Harvatek 6.4*4.9*6.5mm Reflective Type Sensor

HV-22S064065/242B/T210

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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.

Compliance and Certification

ISO9002, QS9000 and ISO14001 Certified
RoHS Compliant

Orderable Information

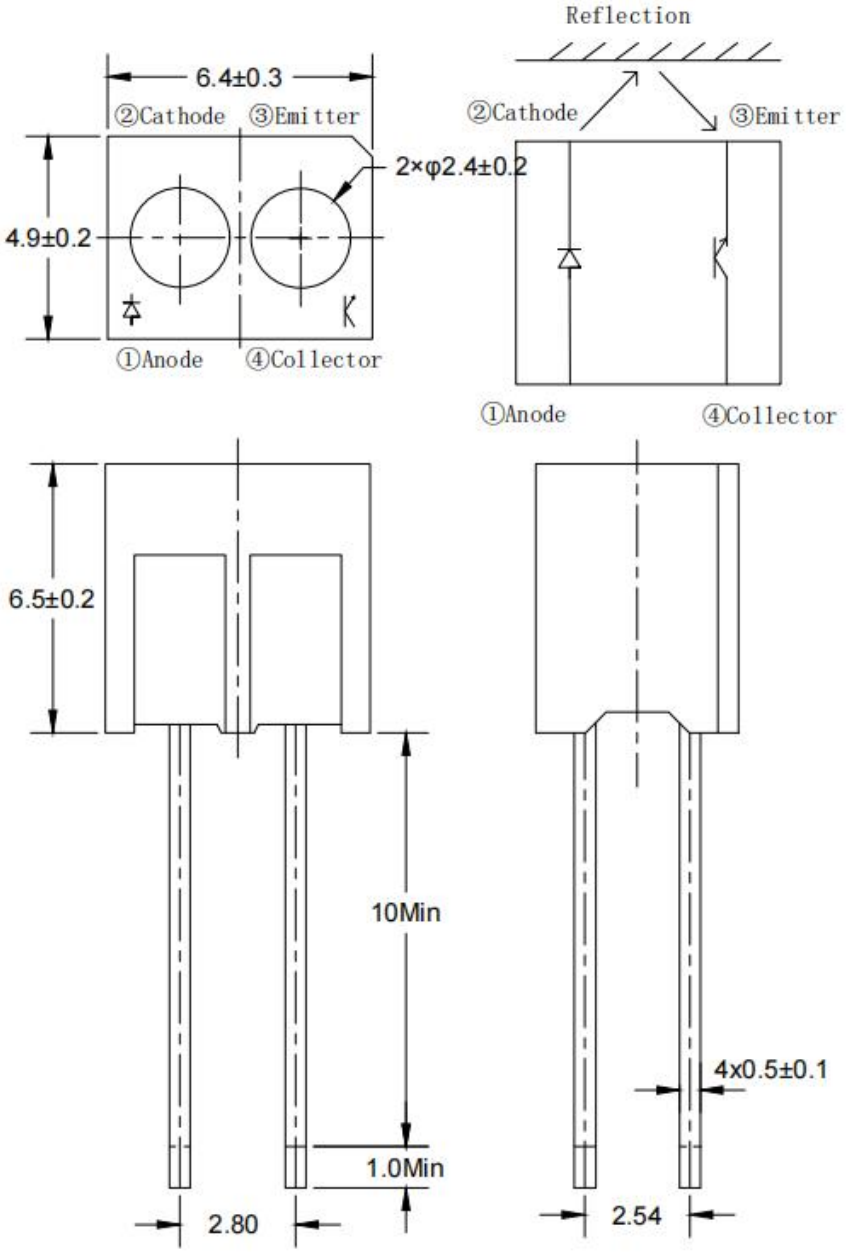
H V - 22 S 064 065 / 242 B /T210

Series Name	Color Code	Remark
HV : **HARVATEK**	**22S: HARVATEK Part No.** **064065 :6.4*4.9*6.5mm Reflective Type Sensor.** **With AlGaAs Infrared emitter &** **Silicon Photo transistor.** **242 : Lamp Model.** **B : PT Lens Color is Black** **T210:HARVATEK Part No.**	

Features:

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

Package Dimensions:



Notes:

1.All dimensions are millimeters.

2.Tolerance is +/-0.25mm unless otherwise noted.

3.Specifications are subject to change without notice.

