

ATIR0821DS

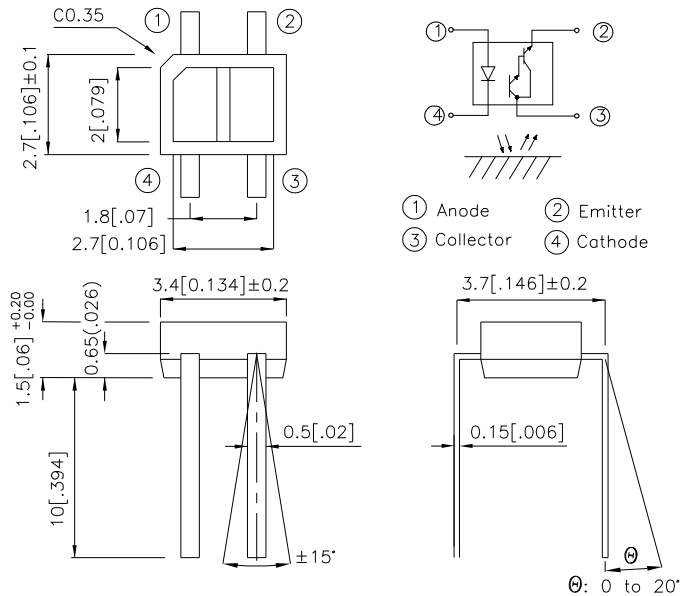
Package Dimensions

*Features

- Compact and thin.
- Visible light cut-off type.
- High sensitivity.
- RoHS Compliant.

*Applications

- Cassette tape recorders, VCRs.
- Floppy disk drives.
- Various microcomputerized control equipment.



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
	Peak Forward Current (Pulse Width $\leq 100\mu\text{s}$, 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	50	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_a=25°C)

Parameter		Symbol	Conditions	Min.	TYP.	Max.	Unit	
Input	Forward Voltage	V _F	I _F =20mA	1.0	1.2	1.5	V	
	Reverse Current	I _R	V _R =6V	-	-	10	μA	
	Peak Wavelength	λ _P	I _F =20mA	-	940	-	nm	
Output	Collector Dark Current	I _{CEO}	V _{CE} =10V I _F =0mA	-	-	10 ⁻⁶	A	
Transfer characteristics	*1 Collector Current	I _C	V _{CE} =2V I _F =4mA	-	3	-	mA	
	*2 Leak Current	I _{LEAK}	V _{CE} =5V I _F =4mA	-	-	5	μA	
	Response time	Rise time	t _r	V _{CE} =2V I _C =10mA R _L =100Ω, d=1mm	-	80	400	μsec
		Fall time	t _f		-	70	400	μsec

*1 The condition and arrangement of the reflective object are shown below.
 *2 Without reflective object.

