

Part Number: KTIR0721DS

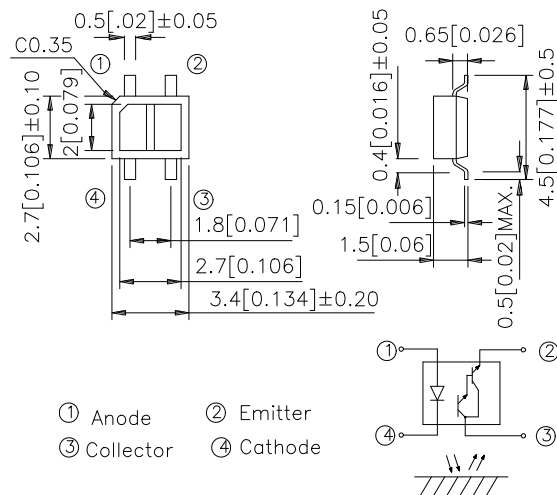
*Features

- Compact and thin.
- Visible light cut-off type.
- High sensitivity.
- Package:1000pcs/Reel.
- RoHS Compliant.

*Applications

- Cassette tape recorders,VCRs.
- Floppy disk drives.
- Various microcomputerized 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 $T_a=25^\circ\text{C}$

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 $\approx 1\%$)	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}	$-25\sim+85$	$^\circ\text{C}$
Storage temperature		T_{stg}	$-40\sim+100$	$^\circ\text{C}$
soldering temperature (1/16 inch from body for 5 seconds)		T_{sol}	260	$^\circ\text{C}$



■Electro-optical Characteristics

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.

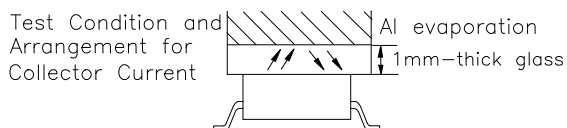


Fig. 1 Forward Current vs. Forward Voltage

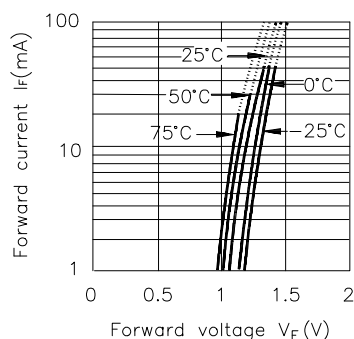


Fig. 2 Collector Current vs. Forward Current

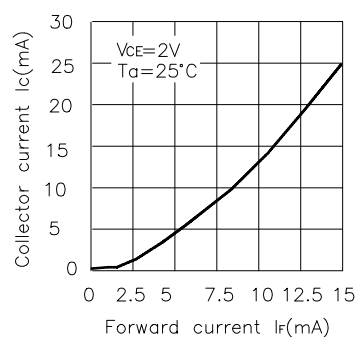


Fig. 3 Collector Current vs. Collector-emitter Voltage

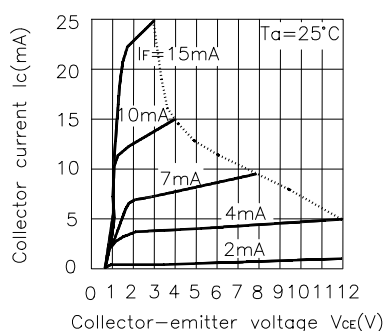


Fig. 4 Relative Collector Current vs. Ambient Temperature

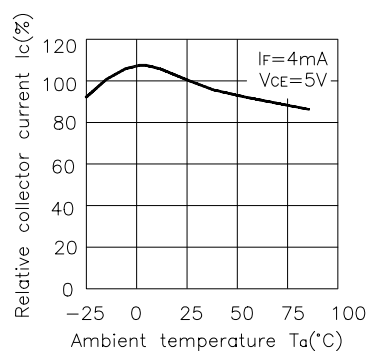
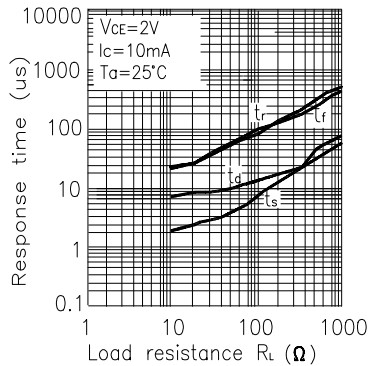


Fig. 5 Response Time vs. Load Resistance



Test Circuit for Response Time

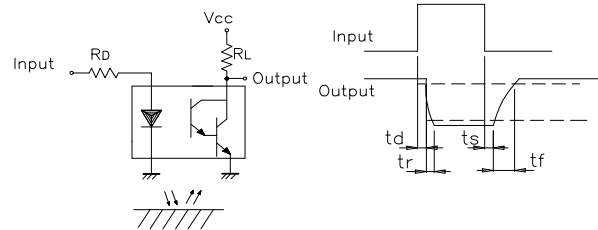


Fig. 6 Collector Dark Current vs. Ambient Temperature

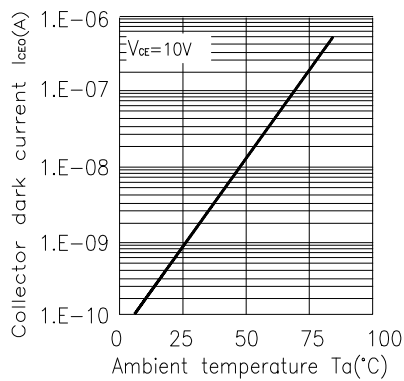


Fig. 7 Relative Collector Current vs. Distance between Sensor and Al Evaporation Glass

