

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

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Official Product	HV-I7TW90G-MP9A *****	Customer Part No. *****	Data Sheet No. HV-I7TW90G-MP9A
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## **LIFE SUPPORT POLICY**

HARVATEK's products are not authorized for use as critical components in life support devices or systems without the express written approval of the President of HARVATEK or HARVATEK INTERNATIONAL. As used herein:

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 TW90 G - M P9 A**

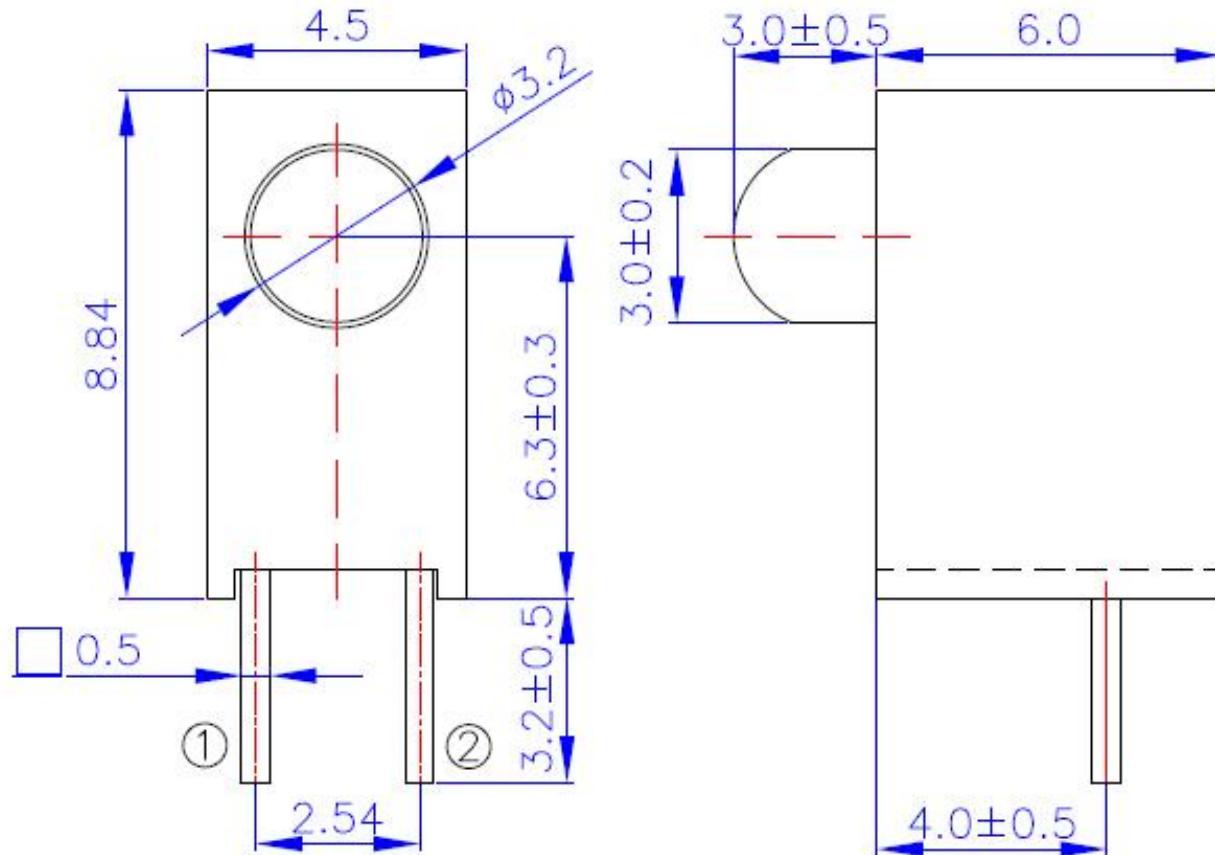


Series Name	Color Code	Remark
<b>HV :</b> <b>HARVATEK</b>	<b>I7TW :</b> <b>3.0mm Round LED Lamp With Holder.</b> <b>With InGaN White.</b> <b>90 : Viewing angle 90 deg.</b> <b>G : HARVATEK Part No.</b> <b>MP9 : Square HOLDER</b> <b>A : 1 LAMP</b>	

