

Part Number: KTIR0821DS

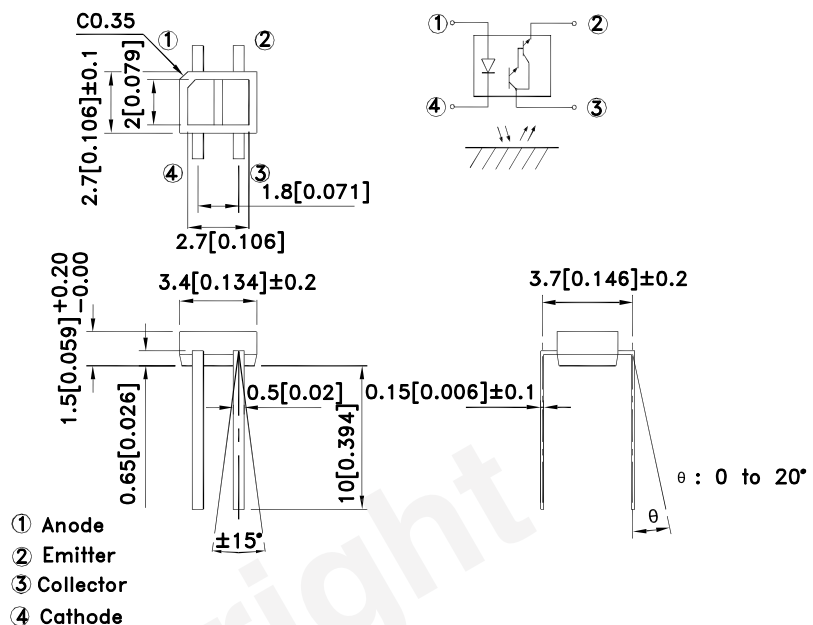
*Features

- 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	μA
	Peak Wavelength	λ_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	μA
	Response time	Rise time	$V_{CE}=2\text{V}$ $I_C=10\text{mA}$ $R_L=100\Omega, d=1\text{mm}$	-	80	400	μsec
		Fall time		-	70	400	μsec

*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.

