

Part Number: KTIR0321DS

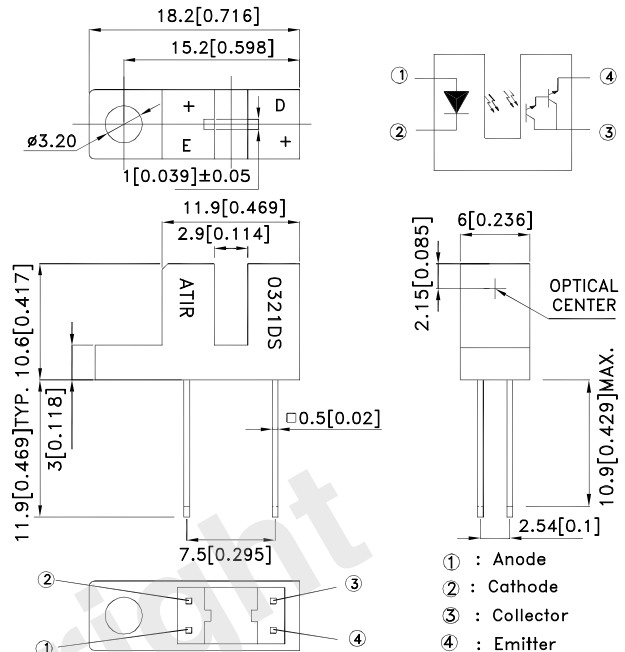
### Features

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

### Application

- OA equipment, such as facsimiles ,etc.

### 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 leads emerge from the package.
4. The specifications, characteristics and technical data described in the datasheet are subject to change without prior notice.

### Absolute Maximum Ratings (T<sub>A</sub>=25°C)

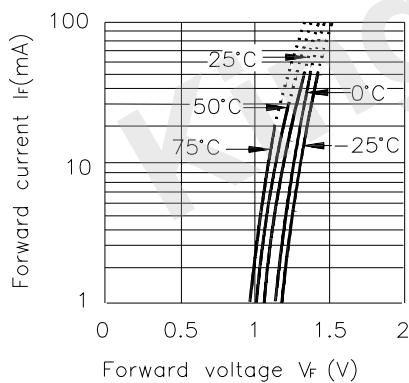
| Parameter   |  | Symbol           | Rating   | Unit |
|---|--|------------------|----------|------|
| Input   | Forward Current  | I <sub>F</sub>   | 50       | mA   |
|   | Reverse Voltage  | V <sub>R</sub>   | 6        | V    |
|   | Power Dissipation  | P <sub>d</sub>   | 75       | mW   |
|   | Peak Forward Current (Pulse Width $\leq 100\mu\text{s}$ , Duty Cycle=1%) | I <sub>FP</sub>  | 1        | A    |
| Output  | Collector-Emitter Voltage  | V <sub>CEO</sub> | 35       | V    |
|   | Emitter-Collector Voltage  | V <sub>ECO</sub> | 6        | V    |
|   | Collector Current  | I <sub>C</sub>   | 40       | mA   |
|   | Collector Power Dissipation  | P <sub>C</sub>   | 75       | mW   |
| Operating Temperature                                     |  | T <sub>opr</sub> | -25~+85  | °C   |
| Storage Temperature                                       |  | T <sub>stg</sub> | -40~+100 | °C   |
| Soldering Temperature (1/16 inch from body for 5 seconds) |  | T <sub>sol</sub> | 260      | °C   |



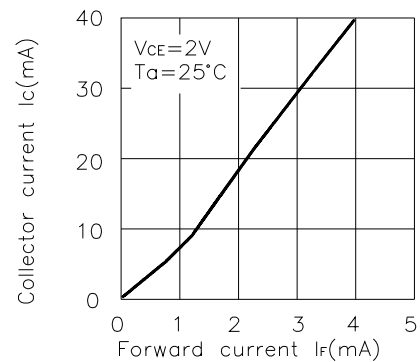
## Electro-optical Characteristics (T<sub>a</sub>=25°C)

