

Harvatek 3.0mm Round LED LAMP with Holder**HV-315070/230/SURSYGM-U1909**

Official Product	HV-315070/230/SURSYGM-U1909	Customer Part No.		Data Sheet No.
	*****	*****		HV-315070/230/SURSYGM-U1909
Specifications are subject to change without notice. Data and drawings herein are copyrighted.		Oct.06 2022	Version of 1.1	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 - 315070 / 230 / SURSYGM - U1909

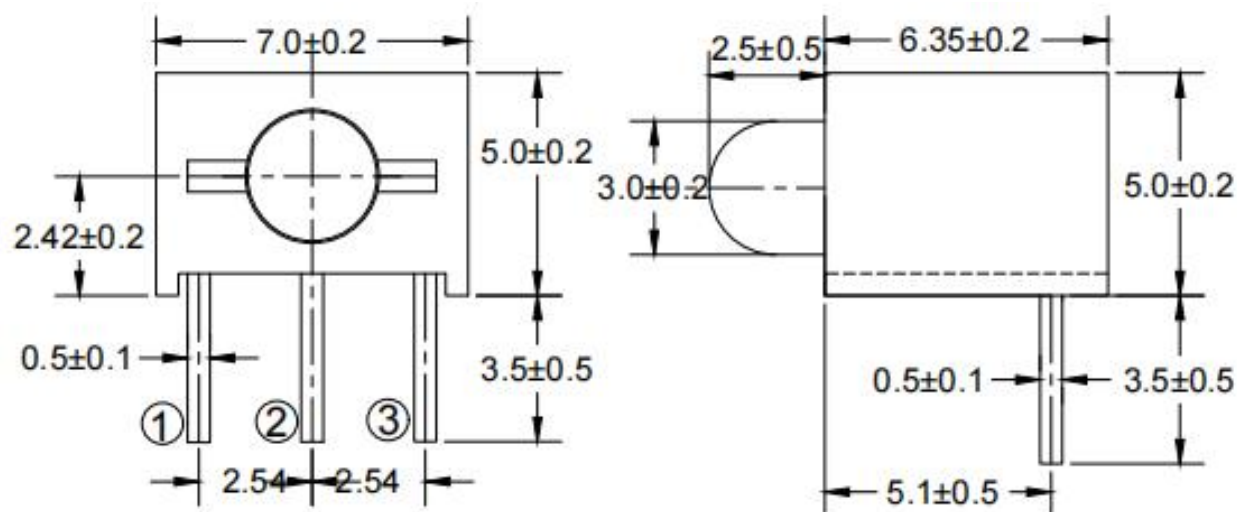
Series Name	Color Code	Remark
HV : HARVATEK	315070:Array 1 Lamp. 230: 3.0mm Round LED LAMP. SURSYG: GaP 622nm Red Chip. GaP 570nm Green Chip. M: White Diffused.	U1909: Customer Product Code

Features:

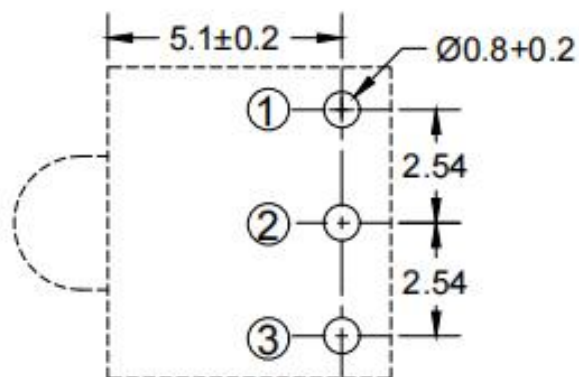
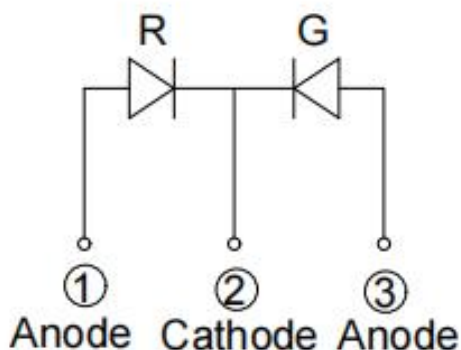
- Stable Color.
- Popular 3.0mm through hole package.
- White Diffused Lens.