Absolute Maximum Ratings at Ta=25℃

Parameter		Symbol	Rating	Unit
Emitter	Forward Current	I_F	50	mA
	Power Dissipation	P_d	75	mW
	Reverse Voltage	V_R	5	V
	Peak Forward Current *1	I_{FP}	1	A
Receiver	Collector Current	I_c	20	mA
	Power Dissipation	P_d	75	mW
	Collector-Emitter Voltage	Vceo	30	V
	Emitter-Collector Voltage	Veco	5	V
Operating Temperature		Topr	-40to+85	℃
Storage Temperature		Tstg	-40to+100	℃
Soldering Temperature *2		Tsol	260±5	℃

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

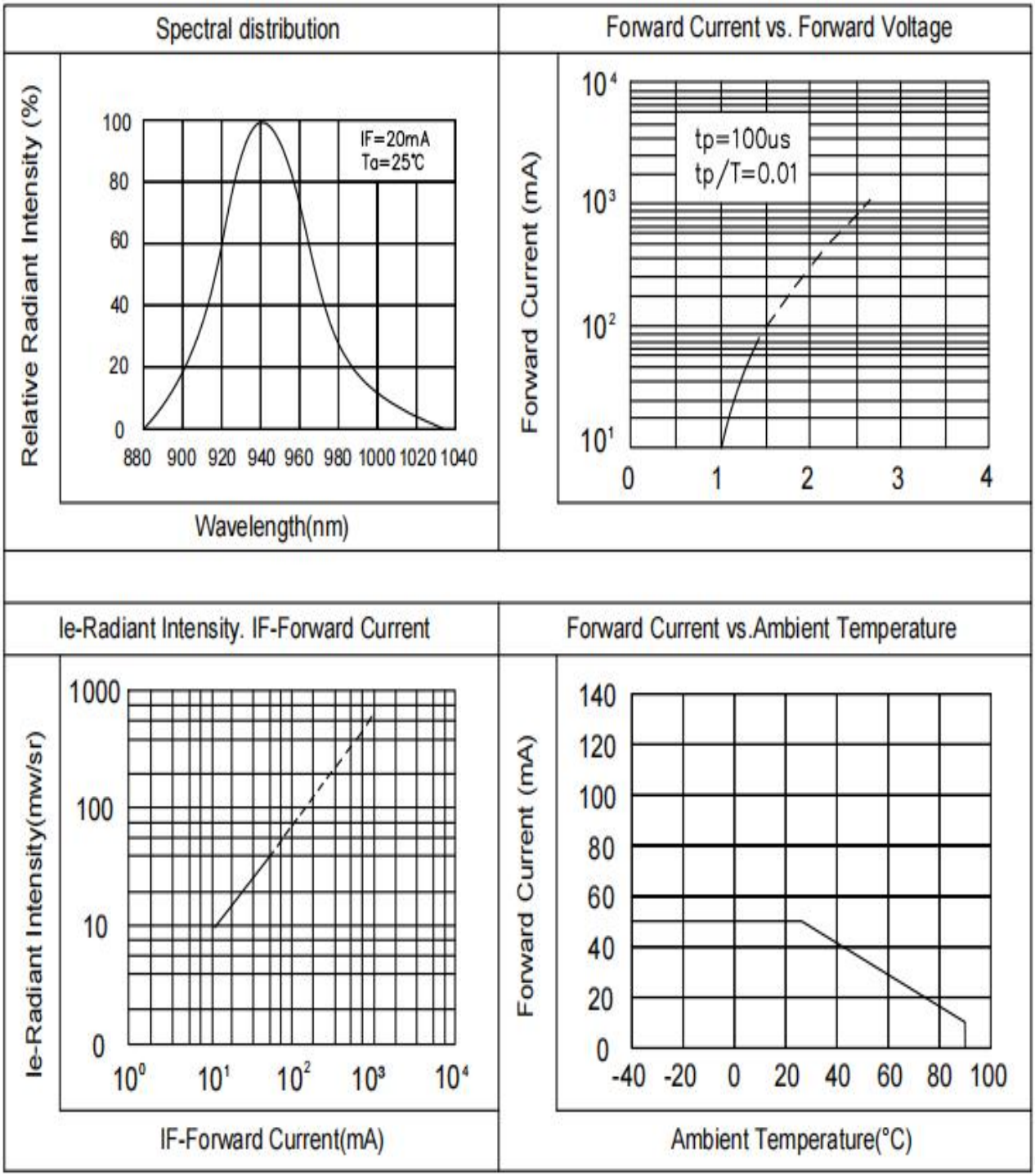
Electrical and Optical Characteristic

Parameter		Symbol	Condition	Min.	Typ.	Max.	Unit
Emitter	Forward Voltage	V_F	I_F=20mA	／	1.2	1.5	V
	Reverse Current	I_R	VR= 5 V	／	／	10	μA
	Peak Wavelength	λρ	I_F=20mA	930	940	／	nm
Receiver	Dark Current	I_d	Vce=20V	／	/	100	nA
	C-E Saturation	Vce(sat)	Ic=0.5mA I_F=20mA	/	/	0.4	V
Transfer Characteristics	Collect Current	$I_{C(ON)}$	V_{CE}=2V I_F=10mA	0.4	/	9.98	mA
	Rise time	T_r	V_{CE}=5V I_C=1mA R_L=1KΩ	/	25	/	μsec
	Fall time	T_f		/	25	/	μsec

