

**GP1A038RBK/GP1A038RBKL/
GP1A038RCK/GP1A038RCKL**

■ Features

1. Linear encoder for reading linear scale
2. Since the multi-divided photodiode system is adopted, high-precision reading is possible even if the angle is deviated between the scale and encoder.
3. High resolution:
Resolution 150LPI (**GP1A038RBK/GP1A038RBL**)
Resolution 180LPI (**GP1A038RCK/GP1A038RCL**)

■ Applications

- ## 1. Printers

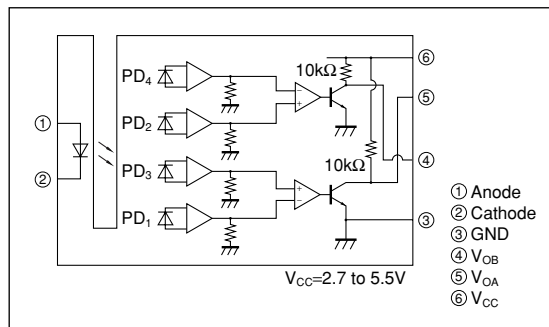
■ **Absolute Maximum Ratings** (T_a=25°C)

	Parameter	Symbol	Rating	Unit
Input	*1 Forward current	I _F	50	mA
	Reverse voltage	V _R	4	V
Output	Supply voltage	V _{CC}	7	V
	Low level output current	I _{OL}	8	mA
	*1 Power dissipation	P _O	150	mW
Operating temperature		T _{opr}	-10 to +70	°C
Storage temperature		T _{stg}	-40 to +80	°C
*2 Soldering temperature		T _{sol}	260	°C

*1 The derating factors of absolute maximum ratings due to ambient temperature are shown in Fig.2 to 3

*2 For 5s

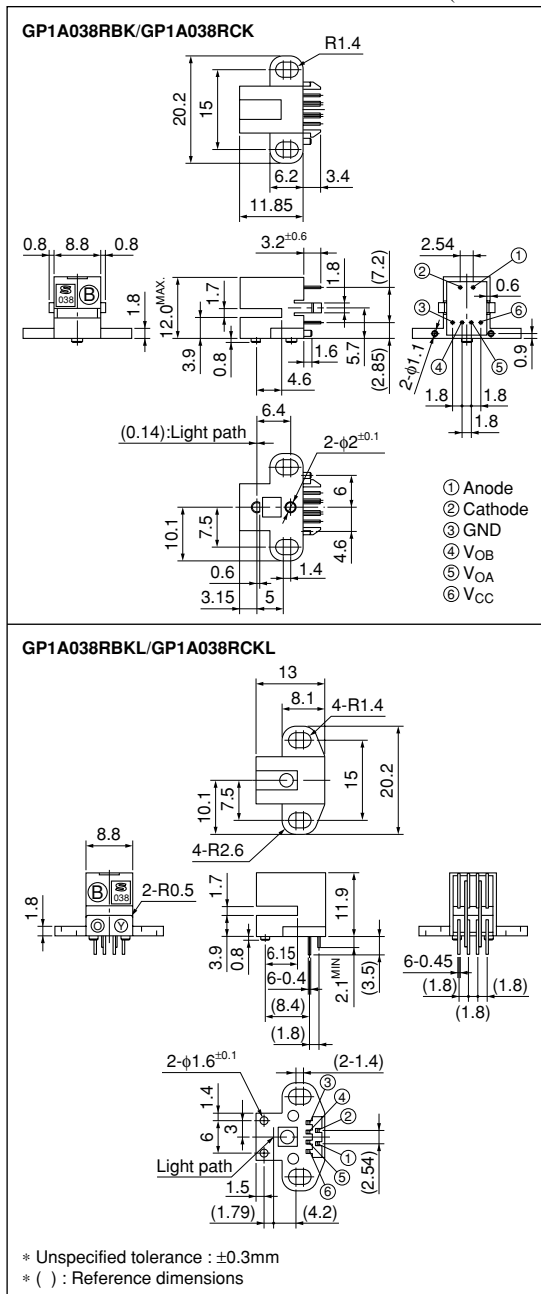
■ Internal connection diagram



OPIC Photointerrupter with Encoder Function

■ Outline Dimensions

(Unit : mm)



■ Electro-optical Characteristics

(T_a=25°C)

	Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Input	Forward voltage	V _F	I _F =11mA	—	1.3	1.5	V
	Reverse current	I _R	V _R =1V	—	—	100	μA
Output	Operating supply voltage	V _{CC}	—	2.7	5.0	5.5	V
	Low level output voltage	V _{OL}	V _{CC} =2.7 to 5.5V, I _F =11mA, I _{OL} =8mA	—	—	0.4	V
	High level output voltage	V _{OH}	V _{CC} =2.7 to 5.5V, I _F =11mA	V _{CC} -0.3	—	—	V
	Supply current	I _{CC}	V _{CC} =2.7 to 5.5V, I _F =11mA, A and B low level	—	—	5	mA
*1 Transfer characteristics	Duty ratio	D _A D _B	V _{CC} =2.7 to 5.5V, I _F =11mA, f=10kHz, Z=0.3 ^{+0.7} _{-0.2} mm	35	50	65	%
	Phase difference	θ _{AB1 to 4}		45	90	135	°
	Response time	t _r		—	1.0	2.0	μs
		t _f		—	1.0	2.0	μs
	Response frequency	fmax		—	—	20	kHz

*1 Refer to the measuring condition. The values of transfer characteristics do not include an error of linear scale. Z is the distance between scale face and holder on the detector side.

Fig.1 Output Waveforms

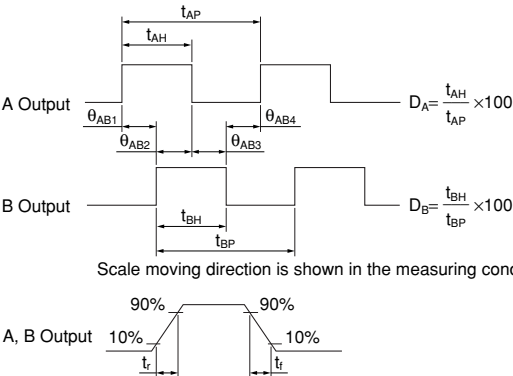


Fig.2 Forward Current vs. Ambient Temperature

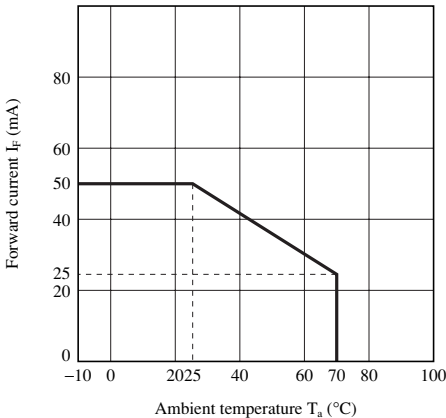


Fig.3 Output Power Dissipation vs. Ambient Temperature

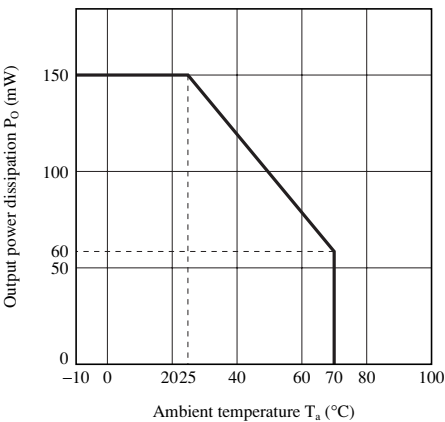
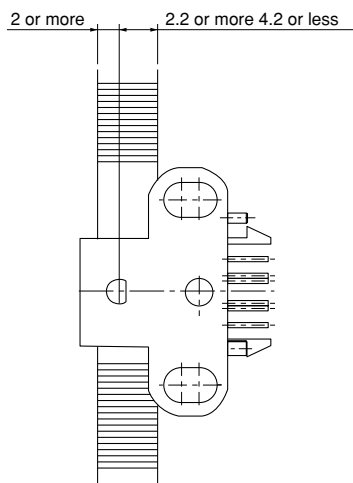
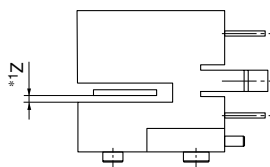
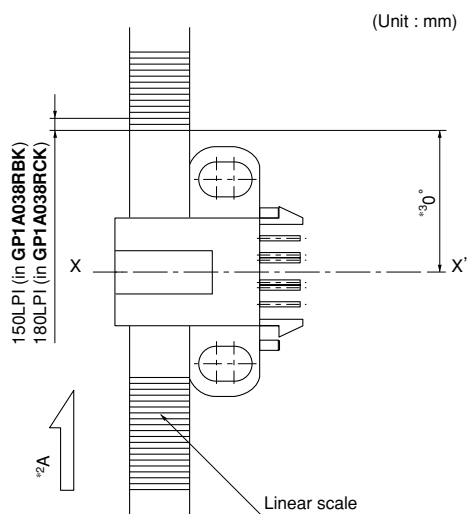


Fig.4 Measuring Condition



*1 Distance between scale face and holder on the detector side

*2 Scale moving direction

*3 X-X' is the line which is through the center of holder positioning pin, and it is parallel to the scale slit.

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