

Part Number: KTIR0821DS

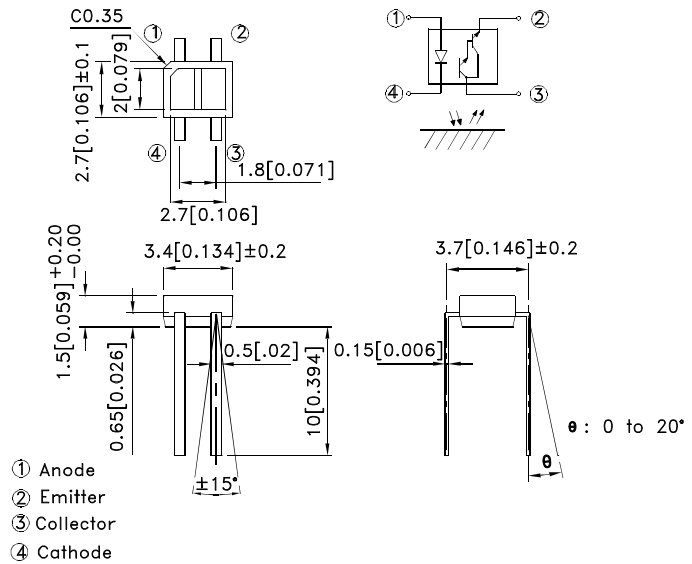
**\*Features**

- 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**



**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 (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



### 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	$t_r$	$V_{CE}=2\text{V}$ $I_C=10\text{mA}$ $R_L=100\Omega, d=1\text{mm}$	-	80	400	$\mu\text{sec}$
		Fall time	$t_f$		-	70	400	$\mu\text{sec}$

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

\*2 Without reflective object

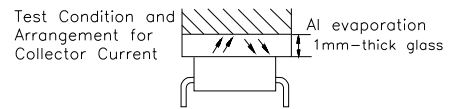


Fig. 1 Forward Current vs. Forward Voltage

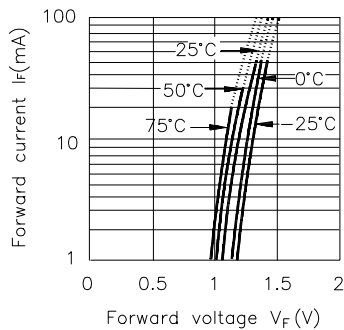


Fig. 3 Collector Current vs. Collector-emitter Voltage

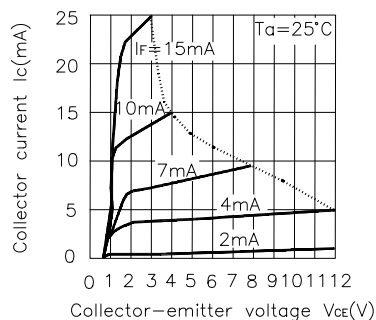


Fig. 2 Collector Current vs. Forward Current

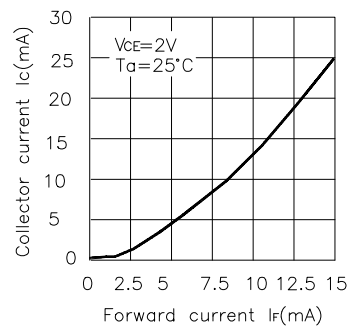


Fig. 4 Relative Collector Current vs. Ambient Temperature

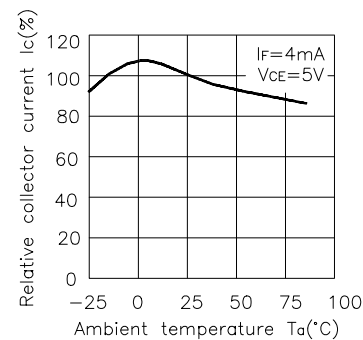
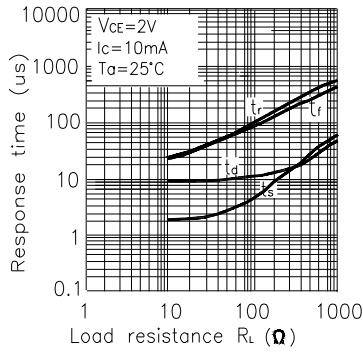


