Sensors

Photointerrupter, double-layer mold type

RPI-303

The RPI-303 is standard tall package photointerrupter. This product can be fix on PCB by snap.
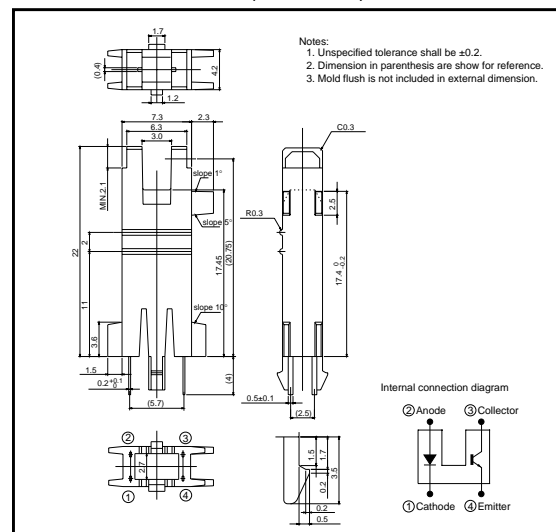
●**Application**

Reel count sensor for VCR

●**Features**

1) Tall package (Optical axis 20.75mm)
2) Small package due to the double-layer mold
3) PPS package for heat resistance

●**External dimensions** (Units : mm)

Notes:
1. Unspecified tolerance shall be ±0.2.
2. Dimension in parenthesis are show for reference.
3. Mold flush is not included in external dimension.

Internal connection diagram

●**Absolute maximum ratings** (Ta = 25°C)

	Parameter	Symbol	Limits	Unit
Input(LED)	Forward current	I_F	50	mA
	Reverse voltage	V_R	5	V
	Power dissipation	P_D	80	mW
Output (photo-transistor)	Collector-emitter voltage	V_{CEO}	30	V
	Emitter-collector voltage	V_{ECO}	4.5	V
	Collector current	I_C	30	mA
	Collector power dissipation	P_C	80	mW
	Operating temperature	Topr	−25~+85	°C
	Storage temperature	Tstg	−30~+85	°C

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● **Electrical and optical characteristics** (Ta = 25°C)

Parameter		Symbol	Min.	Typ.	Max.	Unit	Conditions
Input characteristics	Forward voltage	V_F	–	1.3	1.6	V	I_F=50mA
	Reverse current	I_R	–	–	10	μA	V_R=5V
Output characteristics	Dark current	I_{CEO}	–	–	0.5	μA	V_{CE}=10V
	Peak sensitivity wavelength	λ_P	–	800	–	nm	–
Transfer characteristics	Collector current	I_C	0.2	0.7	2.0	mA	V_{CE}=5V, I_F=20mA
	Collector-emitter saturation voltage	$V_{CE(sat)}$	–	–	0.4	V	I_F=20mA, I_C=0.1mA
	Response time	$t_r \cdot t_f$	–	10	–	μs	V_{CC}=5V, I_F=20mA, R_L=100Ω

● **Electrical and optical characteristic curves**

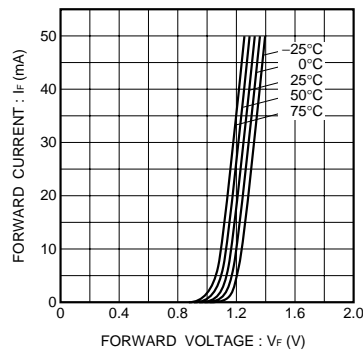Fig.1 Power dissipation / collector power dissipation vs. ambient temperature

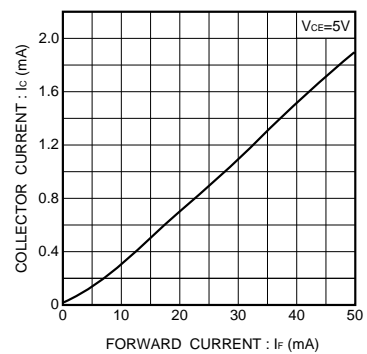Fig.2 Forward current vs. forward voltage
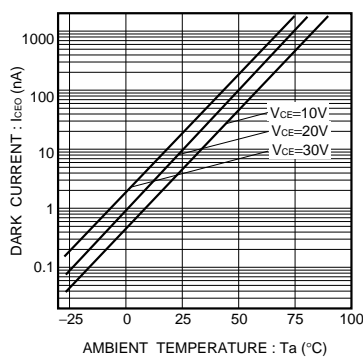

Fig.3 Collector current vs. forward current
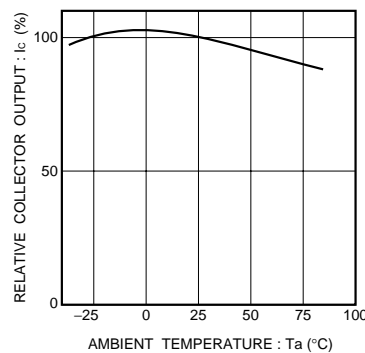

Fig.4 Dark current vs. ambient temperature
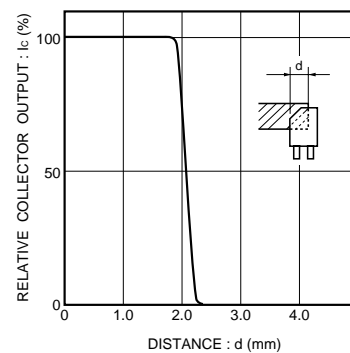

Fig.5 Relative output vs. ambient temperature

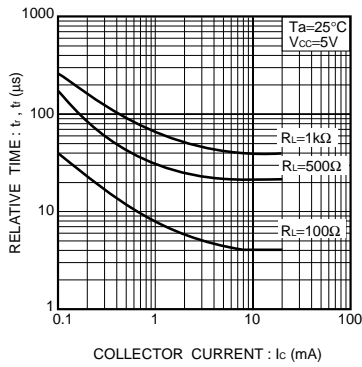Fig.6 Relative output vs. distance
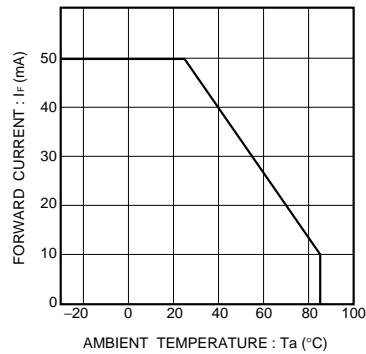
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Fig.7 Response time vs. collector current

Fig.8 Forward current falloff

Fig.9 Output characteristics

t_d : Delay time

t_r : Rise time (time for output current to rise from 10% to 90% of peak current)
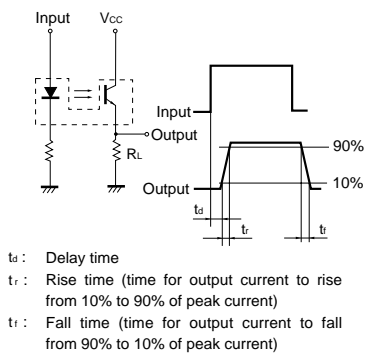
t_f : Fall time (time for output current to fall from 90% to 10% of peak current)

Fig.10 Response time measurement circuit