

**Harvatek 3.0mm Round LED LAMP WITH HOLDER****HV-I7TW90G-MP9A-U1930**

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Official Product	HV-I7TW90G-MP9A-U1930	Customer Part No.	Data Sheet No.
	*****	*****	HV-I7TW90G-MP9A-U1930
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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 - I 7 T W 9 0 G - M P 9 A - U 1 9 3 0**

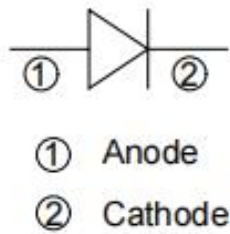
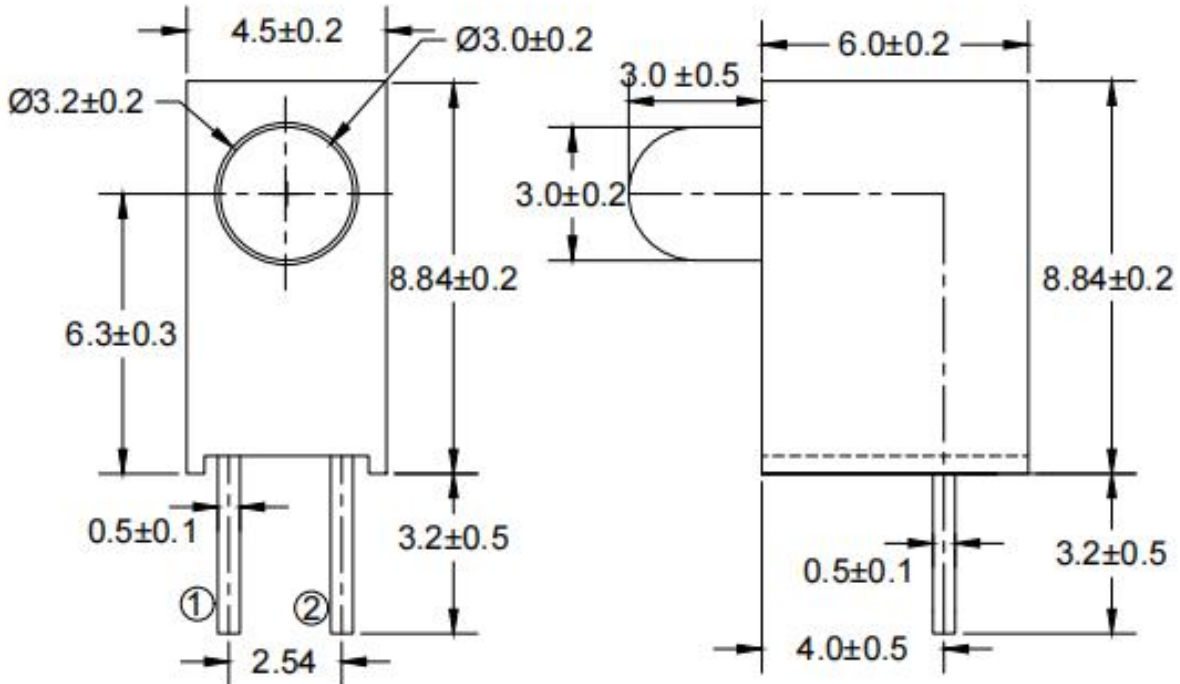
Series Name	Color Code	Remark
HV : HARVATEK	I7TW : 3.0mm Round LED Lamp With Holder. With InGaN White. 90 : Viewing angle 90 deg. G : HARVATEK Part No. MP9 : Square HOLDER A : 1 LAMP	U1930: Customer Product Code

## Features:

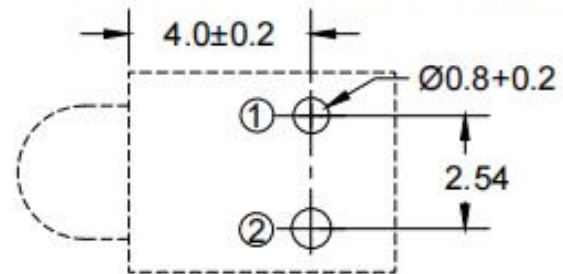
- Stable Color
- Popular 3.0mm through hole package.
- Water Clear lens

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**Package Dimensions:**



**RECOMMENDED PCB LAYOUT**



**Notes:**

- 1.All dimensions are millimeters.
- 2.Tolerance is +/-0.25mm unless otherwise noted.
- 3.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 <sub>F</sub>	30	mA
Operating Temperature	T <sub>opr</sub>	-40to+85	°C
Storage Temperature	T <sub>stg</sub>	-40to+85	°C
Soldering Temperature*1	T <sub>sol</sub>	260±5	°C
Power Dissipation	P <sub>d</sub>	100	mW
Reverse Voltage	V <sub>R</sub>	5	V
Peak Forward Current*2	I <sub>FP</sub>	100	mA

\*1:Soldering time ≦ 5 seconds.