Fig. 5 Response Time vs. Load Resistance



Test Circuit for Response Time

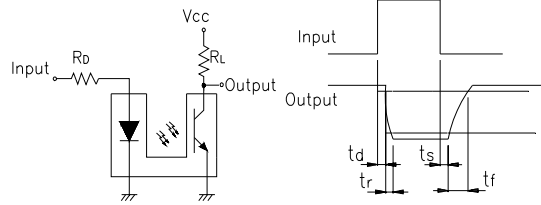


Fig. 6 Collector Dark Current vs. Ambient Temperature

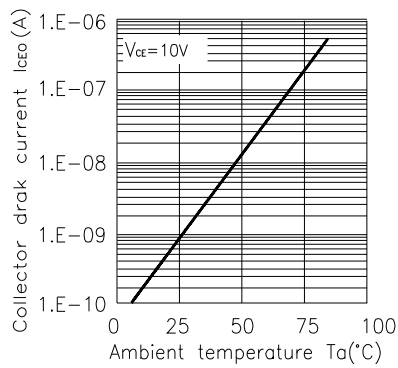


Fig. 7 Relative Collector Current vs. Distance between Sensor and Al Evaporation Glass

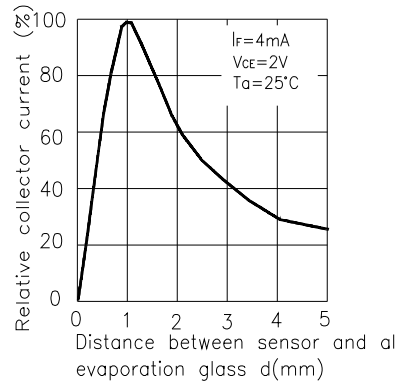


Fig. 8 Relative Collector Current vs. Card Moving Distance (1)

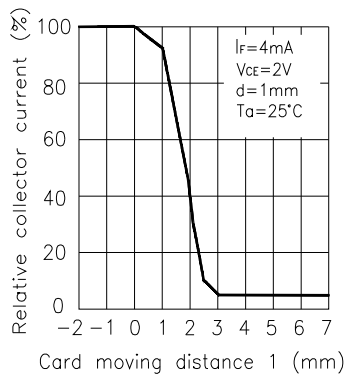
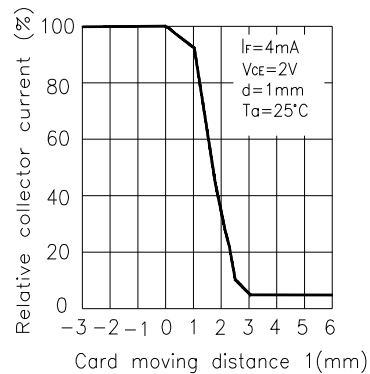
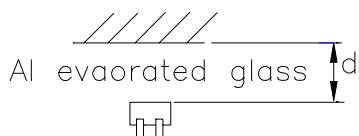


Fig. 9 Relative Collector Current vs. Card Moving Distance (2)



### Test Condition for Distance & Detecting Position Characteristics

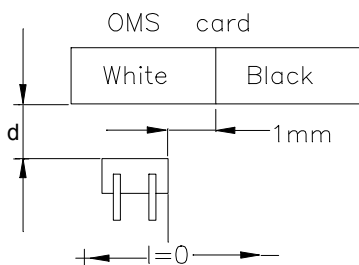
Correspond to Fig. 7



Correspond to Fig. 8

Test condition

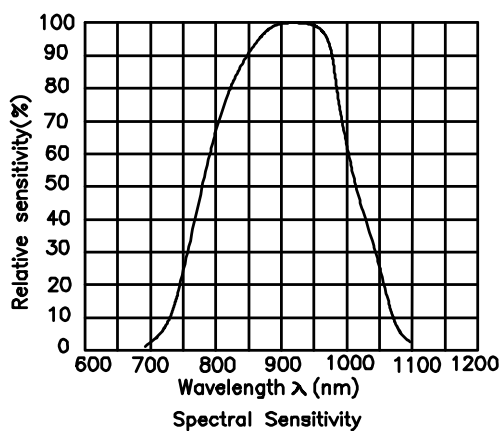
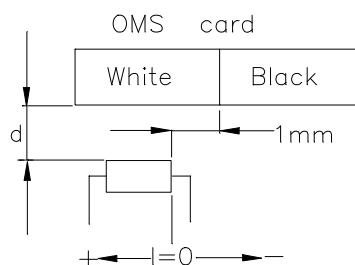
$I_F = 4\text{mA}$   
 $V_{CE} = 2\text{V}$   
 $d = 1\text{mm}$