| Parameter                |                                      | Symbol               | Conditions   | Min. | Typ. | Max.             | Unit |
|--------------------------|--------------------------------------|----------------------|--|------|------|------------------|------|
| Input                    | Forward voltage                      | V <sub>F</sub>       | I <sub>F</sub> =20mA   | 1.0  | 1.2  | 1.5              | V    |
|                          | Peak forward voltage                 | V <sub>FM</sub>      | I <sub>FM</sub> =0.5A  | —    | 2    | 3                | V    |
|                          | Reverse current                      | I <sub>R</sub>       | V <sub>R</sub> =6V   | —    | —    | 10               | μA   |
| Output                   | Collector dark current               | I <sub>CEO</sub>     | V <sub>CE</sub> =10V,<br>I <sub>F</sub> =0mA                         | —    | —    | 10 <sup>-6</sup> | A    |
| Transfer characteristics | Current transfer ratio               | CTR                  | V <sub>CE</sub> =2V,<br>I <sub>F</sub> =1mA                          | —    | 650  | —                | %    |
|                          | Collector-emitter saturation voltage | V <sub>CE(sat)</sub> | I <sub>F</sub> =2mA,<br>I <sub>C</sub> =1mA                          | —    | —    | 1.0              | V    |
|                          | Response time                        | Rise time            | V <sub>CE</sub> =2V,<br>I <sub>C</sub> =10mA<br>R <sub>L</sub> =100Ω | —    | 90   | 400              | μsec |
|                          |                                      | Fall time            |  | —    | 80   | 300              | μsec |

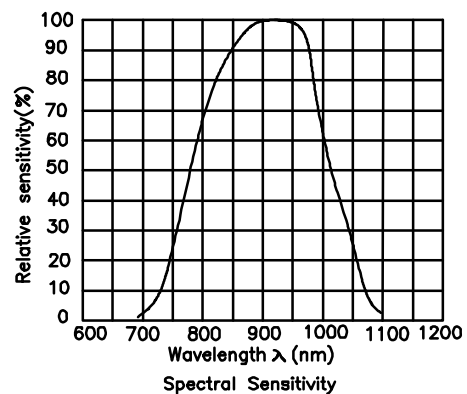
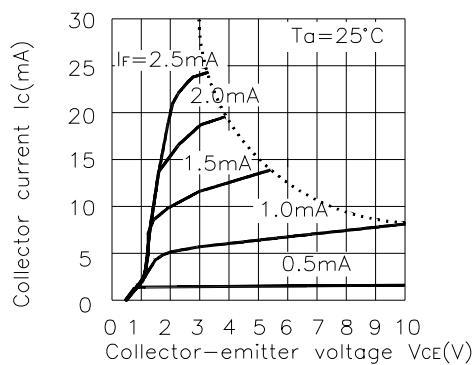
**Fig.1 Forward Current vs. Forward Voltage**



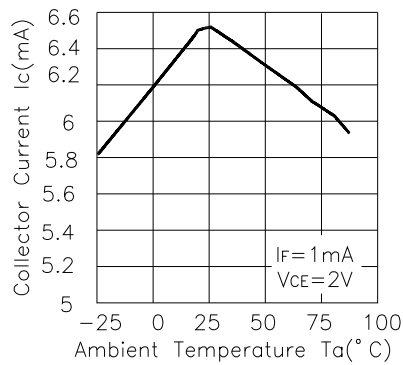
**Fig.2 Collector Current vs. Forward Current**



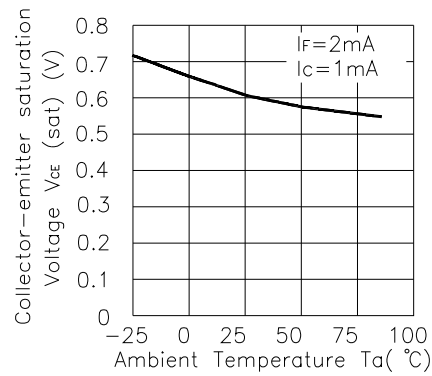
**Fig.3 Collector Current vs. Collector-emitter Voltage**



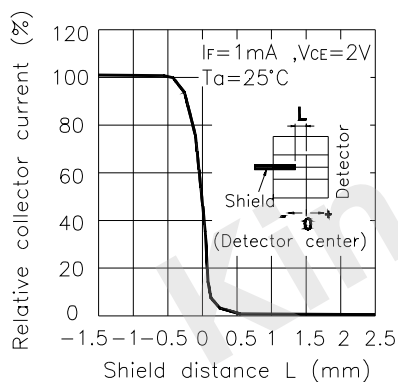
**Fig.4 Collector Current vs. Ambient Temperature**



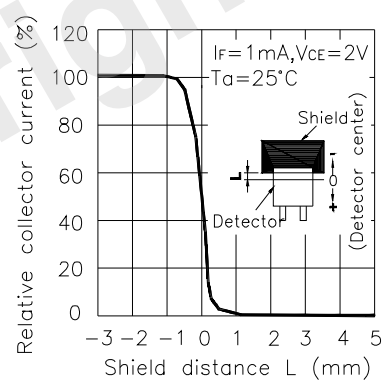
**Fig.5 Collector-emitter Saturation Voltage vs. Ambient Temperature**



