

KTIR0721DS

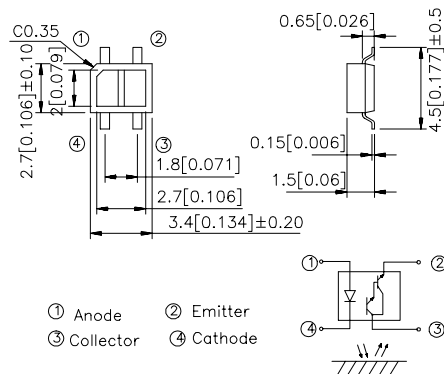
Features

- Compact and thin
- Visible light cut-off type
- High sensitivity

Applications

- Cassette tape recorders, VCRs
- Floppy disk drives
- Various microcomputerized control equipment

Package Dimensions



Notes:

1. All dimensions are in millimeters (inches).
2. Tolerance is $\pm 0.25(0.01")$ unless otherwise noted.
3. Lead spacing is measured where the lead emerge package.
4. Specifications are subject to change without notice.

Absolute Maximum Ratings ($T_a=25^\circ\text{C}$)

| Parameter | | Symbol | Rating | Unit |
|---|-----------------------------|-----------|----------|------------------|
| Input | Forward current | I_F | 50 | mA |
| | Reverse voltage | V_R | 5 | V |
| | Power dissipation | P | 75 | mW |
| Output | Collector-emitter voltage | V_{CEO} | 30 | V |
| | Emitter-collector voltage | V_{ECO} | 5 | V |
| | Collector current | I_C | 50 | mA |
| | Collector power dissipation | P_C | 75 | mW |
| Operating temperature | | T_{opr} | -25~+85 | $^\circ\text{C}$ |
| Storage temperature | | T_{stg} | -40~+100 | $^\circ\text{C}$ |
| Soldering temperature (1/16 inch from body for 5 seconds) | | T_{sol} | 260 | $^\circ\text{C}$ |

Electro-optical Characteristics (T_a=25°C)

| Parameter | | Symbol | Conditions | Min. | Typ. | Max. | Unit |
|--------------------------|------------------------|-------------------|---|--|------|------------------|------|
| Input | Forward voltage | V _F | I _F =20mA | — | 1.2 | 1.5 | V |
| | Reverse current | I _R | V _R =5V | — | — | 10 | μA |
| Output | Collector dark current | I _{CEO} | V _{CE} =10V, I _F =0mA | — | — | 10 ⁻⁶ | A |
| Transfer characteristics | *1 Collector current | I _C | V _{CE} =2V, I _F =4mA | — | 3 | — | mA |
| | *2 Leak current | I _{LEAK} | V _{CE} =5V, I _F =4mA | — | — | 5 | μA |
| | Response time | Rise time | t _r | V _{CE} =2V, I _C =10mA R _L =100Ω, d=1mm | — | 80 | 400 |
| Fall time | | t _f | — | | 70 | 400 | μsec |