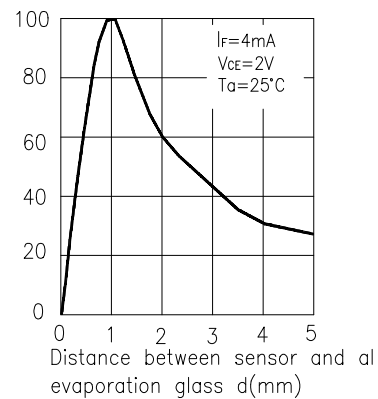


Fig. 8 Relative Collector Current vs. Card Moving Distance (1)

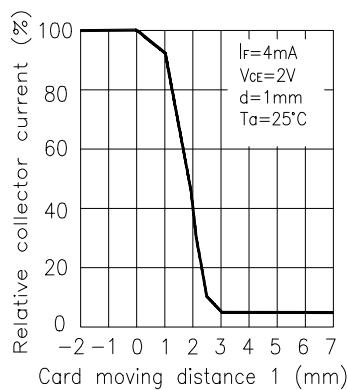
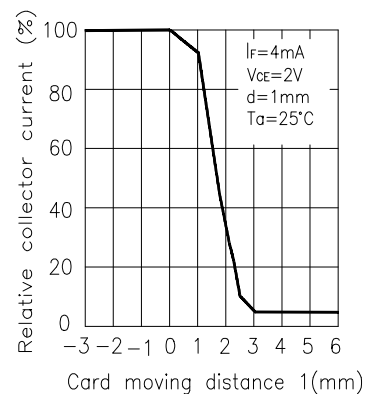


Fig. 9 Relative Collector Current vs. Card Moving Distance (2)



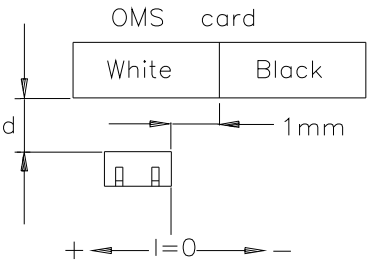
Test Condition for Distance & Detecting
Position Characteristics

Correpond to Fig. 7



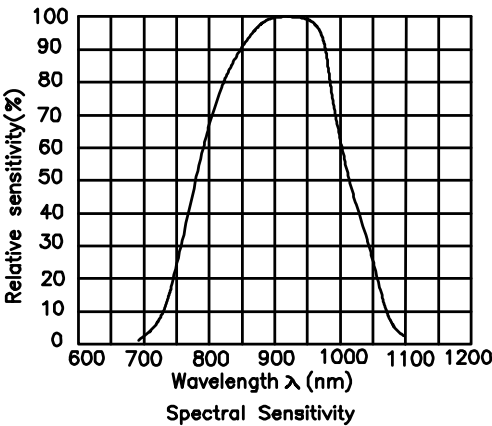
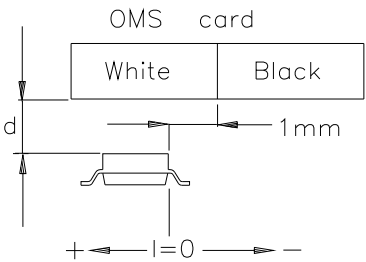
Correpond to Fig. 8
Test condition

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



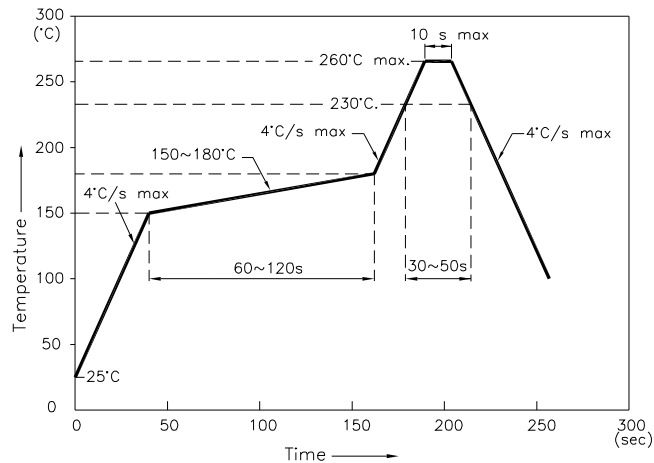
Correpond to Fig. 9
Test condition

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



KTIR0721DS

Reflow Soldering Profile For Lead-free SMT Process.

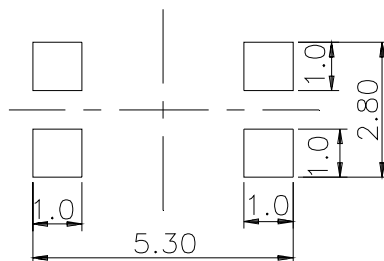


NOTES:

1. We recommend the reflow temperature $245^{\circ}\text{C} (+/-5^{\circ}\text{C})$. The maximum soldering temperature should be limited to 260°C .
2. Don't cause stress to the epoxy resin while it is exposed to high temperature.
3. Number of reflow process shall be 2 times or less.

Recommended Soldering Pattern

(Units : mm; Tolerance: ± 0.1)



Tape Specifications

(Units : mm)

