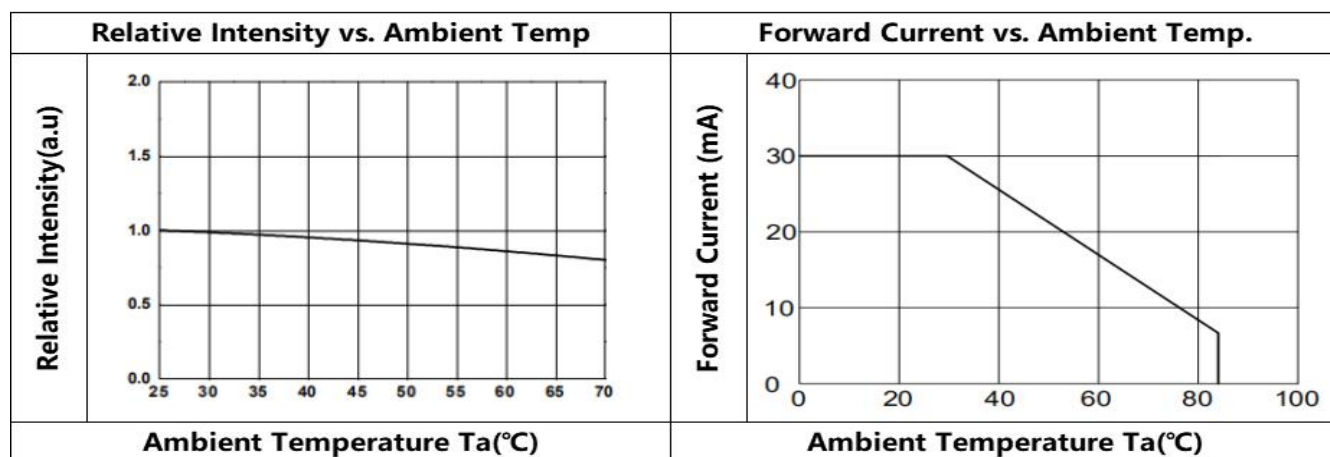
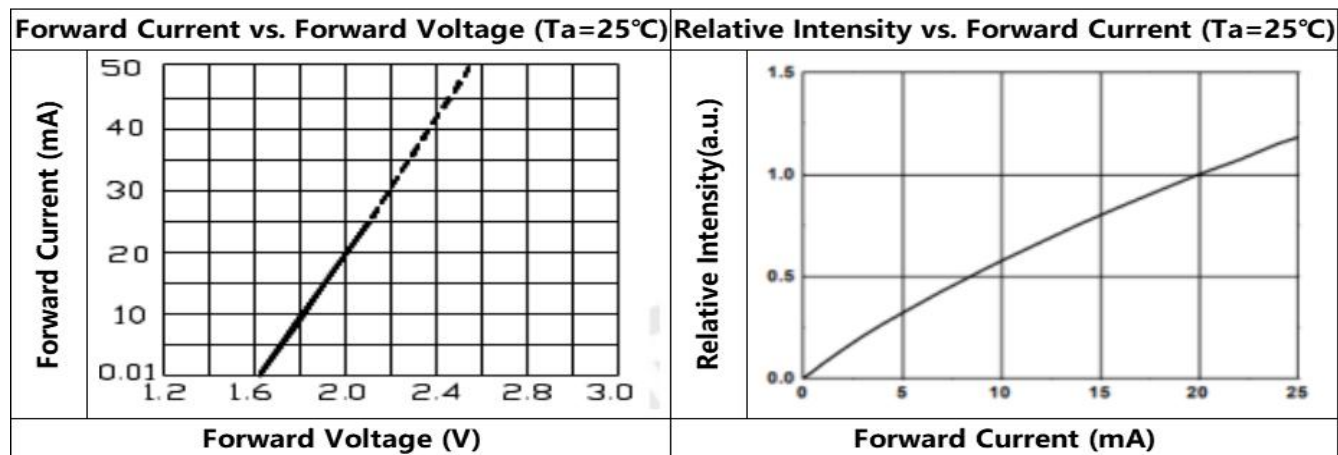
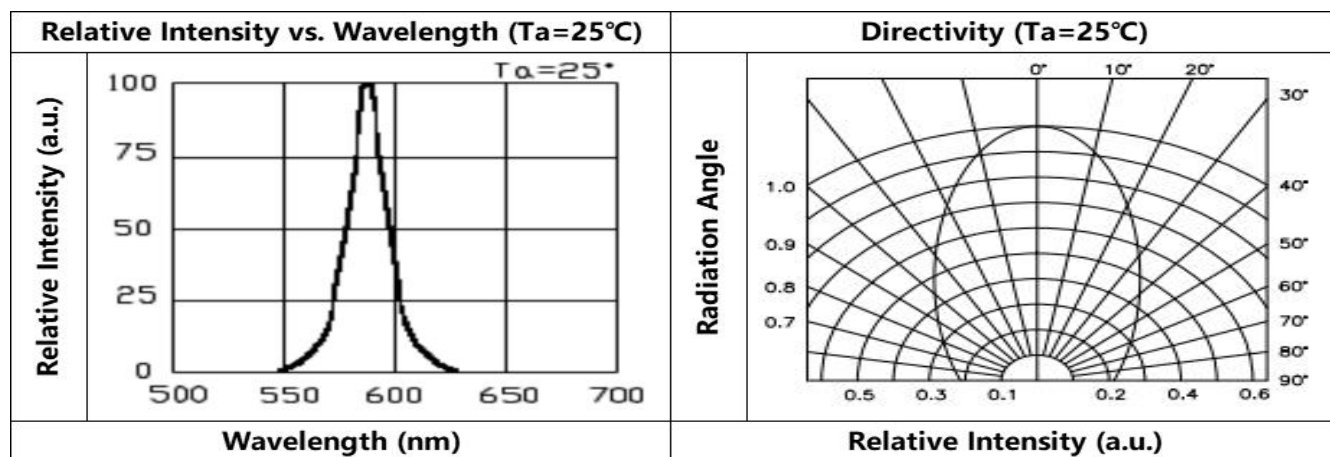
λ d (nm)		
Grade	Min.	Max.
2	560	563
3	562	565
4	564	567
5	566	569
6	568	571