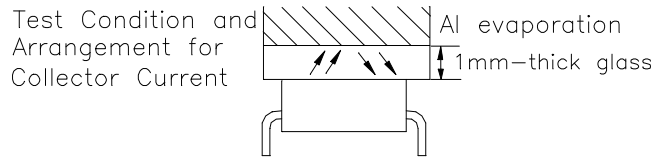


Fig. 1 Forward Current vs. Forward Voltage

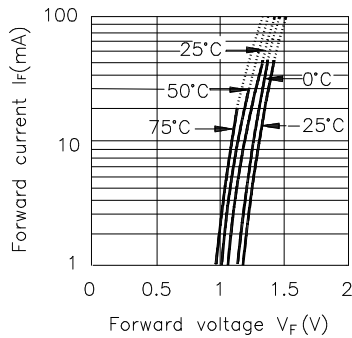


Fig. 3 Collector Current vs. Collector-emitter Voltage

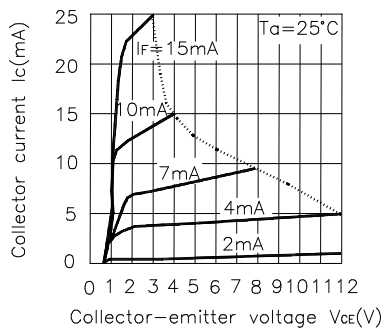


Fig. 2 Collector Current vs. Forward Current

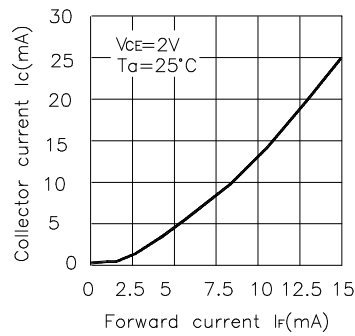


Fig. 4 Relative Collector Current vs. Ambient Temperature

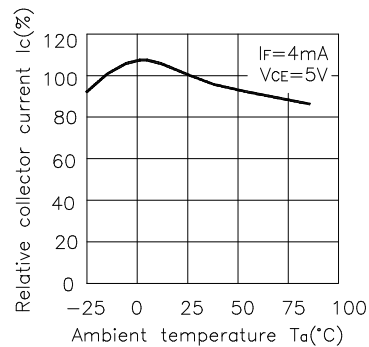
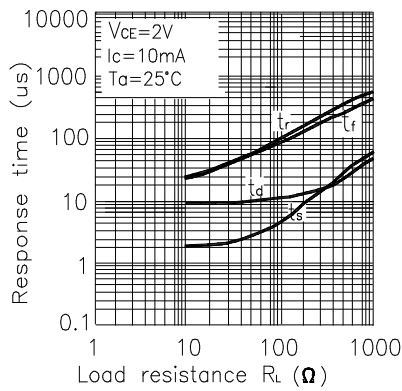


Fig. 5 Response Time vs. Load Resistance



Test Circuit for Response Time

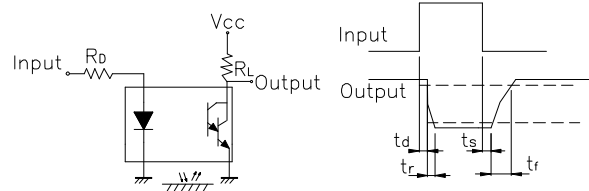


Fig. 6 Collector Dark Current vs. Ambient Temperature

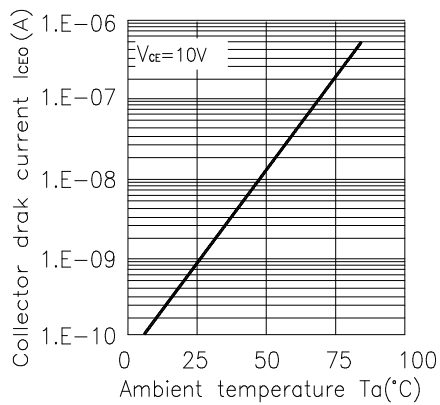


Fig. 7 Relative Collector Current vs. Distance between Sensor and Al Evaporation Glass

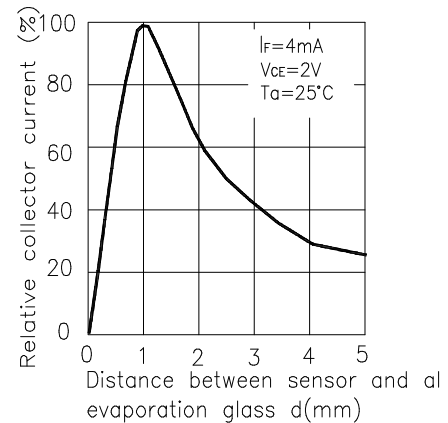


Fig. 8 Relative Collector Current vs. Card Moving Distance (1)

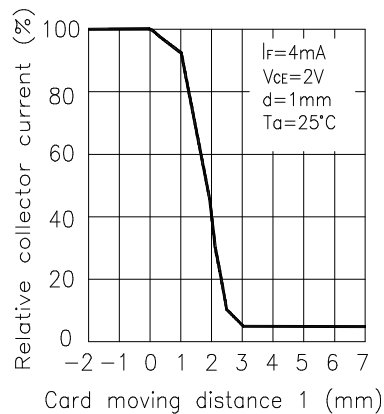
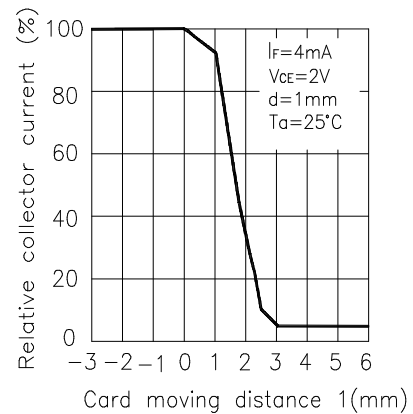
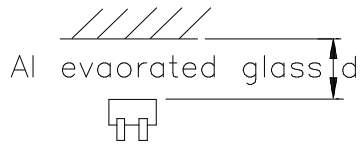


Fig. 9 Relative Collector Current vs. Card Moving Distance (2)



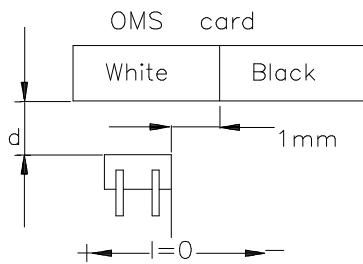
Test Condition for Distance&Detecting Position Characteristics