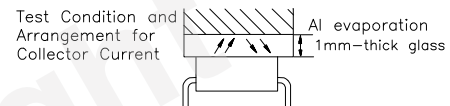


Fig. 1 Forward Current vs. Forward Voltage

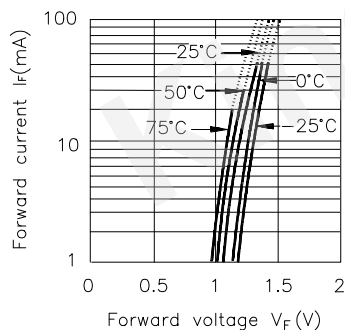


Fig. 3 Collector Current vs. Collector-emitter Voltage

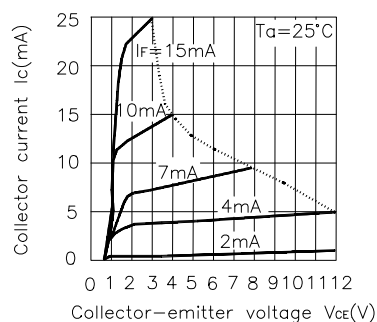


Fig. 2 Collector Current vs. Forward Current

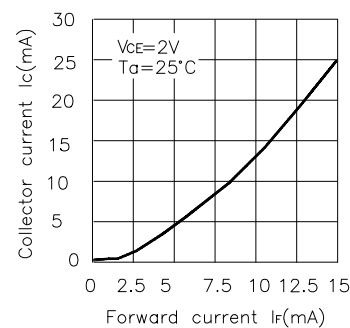


Fig. 4 Relative Collector Current vs. Ambient Temperature

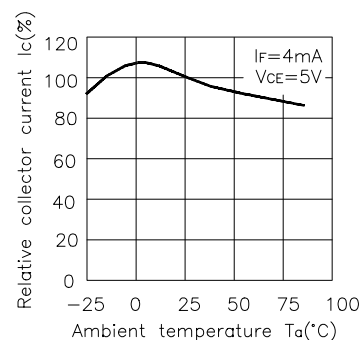
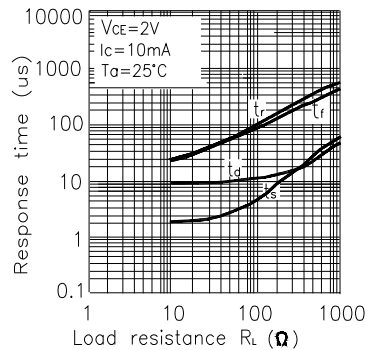


Fig. 5 Response Time vs. Load Resistance



Test Circuit for Response Time

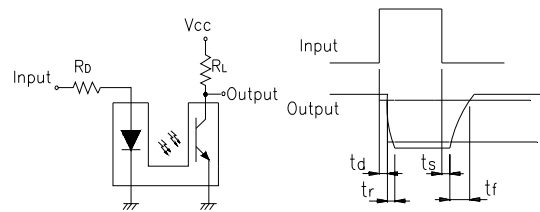


Fig. 6 Collector Dark Current vs. Ambient Temperature

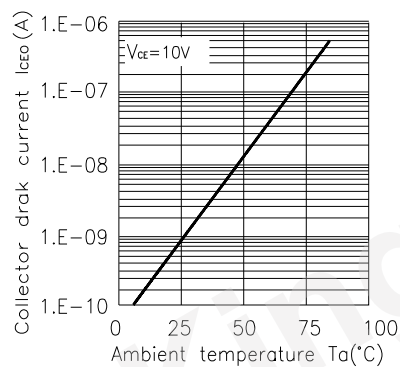


Fig. 7 Relative Collector Current vs. Distance between Sensor and Al Evaporation Glass

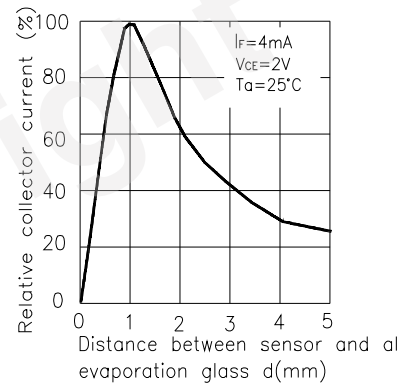


Fig. 8 Relative Collector Current vs. Card Moving Distance (1)

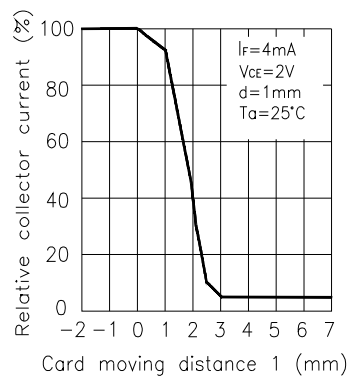
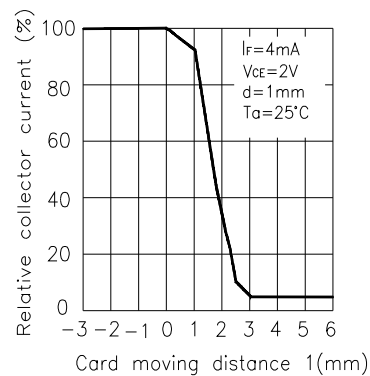
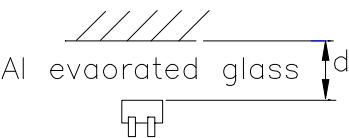


Fig. 9 Relative Collector Current vs. Card Moving Distance (2)