Notes:

- 1.Luminous intensity: +/-15%.
- 2.Wavelength: +/-1nm.

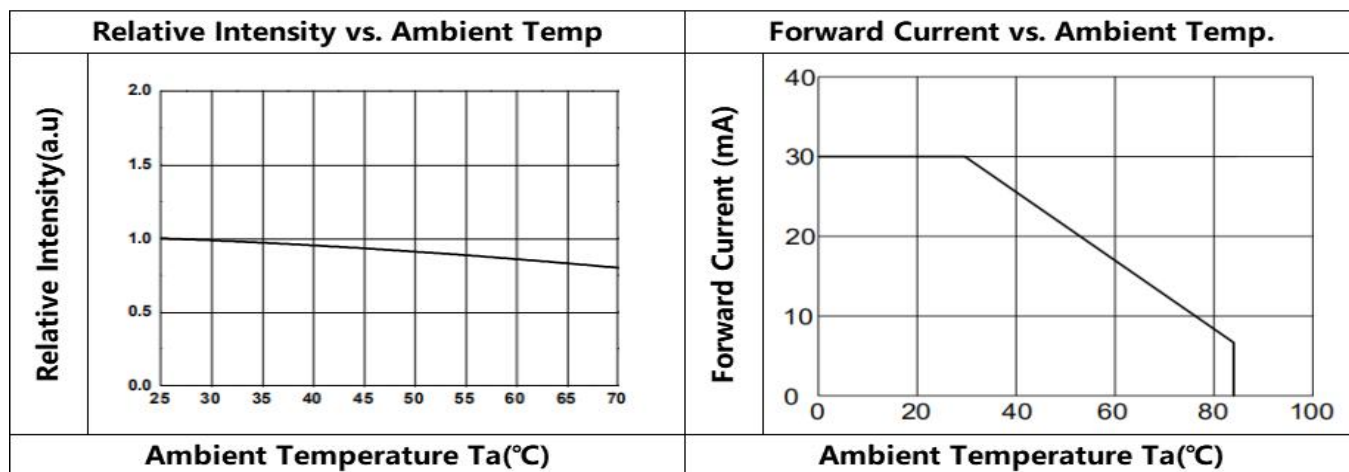
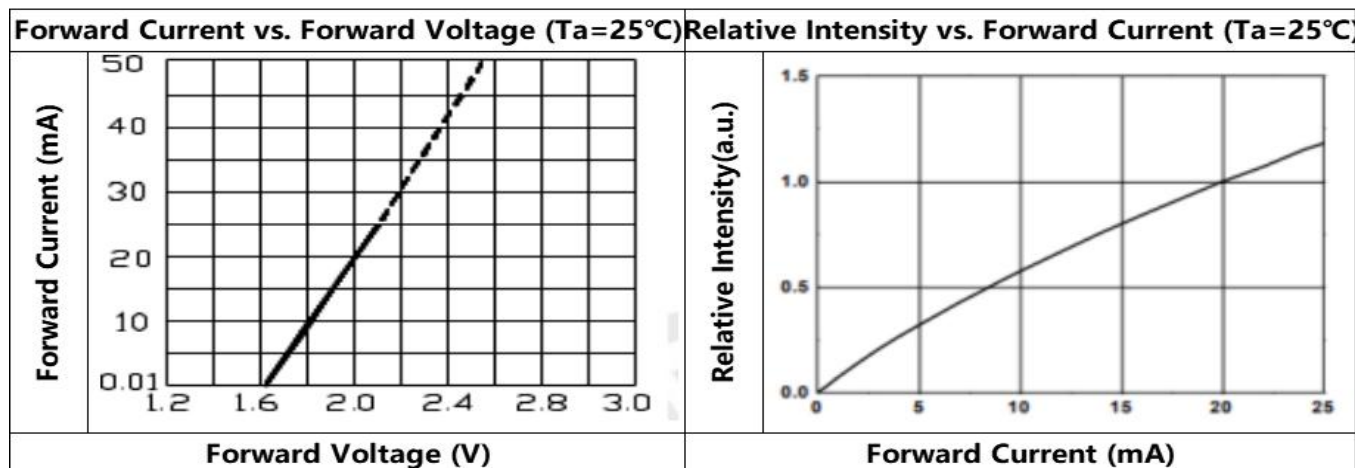
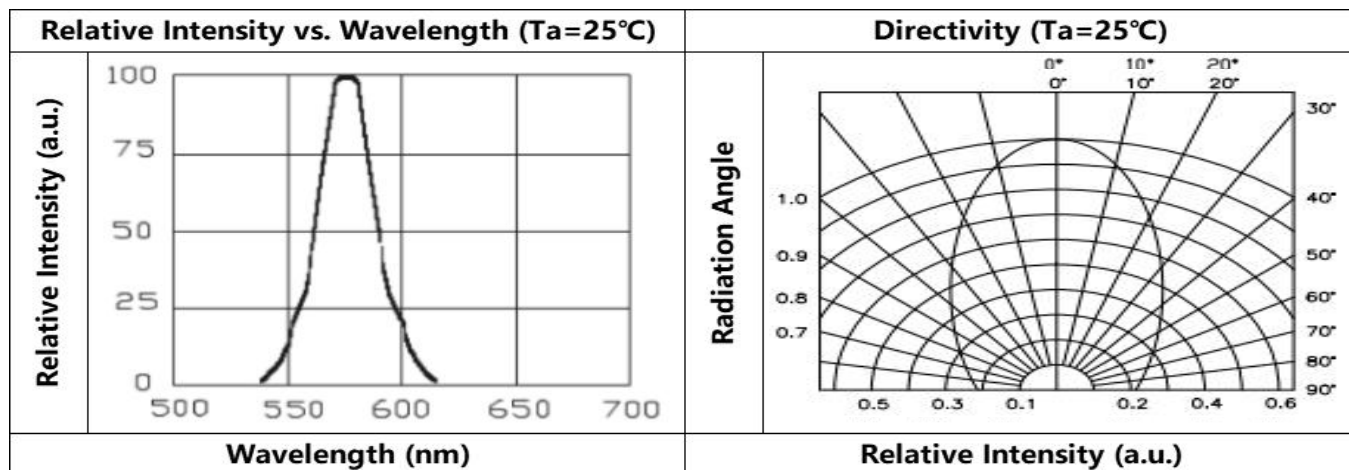
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Typical Electro-Optical Characteristics Curves(Y)



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Typical Electrical / Optical Characteristics Curves(G)