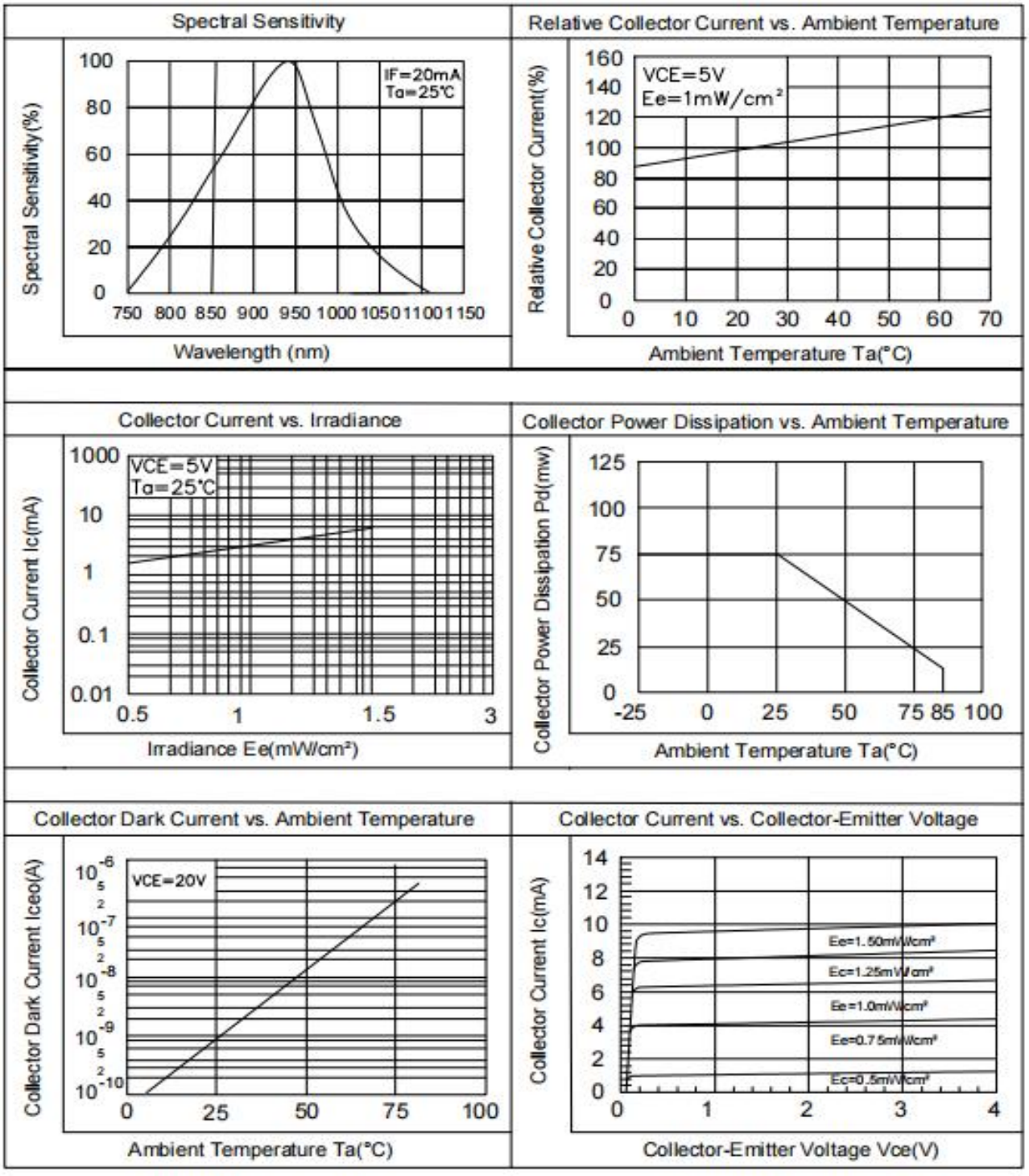
Specifications for Bin Grading:

