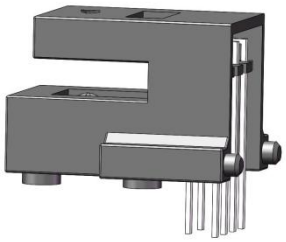
RK_L Series

Optical Encoder

Data Sheet



Description

RK_L series is a high performance, low cost, optical 2-channel incremental encoder module for wide voltage range operation. It consists of a highly collimated light source and a detector IC enclosed in a small C-shaped plastic package, matched with a code-disc or code-strip, it provides information of rotary or linear position.

RK_L series has linear (LPI) options:20, 37, 45, 75,90,120,150,180, 254,300,360,450.

Features

- Photo-detector Array
- -20 ~ +85 ºC Operating Temperature
- Multiple LPI options
- C-Shape Structure,Easy to Mount
- TTL Compatible
- Single-end 3.3~ 5V Supply

Applications

Typical applications include printers, plotters, servo motors, DC motors, stepper motors, office automation etc.

Note: Not recommended for use in safety critical application. Eg.ABS braking system.

Absolute Maximum Ratings

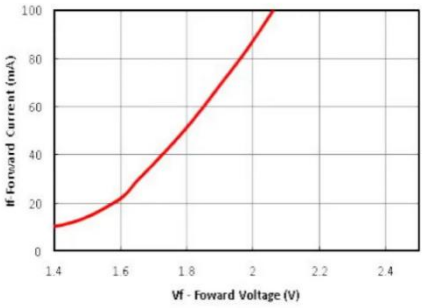
Parameter	Symbol	Range
Storage Temperature	T_s	-40 ~ +85 ºC
Supply Voltage	V_{cc}	-0.5 ~ 7 V
Soldering Temperature		≤260ºC (t≤5s)
Response Frequency	f	60 KHz
Reverse Voltage	V_r	5V
Forward Current (850nm Light Source)	I_f	60mA

Electrical Characteristics

Electrical Characteristics Under Recommended Operating Range,Typical at 25 ºC

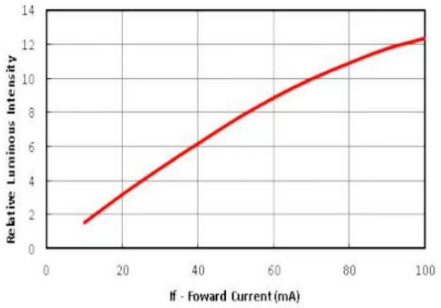
Parameter	Symbol	Min.	Typ.	Max.	Units	Condition
Operating Temperature	T	-20		+85	ºC	
Operating Voltage	V_{cc}	2.7	5	5.5	V	Ripple voltage<100mV
Light Source (850nm) Forward Voltage	V_f	1.4		1.9	V	If=20mA
Light Source(850nm) Wavelength	λ_p	840		860	nm	
Low Level Output Voltage	V_{OL}		0.2	0.4	V	
High Level Output Voltage	V_{OH}	Vcc*0.8	Vcc-0.5		V	
AB Duty Ration	D_t	40	50	60	%	
A/B Phase Difference	θ	60	90	120	°e	
Response Frequency	f			60	KHz	

Light Source Characteristic Curve



I-V Graph

Fig.1 850nm Forward Voltage And Forward Current



L- I Graph

Fig.2 850nm Forward Current And Relative Luminous Intensity

A/B Output Waveform Diagram

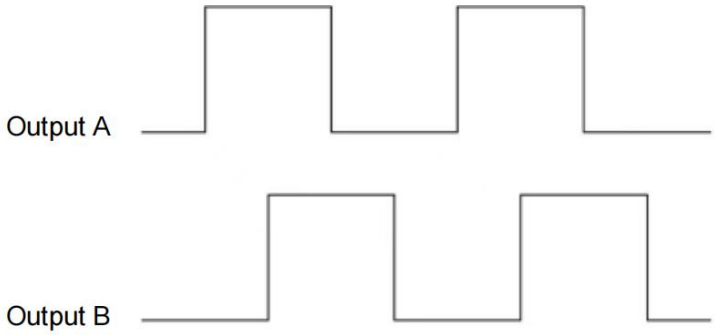


Fig.3 A/B Output Wave Form---Arrow direction

Straight Lead Dimensions (Unit: mm)

