

# Flat-ring Lights

## LFR/LKR Series

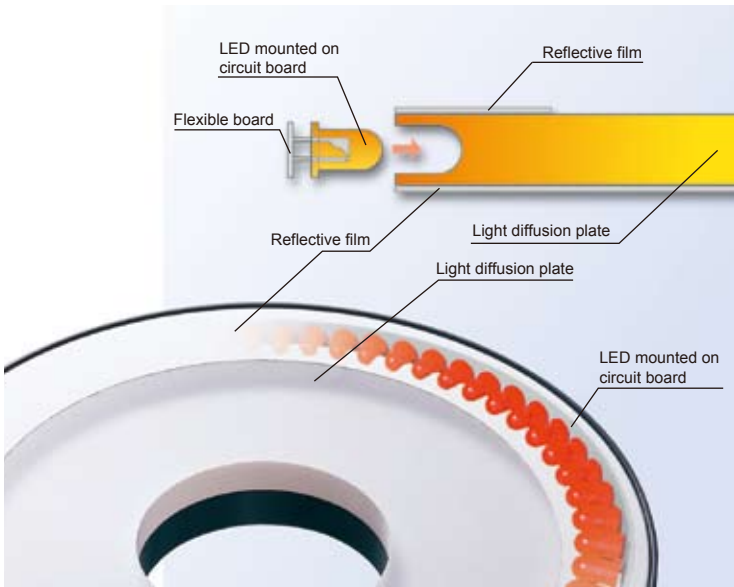
### Evenly diffused top lighting

A unique light guiding method provides uniform diffused illumination and eliminates LED glare and shadows.



#### Thin Flat Ring with a Unique Light Guiding Method

The LEDs are arranged in a straight line on a flexible circuit board, and then wrapped around the perimeter of a light diffusion plate. This channels the light directly from the LEDs into the light diffusion plate. In addition, a reflective film is applied to the surfaces of the light diffusion plate to refract and scatter the light in a complex way after it is introduced from the emitters. The light will spread evenly through the entire light diffusion plate and produce a very even light distribution.

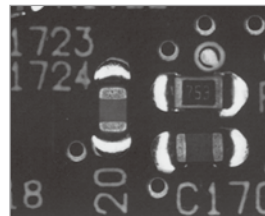
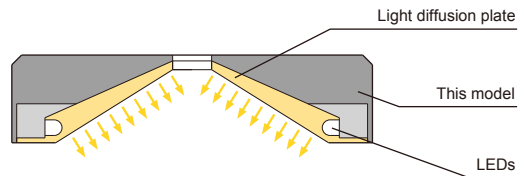


#### Even illumination without shadows (LKR)

LKR Series. Light shines from the conical emitting surface at all angles, making it possible to evenly illuminate the work without forming shadows.



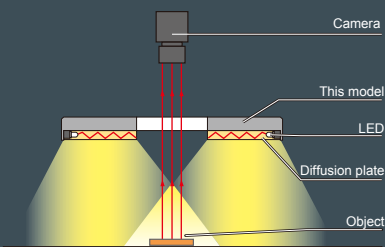
LKR-70-8



Solder joint inspection for chip components on printed circuit board.  
FOV 10mm, LWD 10mm  
No hot spots, uniform illumination, only the solder joints stand out in white.  
Lighting: LKR-70A

#### Illumination structure of LFR-100

Light from the LEDs around the periphery of the light diffusion plate is scattered and reflected within the plate to create diffused light that illuminates from directly overhead.

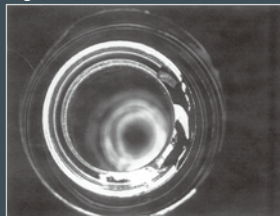


#### Examples of Flat Ring Light Images

##### Inspecting for nicks on a glass bottle

Normal areas of the bottle appear illuminated as a white ring. Broken parts can be detected as dark spots within the rings.

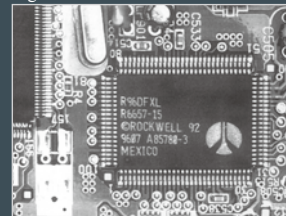
Light used: LFR-100



##### Inspecting characters on a QFP package

The characters are illuminated with good contrast.

Light used: LFR-130



##### Inspecting of stains on plastic caps

The stains on inside and bottom face of plastic caps can be detected.

Light used: LKR-70A



# Product Lineup Table

Direct Number : You can easily access the web page providing information on any desired product by simply entering the 7-digit direct number in the space provided. (Refer to the back cover of this brochure.)

Series	Direct Number	Model Name	Color	Power Consumption	Option	Dimension
LFR	1001715	LFR-100	●	12V / 3.6W	—	1
	1004300	LFR-100SW2	○	24V / 4.6W		
	1001720	LFR-100-BL	●	24V / 4.9W		
	1001723	LFR-100-GR	●			
	1001728	LFR-100K	●	12V / 3.6W	—	2
	1004301	LFR-100KSW2	○	24V / 4.6W		
	1001730	LFR-100K-BL	●	24V / 4.9W		
	1001731	LFR-100K-GR	●			
	1001740	LFR-130	●	12V / 4.5W	—	3
	1004302	LFR-130SW2	○	24V / 5.7W		
	1001745	LFR-130-BL	●	24V / 6.1W		
	1001746	LFR-130-GR	●			
	1001750	LFR-130K	●	12V / 4.5W	—	4
	1004303	LFR-130KSW2	○	24V / 5.7W		
	1001751	LFR-130K-BL	●	24V / 6.2W		
	1001752	LFR-130K-GR	●			
	1001757	LFR-200	●	12V / 7.8W	—	5
	1004304	LFR-200SW2	○	24V / 11W		
	1001758	LFR-200-BL	●		24V / 14W	—
	1001762	LFR-250	●	12V / 9.0W		
1004305	LFR-250SW2	○	24V / 13W			
1001764	LFR-250-BL	●				
1001765	LFR-250-GR	●	12V / 14W	—	7	
1001768	LFR-330	●				

Series	Direct Number	Model Name	Color	Power Consumption	Option	Dimension
LKR	1002082	LKR-70A	●	12V / 3.0W	—	8
	1004205	LKR-70SW2	○	24V / 3.8W		
	1002085	LKR-70A-BL	●	24V / 4.1W		
	1002087	LKR-70A-GR	●			
	1002077	LKR-70-8	●	12V / 3.0W	—	9
	1004204	LKR-70-8SW2	○	24V / 3.8W		
	1002078	LKR-70-8-BL	●	24V / 4.1W		
	1002079	LKR-70-8-GR	●			
	1002063	LKR-125	●	12V / 4.5W	—	10
	1004203	LKR-125SW2	○	24V / 5.7W		
	1002066	LKR-125-BL	●	24V / 6.1W		
	1002067	LKR-125-GR	●			

## Dimension Diagrams (Unit: mm)

