

**ATIR0321DS**

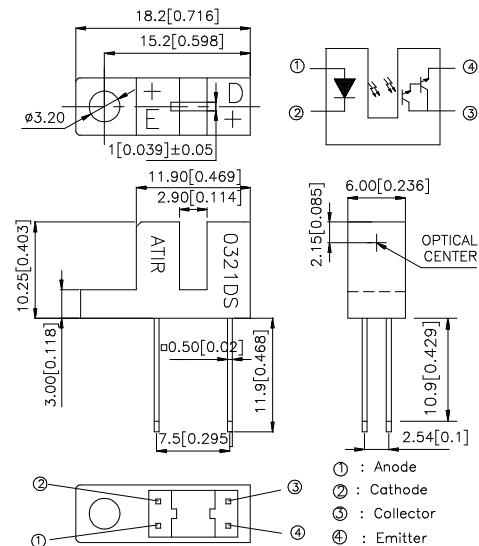
## Features

- High sensing accuracy
- High current transfer ratio
- Both-sides mounting type

## Applications

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

## Package Dimensions



Notes:

1. All dimensions are in millimeters (inches).
2. Tolerance is  $\pm 0.15(0.006")$  unless otherwise noted.
3. Lead spacing is measured where the lead emerge package.
4. Specifications are subject to change without notice.

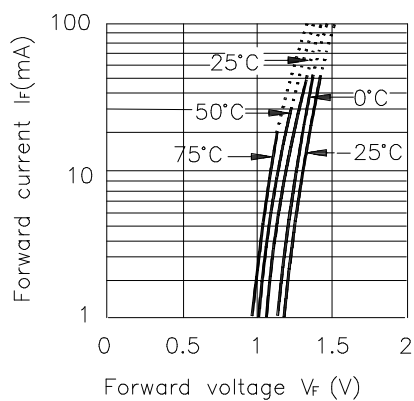
### Absolute Maximum Ratings (T<sub>a</sub>=25°C)

| Parameter                                                 |                             | Symbol           | Rating   | Unit |
|-----------------------------------------------------------|-----------------------------|------------------|----------|------|
| Input                                                     | Forward current             | I <sub>F</sub>   | 50       | mA   |
|                                                           | Reverse voltage             | V <sub>R</sub>   | 6        | V    |
|                                                           | Power dissipation           | P                | 75       | mW   |
| 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   |

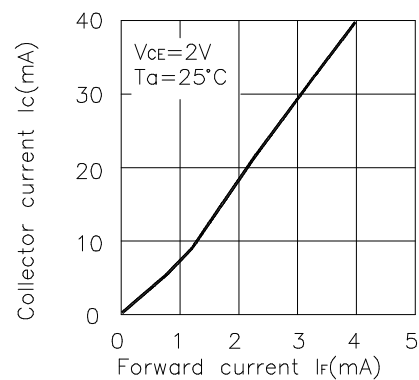
## Electro-optical Characteristics (Ta=25°C)

| Parameter                |                                      |           | Symbol        | Conditions                                         | Min. | Typ. | Max.      | Unit            |
|--------------------------|--------------------------------------|-----------|---------------|----------------------------------------------------|------|------|-----------|-----------------|
| Input                    | Forward voltage                      |           | $V_F$         | $I_F=20\text{mA}$                                  | —    | 1.2  | 1.5       | V               |
|                          | Peak forward voltage                 |           | $V_{FM}$      | $I_{FM}=0.5\text{A}$                               | —    | 2    | 4         | V               |
|                          | Reverse current                      |           | $I_R$         | $V_R=5\text{V}$                                    | —    | —    | 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           | $V_{CE}=2\text{V}, I_F=1\text{mA}$                 | —    | 650  | —         | %               |
|                          | Collector-emitter saturation voltage |           | $V_{CE(sat)}$ | $I_F=2\text{mA}, I_C=1\text{mA}$                   | —    | —    | 1.0       | V               |
|                          | Response time                        | Rise time | $t_r$         | $V_{CE}=2\text{V}, I_C=10\text{mA}, R_L=100\Omega$ | —    | 90   | 400       | $\mu\text{sec}$ |
|                          |                                      | Fall time | $t_f$         |                                                    | —    | 80   | 300       | $\mu\text{sec}$ |