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Package Dimensions:



RECOMMENDED PCB LAYOUT



Notes:

- 1.All dimensions are millimeters.
- 2.Tolerance is +/-0.25mm unless otherwise noted.
- 3.Holder material uses the PA6T.
- 4.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	SUR/SYG	30	mA
Operating Temperature	T _{opr}	SUR/SYG	-40to+85	°C
Storage Temperature	T _{stg}	SUR/SYG	-40to+85	°C
Soldering Temperature*1	T _{sol}	SUR/SYG	260±5	°C
Power Dissipation	P _d	SUR/SYG	75	mW
Reverse Voltage	V _R	SUR/SYG	5	V
Peak Forward Current*2	I _{FP}	SUR/SYG	75	mA

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

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Electrical and Optical Characteristic

Parameter	Symbol	Condition		Min.	Typ.	Max.	Unit
Forward Voltage	V_F	$I_F=20\text{ mA}$	SUR/ SYG	/	2.0	2.4	V
Reverse Current	I_R	$V_R=5\text{ V}$	SUR/ SYG	/	/	10	μA
Luminous Intensity	I_V	$I_F=20\text{ mA}$	SUR	10	40	/	mcd
			SYG	10	40	/	
Viewing Angle	$2\theta_{1/2}$	$I_F=20\text{ mA}$	SUR	/	80	/	deg
			SYG	/	80	/	
Peak Wavelength	λ_p	$I_F=20\text{ mA}$	SUR	/	630	/	nm
			SYG	/	575	/	
Dominant Wavelength	λ_d	$I_F=20\text{ mA}$	SUR	/	622	/	nm
			SYG	/	570	/	
Spectrum Radiation Bandwidth	$\Delta\lambda$	$I_F=20\text{ mA}$	SUR	/	18	/	nm
			SYG	/	20	/	

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:(SUR)

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

Notes: Luminous intensity: +/-15%.

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Specifications for Bin Grading:(SYG)

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

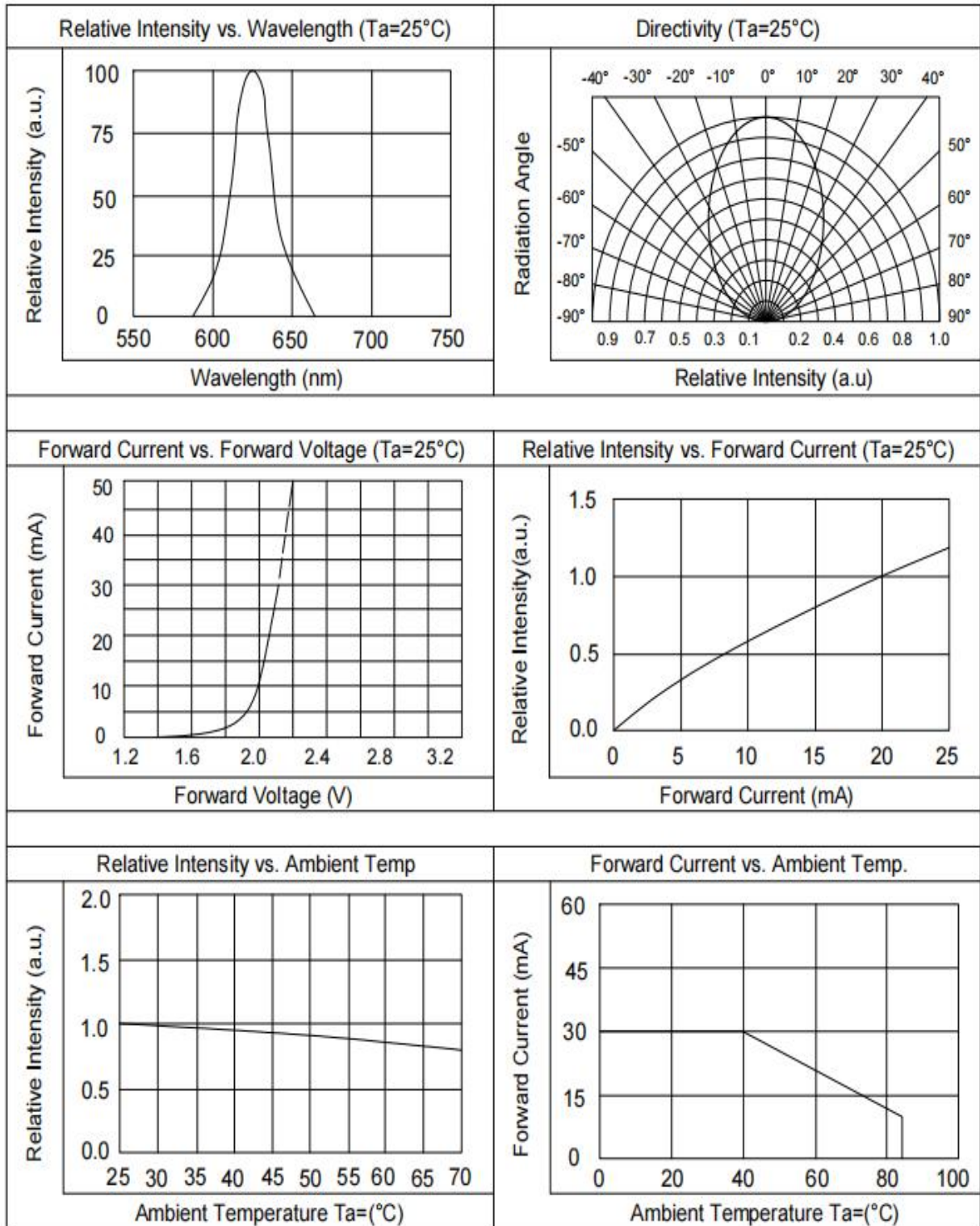
λ_d (nm)		
Grade	Min.	Max.
5	566	569
6	568	571
7	570	573
8	572	575
9	574	577