## Features:

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

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**Package Dimensions:**

① Anode

② Cathode

**Notes:**

1. All dimensions are millimeters.
2. Tolerance is  $\pm 0.25$ mm unless otherwise noted.
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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+100	°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>	0.1	A

\*1:Soldering time  $\leq$  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	$V_F$	$I_F=20$ mA	2.6	3.0	3.4	V
Reverse Current	$I_R$	$V_R= 5$ V	/	/	10	$\mu$ A
Luminous Intensity	$I_v$	$I_F=20$ mA	520	1300	2700	mcd
Viewing Angle	$2\theta_{1/2}$	$I_F=20$ mA	/	90	/	deg
Chromaticity Coordinates	X	$I_F=20$ mA	0.27	0.30	/	/
	Y	$I_F=20$ mA	0.25	0.30	/	/
Spectrum Radiation Bandwidth	$\Delta\lambda$	$I_F=20$ 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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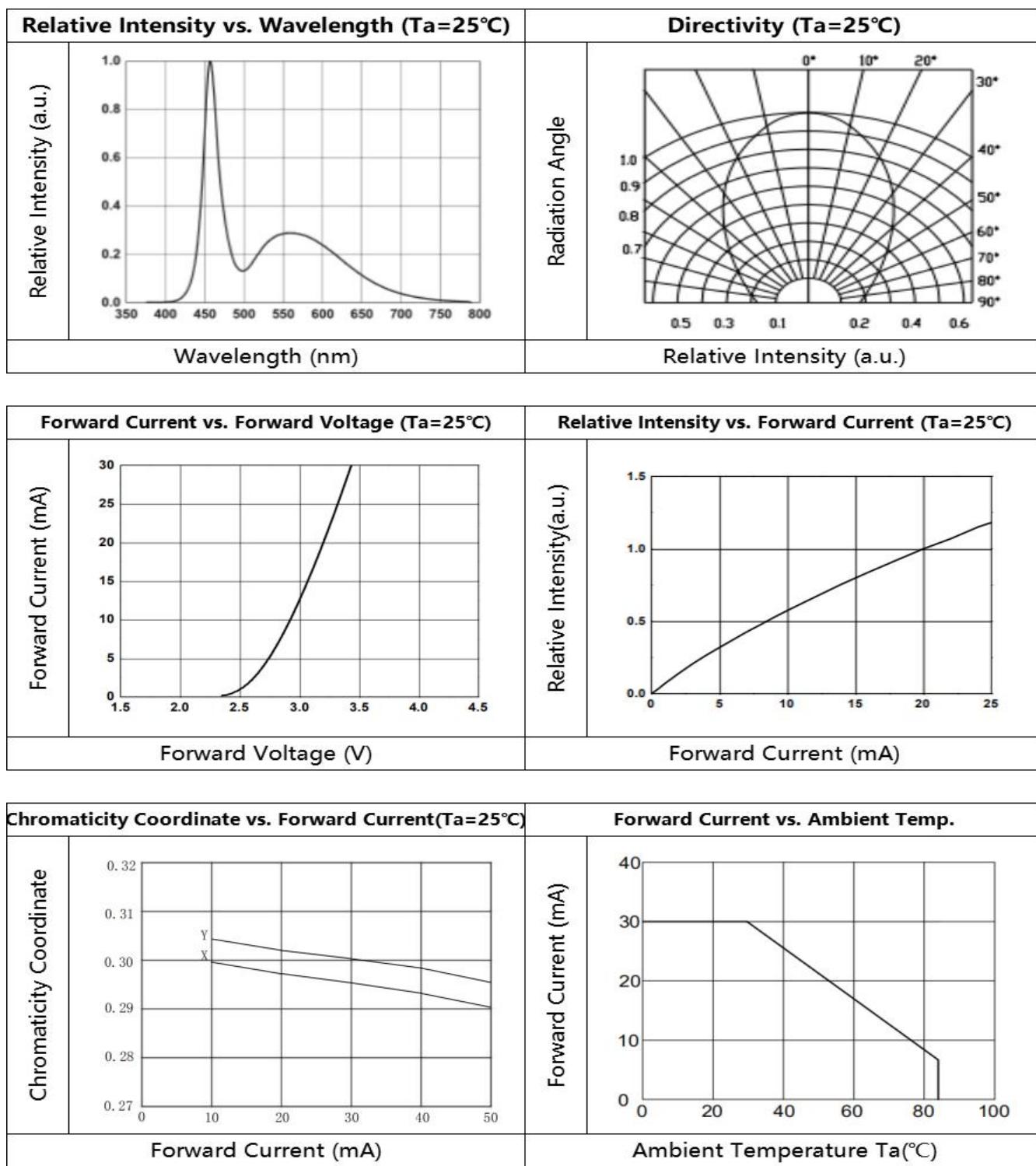
**Specifications for Bin Grading:**