\*2 tw=100u second T=10m second.

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**Electrical and Optical Characteristic**

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Forward Voltage	$V_F$	$I_F=20\text{ mA}$	2.6	3.0	3.4	V
Reverse Current	$I_R$	$V_R=5\text{ V}$	/	/	10	$\mu\text{A}$
Luminous Intensity	$I_v$	$I_F=20\text{ mA}$	520	1300	2700	mcd
Viewing Angle	$2\theta_{1/2}$	$I_F=20\text{ mA}$	/	90	/	deg
Chromaticity Coordinates	X	$I_F=20\text{ mA}$	/	0.30	/	/
	Y	$I_F=20\text{ mA}$	/	0.30	/	/
Spectrum Radiation Bandwidth	$\Delta\lambda$	$I_F=20\text{ mA}$	/	20	/	nm

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:**

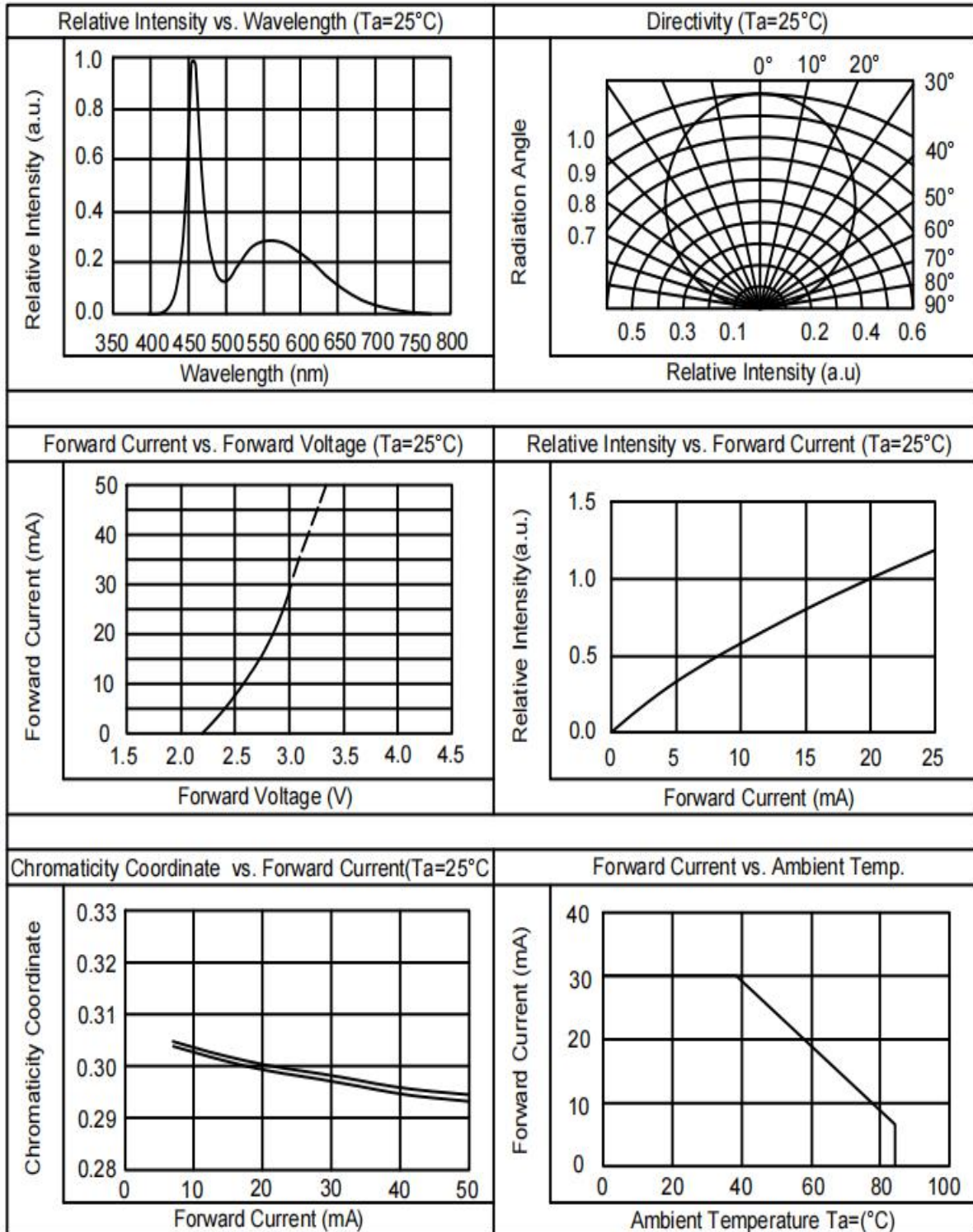
I <sub>v</sub> (mcd)		
Grade	Min.	Max.
U	520	800
V	630	1250
W	1000	2000
X	1600	2700

V <sub>F</sub> (V)		
Grade	Min.	Max.
1	2.6	3.0
2	3.0	3.2
3	3.2	3.4

Notes:Luminous intensity:+/-15%.

