

# Reflective Object Sensor

## Model No: LBR-123F

### Description

The **LBR-123F** is a light reflection switch that includes a GaAs IRLED transmitter and a NPN photo-transistor with a high photosensitive receiver for short distance, operating in the infrared range. Both components are mounted side-by-side in a plastic package.

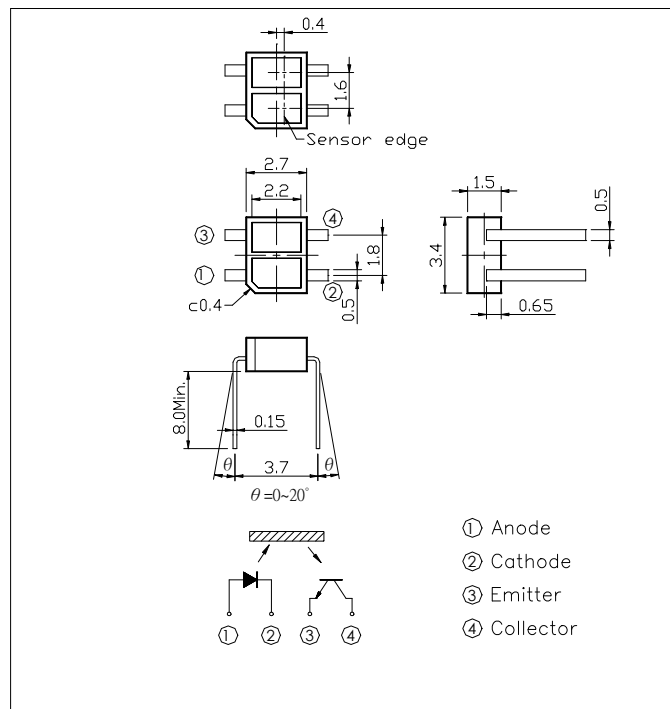
### Features

- Fast response time
- High sensitivity
- Cutting wavelength  $\lambda = 840\text{nm}$
- Thin
- Compact

### Applications

- Camera
- VCR
- Floppy disk driver
- Cassette type recorder
- Various microcomputer control equipment

### Outline dimensions



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### Absolute Maximum Ratings (Ambient Temperature: 25°C)

Item		Symbol	Rating	Units	Note
Input	Forward current	I <sub>F</sub>	50	mA	
	Reverse voltage	V <sub>R</sub>	5	V	
	Peak forward current	I <sub>FP</sub>	1	A	Pulse width ≤ 100 μs, Duty cycle=1%
	Power dissipation	P <sub>d</sub>	75	mW	
Output	Collector current	I <sub>c</sub>	50	mA	
	Collector-Emitter voltage	BV <sub>ceo</sub>	30	V	
	Emitter-Collector voltage	BV <sub>eco</sub>	5	V	
	Collector power dissipation	P <sub>c</sub>	75	mW	
Storage Temperature		T <sub>stg</sub>	-40 to +85	°C	
Operating Temperature		T <sub>op</sub>	-25 to +85	°C	
Soldering Temperature		T <sub>sol</sub>	260	°C	10 seconds max.

### Electrical Specifications (Ambient Temperature: 25°C)

Item		Symbol	MIN.	TYP.	MAX.	Units	Conditions
Input	Forward voltage	V <sub>F</sub>		1.2	1.4	V	I <sub>F</sub> =20mA
	Reverse current	I <sub>R</sub>			10	μA	V <sub>R</sub> =5V
	Peak wavelength	λ <sub>p</sub>		940		nm	
	View angle	2θ 1/2		110		Deg.	I <sub>F</sub> =20mA
Output	Dark current	I <sub>ceo</sub>			100	nA	V <sub>ce</sub> =10V
	C-E saturation voltage	V <sub>ce(sat)</sub>			0.4	V	I <sub>c</sub> =2mA, I <sub>B</sub> =0.1mA
Light current		I <sub>c(on)</sub>	0.1			mA	V <sub>ce</sub> =5V I <sub>F</sub> =20mA
Leakage current		I <sub>Leak</sub>			1	μA	
Speed	Rise Time	t <sub>r</sub>		20		μs	V <sub>ce</sub> =2V I <sub>c</sub> =100uA RL=1KΩ
	Fall Time	t <sub>f</sub>		20			

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## Reference Data

