

HERCULUX Chengdu HercuLux Photoelectric 恒坤光电 Technology Co.,Ltd

Product Approval

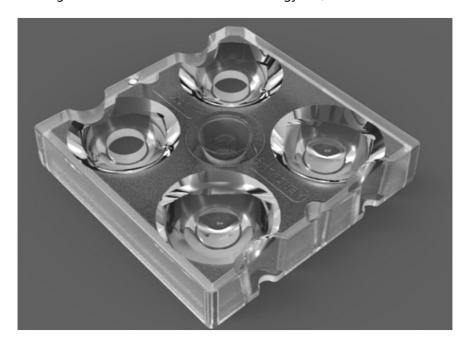
Approval number:

Customer:

Product: HK 4in1-10°Lens

Material Code : 1.01.81540 PN : HK-50@12-10-3535-02-1g-4

Manufacturer: Chengdu HercuLux Photoelectric Technology Co.,Ltd



	Supplier confirmation				Client confirmation				
Proposed		DATE		Qualified□		5.475			
Project manager		DATE		Unqualified□		DATE			
Audit		DATE		Audit		DATE			
Approved		DATE		Approved		DATE			
Stamp		DATE		Stamp		DATE			

(Confirmation of acceptance by both parties must be signed and sealed)

Factory: Chengdu Shuangliu District, Iot industrial park 2 road HercuLux Photoelectric Park

Phone: 028-85887727 (801) 028-85887990 (801) Fax: 028-8588730 http://www.herculux.cn/Sales Dept: Shenzhen Nanshan District Nanshan Cloud Valley Innovation Industrial Park Comprehensive Service Building,

TEL: 0755-2937 1541 FAX: 0755-2907 5140

*Approval In duplicate, for both supplier and customer.

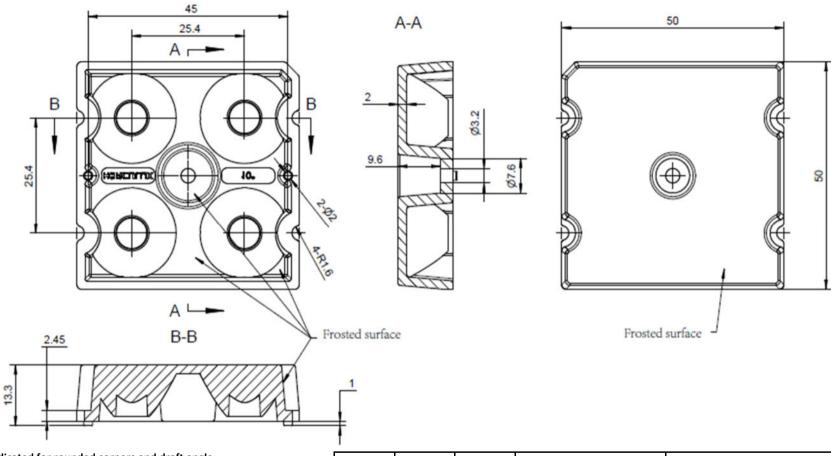


HERCULUX Product Approval

TEL: 0755-2937 1541 Date updated: 2021/11/15 FAX: 0755-2907 5140 http://www.herculux.cn/

Product Picture:	
PN:	HK-50@12-10-3535-02-1g-4
Size(L*W*H/Φ*H):	Ф:50mm; H:13.3mm
1.07.81418_HK-166@03-0223-S	РММА
Effiency:	\
Temperature(Topr):	Material extreme temperature resistance : -40℃ to +100℃ long-term use temperature : -40℃ to +80℃
FWHM:	10°
Matched LES:	cree xte





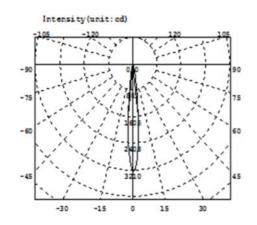
Technical remark:

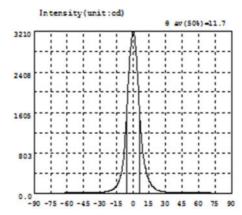
- 1. The 3D map is not indicated for rounded corners and draft angle.
- 2. The dimensional tolerances are not specified according to GB/T 14486 2008 MT5.
- 3, The surface has no flash, shrinkage, bubbles and other defects.
- *4. When the lamp adopts rubber ring for waterproofing: the roughness of the contact surface between the radiator and the rubber ring is required: Ra<3.2µm

	1												
	optical desig						HK-50@12-10-3535-02-1g-4						
	ructure desi					НК 4	in1-10°Lens	1.01.81540					
	Review					1	nber of draw qty			wei	ght		
	Validation					Material:	PMMA	СДНК					
_	250 250 450 >450												