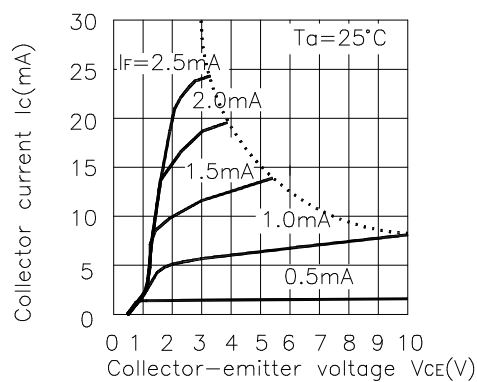
**Fig.1 Forward Current vs. Forward Voltage**



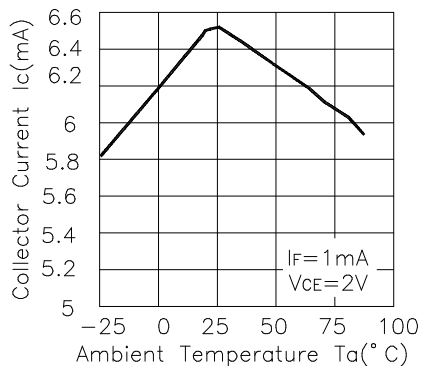
**Fig.2 Collector Current vs. Forward Current**



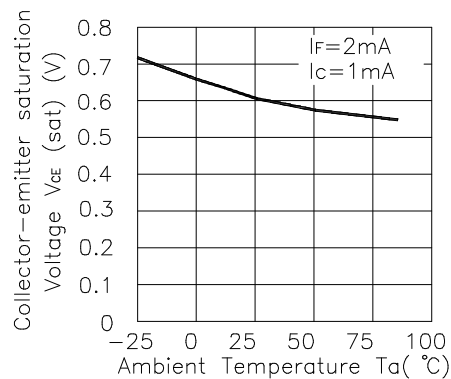
**Fig.3 Collector Current vs. Collector-emitter Voltage**



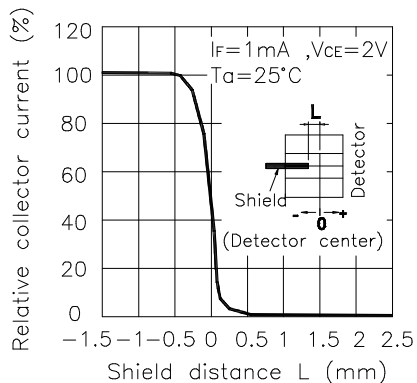
**Fig.4 Collector Current vs. Ambient Temperature**



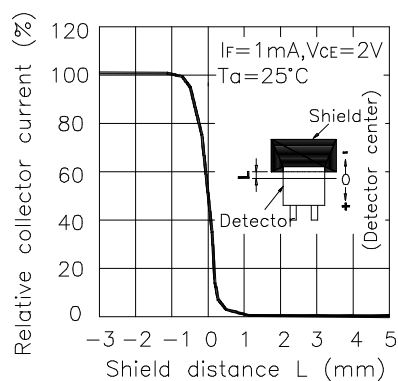
**Fig.5 Collector-emitter Saturation Voltage vs. Ambient Temperature**



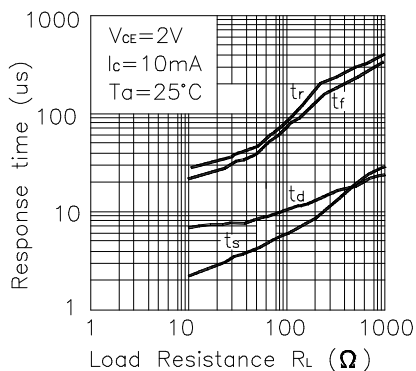
**Fig.6 Relative Collector Current vs. Shield Distance(1)**



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



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



**Test Circuit for Response Time**