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## Typical Electrical / Optical Characteristics Curves



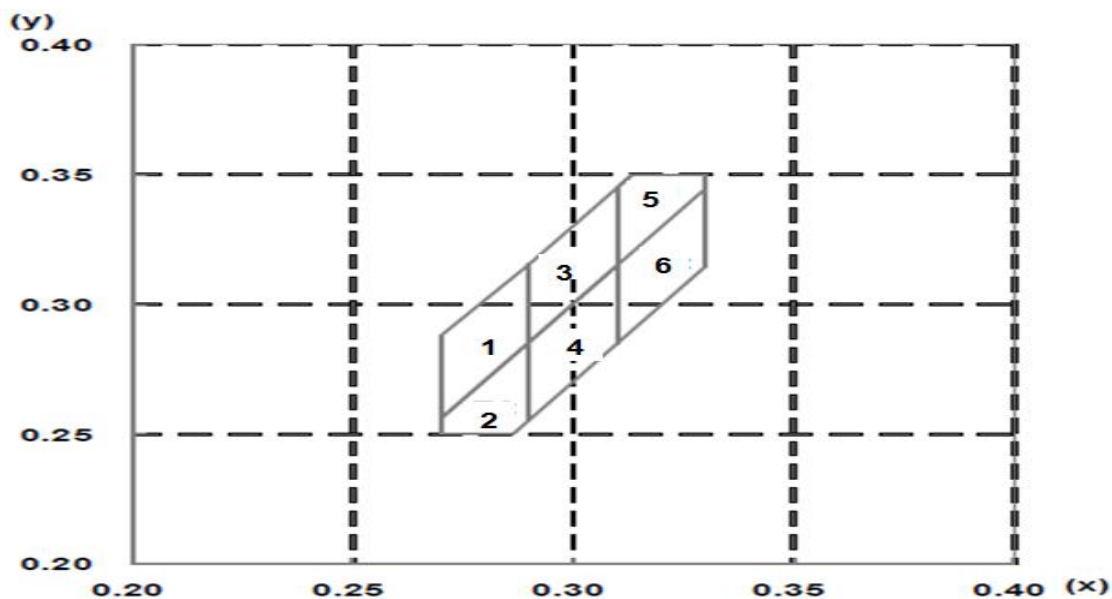
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## COLOR RANKS (IF=20mA. Ta=25°C)

Bin	RANKS					
1	X	0.2700	0.2700	0.2900	0.2900	0.2700
	Y	0.2560	0.2880	0.3155	0.2855	0.2560
2	X	0.2700	0.2700	0.2900	0.2900	0.2863
	Y	0.2500	0.2560	0.2855	0.2555	0.2500
3	X	0.2900	0.2900	0.3100	0.3100	0.2900
	Y	0.2855	0.3155	0.3145	0.3150	0.2855
4	X	0.2900	0.2900	0.3100	0.3100	0.2900
	Y	0.2555	0.2855	0.3150	0.2850	0.2555
5	X	0.3100	0.3100	0.3134	0.3300	0.3300
	Y	0.3150	0.3450	0.3500	0.3500	0.3445
6	X	0.3100	0.3100	0.3300	0.3300	0.3100
	Y	0.2850	0.3150	0.3445	0.3145	0.2850

## BIN GRADING DIAGRAM



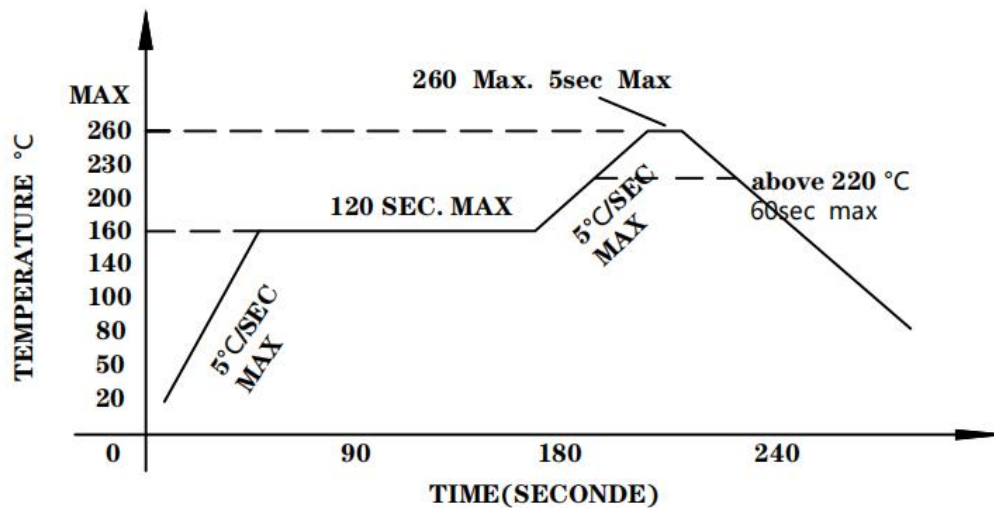
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## Soldering condition

- 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	$I_v \cong I_{vt} * 0.5$ or $V_f \cong U$ or $V_f \cong L$	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.