	Basic size	<3	3~10	10~24	24~65	65~140	140~2	50 250^	~450	>450
Tolerance										
table	lerance val	±0.1	±0.15	±0.2	±0.35	±0.50	±0.80	±1	L. 2	±2.0







Intensity data: (deg , cd) C0-180

λ	I	λ	I	λ	I	λ	1	λ	I	λ	I
-90.0	0.9809	-58.5	5.611	-27.0	26.02	4.5	2300	36.0	18.21	67.5	5.865
-88.5	1.082	-57.0	5.785	-25.5	29.15	6.0	1707	37.5	16.70	69.0	6.203
-87.0	1.223	-55.5	5.957	-24.0	33.13	7.5	1206	39.0	15.00	70.5	5.861
-85.5	1.415	-54.0	6.144	-22.5	38.99	9.0	854.3	40.5	13.33	72.0	5.281
-84.0	1.595	-52.5	6.350	-21.0	48.26	10.5	623.0	42.0	11.73	73.5	4.863
-82.5	1.849	-51.0	6.621	-19.5	61.39	12.0	461.9	43.5	10.10	75.0	4.493
-81.0	2.105	-49.5	6.960	-18.0	78.94	13.5	334.2	45.0	9.051	76.5	4.035
-79.5	2.374	-48.0	7.334	-16.5	103.2	15.0	249.8	46.5	8.459	78.0	3.482
-78.0	2.651	-46.5	7.788	-15.0	141.2	16.5	183.9	48.0	8.048	79.5	3.000
-76.5	2.912	-45.0	8.263	-13.5	197.9	18.0	138.0	49.5	7.629	81.0	2.584
-75.0	3.195	-43.5	8.866	-12.0	278.6	19.5	104.3	51.0	7.281	82.5	2.255
-73.5	3.510	-42.0	10.23	-10.5	403.9	21.0	78.05	52.5	7.002	84.0	1.982
-72.0	3.793	-40.5	11.63	-9.0	602.2	22.5	59.28	54.0	6.772	85.5	1.677
-70.5	4.128	-39.0	12.84	-7.5	929.7	24.0	47.36	55.5	6.592	87.0	1.435
-69.0	4.497	-37.5	14.26	-6.0	1426	25.5	39.58	57.0	6.484	88.5	1.239
-67.5	4.808	-36.0	16.02	-4.5	2026	27.0	33.90	58.5	6.337	90.0	1.146
-66.0	4.891	-34.5	17.62	-3.0	2573	28.5	29.88	60.0	6.238		
-64.5	5.027	-33.0	18.57	-1.5	2991	30.0	26.69	61.5	6.140		
-63.0	5.314	-31.5	19.62	0.0	3195	31.5	24.14	63.0	6.132		
-61.5	5.554	-30.0	21.33	1.5	3141	33.0	21.89	64.5	5.925		
-60.0	5.466	-28.5	23.51	3.0	2817	34.5	19.85	66.0	5.771		

Electricity Parameter:

Current I: 0.1000A Power: 1.100W Voltage V: 11.00V PF: 1.000

Optical Parameter (Distance=2.559m):

