

### ATIR0611S

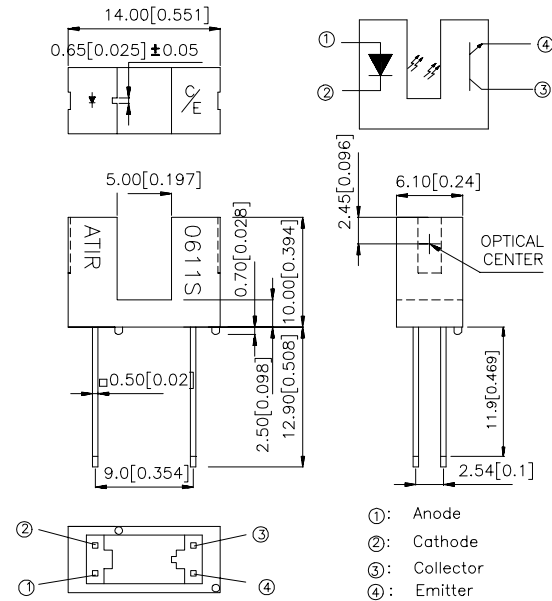
#### Features

- 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  $\pm 0.15$  (0.006") unless otherwise noted.
3. Lead spacing is measured where the lead emerge package.
4. Specifications are subject to change without notice.

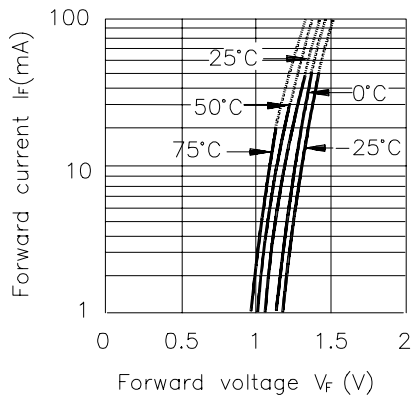
#### Absolute Maximum Ratings ( $T_a=25^\circ\text{C}$ )

| 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                                     |                             | $T_{opr}$ | -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      | $^\circ\text{C}$ |

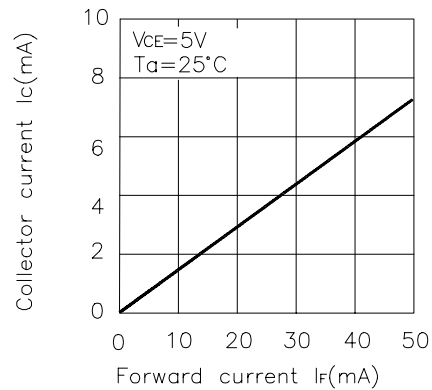
## Electro-optical Characteristics (T<sub>a</sub>=25°C)

| Parameter                |                                      | Symbol               | Conditions                                  | Min.   | Typ. | Max. | Unit |
|--------------------------|--------------------------------------|----------------------|---|--|------|------|------|
| Input                    | Forward voltage                      | V <sub>F</sub>       | I <sub>F</sub> =20mA                        | —  | 1.2  | 1.5  | V    |
|                          | Reverse current                      | I <sub>R</sub>       | V <sub>R</sub> =5V                          | —  | —    | 10   | μA   |
| Output                   | Collector dark current               | I <sub>CEO</sub>     | V <sub>CE</sub> =20V                        | —  | —    | 100  | nA   |
| Transfer characteristics | Collector-emitter saturation voltage | V <sub>CE(sat)</sub> | I <sub>C</sub> =1mA<br>I <sub>F</sub> =40mA | —  | —    | 0.4  | V    |
|                          | Current transfer ratio               | CTR                  | V <sub>CE</sub> =5V<br>I <sub>F</sub> =20mA | —  | 14   | —    | %    |
|                          | Response time                        | Rise time            | t <sub>r</sub>                              | V <sub>CE</sub> =2V<br>I <sub>C</sub> =2mA<br>R <sub>L</sub> =100Ω | —    | 5    | 25   |
| Fall time                |                                      | t <sub>f</sub>       | —   |  | 4    | 20   | μsec |

