

RPI-579N1

Photointerrupter, General type



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 to +85 | °C | |
| Storage temperature | T_{stg} | -40 to +85 | °C | |
| Soldering temperature | T_{sol} | 260 / 3 * | °C / s | |

* 1mm from the body bottom.

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 | $V_R=10\text{V}$ |
| Output characteristics | Dark current | I_{CEO} | - | - | 0.5 | μA | $V_{CE}=10\text{V}$ |
| | Peak sensitivity wavelength | λ_P | - | 800 | - | nm | - |
| Transfer characteristics | Collector current | I_C | 0.5 | - | - | mA | $V_{CE}=5\text{V}, I_F=20\text{mA}$ |
| | Collector-emitter saturation voltage | $V_{CE(sat)}$ | - | 0.1 | 0.5 | V | $I_F=20\text{mA}, I_C=0.1\text{mA}$ |
| Response time | Rise time | t_r | - | 10 | - | μs | $V_{CC}=5\text{V}, I_F=20\text{mA}, R_L=100\Omega$ |
| | Fall time | t_f | - | 10 | - | μs | |
| Infrared light emitter diode | Cut-off frequency | f_c | - | 1 | - | MHz | $I_F=50\text{mA}$ |
| | Peak light emitting wavelength | λ_P | - | 950 | - | nm | * Non-coherent Infrared light emitting diode used. |
| Photo transistor | Response time | $t_r \cdot t_f$ | - | 10 | - | μs | $V_{CC}=5\text{V}, I_C=1\text{mA}, R_L=100\Omega$ * This product is not designed to be protected against electromagnetic wave. |
| | Maximum sensitivity wavelength | λ_P | - | 800 | - | nm | - |