Equivalent Luminous flux: Φ eff= 250.4lm Efficiency: Eff=227.66lm/W

C0-180Plane I0= 3195cd



	ļ	Standard size	Upper Size limit	Lower size limit	Test result1	Test result2	Test result3	Test result4	Jud gme nt	Remarks
length 1.Size Location column		50			50. 15	50. 14	50. 13	50. 03		Test environment:
		45			44. 92	44. 94	44. 94	44. 96		In 20 ℃ -25 ℃ environment to achieve thermal
		2			2. 05	1. 96	1. 97	1.98		equilibrium after the test.
			Gate she	ar can no	affect the a	appearance	of the lamp)		
See attachment "Appearance Inspection Standards"										
2.Appearance attac Quality attac "Appe		chment	F		No burr	No burr	No burr	No burr		ОК
		pection	ection		No stains	No stains	No stains	No stai	ns	J.K
ıl			PMMA	4		Color	Tra	nsparent		OK
Testing I	_ED					cree xte				
FWH	N				See light	distribution	curve			
angle	9				11.9	12.4	12. 1	12.3		/
K-val	ue				10.72	10.32	10. 72	10. 93		/
Efficie	ncy				91.84%	91.85	89. 81	89. 93		
Facula	See th	ne signatui	re sample		`					
hensive ment					•	Q	ualified			
			Length	PMMA	product si	ze change	s with tem	perature	tabl	e
1. Tool Number: V-Vernier Caliper 2D-Quadratic H-Height Gauge M-Tool Microscope P-Needle T-Thick Gauge R-Radius Gauge E-Visual. 2. Ambient temperature on the size of the product refer to the table on the right			changes (mm)	0.6	10	20 3		Siz Siz Siz Siz Siz	e: 10 e: 15 e: 20 e: 25	0mm 0mm 0mm 0mm
	Locaticolum colum diamet colum diamet Testing I FWHM angle K-val Efficie Facula hensive ment Number: V D-Quadra auge M-To pe P-Need uge R-Rad Visual. ent tempe f the prod	length Location column column column diameter atta "App Ins Star I Testing LED FWHM angle K-value Efficiency Facula See trensive ment : Number: V-Verni D-Quadratic H-auge M-Tool pe P-Needle T-uge R-Radius-Visual. ent temperature of the product ref	length 50 Location column 45 column diameter 2 See attachment "Appearance Inspection Standards" I Testing LED FWHM angle K-value Efficiency Facula See the signature thensive ment : Number: V-Vernier D-Quadratic H-auge M-Tool pe P-Needle T-uge R-Radius-Visual. ent temperature on of the product refer	Size Size limit	Size Size limit size limit length 50 Location column 45 Column diameter 2 Gate shear can not See attachment "A per sample Inspection Standards" I PMMA Testing LED FWHM angle K-value Efficiency Facula See the signature sample chensive ment See the signature sample changes (mm) Length changes (mm) 1. PMMA Length changes (mm) 2. PMMA Length changes (mm) 3. A changes (mm) 4. Change	length 50 50. 15 Location column 45 44. 92 Column diameter 2 2. 05 Gate shear can not affect the a See attachment "Appearance Inspection Standards" No burr Testing LED FWHM See light angle 11. 9 K-value 10. 72 Efficiency 91. 84% Facula See the signature sample thensive ment PMMA product si Length changes ment PMMA product si Length changes (mm) 0.6 Length changes (mm) 0.6 0.4 0.6 0.7 0.7 0.8 0.8 0.9 0.9 0.9 0.9 0.9 0.9	length 50 50. 15 50. 14 Location column diameter 2 2. 05 1. 96 Gate shear can not affect the appearance Inspection Standards" No burr No burr No burr No stains No s	Size Size	Size Size Imit size Imit result2 result3 result4	Standard size Size limit Size limit result1 result2 result3 result4 resu

Precautions:

- Wear clean gloves during lens assembly to prevent contamination of the lens surface.
 Take the lens try to avoid touching the total reflection surface.
 When the lens surface contamination, you can only gently wipe with soft cotton sticky neat neutral solvent, not allowed to wipe with industrial solvents.



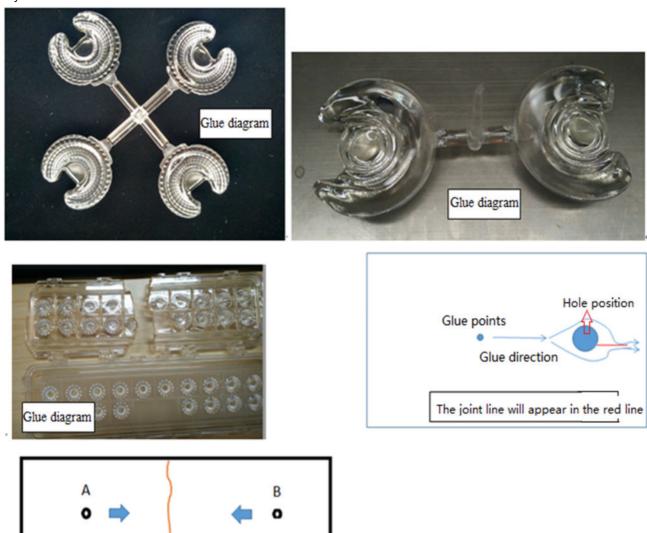
Pl	N	HK-50@12-10-3535-02	?-1g-4	Product Name	HK 4in1-1	0°Lens				
Product	material	РММА		Customer						
Package	diagram	Single Vacuum package Box package								
Product	packing	24	A/ Box	4	Box/Floor					
	. 5	15	Floor/Carton	1344	A/ Carton					
	NO.	Part No	Part name	Size	Dosage	Unit	Remar ks			
	1	2.07.0049	Blister box	23cm*21cm	56	BAG				
	2	2.08.0001	PE film	30cm*30cm	56	PCS				
Packagin g	3	2.06.0005	Reel label paper	6.2cm*8cm	56	PCS				
Materials	4	2.06.0005	Box label paper	6.2cm*9.2cm	1	PCS				
	5	2.06.0003	big plate	46.8cm*42.8cm	15	PCS				
	6	2.06.0001	big carton	46.8cm*42.8cm*36	1	PCS				
Remarks		Scattered packaging is not subject to this specification								



Special notice

When gule pass through holes, columns and other structures, or part of the thin structure, will form a weld line. The product which uses multi-point injection welding line will appear because of the combination of sol, as shown below:

Syntneti



Please note:

The appearance of lines in the structure of the product as well as at the screw hole is a normal phenomenon, will not affect the actual use of the product, and can not be avoided at this stage.

