## KTIR0111S

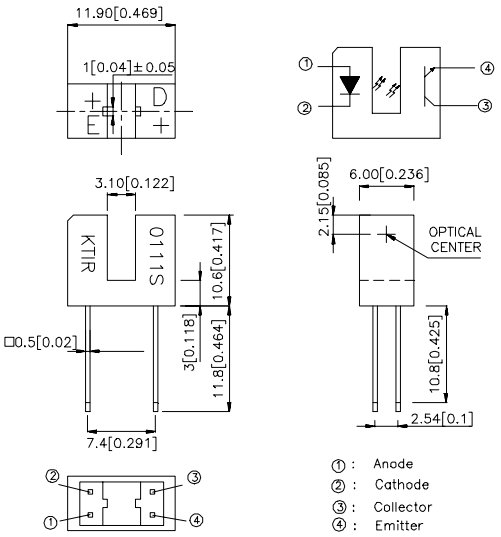
### Features

- Ultra-small
- Minimal influence from stray light
- Low collector-emitter saturation voltage

### Applications

- Optical control equipment.
- Cameras.
- Floppy disk drives.

### Package Dimensions




Notes:
1. All dimensions are in millimeters (inches).
2. Tolerance is ±0.15(0.006") 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°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 | $I_C$ | 20 | mA |
| | Collector power dissipation | $P_C$ | 75 | mW |
| Operating temperature | | Topr | -25~+85 | °C |
| Storage temperature | | Tstg | -40~+100 | °C |
| Soldering temperature (1/16 inch from body for 5 seconds) | | Tsol | 260 | °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 | uA |
| Output | Collector dark current | | $I_{CEO}$ | $V_{CE}$=20V | _ | _ | 100 | nA |
| Transfer charact-eristics | Collector-emitter saturation voltage | | $V_{CE(sat)}$ | $I_C$=1mA<br>$I_F$=40mA | _ | _ | 0.4 | V |
| | Current transfer ratio | | CTR | $V_{CE}$=5V<br>$I_F$=20mA | _ | 35 | _ | % |
| | Response time | Rise time | $t_r$ | $V_{CE}$=2V<br>$I_C$=2mA | _ | 5 | 25 | usec |
| | | Fall time | $t_f$ | | _ | 4 | 20 | usec |

**Fig.1 Forward Current vs. Forward Voltage**

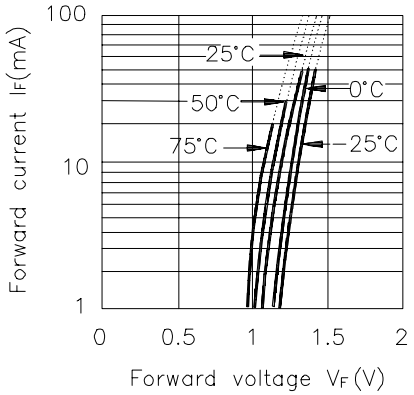



**Fig.2 Collector Current vs. Forward Current**

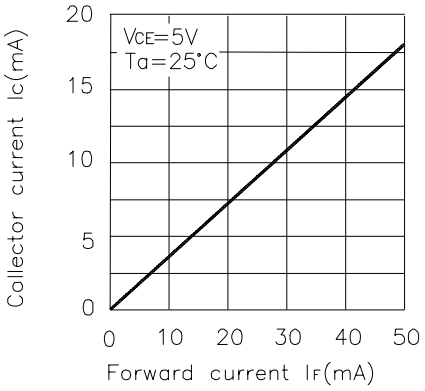



**Fig.3 Collector Current vs. Collector-emitter Voltage**

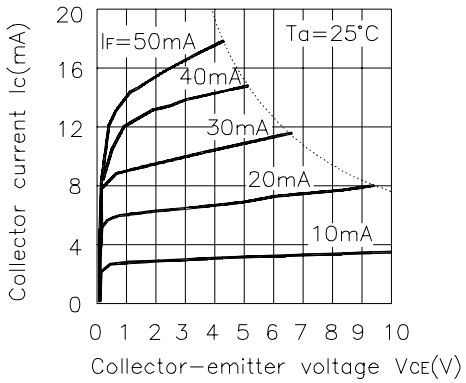


**Fig.4 Collector Current vs. Ambient Temperature**

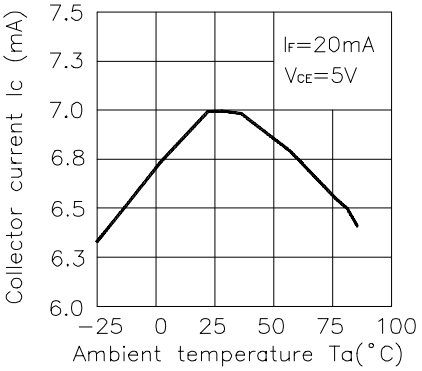



**Fig.5 Collector-emitter Saturation Voltage vs. Ambient Temperature**

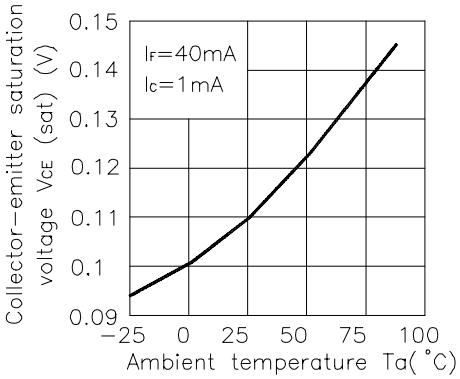



**Fig.6 Relative Collector Current vs. Shield Distance(1)**

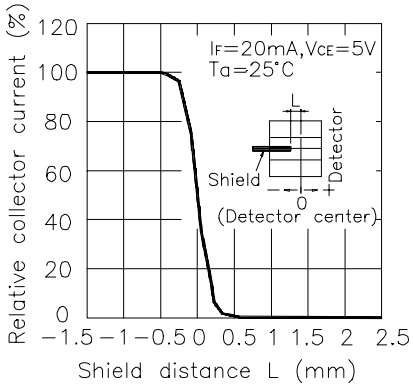



**Fig.7 Relative Collector Current vs. Shield Distance(2)**

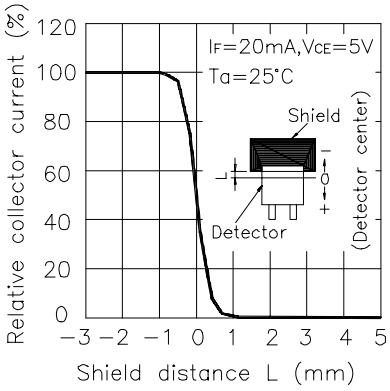
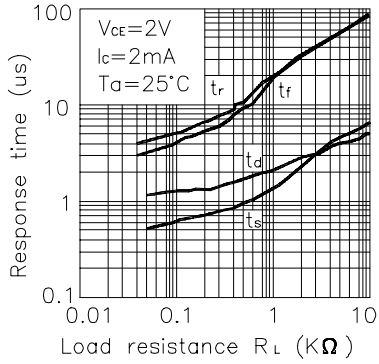



**Fig.8 Response Time vs. Load Resistance**




**Test Circuit for Response Time**