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%.

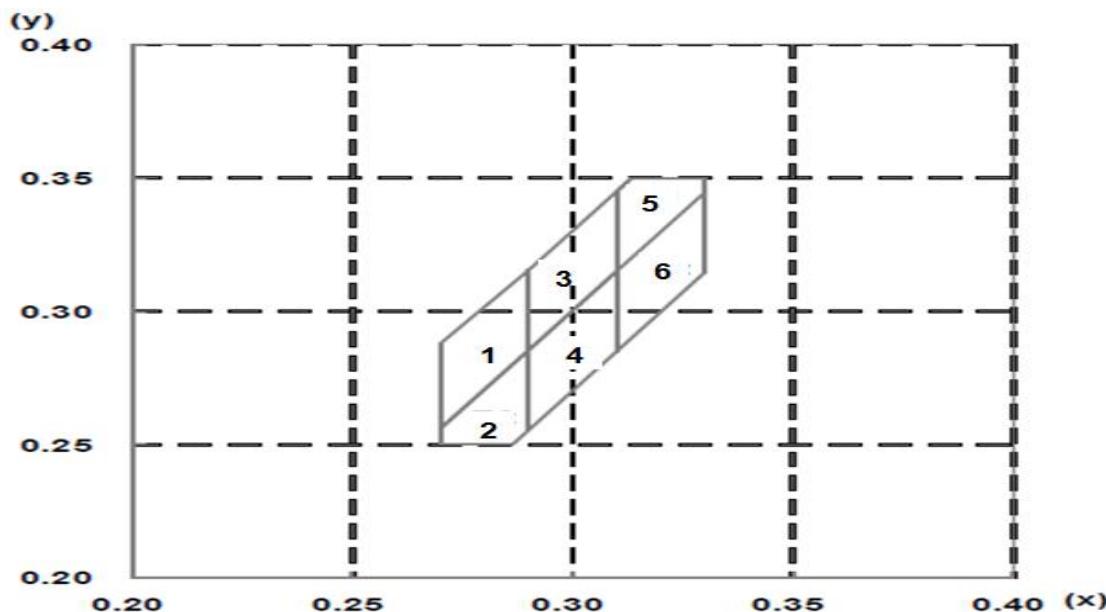
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**Typical Electrical / Optical Characteristics Curves**


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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 DIABRAM**

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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	Iv $\leq$ Ivt*0.5 or Vf $\geq$ U or Vf $\leq$ 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