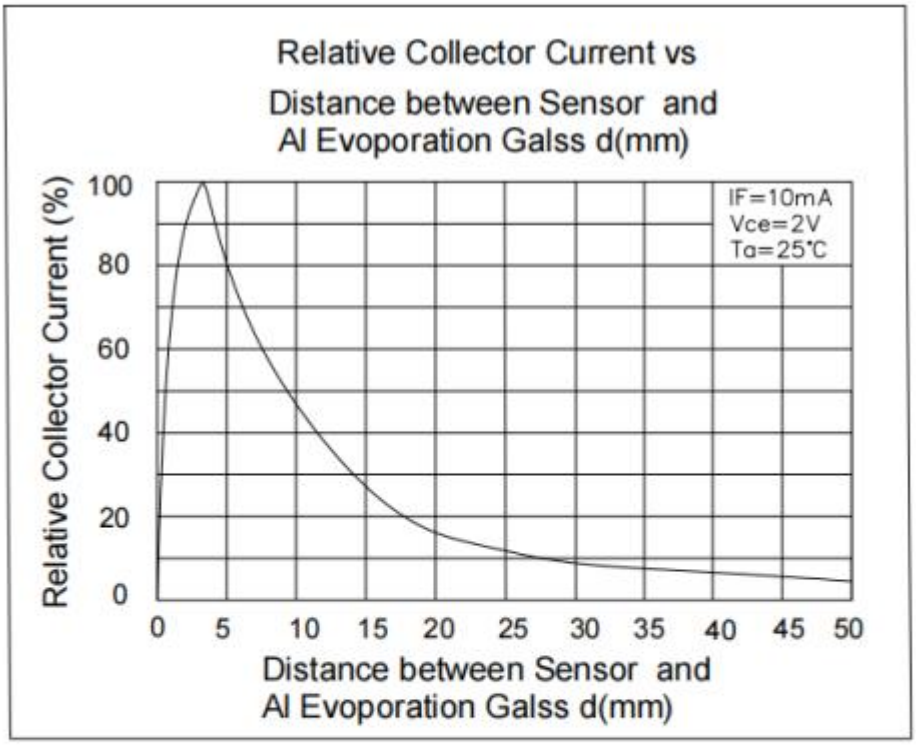
Ic(mA) VCE=2V IF=10 mA		
Grade	Min.	Max.
F	0.4	1.35
G	0.7	1.9
H	1.14	2.6
J	1.77	3.61
K	2.67	5.07
L	4.18	7.07
M	5.68	8.48
N	7.18	9.98

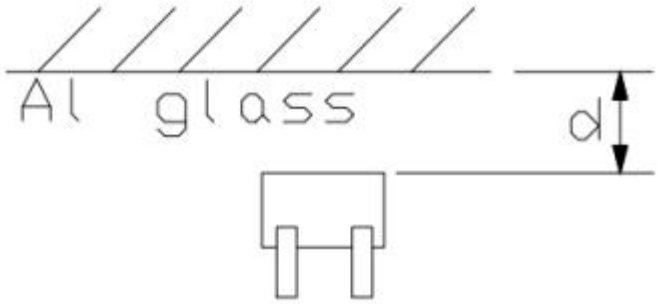
Typical Electro-Optical Characteristics Curves For IR



Typical Electro-Optical Characteristics Curves For PT




Relative Collector Current vs
Distance between Sensor and
Al Evoporation Galss d(mm)
Relative Collector Current (%)
100
80
60
40
20
0
IF=10mA
Vce=2V
Ta=25℃
0 5 10 15 20 25 30 35 40 45 50
Distance between Sensor and
Al Evoporation Galss d(mm)