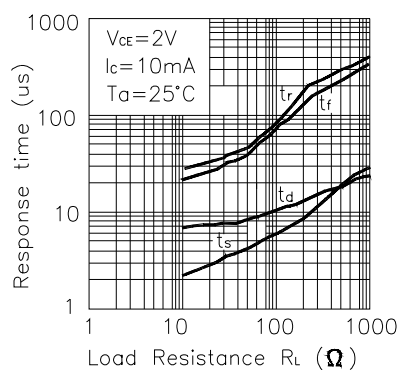
**Fig.6 Relative Collector Current vs. Shield Distance(1)**



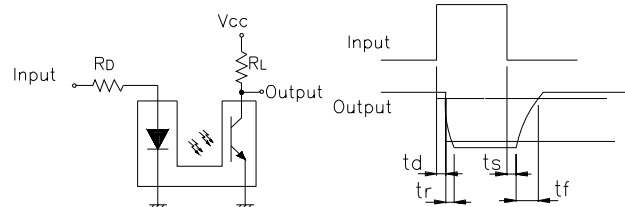
**Fig.7 Relative Collector Current vs. Shield Distance(2)**



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

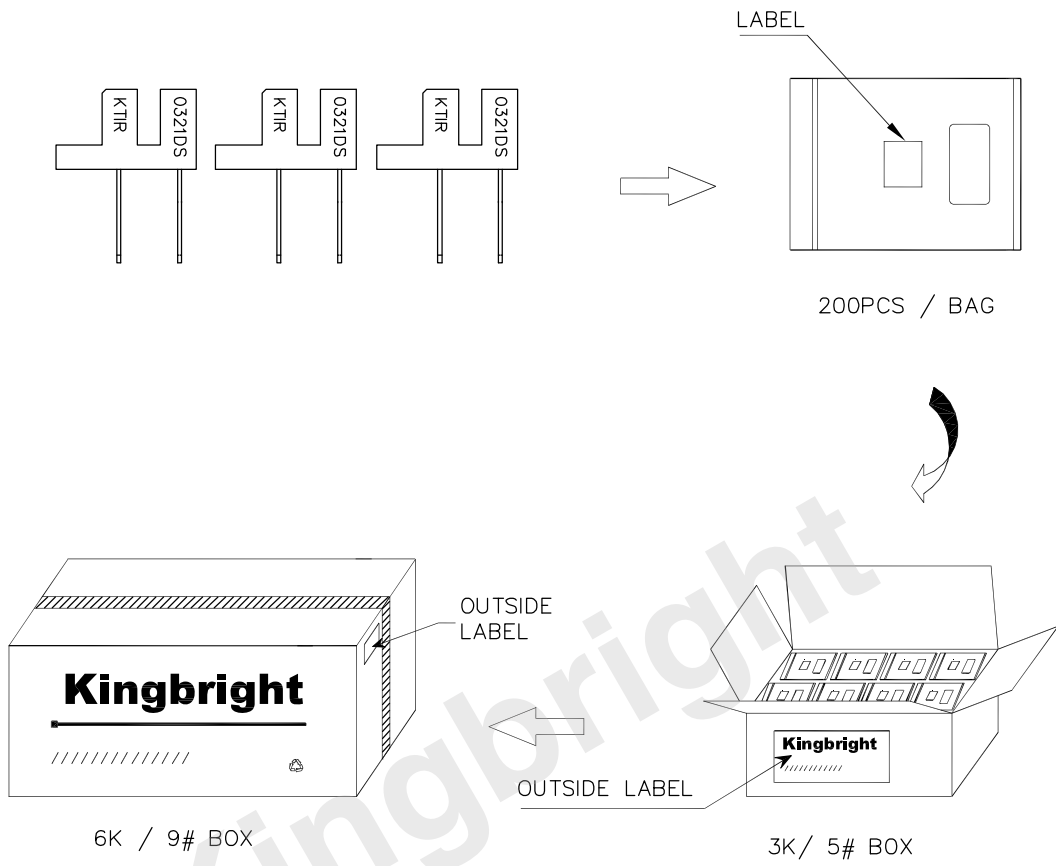



**Test Circuit for Response Time**



**PACKING & LABEL SPECIFICATIONS**

**KTIR0321DS**



|  |  |
|--|--|
| <b>Kingbright</b>  |  |
| P/NO: KTIR0321DS   |  |
| QTY: 200 pcs   | Q.C. <span style="border: 1px solid black; border-radius: 50%; padding: 2px;">Q C<br/>xx xx xxxx<br/>PASSED</span> |
| S/N: XXXX  |  |
| CODE: XXX  |  |
| LOT NO:  |  |
|  |  |
| RoHS Compliant   |  |

Detailed application notes are listed on our website.  
[http://www.kingbright.com/application\\_notes](http://www.kingbright.com/application_notes)