

Part Number: KTIR0121DS

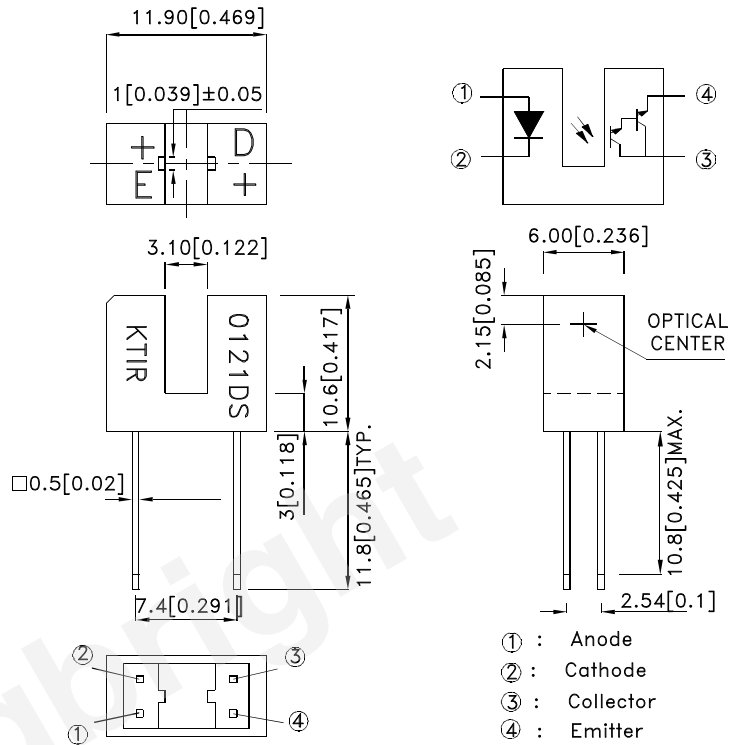
### Package Dimensions

#### Features

- High sensing accuracy
- High current transfer ratio
- Both-sides mounting type
- RoHS compliant.

#### Applications

- OA equipment, such as floppy disk drives, printers, facsimiles, etc
- VCRs



#### 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 leads emerge from the package.
4. Specifications are subject to change without notice.

### Absolute Maximum Ratings (TA=25°C)

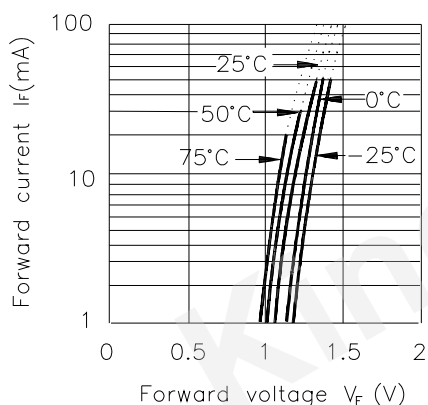
| Parameter   |  | Symbol    | Rating  | Unit |
|---|--|-----------|---------|------|
| Input   | Forward current  | $I_F$     | 50      | mA   |
|   | Reverse voltage  | $V_R$     | 6       | V    |
|   | Power dissipation  | $P_D$     | 75      | mW   |
|   | Peak Forward Current (Pulse Width $\leq 100\mu s$ , Duty Cycle = 1%) | $I_{FP}$  | 1       | A    |
| Output  | Collector-emitter voltage  | $V_{CEO}$ | 35      | V    |
|   | Emitter-collector voltage  | $V_{ECO}$ | 6       | V    |
|   | Collector current  | $I_C$     | 40      | mA   |
|   | Collector power dissipation  | $P_C$     | 75      | mW   |
| Operating temperature                                     |  | $T_{opr}$ | -40~+85 | °C   |
| Storage temperature                                       |  | $T_{stg}$ | -40~+85 | °C   |
| Soldering temperature (1/16 inch from body for 5 seconds) |  | $T_{sol}$ | 260     | °C   |



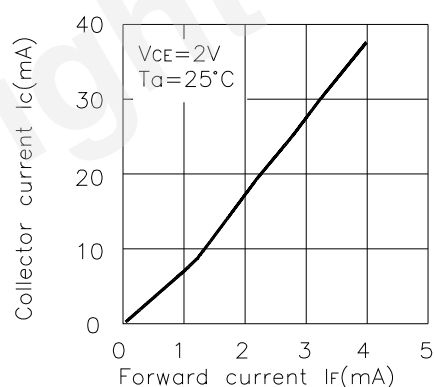
### Electro-optical Characteristics(Ta=25°C)