Test Condition for Distance & Detecting Position Characteristics

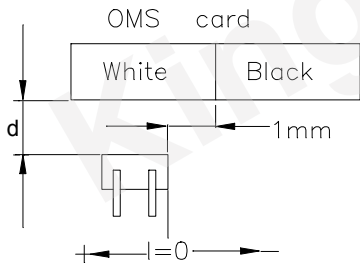
Correpond to Fig. 7



Correpond to Fig. 8

Test condition

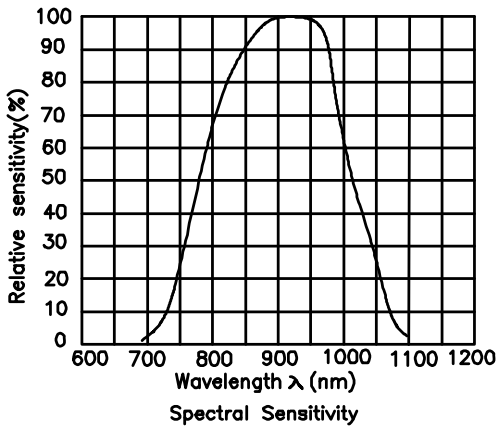
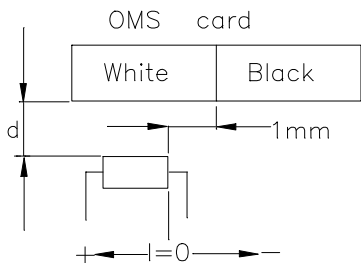
$I_F = 4\text{mA}$
 $V_{CE} = 2\text{V}$
 $d = 1\text{mm}$



Correpond to Fig. 9

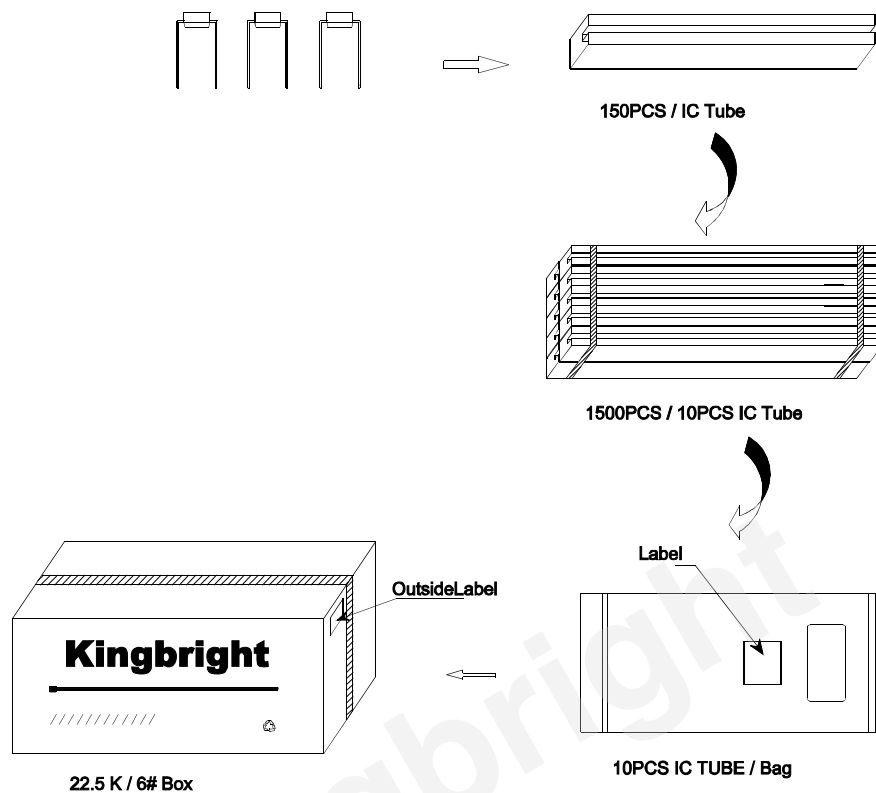
Test condition

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



PACKING & LABEL SPECIFICATIONS

KTIR0821DS



Kingbright	
P/NO: KTIR0821DS	
QTY: 1500 pcs	Q.C.
S/N: XXXX	Q C XXXXXXXXXX PASSED
CODE: XXX	
LOT NO:	
XXXXXXXXXXXXXXXXXXXX	
RoHS Compliant	

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