

Part Number: KTIR0821DS

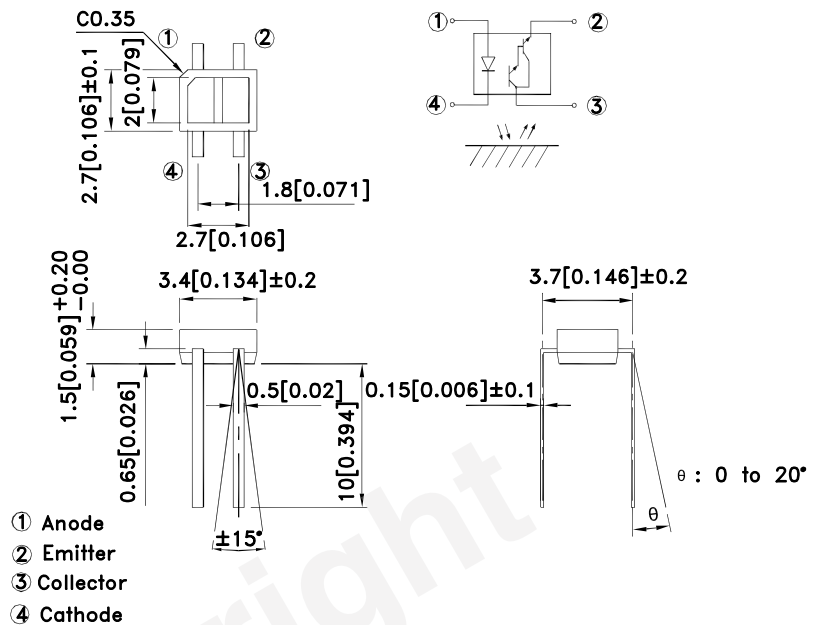
### \*Features

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

### \*Applications

- Cassette tape recorders, VCRs
- Floppy disk drives
- Various microcosm puterized control equipment

### Package Dimensions



### \*Absolute Maximum Ratings (Ta=25°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 $\leq 100\mu s$ , 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	°C
Storage temperature		$T_{stg}$	-40~+100	°C
soldering temperature (1/16 inch from body for 5 seconds)		$T_{sol}$	260	°C

Notes:

- 1/10 Duty Cycle, 0.1ms Pulse Width.
- Relative humidity levels maintained between 40% and 60% in production area are recommended to avoid the build-up of static electricity – Ref JEDEC/JESD625-A and JEDEC/J-STD-033.



### ■ 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
	Reverse Current	$I_R$	$V_R=6\text{V}$	-	-	10	$\mu\text{A}$
	Peak Wavelength	$\lambda_P$	$I_F=20\text{mA}$	-	940	-	nm
Output	Collector Dark Current	$I_{CEO}$	$V_{CE}=10\text{V}$ $I_F=0\text{mA}$	-		$10^{-6}$	A
Transfer characteristics	*1 Collector Current	$I_C$	$V_{CE}=2\text{V}$ $I_F=4\text{mA}$	-	3	-	mA
	*2 Leak Current	$I_{LEAK}$	$V_{CE}=5\text{V}$ $I_F=4\text{mA}$	-	-	5	$\mu\text{A}$
	Response time	Rise time	$V_{CE}=2\text{V}$ $I_C=10\text{mA}$ $R_L=100\Omega, d=1\text{mm}$	-	80	400	$\mu\text{sec}$
		Fall time		-	70	400	$\mu\text{sec}$

\*1 The condition and arrangement of the reflective object are shown below

\*2 Without reflective object

\*3. Excess driving current and/or operating temperature higher than recommended conditions may result in severe light degradation or premature failure.