Correpond to Fig. 7



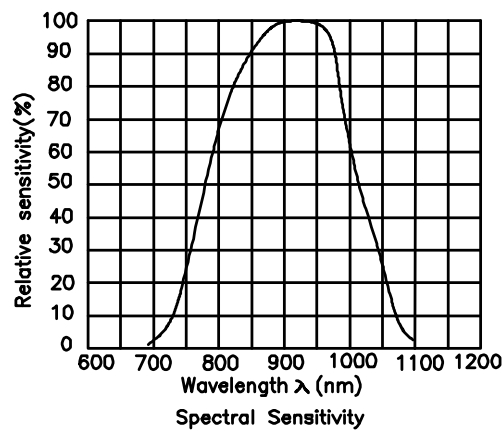
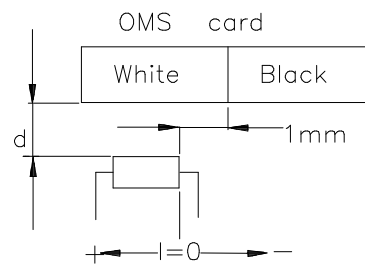
Correpond to Fig. 8
Test condition

$I_F = 4\text{mA}$
 $V_{CE} = 2\text{V}$
 $d = 1\text{mm}$



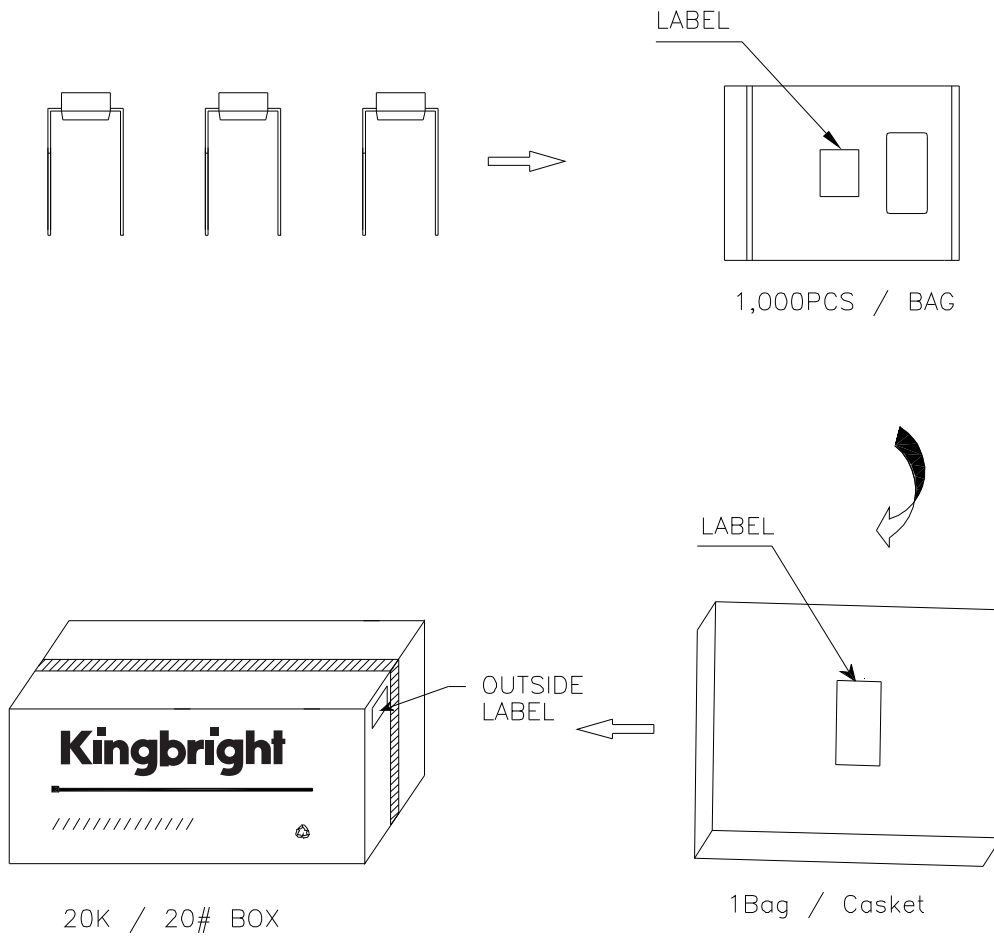
Correpond to Fig. 9
Test condition


$I_F = 4\text{mA}$
 $V_{CE} = 2\text{V}$
 $d = 1\text{mm}$



PACKING & LABEL SPECIFICATIONS

ATIR0821DS



Kingbright	
P/NO: ATIR0821DS	
QTY: 1,000 pcs	Q.C. Q C xx xx xxxx PASSED
S/N: XXXX	
CODE: XX	
LOT NO:	
 <small>xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx</small>	
MADE IN CHINA	RoHS Compliant