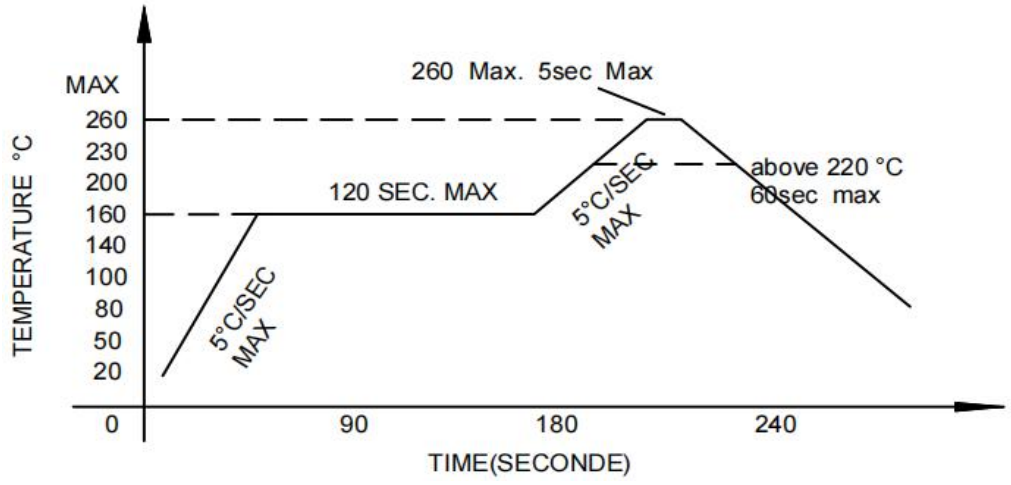

Al
glass
d

Soldering condition

1. Careful attention should be paid during soldering. When soldering, leave more then 2mm from solder joint to Led, and soldering beyond the base of the tie bar is recommended.
2. Avoiding applying any stress to the lead frame while the LED are at high temperature particularly when soldering.
3. Dip and hand soldering should not be done more than one time.
4. After soldering the LED, the epoxy bulb should be protected from mechanical shock or vibration until the LED return to room temperature.
5. A rapid-rate process is not recommended for cooling the LED down from the peak temperature.
6. 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.
7. 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℃ Max. (30W Max.)	Preheat temp.	160℃ 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)



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	IL≦ILt*0.5 or Vf≧U or Vf≦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

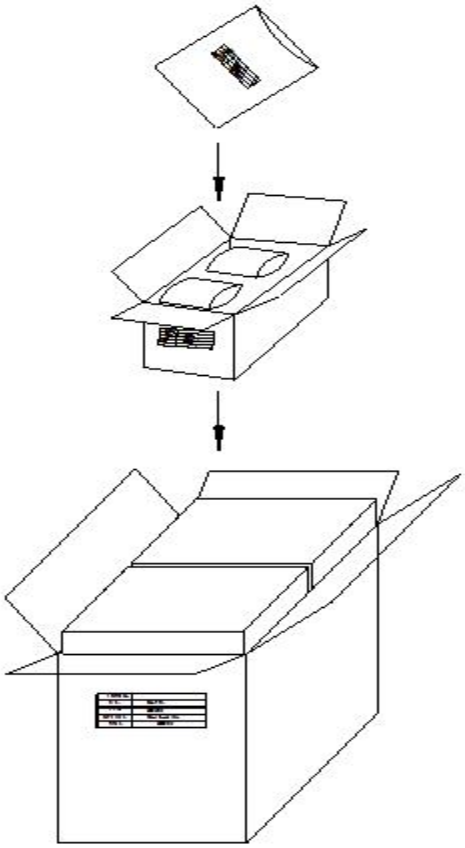
Note：I_{Lt}：To test I_L value of the chip before the reliability test.

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

U：Upper Specification Limit.

L：Lower Specification Limit.

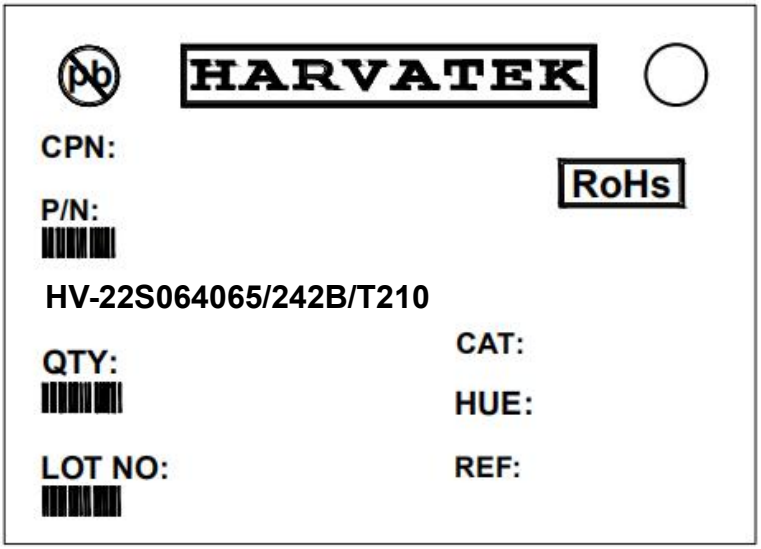
Packing Specification:



250PCS/Bag

1000PCS/In-Carton

10000PCS/Out-Carton



Revision History

Revision	Page	Version No.	Revision Date
Initial Release		1.0	10-27-2019
Modify electrical properties and units	6	1.1	12-25-2019
Added photoelectrical characteristic map	10	1.2	01.14.2021
Modify parameters and increase overfurnace conditions	6/7/11	1.3	11-17-2022