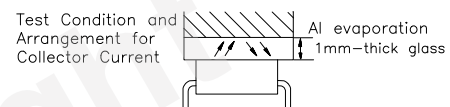


Fig. 1 Forward Current vs. Forward Voltage

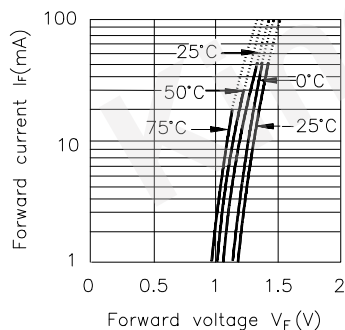


Fig. 3 Collector Current vs. Collector-emitter Voltage

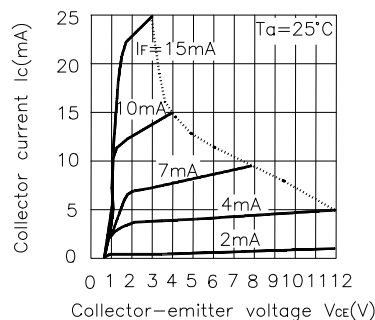


Fig. 2 Collector Current vs. Forward Current

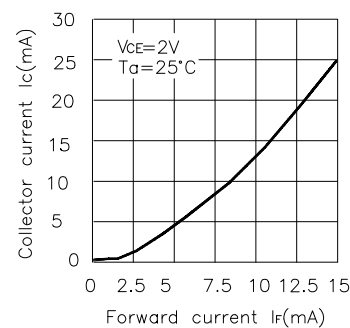


Fig. 4 Relative Collector Current vs. Ambient Temperature

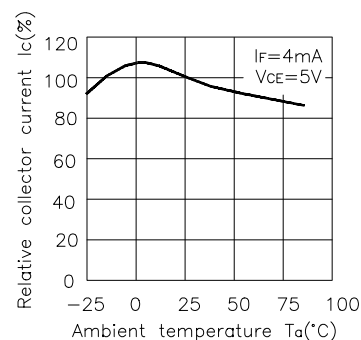
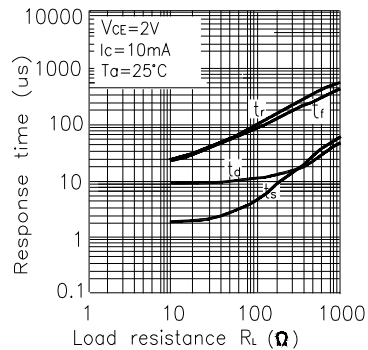


Fig. 5 Response Time vs. Load Resistance



Test Circuit for Response Time

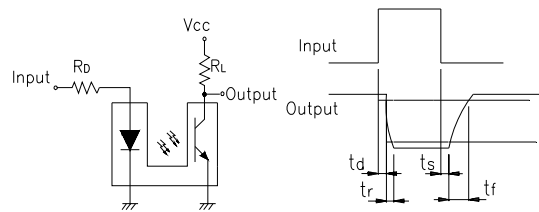


Fig. 6 Collector Dark Current vs. Ambient Temperature

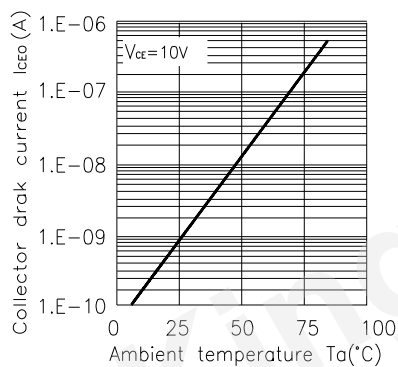


Fig. 7 Relative Collector Current vs. Distance between Sensor and Al Evaporation Glass

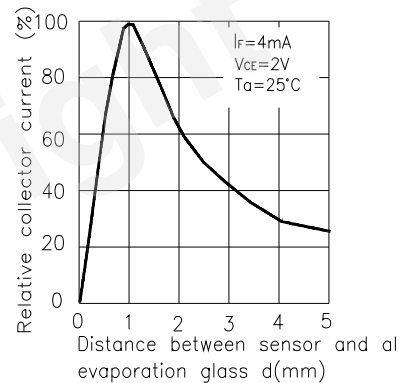


Fig. 8 Relative Collector Current vs. Card Moving Distance (1)

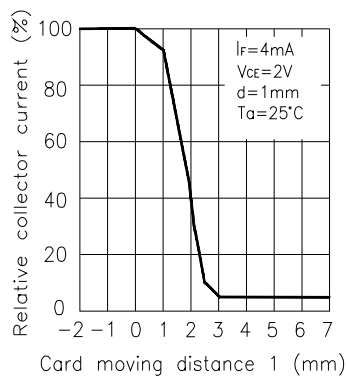
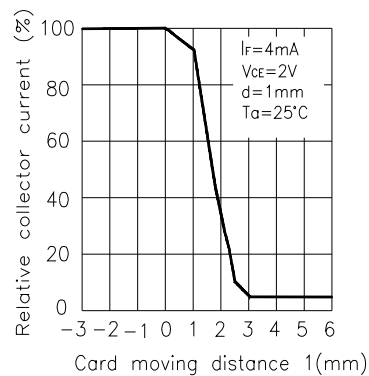
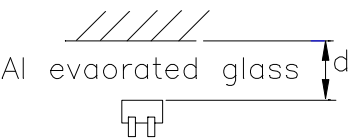