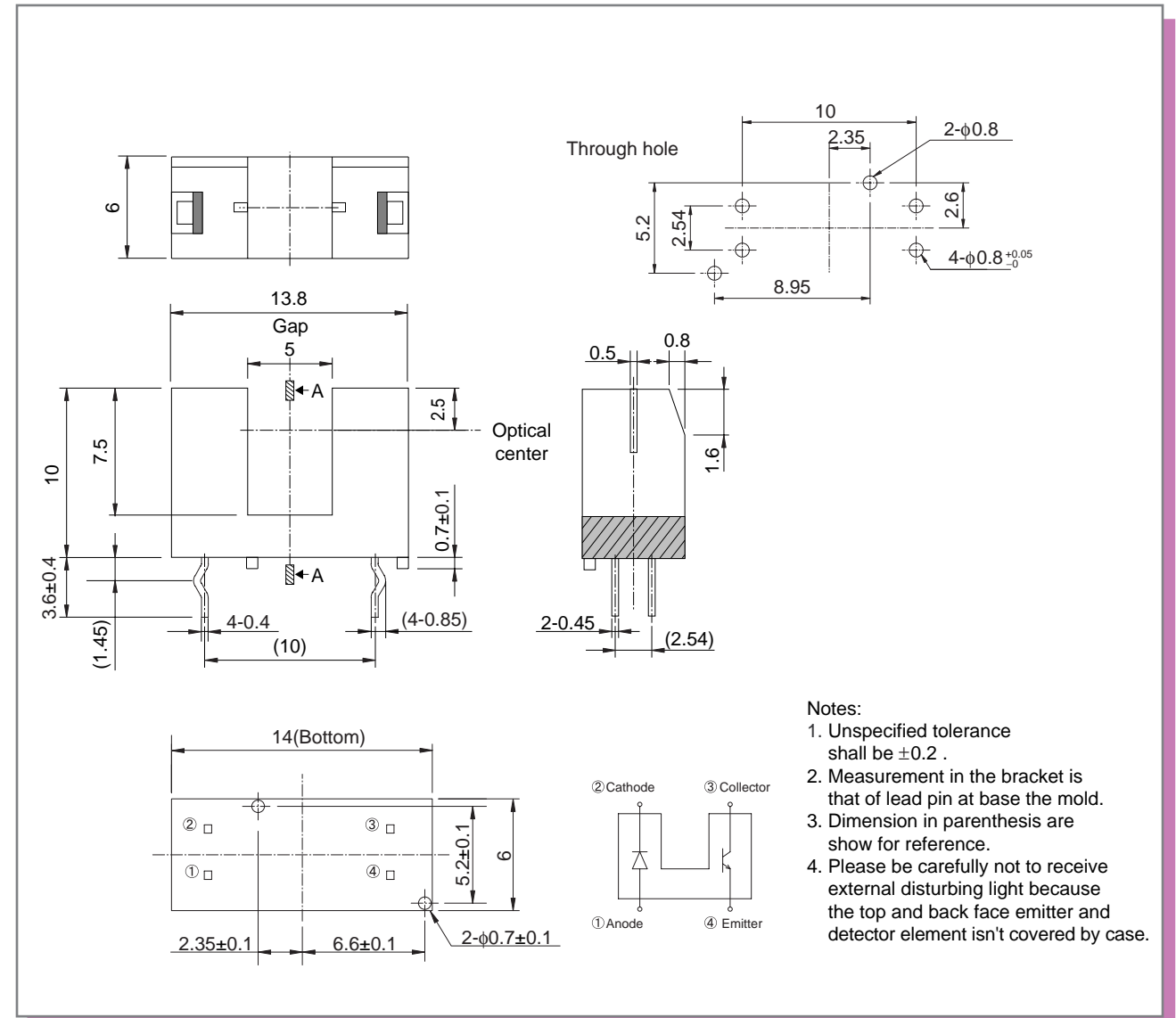
Applications

Printers
Facsimiles
AV equipment

Features

- 1) Heat resistance (170°C).
- 2) Small gap (0.5mm) and good accuracy.
- 3) Quick response time.
- 4) Filter against visible ray is built-in.
- 5) Kinked forming.

External dimensions (Unit : mm)



- Notes:
1. Unspecified tolerance shall be ± 0.2 .
 2. Measurement in the bracket is that of lead pin at base the mold.
 3. Dimension in parenthesis are show for reference.
 4. Please be carefully not to receive external disturbing light because the top and back face emitter and detector element isn't covered by case.

Electrical and optical characteristics curves

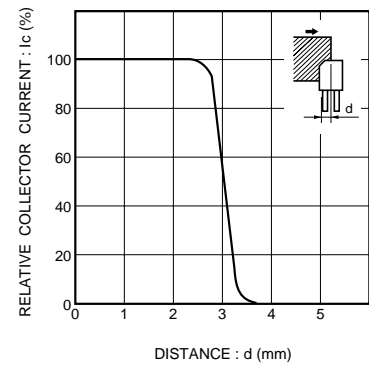


Fig.1 Relative output vs. distance (I)