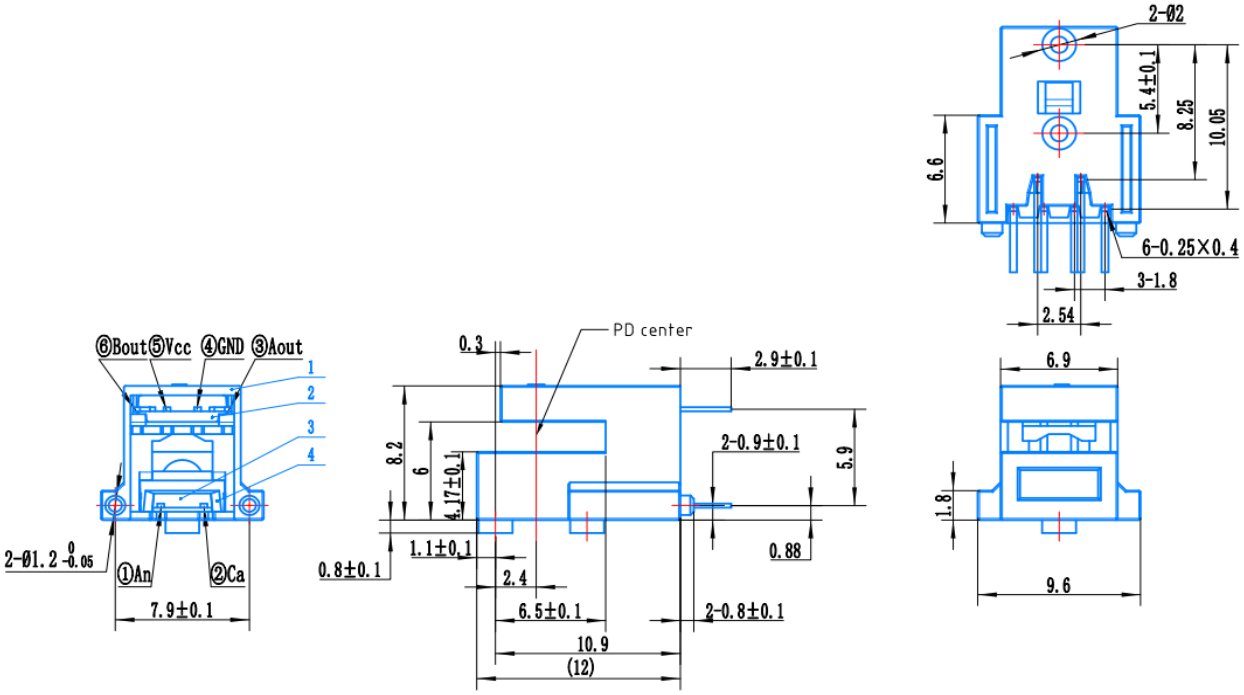


Fig.4 Straight Lead Dimensions Without Mounting Holes

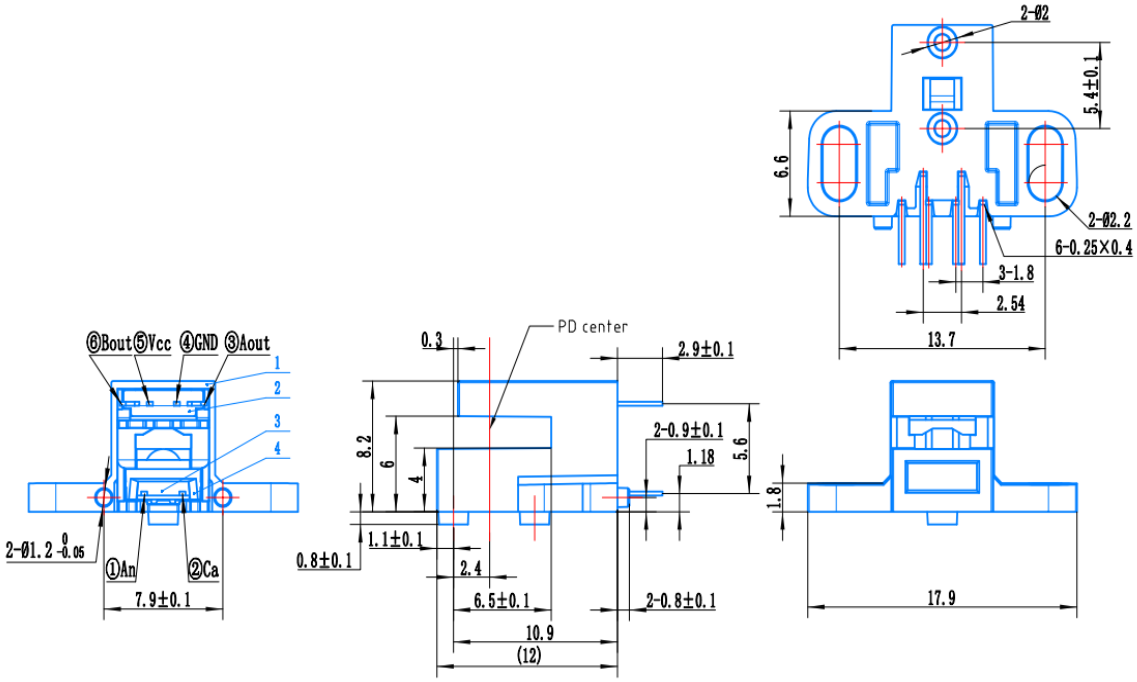


Fig.5 Straight Lead Dimensions With Mounting Holes

Bent Lead Dimension (Unit: mm)