Notes:

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

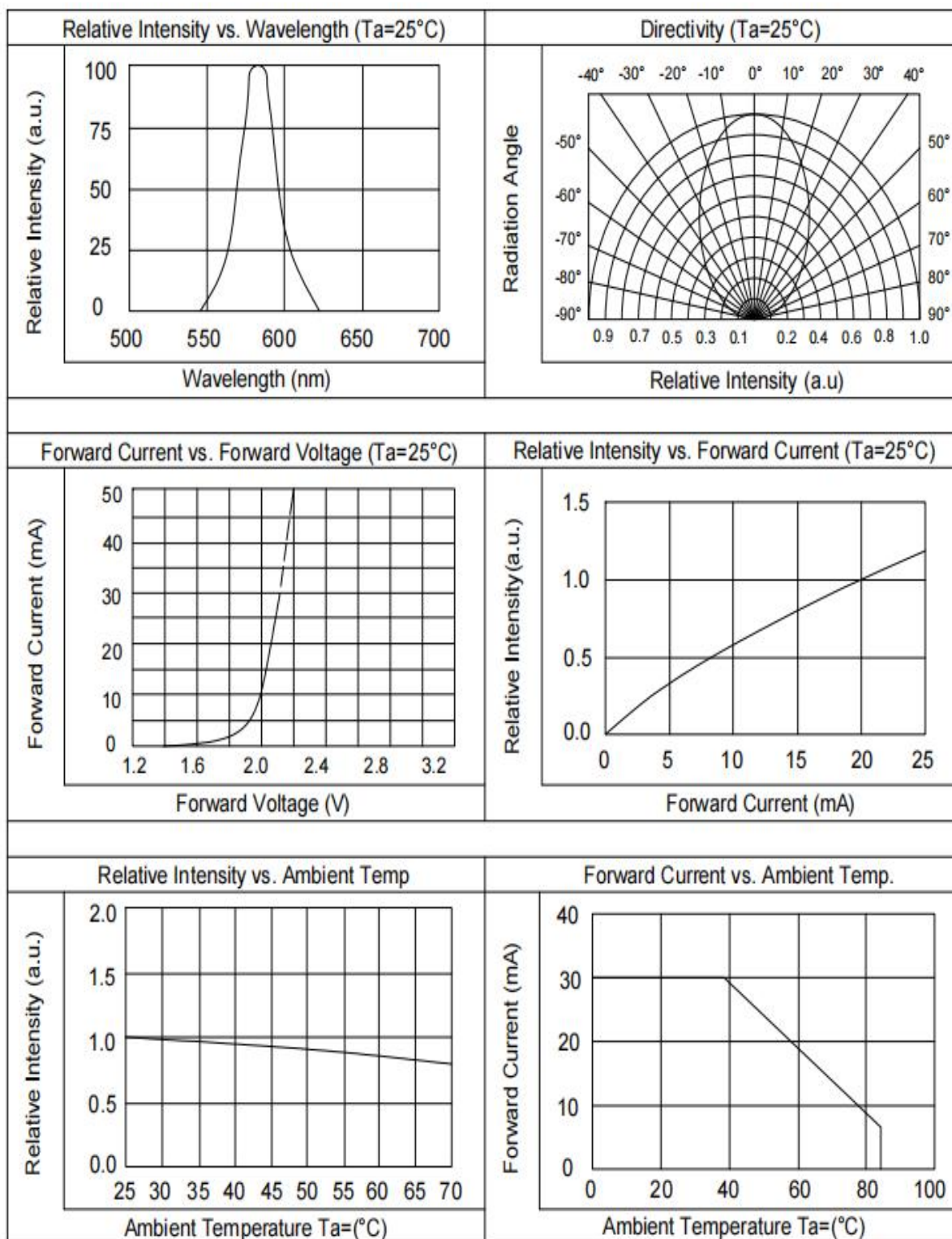
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Typical Electrical / Optical Characteristics Curves(SUR)