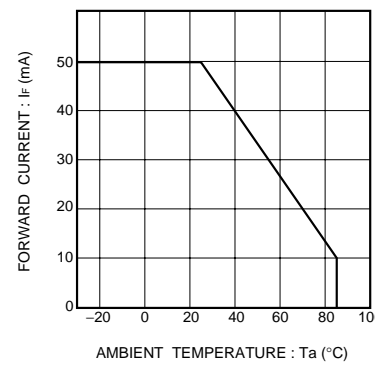


Fig.2 Forward current falloff

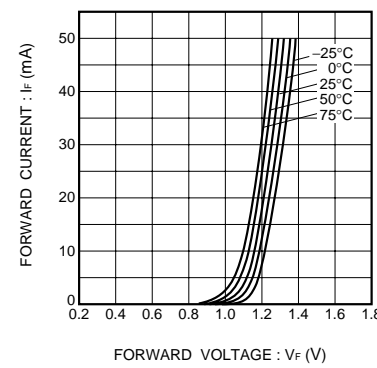


Fig.3 Forward current vs. forward voltage

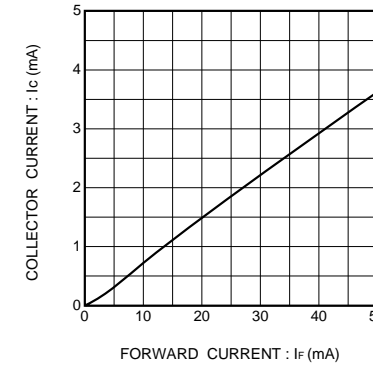


Fig.7 Collector current vs. forward current

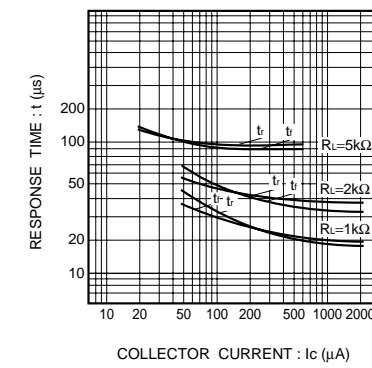


Fig.8 Response time vs. collector current

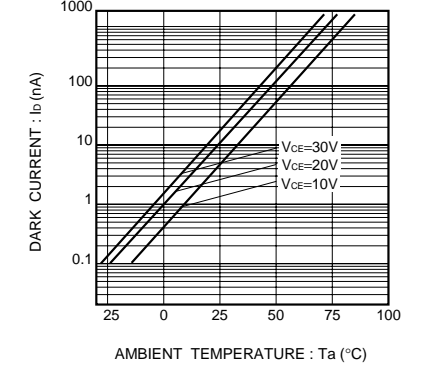


Fig.9 Dark current vs. ambient temperature

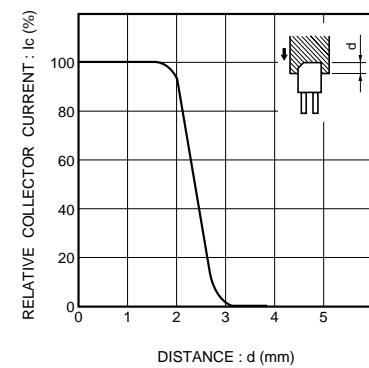


Fig.4 Relative output vs. distance (II)

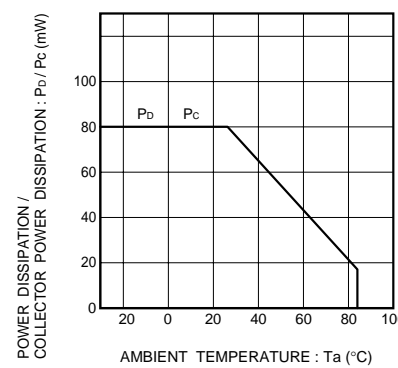


Fig.5 Power dissipation / collector power dissipation vs. ambient temperature

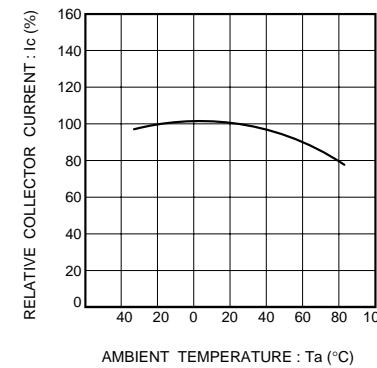


Fig.6 Relative output vs. ambient temperature

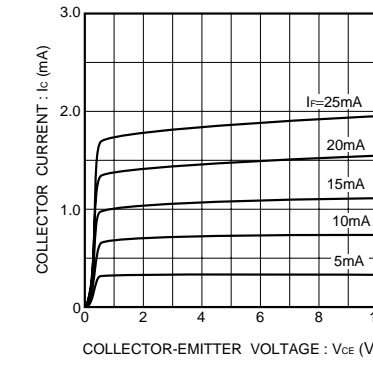


Fig.10 Output characteristics

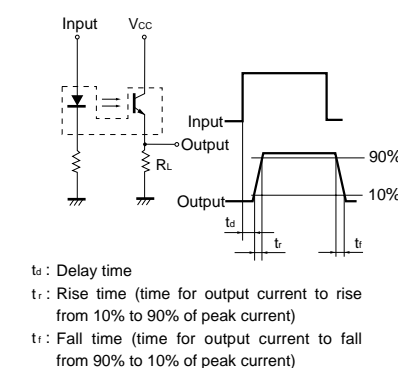


Fig.11 Response time measurement circuit

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