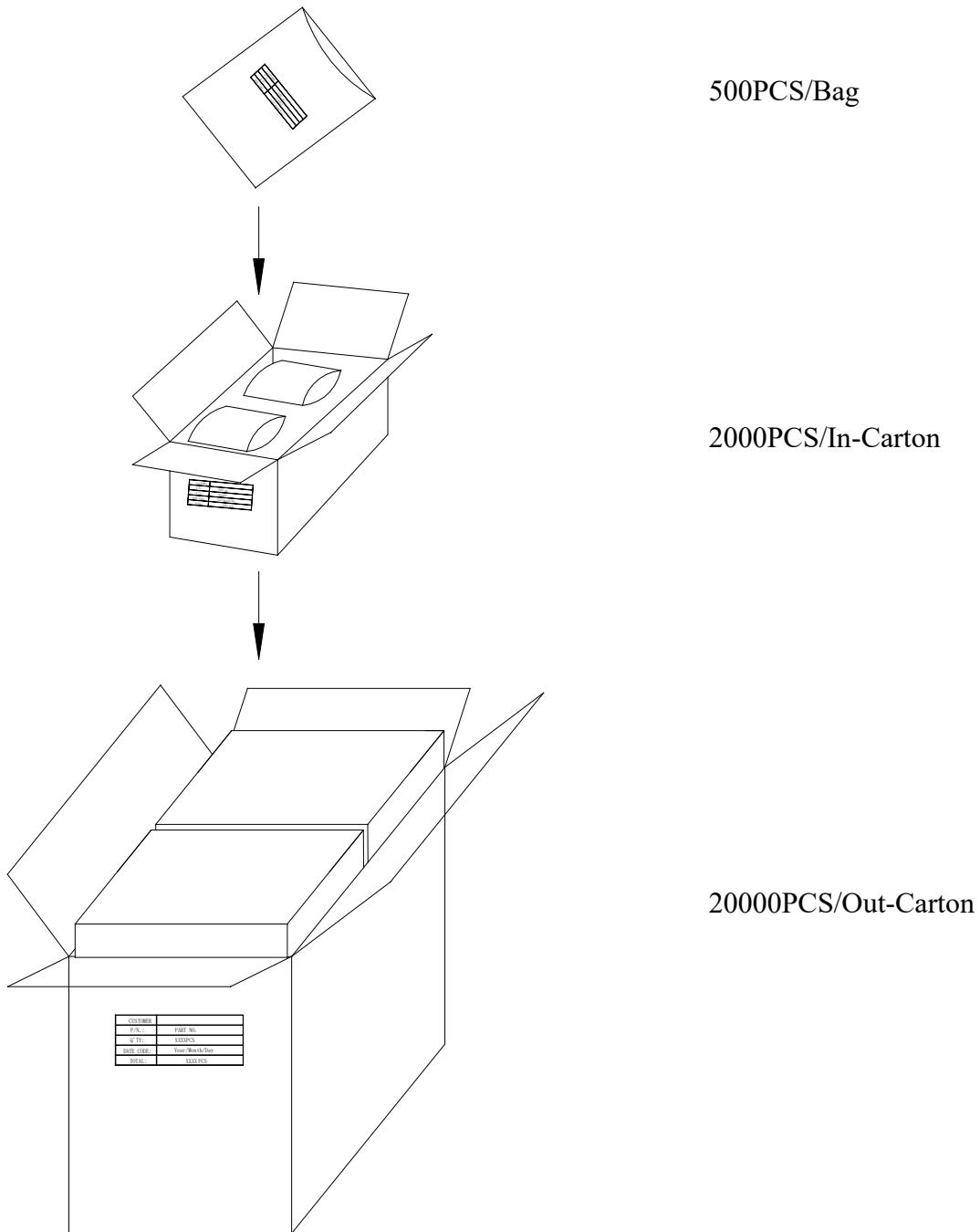
Note: Ivt: To test Iv value of the chip before the reliability test.

Iv: 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	11-07-2017
Update Packing Specification		1.1	02-06-2018
Modifies Electrical and Optical Characteristic	5	1.2	11-11-2019

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