GP1A038RBK/GP1A038RBKL/ GP1A038RCK/GP1A038RCKL

OPIC Photointerrupter with Encoder Function

■ 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/GP1A038RBKL)**
   Resolution 180LPI **(GP1A038RCK/GP1A038RCKL)**

■ Applications

1. Printers

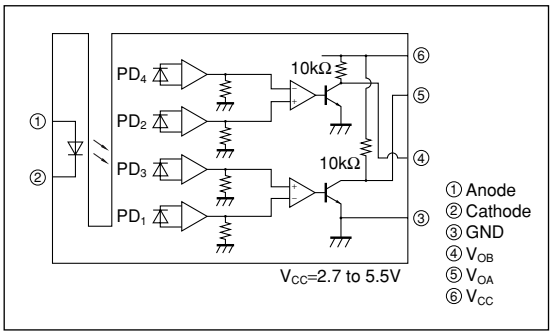
■ Absolute Maximum Ratings

(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

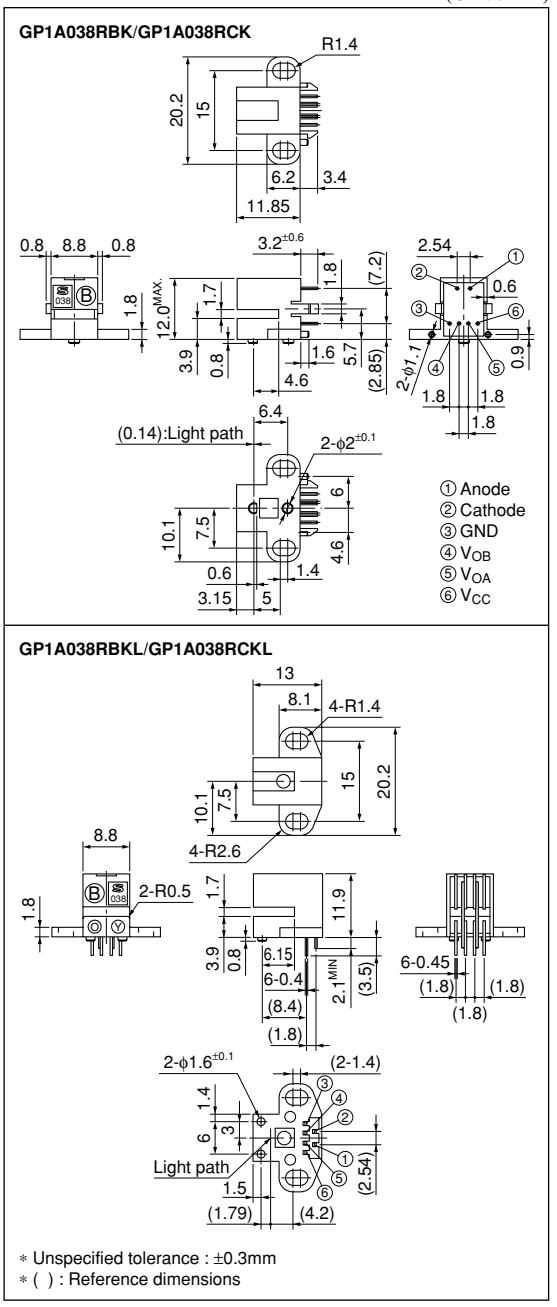
*1 The derating factors of absolute maximum ratings due to ambient temperature are shown in Fig.2 to 3
*2 For 5s

■ Internal connection diagram



■ 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	$\theta_{AB1\ to\ 4}$		45	90	135	°
	Response time	t_r		–	1.0	2.0	μs
		t_f		–	1.0	2.0	μs
	Response frequency	fmax	V_{CC}=2.7 to 5.5V, I_F=11mA, Z=$0.3^{+0.7}_{-0.2}$mm	–	–	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