The joint line will appear in the red line



Appearance inspection standards

1 Operating procedures

1.1.1Sampling standards, sampling plan and AQL

Test level : GB/T2828.1-2012The first part is according to the acceptance quality limit (AQL) retrieval batch inspection sampling plan, general inspection level Π level, CR class defect coefficient 0, MA defect rejection level AQL = 0.65, MI class defect rejection level AQL = 1.0; defect level please see 5.4.

2 Code table

Code	Code description	Unit	Code	Code description	Unit
N	Amount/pcs	pcs	D	Diameter	mm
L	Length	mm	Н	Depth	mm
W	Width	mm	DS	Distance	mm
S	Proportion	mm²	SS	Offset	mm

3 Test conditions

- 3.1 Sight distance and working hours: Sight distance should be 30-35cm, each side of the inspection time does not exceed 12s, the visual angle of 45-135 degrees;
- 3.2 Light: 2x40w cool white fluorescent lamp, the light source is 500-550mm away from the lens surface; in order to make the appearance defect can be correctly recognized, the illumination should be 500-1000Lux, and the observation time is 10 seconds.
 - 3.3 Visual inspection staff should be 1.0 (including corrected visual acuity) above, no color blindness, color weakness.

4 Appearance inspection standards

Test items	ludging atondard	Inspection equipment	Defect level			
reschenis	Judging standard	Testing method	MI	MA	CR	
	When start the machine and process, all products have to check the appearance of the sample, the appearance of the sample is divided into qualified samples and limited samples.					
Check the sample	1: Qualified sample refers to the appearance and structure standard of the product which recognized by the client, the sample size should be confirmed before mass production;	Sample comparison , visual			√	

1		Ī	1	Ī	
	2: The limited sample refers to the limit of a particular exceptionally developed sample. Limit the sample only for its specific point of exception to confirm; The priority is higher than the other criteria in this table. When there is a limited sample, the limit sample shall prevail.				
Raw edge	Not allowed to affect the size and assembly	Visual, point card		√	
Scratch	1: Non-optical surface and non-exposed surface scratches should be visually insignificant and the length is less than 1/10 of the maximum surface size.	Visual, point card, calipers		√	
Fingerprint	Fingerprints are not allowed on all products	Visual		√	
Foreign objects, black spots, white spots	The product may not be attached to foreign objects, including oil, fiber, dregs of water gap and so on				√
Deformation	Insufficient filling shall not affect the appearance of the assembly and the exposed surfaces.	Visual, feeler			√
Poor ejection	Products may not appear bad ejection, including no convex top, thimble printed on the assembly surface shall not be higher than the product surface, non-assembled surface thimble height should not exceed the product size tolerances; thimble printing should be less than the product surface and no more than 0.3; thimble surface treatment should be consistent with the product side. Ejection strain: the optical surface and the appearance of the exposed surface after assembly are not allowed to have a strain, and the structural surface does not allow visual obvious strain.	Visual, point card		✓	
Insufficient filling	Insufficient filling shall not affect the appearance of the assembly and the exposed surfaces, The signature sample shall prevail.	Visual, point card		√	
Shrink	When the entire surface of the product shrinks, the optical properties and dimensions must meet the requirements, and the visual will not significantly affect the appearance.Part shrink reference point defects	Visual, point card		√	
Flow marks、Welding line	 1 : Product does not allow the presence of flow marks and welding lines unless the structure can not be avoided; 2: The remaining flow marks shall not appear in the optical surface, a single L ≤ 10mm, no more than two 	Visual		✓	

Bubble	No bubbles are allowed	Visual		√	
Foreign objects, black spots, white spots	Not obvious or D ≤ 0.3mm black spots and foreign bodies in the area of 100x100mm not more than 1; Exceeded foreign matter black spots is judged bad.	Visual, point card	√		
Damaged	No damage is allowed	Visual			√
Cold glue	Optical surface may not have cold glue, non- optical surface cold glue should meet the visual is not obvious.	Visual	√		
	1: Do not affect the product size, shall not penetrate the optical surface, the cut should be smooth;				
Bad incision	2: Laser cutting products, the optical surface burns shall not occur after the processing is completed. Beading must not affect product installation	Visual			√
	3: Three molds and hot runner gate shall not appear residue.				
Scrub	Scrub surface should be uniform, off the scrub phenomenon should not be obvious , A single off scrub imprint requires D \leq 1 mm and no more than 1 area within a 50x50 mm area	Visual		√	