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Typical Electrical / Optical Characteristics Curves(SYG)



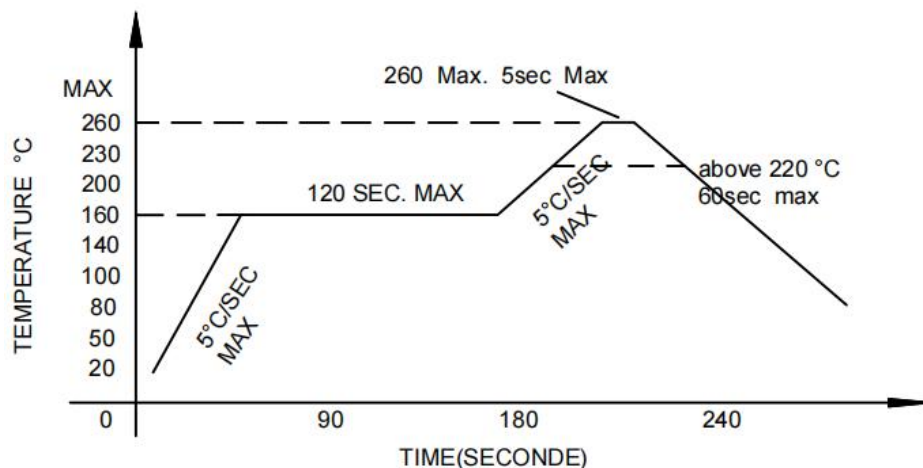
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Soldering condition

- 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.	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	$I_v \leq I_{vt} * 0.5$ 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.

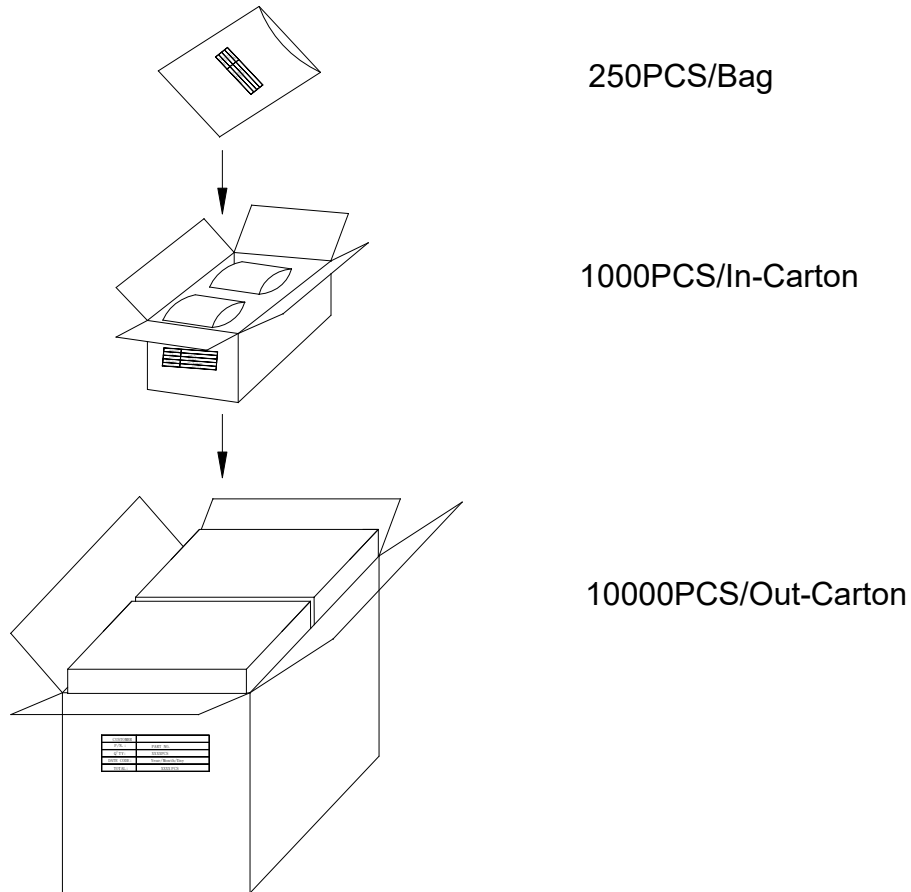
I_v : The test value of the chip that has completed the reliability test.






U: Upper Specification Limit.

L: Lower Specification Limit.

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Packing Specification:



	HARVATEK	
CPN:		RoHs
P/N:		
HV-315070/230/SURSYGM-U1909		
QTY:		CAT:
LOT NO:		HUE:
		REF:

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Revision History

Revision	Page	Version No.	Revision Date
Initial Release		1.0	05-06-2022
Add annotations	4	1.1	10-06-2022

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