

Reflective Object Sensor

Model No: LBR-129HLD

Description

The **LBR-129HLD** consist of an infrared emitting diode and an NPN silicon phototransistor, encased side-by-side on converging optical axis in a black thermoplastic housing. The phototransistor receives radiation from the IRED only. This is the normal situation. But when an object is in between, phototransistor could not receive the radiation.

Lead-free lead wire is tin-plated to prevent oxidation through the pollution of Sulfide in the air. Security ball is added into wire-bonding procedure in order to increase bonding strength.

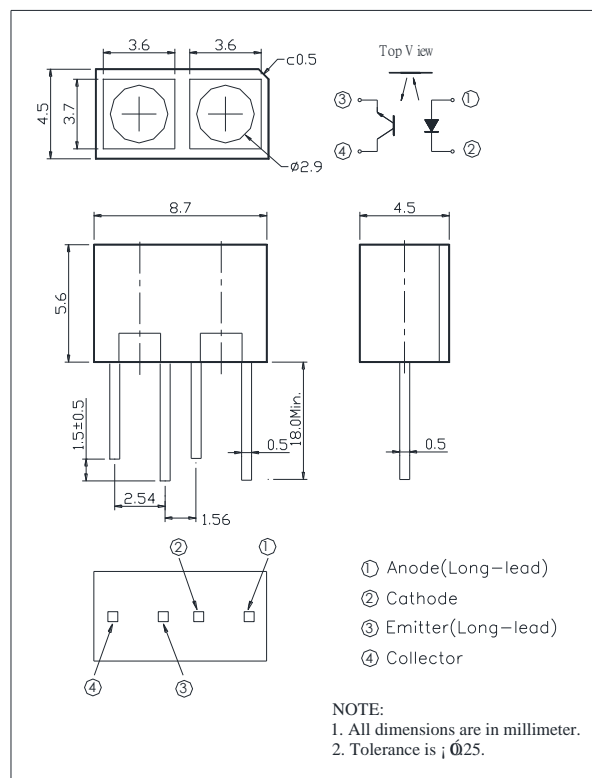
Features

- Fast response time
- High sensitivity
- Cut-off visible wavelength $\lambda = 840\text{nm}$
- High analytic

Applications

- For Direct PC Board
- Mouse Copier
- Non-contact Switching
- Switch Scanner

Outline dimensions



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Absolute Maximum Ratings (Ambient Temperature: 25°C)

Item		Symbol	Rating	Units	Note
Input	Forward current	I _F	60	mA	
	Reverse voltage	V _R	5	V	
	Peak forward current	I _{FP}	1	A	T _w =10 μs, t=10ms
	Power dissipation	P _d	160	mW	
Output	Collector current	I _c	20	mA	
	Collector-Emitter voltage	V _{ceo}	30	V	
	Emitter-Collector voltage	V _{eco}	5	V	
	Collector power dissipation	P _c	100	mW	
Storage Temperature		T _{stg}	-40 to +85	°C	
Operating Temperature		T _{op}	-25 to +85	°C	
Soldering Temperature		T _{sol}	260	°C	5 seconds max.

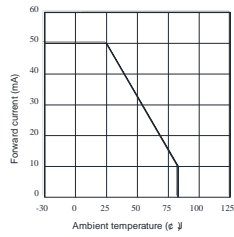
Electrical Specifications (Ambient Temperature: 25°C)

Item		Symbol	MIN.	TYP.	MAX.	Units	Conditions
Input	Forward voltage	V _F		1.2	1.5	V	I _F =20mA
	Reverse current	I _R			10	μA	V _R =5V
	Peak wavelength	λ _p		940		nm	
	View angle	2θ 1/2		35		Deg.	I _F =20mA
Output	Dark current	I _{ceo}			100	nA	V _{ce} =20V
	C-E saturation voltage	V _{ce(sat)}			0.4	V	I _c =2mA, I _B =0.1mA
Light current		I _{c(on)}	0.2			mA	V _{ce} =5V I _F =20mA
Leakage current		I _{Leak}			1	μA	
Speed	Rise Time	t _r		15		μs	V _{ce} =5V I _c =1mA R _L =1KΩ
	Fall Time	t _f		15			

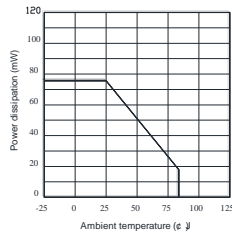
Reflective Object Sensor

Reference Data

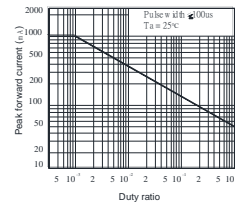
Forward current Vs. Ambient temperature



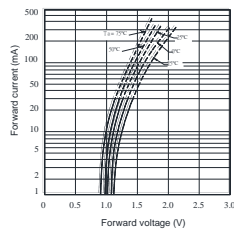
Power dissipation Vs. Ambient temperature



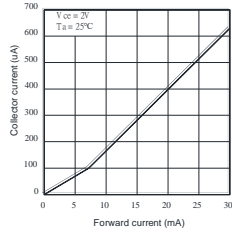
Peak forward current Vs. Duty ratio



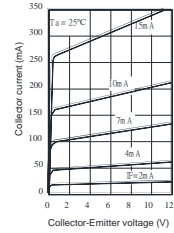
Forward current Vs. Forward voltage



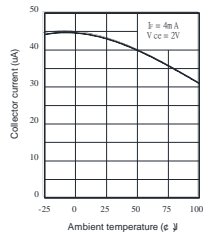
Collector current Vs. Forward current



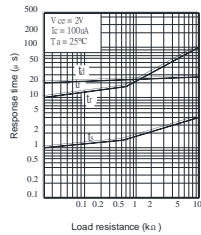
Collector current Vs. Collector-Emitter voltage



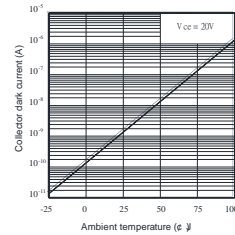
Collector current Vs. Ambient temperature



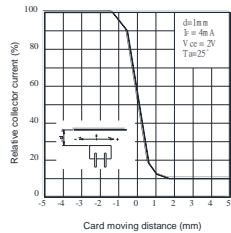
Response time Vs. Load resistance



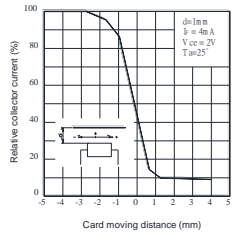
Collector dark current Vs. Ambient temperature



Relative collector current Vs. Card moving distance(1)



Relative collector current Vs. Card moving distance(2)



Test circuit for response time