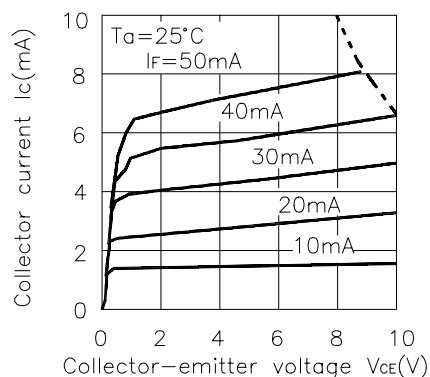
**Fig.1 Forward Current vs. Forward Voltage**



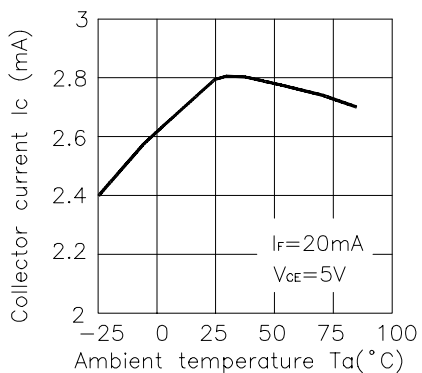
**Fig.2 Collector Current vs. Forward Current**



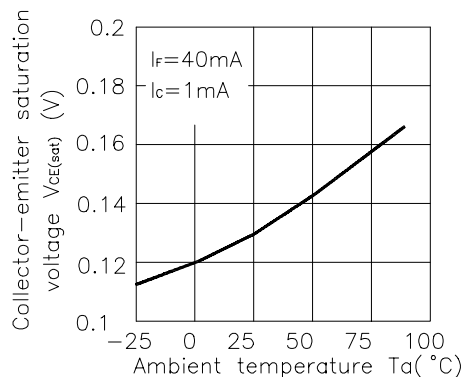
**Fig.3 Collector Current vs. Collector-emitter Voltage**



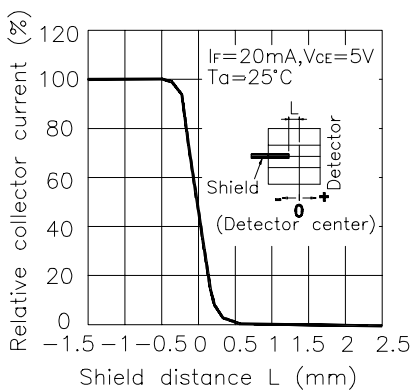
**Fig.4 Collector Current vs. Ambient Temperature**



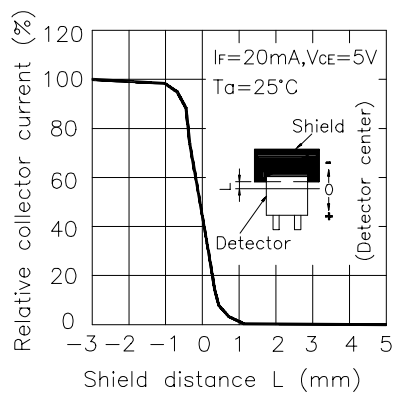
**Fig.5 Collector-emitter Saturation Voltage vs. Ambient Temperature**



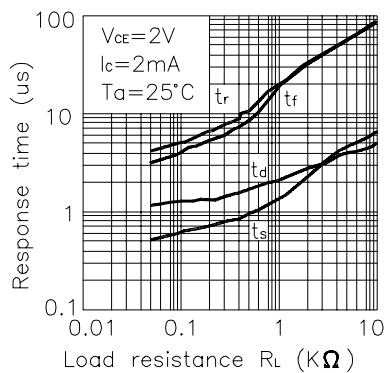
**Fig.6 Relative Collector Current vs. Shield Distance(1)**



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



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



**Test Circuit for Response Time**