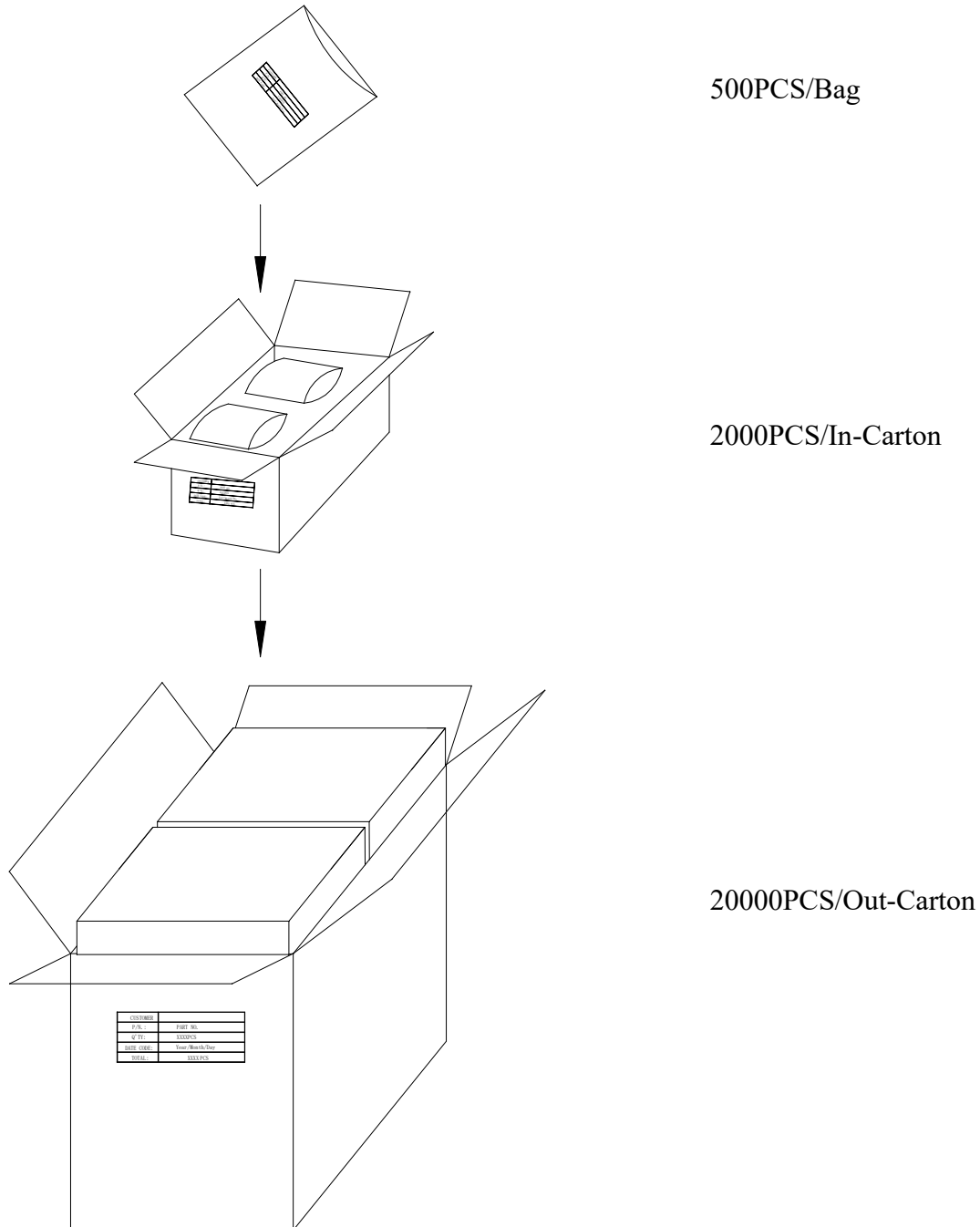
$I_v$ : The test value of the chip that has completed the reliability test

U: Upper Specification Limit

L: Lower Specification Limit

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## Packing Specification:



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**Revision History**

Revision	Page	Version No.	Revision Date
Initial Release		1.0	08-13-2021

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