

Photointerrupter, Small 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} | -30 to +100 °C | |

Applications

Floppy disk drives
Printers
CD-ROM

Features

- 1) Compact package based on the double-mold method.
- 2) High resolution (slit width = 0.4mm)
- 3) Gap between emitter and detector is 2.0mm.

Electrical and optical characteristics (Ta=25°C)

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Conditions | |
|------------------------------|--------------------------------------|----------------------|------|------|------|------------|--|
| Input charac-teristics | Forward voltage | V _F | - | 1.3 | 1.6 | V | I _F =50mA |
| | Reverse current | I _R | - | - | 10 | μA | V _R =5V |
| Output charac-teristics | Dark current | I _{CEO} | - | - | 0.5 | μA | V _{CE} =10V |
| | Peak sensitivity wavelength | λ _P | - | 800 | - | nm | - |
| Transfer charac-teristics | Collector current | I _C | 0.5 | - | - | mA | V _{CE} =5V, I _F =20mA |
| | Collector-emitter saturation voltage | V _{CE(sat)} | - | - | 0.4 | V | I _F =20mA, I _C =0.3mA |
| | Response time | tr+tf | - | 10 | - | μs | V _{CC} =5V, I _F =20mA, R _L =100Ω |
| Infrared light emitter diode | Cut-off frequency | f _c | - | 1 | - | MHz | I _F =50mA * Non-coherent Infrared light emitting diode used. |
| | Peak light emitting wavelength | λ _P | - | 950 | - | nm | - |
| Photo transistor | Response time | tr+tf | - | 10 | - | μs | V _{CC} =5V, I _C =1mA, R _L =100Ω * This product is not designed to be protected against electromagnetic wave. |
| | Maximum sensitivity wavelength | λ _P | - | 800 | - | nm | - |

Electrical and optical characteristics curves

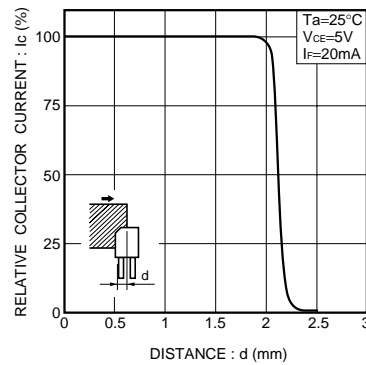


Fig.1 Relative output current vs. distance (I)