Correspond to Fig. 9

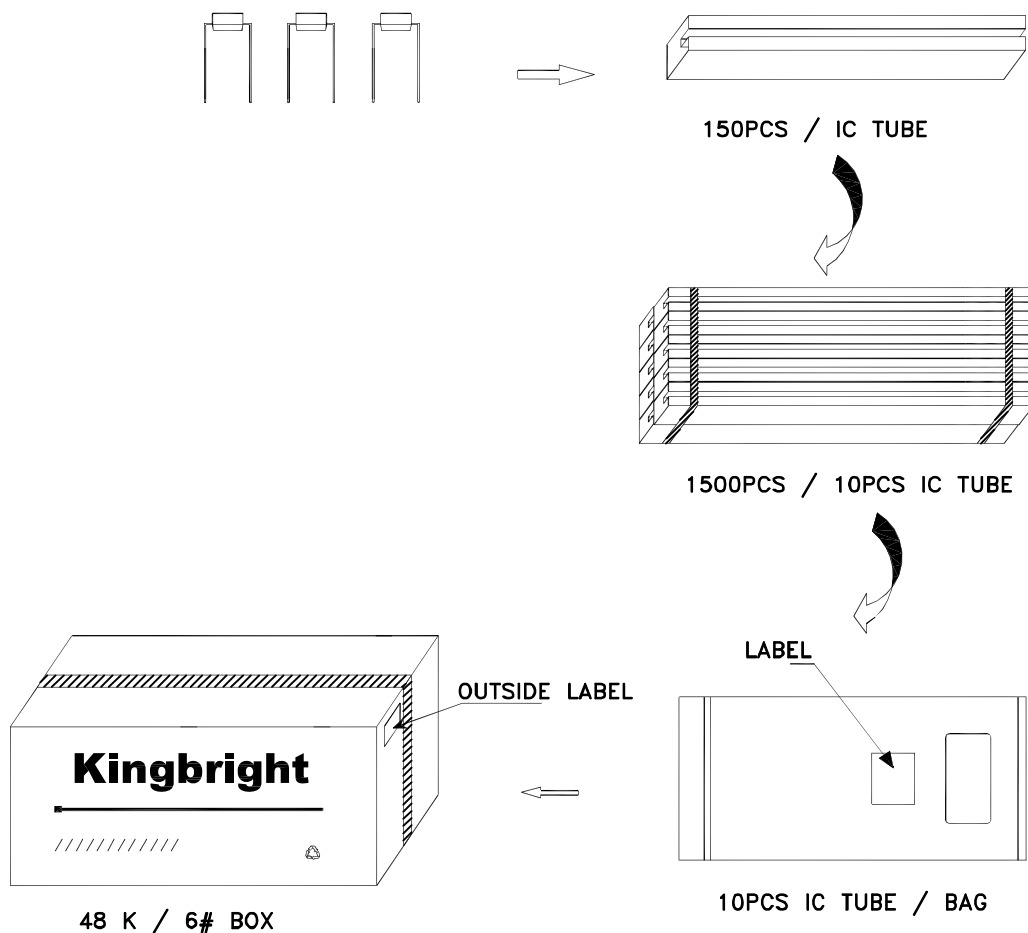
Test condition

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



### PACKING & LABEL SPECIFICATIONS

KTIR0821DS



<h1>Kingbright</h1>				
P/NO: KTIR0821DS				
QTY: 1500 pcs	Q.C.			
S/N: XXXX	<table border="1"> <tr> <td style="text-align: center;">Q C</td> </tr> <tr> <td style="text-align: center;">XX XX XXXX</td> </tr> <tr> <td style="text-align: center;">PASSED</td> </tr> </table>	Q C	XX XX XXXX	PASSED
Q C				
XX XX XXXX				
PASSED				
CODE: XXX				
LOT NO:				
XXXXXXXXXXXXXXXXXXXX				
RoHS Compliant				