*1 The condition and arrangement of the reflective object are shown below

*2 Without reflective object

Test Condition and Arrangement for Collector Current

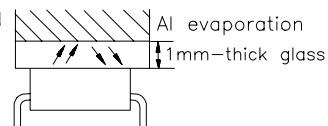


Fig.1 Forward Current vs. Forward Voltage

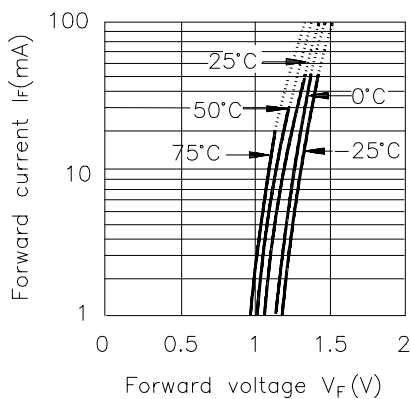


Fig.2 Collector Current vs. Forward Current

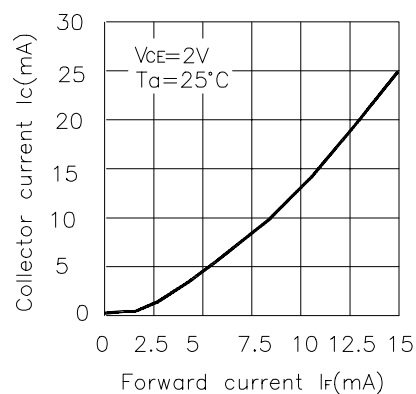


Fig.3 Collector Current vs. Collector-emitter Voltage

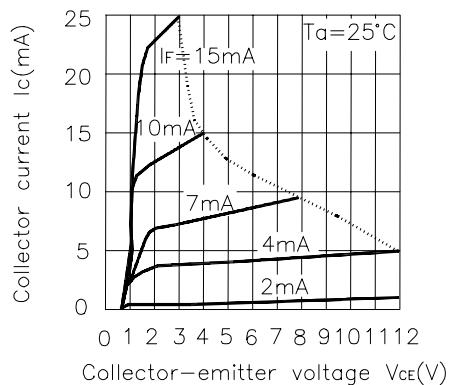


Fig.4 Relative Collector Current vs. Ambient Temperature

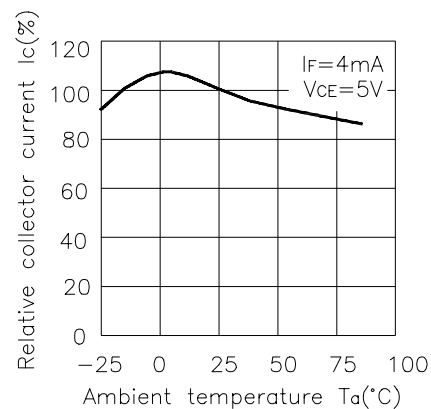
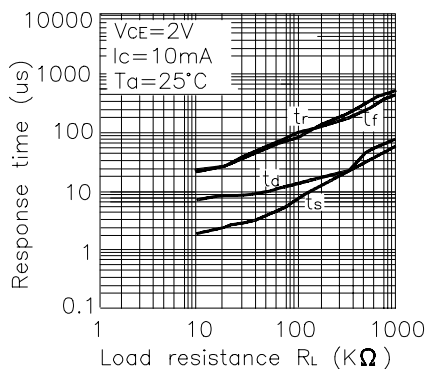


Fig.5 Response Time vs Load Resistance



Test Circuit for Response Time

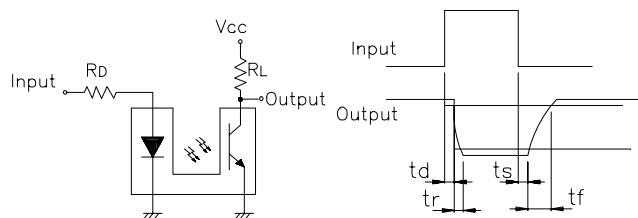


Fig.6 Collector Dark Current vs Ambient Temperature

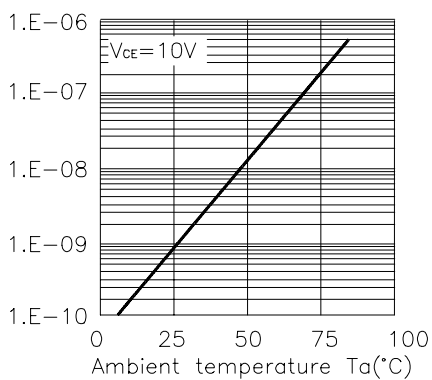


Fig.7 Relative Collector Current vs Distance between Sensor and Al Evaporation Glass

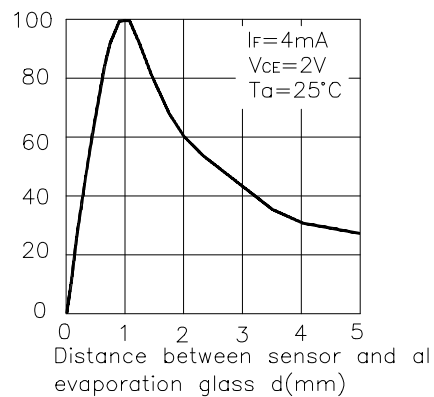


Fig.8 Relative Collector Current vs. Card Moving Distance (1)

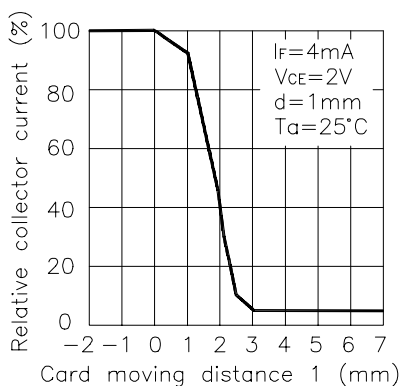
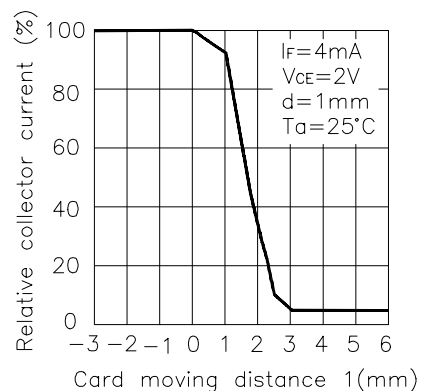
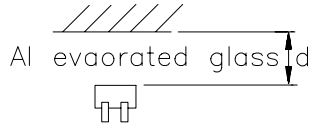


Fig.9 Relative Collector Current vs. Card Moving Distance (2)



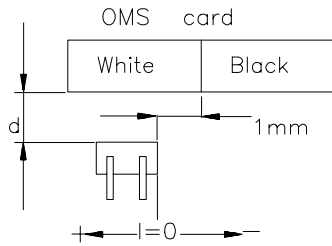
The Condition for Distance&Detecting Position Characteristics

Correpond to Fig.7



Correpond to Fig.8
Test condition

$I_F = 4\text{mA}$
 $V_{CE} = 2\text{V}$
 $d = 1\text{mm}$



Correpond to Fig.9
Test condition

$I_F = 4\text{mA}$
 $V_{CE} = 2\text{V}$
 $d = 1\text{mm}$

