

Photointerrupter, double-layer mold type

RPI-304

The RPI-304 is standard tall package photointerrupter. This product can be fix on PCB by snap.

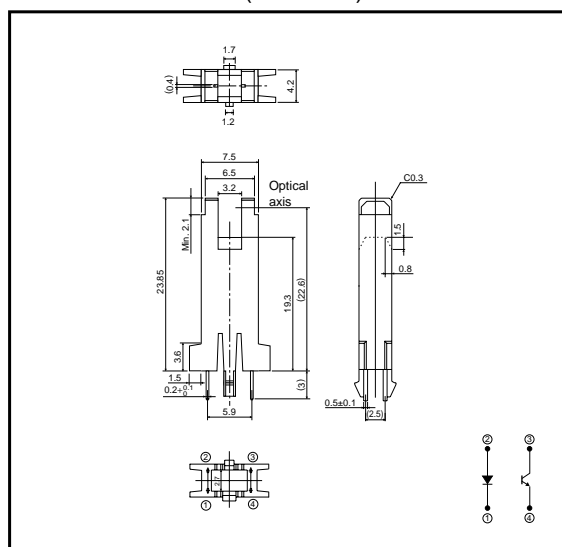
●Application

Reel count sensor for VCR

●Features

- 1) Tall package (Optical axis 22.6mm)
- 2) Small package due to the double-layer mold
- 3) PPS package for heat resistance

●External dimensions (Units : mm)



●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 | | T_{opr} | -25~+85 | °C |
| Storage temperature | | T_{stg} | -30~+85 | °C |

Sensors

●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 | $I_F=50\text{mA}$ |
| | Reverse current | I_R | – | – | 10 | μA | $V_R=5\text{V}$ |
| Output characteristics | Dark current | I_{CE0} | – | – | 0.5 | μA | $V_{CE}=10\text{V}$ |
| | Peak sensitivity wavelength | λ_P | – | 800 | – | nm | – |
| Transfer characteristics | Collector current | I_C | 0.2 | 0.7 | 2.0 | mA | $V_{CE}=5\text{V}, I_F=20\text{mA}$ |
| | Collector-emitter saturation voltage | $V_{CE(sat)}$ | – | – | 0.4 | V | $I_F=20\text{mA}, I_C=0.1\text{mA}$ |
| | Response time | $t_r \cdot t_f$ | – | 10 | – | μs | $V_{CC}=5\text{V}, I_F=20\text{mA}, R_L=100\Omega$ |

●Electrical and optical characteristic curves

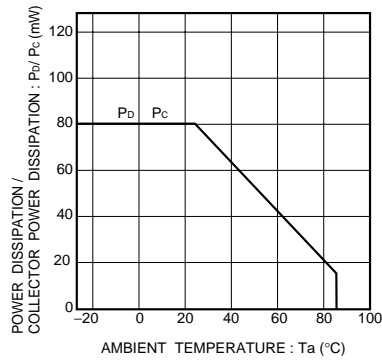


Fig.1 Power dissipation / collector power dissipation vs. ambient temperature

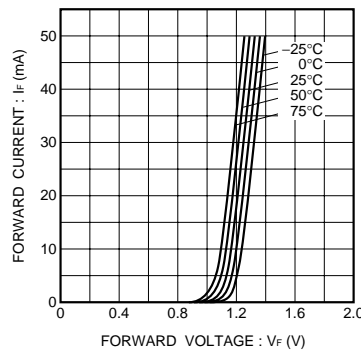


Fig.2 Forward current vs. forward voltage

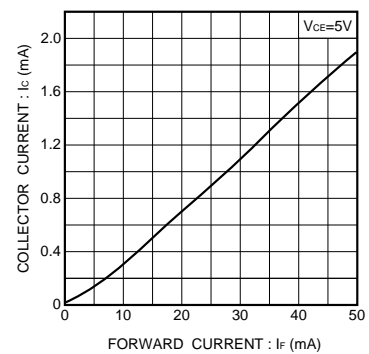


Fig.3 Collector current vs. forward current

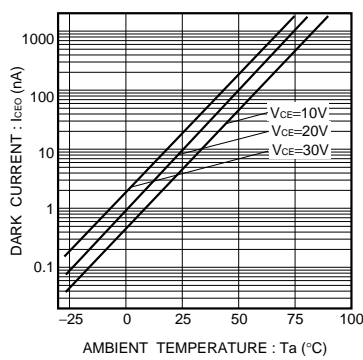


Fig.4 Dark current vs. ambient temperature

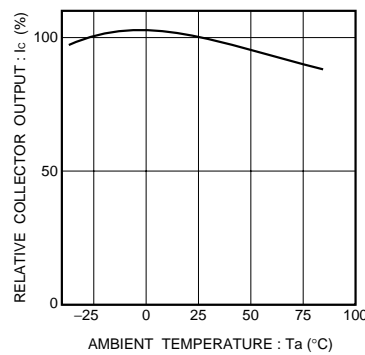


Fig.5 Relative output vs. ambient temperature

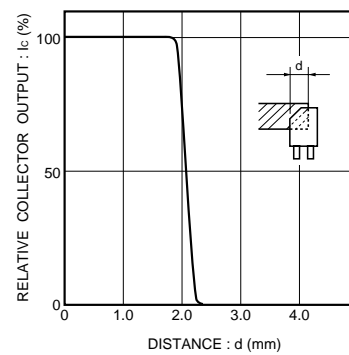


Fig.6 Relative output vs. distance

Sensors

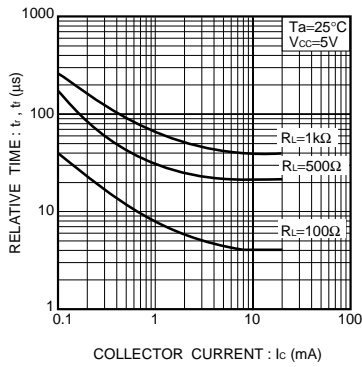


Fig.7 Response time vs. collector current

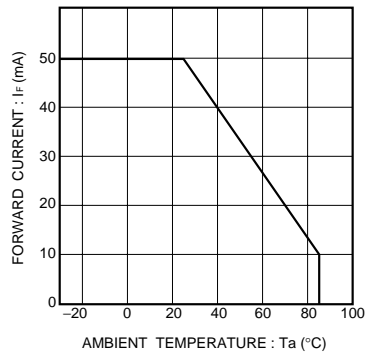


Fig.8 Forward current falloff

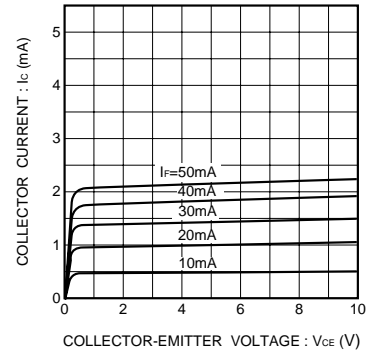


Fig.9 Output characteristics

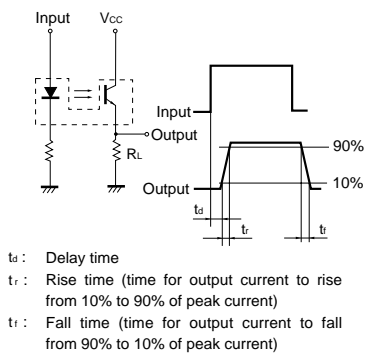


Fig.10 Response time measurement circuit