Fig. 9 Relative Collector Current vs. Card Moving Distance (2)



Test Condition for Distance & Detecting Position Characteristics

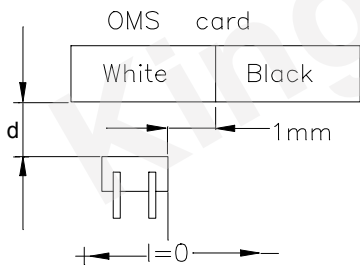
Correpond to Fig. 7



Correpond to Fig. 8

Test condition

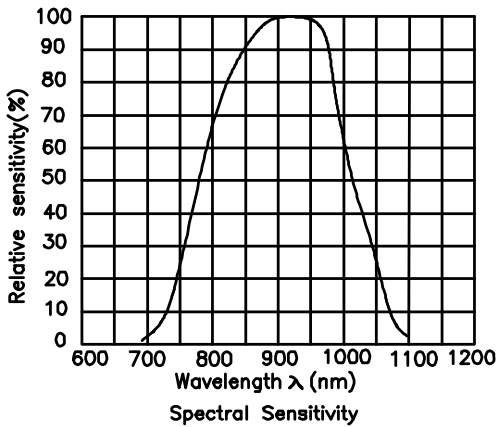
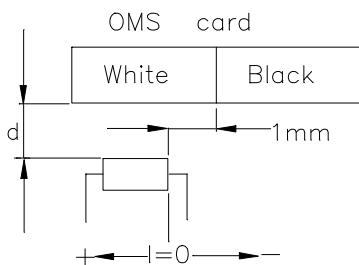
$I_F = 4\text{mA}$   
 $V_{CE} = 2\text{V}$   
 $d = 1\text{mm}$



Correpond to Fig. 9

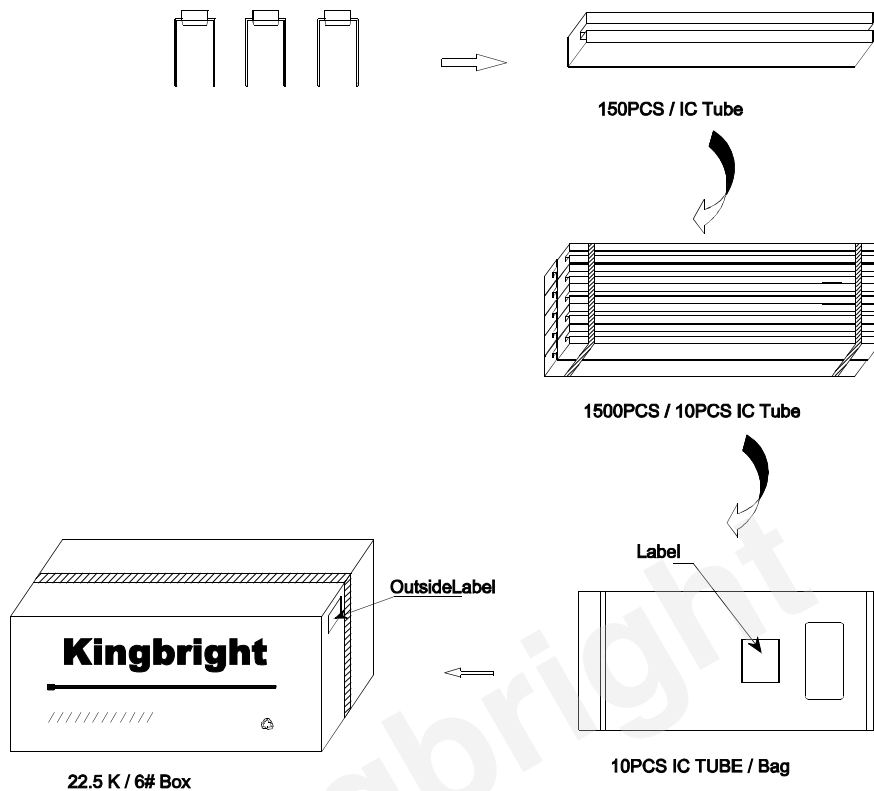
Test condition

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



### PACKING & LABEL SPECIFICATIONS

### KTIR0821DS



<b>Kingbright</b>	
P/NO: KTIR0821DS	
QTY: 1500 pcs	Q.C.
S/N: XXXX	<div style="border: 1px solid black; border-radius: 50%; padding: 5px; text-align: center;"> Q C  XXXXXXXXXX  PASSED </div>
CODE: XXX	
LOT NO:	
XXXXXXXXXXXXXXXXXXXX	
RoHS Compliant	

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