| Parameter                |                                      | Symbol        | Conditions   | Min. | Typ. | Max.      | Unit            |
|--------------------------|--------------------------------------|---------------|--|------|------|-----------|-----------------|
| Input                    | Forward voltage                      | $V_F$         | $I_F=20\text{mA}$  | 1.0  | 1.2  | 1.5       | V               |
|                          | Peak forward voltage                 | $V_{FM}$      | $I_{FM}=0.5\text{A}$                                       | —    | 2    | 3         | V               |
|                          | Reverse current                      | $I_R$         | $V_R=6\text{V}$  | —    | —    | 10        | $\mu\text{A}$   |
| Output                   | Collector dark current               | $I_{CEO}$     | $V_{CE}=10\text{V}, I_F=0\text{mA}$                        | —    | —    | $10^{-6}$ | A               |
| Transfer Characteristics | Current transfer ratio               | CTR           | $V_{CE}=2\text{V}$<br>$I_F=1\text{mA}$                     | —    | 600  | —         | %               |
|                          | Collector-emitter saturation voltage | $V_{CE(sat)}$ | $I_F=2\text{mA}$<br>$I_C=1\text{mA}$                       | —    | —    | 1.0       | V               |
|                          | Response time                        | Rise time     | $V_{CE}=2\text{V}$<br>$I_C=10\text{mA}$<br>$R_L=100\Omega$ | —    | 90   | 400       | $\mu\text{Sec}$ |
|                          |                                      | Fall time     |  | —    | 80   | 300       | $\mu\text{Sec}$ |

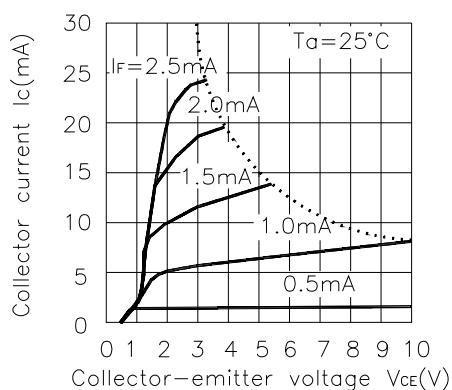
**Fig.1 Forward Current vs. Forward Voltage**



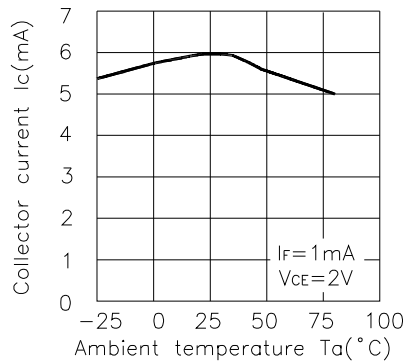
**Fig.2 Collector Current vs. Forward Current**



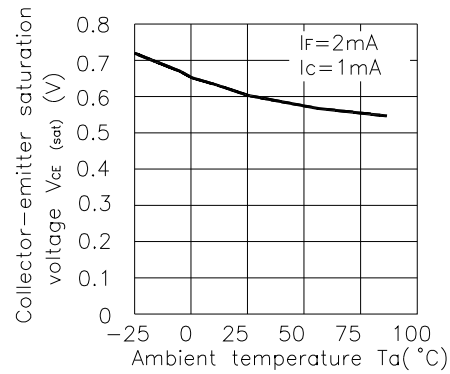
**Fig.3 Collector Current vs. Collector-emitter Voltage**



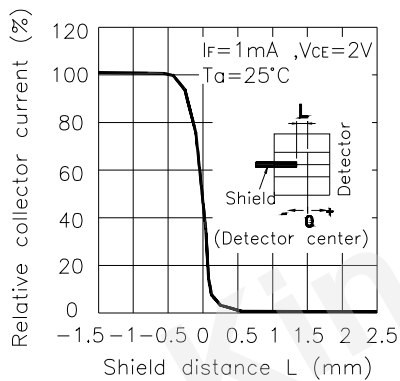
**Fig.4 Collector Current vs. Ambient Temperature**



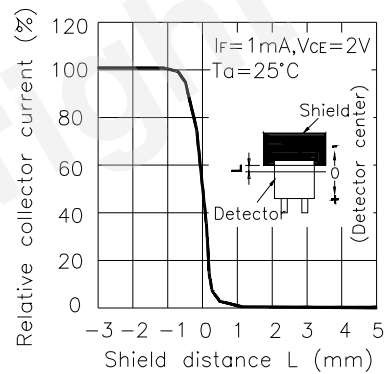
**Fig.5 Collector-emitter Saturation Voltage vs. Ambient Temperature**