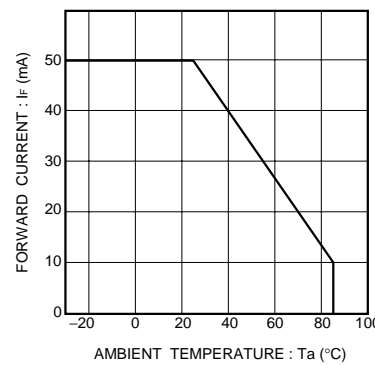


Fig.2 Forward current falloff

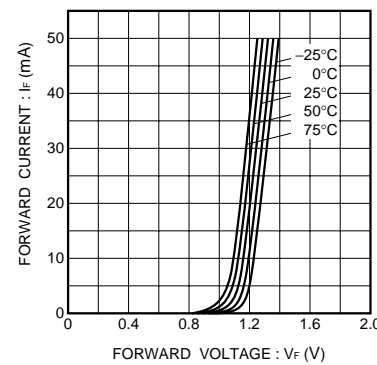


Fig.3 Forward current vs. forward voltage

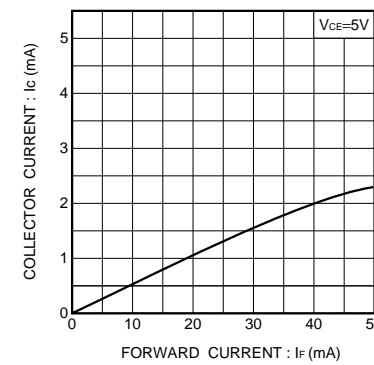


Fig.7 Collector current vs. forward current

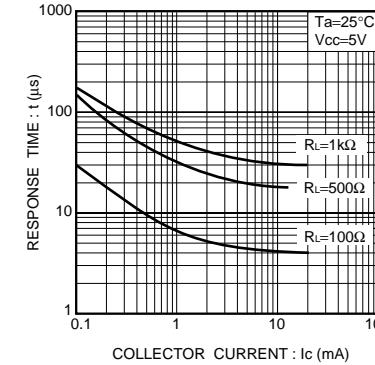


Fig.8 Response time vs. collector current

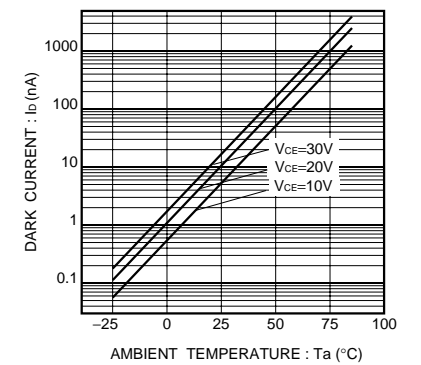


Fig.9 Dark current vs. ambient temperature

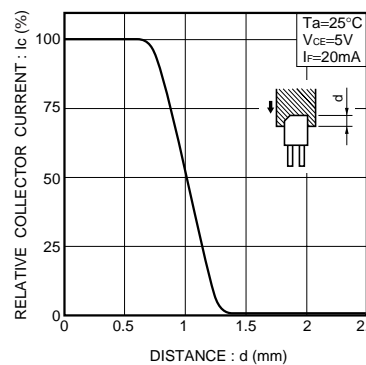


Fig.4 Relative output current vs. distance (II)