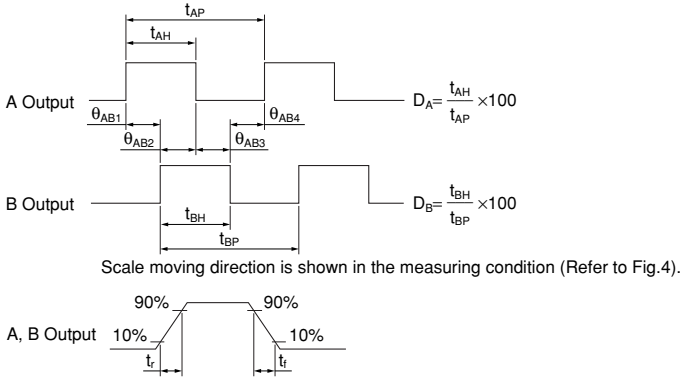


Fig.2 Forward Current vs. Ambient Temperature

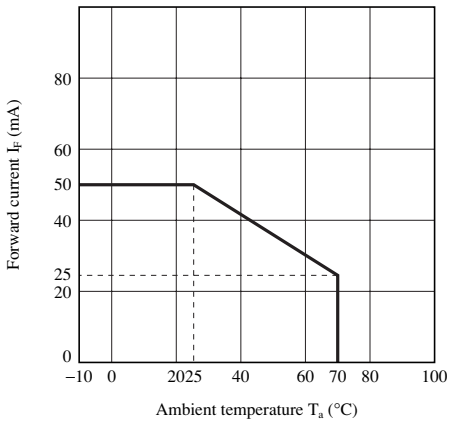


Fig.3 Output Power Dissipation vs. Ambient Temperature

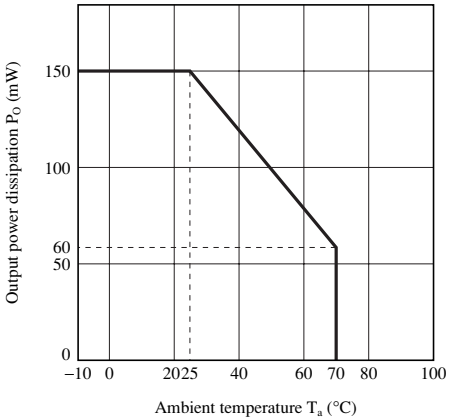
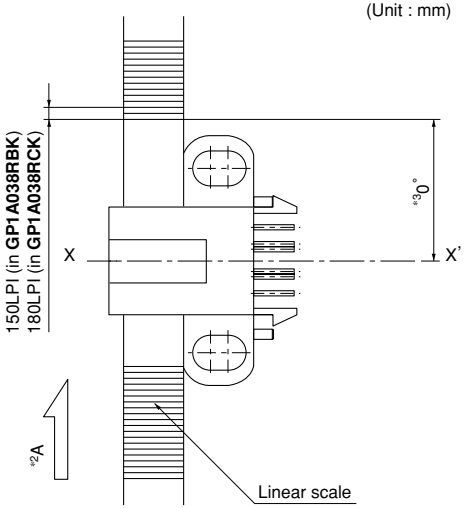
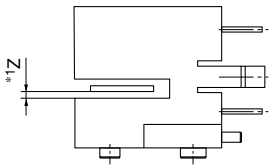
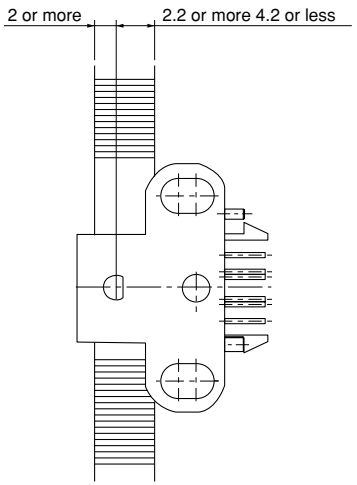


Fig.4 Measuring Condition

(Unit : mm)







*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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  --- Office automation equipment
  --- Telecommunication equipment [terminal]
  --- Test and measurement equipment
  --- Industrial control
  --- Audio visual equipment
  --- Consumer electronics

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  --- Gas leakage sensor breakers
  --- Alarm equipment
  --- Various safety devices, etc.

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