

Part Number: KTIR0921DS

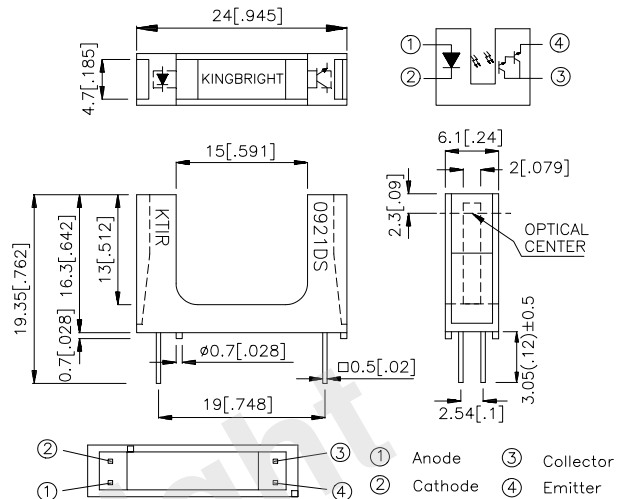
### Package Dimensions

#### 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 ( $T_A=25^\circ\text{C}$ )

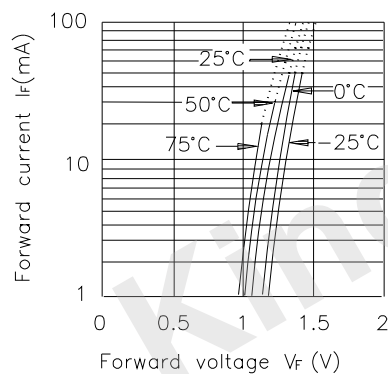
| Parameter   |                             | Symbol    | Rating   | Unit             |
|---|-----------------------------|-----------|----------|------------------|
| Input   | Forward current             | $I_F$     | 50       | mA               |
|   | Reverse voltage             | $V_R$     | 6        | V                |
|   | Power dissipation           | $P_D$     | 75       | mW               |
| 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                                     |                             | $T_{opr}$ | -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      | $^\circ\text{C}$ |



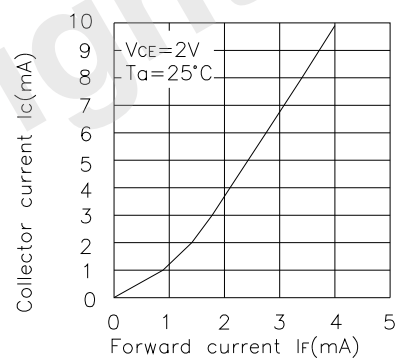
### Electro-optical Characteristics(Ta=25°C)

| 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               |           | $V_{CE}=2\text{V}$<br>$I_F=1\text{mA}$                     | —    | 120  | —         | %               |
|                          | Collector-emitter saturation voltage |           | $I_F=2\text{mA}$<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       | $\mu\text{Sec}$ |

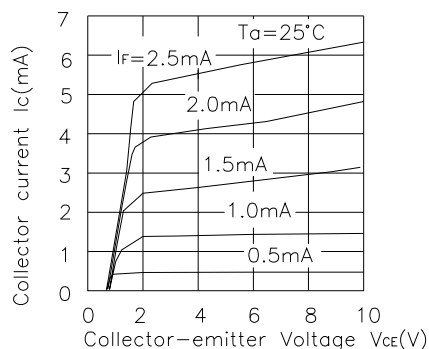
**Fig.1 Forward Current vs. Forward Voltage**



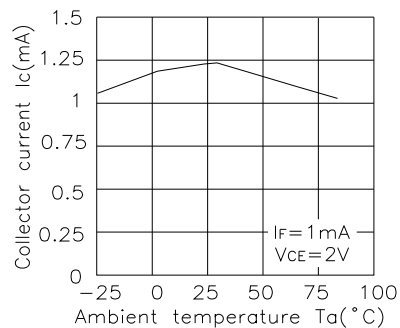
**Fig.2 Collector Current vs. Forward Current**



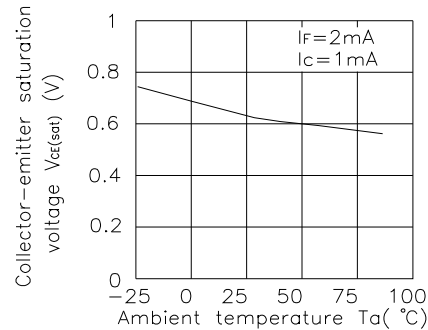
**Fig.3 Collector Current vs. Collector-emitter Voltage**



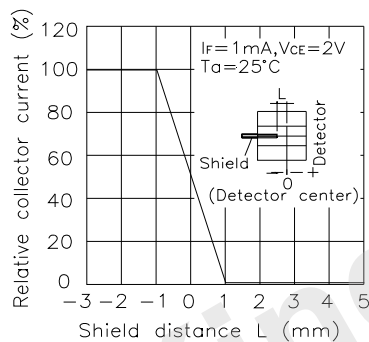
**Fig.4 Collector Current vs. Ambient Temperature**



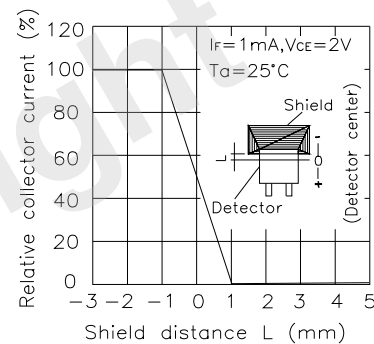
**Fig.5 Collector-emitter Saturation Voltage vs. Ambient Temperature**



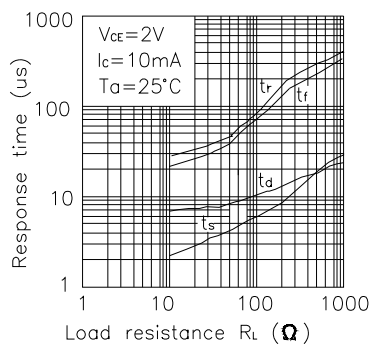
**Fig.6 Relative Collector Current vs. Shield Distance(1)**



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



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



**Test Circuit for Response Time**