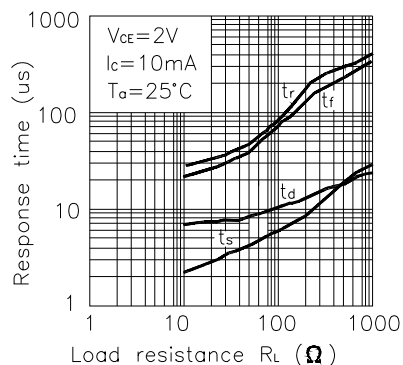
**Fig.6 Relative Collector Current vs. Shield Distance(1)**



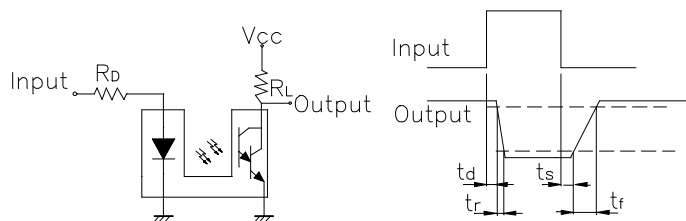
**Fig.7 Relative Collector Current vs. Shield Distance(2)**



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

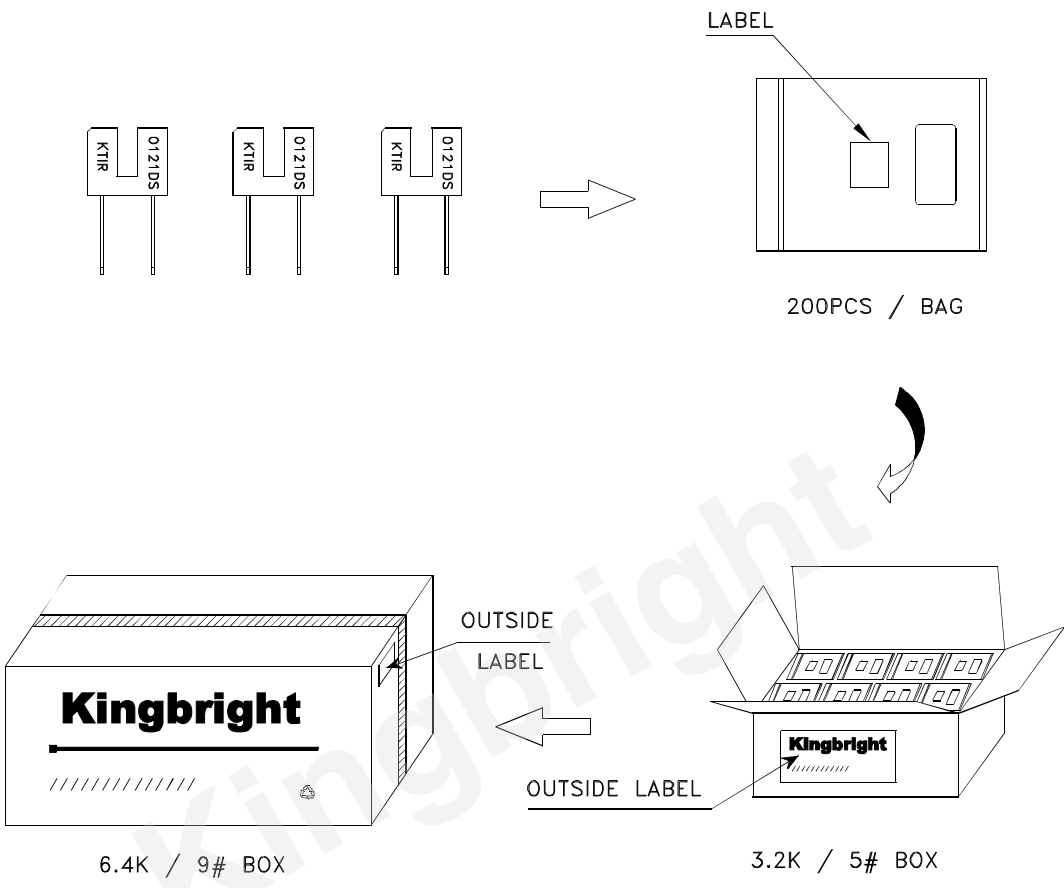



**Test Circuit for Response Time**



PACKING & LABEL SPECIFICATIONS

KTIR0121DS



|  |   |
|--|---|
| <b>Kingbright</b>  |   |
| P/NO: KTIRxxx  |   |
| QTY: 200 pcs   | Q.C. <div>Q C<br/>XX XX XX<br/>PASSED</div> |
| S/N: XXXX  |   |
| CODE: XXX  |   |
| LOT NO:  |   |
|  |   |
| RoHS Compliant   |   |