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Soldering condition

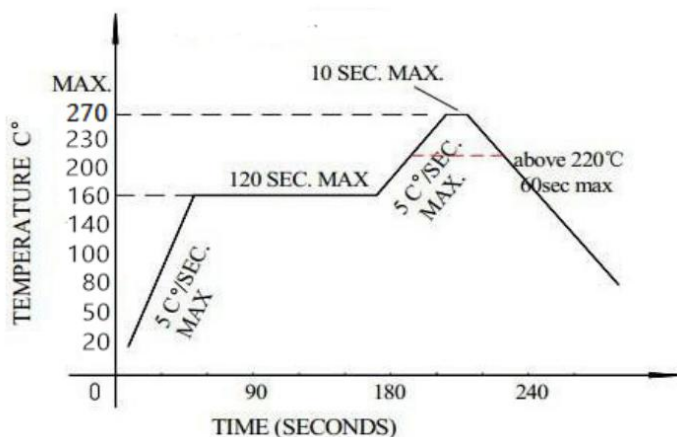
Recommended soldering conditions

Reflow		Soldering	
Pre-heat	160~180℃	Temperature	300℃Max.
Pre-heat time	120 seconds Max.		
Peak temperature	270℃Max.		
Soldering time	10 seconds Max.		
Condition	Refer to Temperature-profile	Soldering time	3 second Max. (one time only)

- After reflow soldering rapid cooling should be avoided

Pb-free solder temperature profile

- We suggest that the reflow soldering temperature is $240 \pm 5^{\circ}\text{C}$, the highest control the welding temperature to 270°C ;
- Reflow soldering should not be done more than two times;
- When soldering ,do not put stress on the LEDs during heating;



Soldering iron

1. When hand soldering, keep the temperature of the iron under 300°C , and at that temperature keep the time under 3 sec;
2. The hand soldering should be done only a time;
3. The basic spec is ≤ 5 sec. when the temperature of 260°C , do not contact the resin when hand soldering;

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

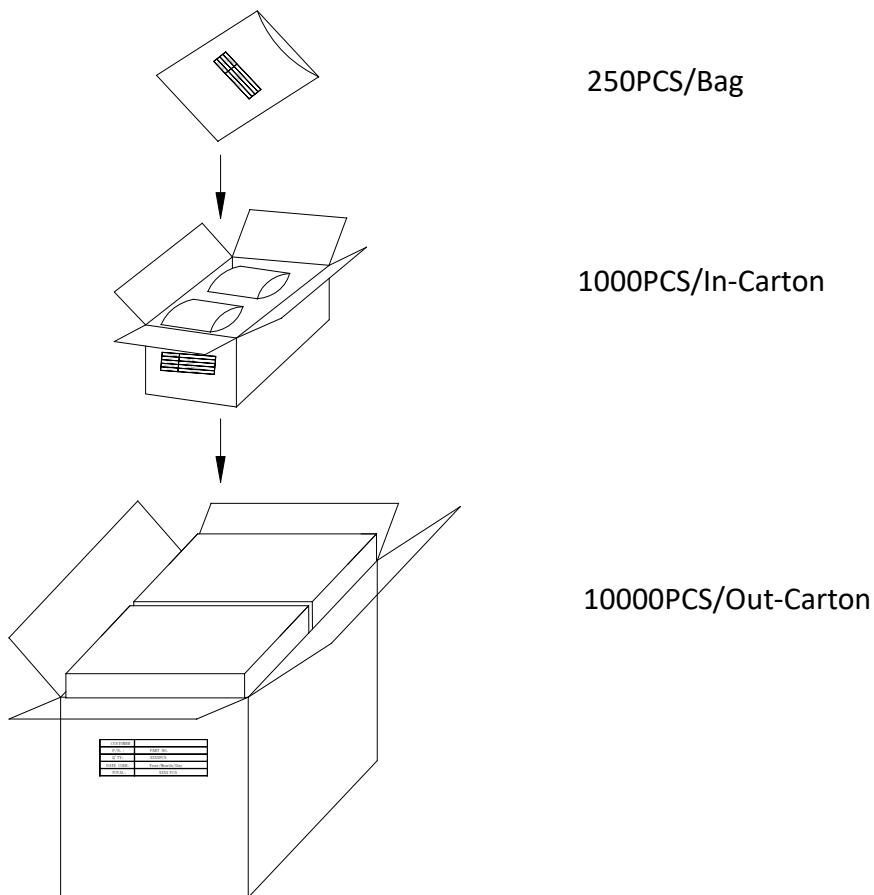
I_v : The test value of the chip that has completed the reliability test



U: Upper Specification Limit

L: Lower Specification Limit

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Packing Specification:



	HARVATEK	
CPN:		RoHs
P/N:		
	HV-31210/230/SYGUYM	
QTY:		CAT:
		HUE:
LOT NO:		REF:

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Revision History

Revision	Page	Version No.	Revision Date
Initial Release		1.0	03-27-2020

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