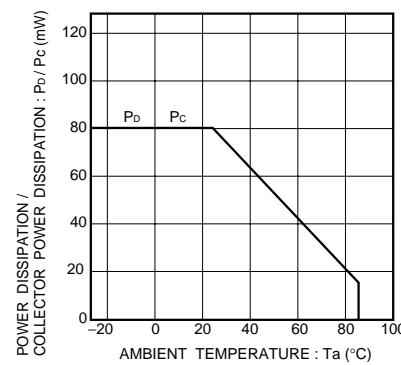


Fig.5 Power dissipation / collector power dissipation vs. ambient temperature

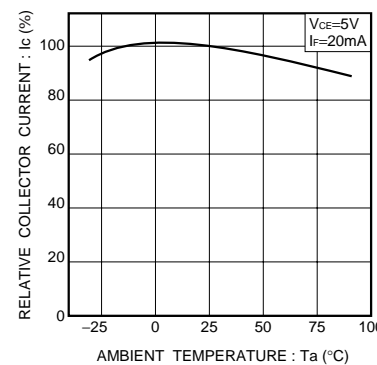


Fig.6 Relative output vs. ambient temperature

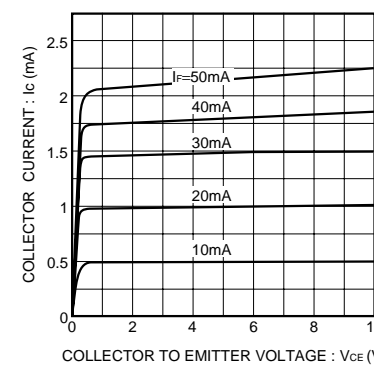


Fig.10 Output characteristics

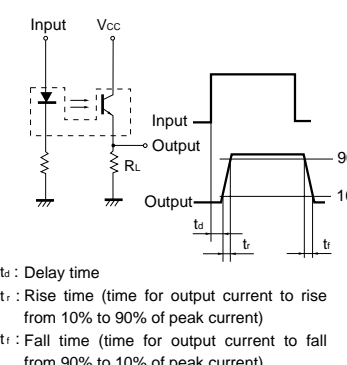
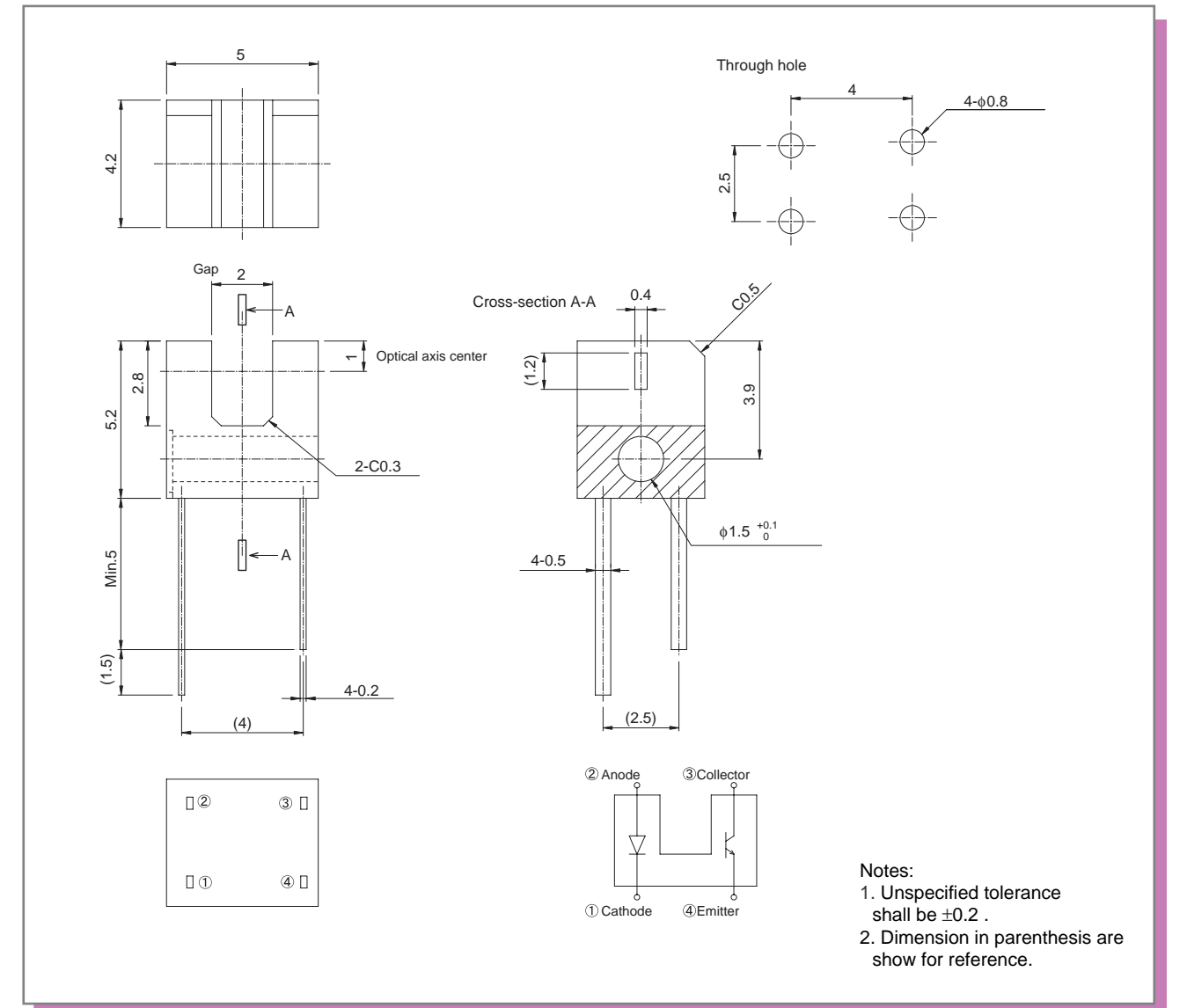


Fig.11 Response time measurement circuit

External dimensions (Unit : mm)



Notes:
1. Unspecified tolerance shall be ±0.2.
2. Dimension in parenthesis show for reference.

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