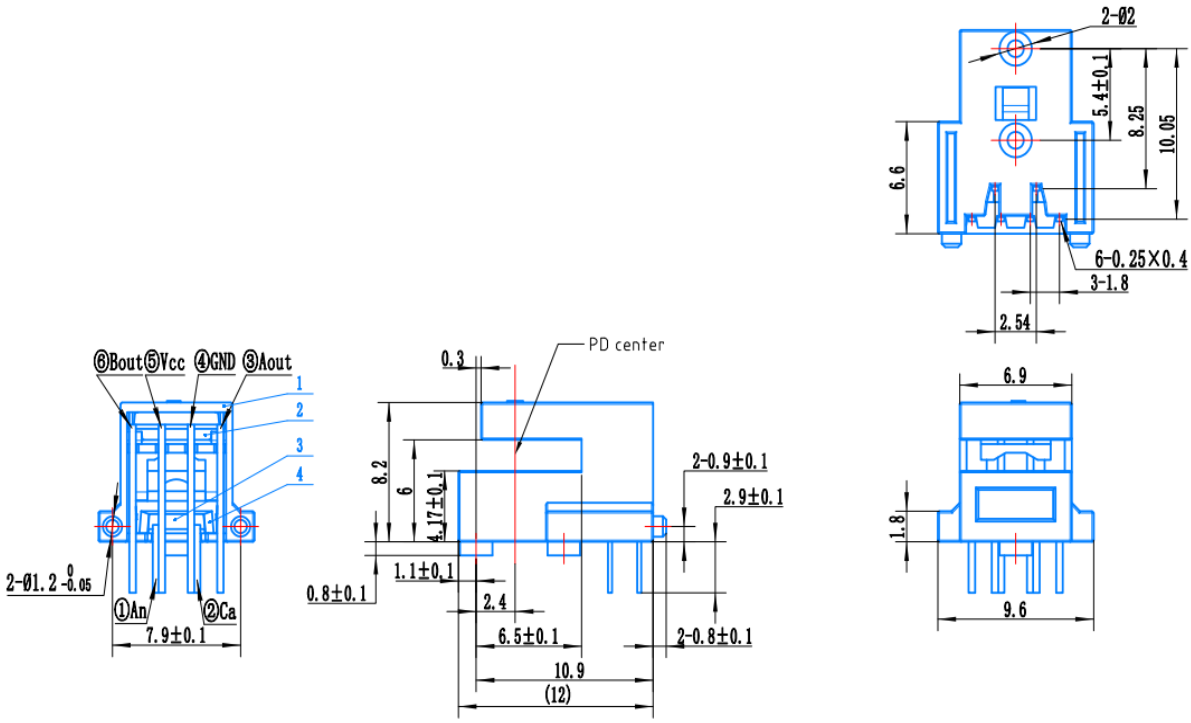


Fig.6 Bent Lead Dimension Without Mounting Holes

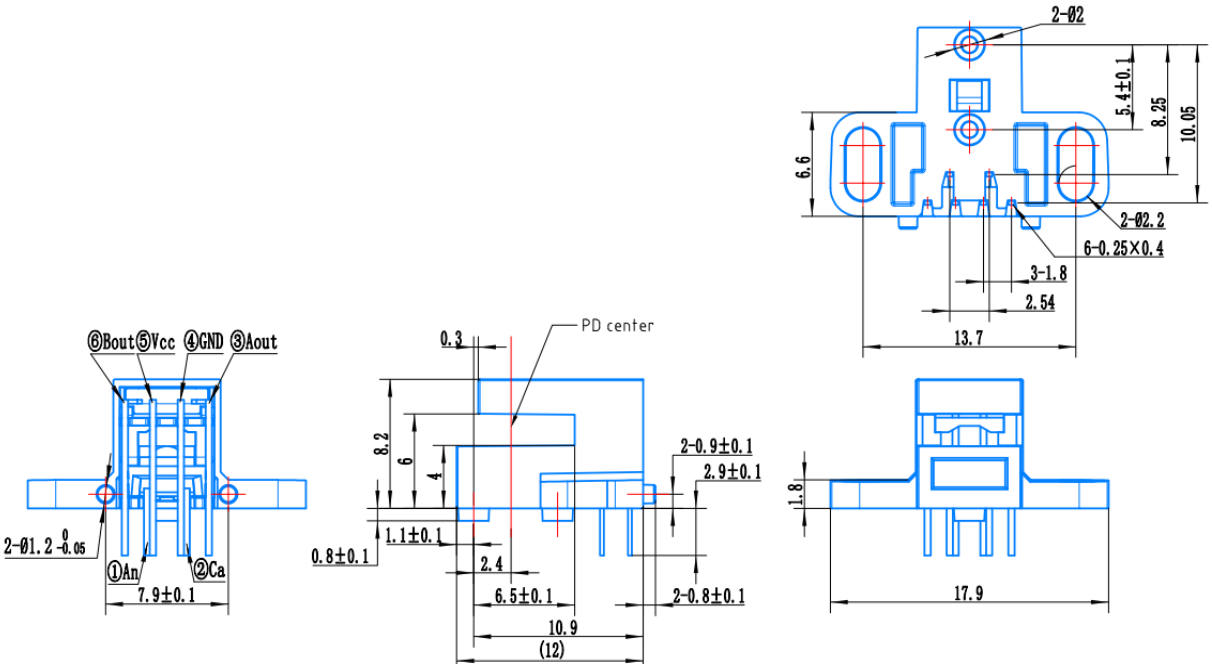


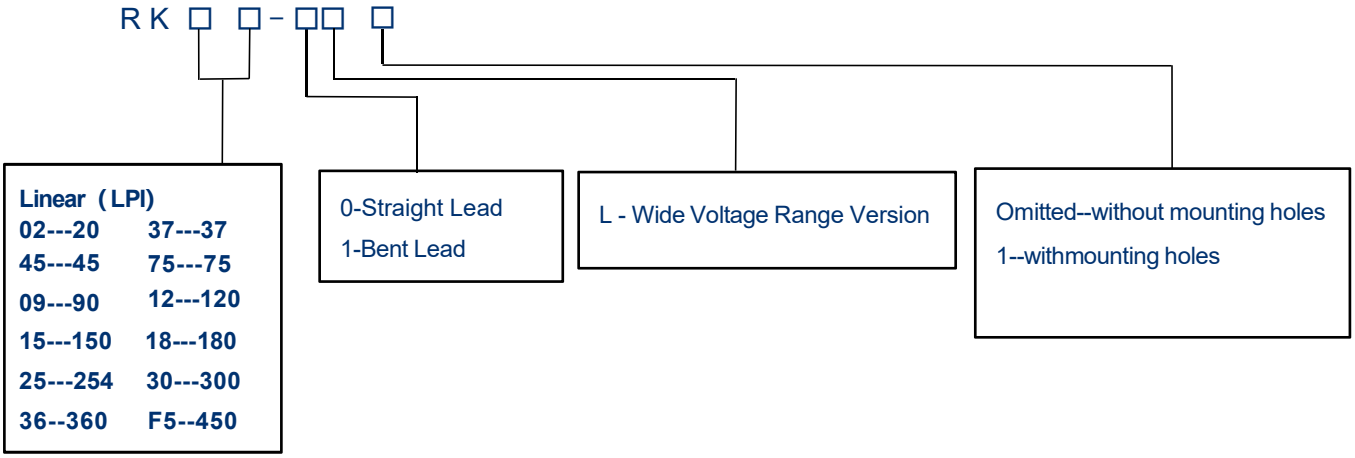
Fig.7 Bent Lead Dimension With Mounting Holes

Pin Definition

Pin Name	Function	Input/Output
An	Positive pole of light source (recommended If=10mA)	
Ca	Negative pole of light source	
Vcc	Power Supply +	Power Supply
Aout	A Channel output	Output
Bout	B Channel output	Output
Gnd	Ground	Ground

Ordering Information

RK_L series is available in a variety of options, as shown in the table below.



*When the 450LPI module is used, the code-wheel needs to be placed within the 1/3 area of the C port close to the receive chip.

Module Printing