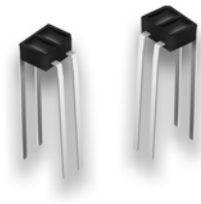


ATIR0811S

Photointerrupter - Reflective Type



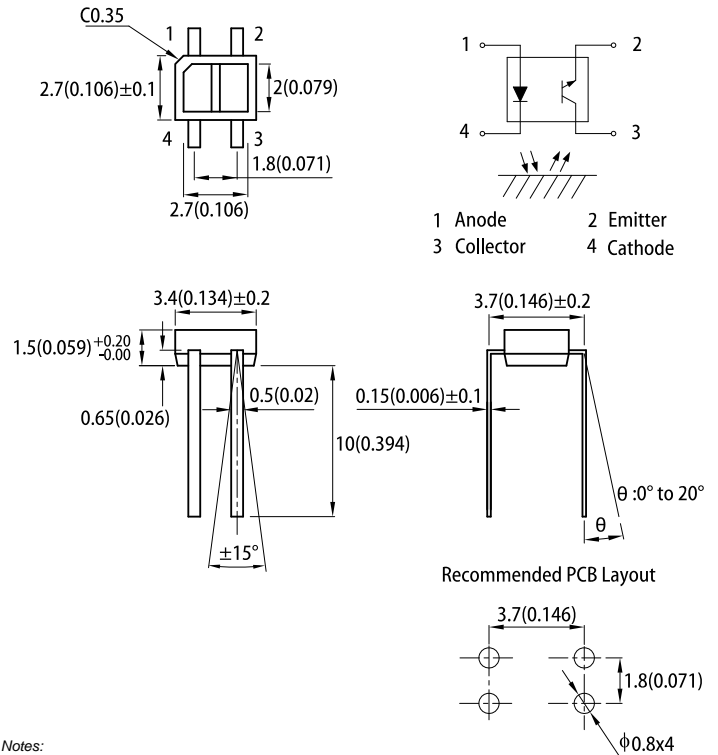
FEATURES

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

APPLICATIONS

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

PACKAGE DIMENSIONS



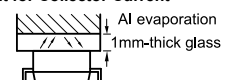
Notes:
 1. All dimensions are in millimeters (inches).
 2. Tolerance is $\pm 0.25(0.01)$ unless otherwise noted.
 3. The specifications, characteristics and technical data described in the datasheet are subject to change without prior notice.

ELECTRICAL / OPTICAL CHARACTERISTICS at $T_A=25^\circ\text{C}$

Parameter		Symbol	Value				Unit	Test Conditions
			Code.	Min.	Typ.	Max.		
Input	Forward Voltage	V_F	-	1.0	1.2	1.5	V	$I_F=20\text{mA}$
	Reverse Current	I_R	-	-	-	10	μA	$V_R=6\text{V}$
Output	Collector Dark Current	I_{CEO}	-	-	10^{-9}	10^{-7}	A	$V_{CE}=20\text{V}$
Transfer Characteristics	Collector Current ^[1]	I_C	E	10	-	120	μA	$I_F=4\text{mA}, V_{CE}=2\text{V}$
			F	100	-	250		
			G	200	-	400		
	Leak Current ^[2]	I_{LEAK}	-	-	-	0.1	μA	$I_F=4\text{mA}, V_{CE}=2\text{V}$
	Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	-	-	-	0.4	V	$I_F=20\text{mA}, I_C=0.1\text{mA}$
Response Time	Rise Time	t_r	-	-	20	100	μs	$V_{CE}=2\text{V}, I_C=100\mu\text{A}$ $R_L=1\text{k}\Omega, d=1\text{mm}$
	Fall Time	t_f	-	-	20	100	μs	

Notes:
 1. Test condition of collector current is 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.

Test Condition and Arrangement for Collector Current



ABSOLUTE MAXIMUM RATINGS at $T_A=25^{\circ}\text{C}$

	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	20	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	$^{\circ}\text{C}$

Note:

1. 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.

TECHNICAL DATA

Fig. 1 Forward Current vs. Forward Voltage

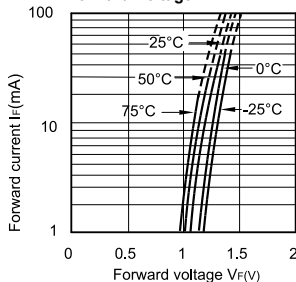


Fig. 2 Collector Current vs. Forward Current

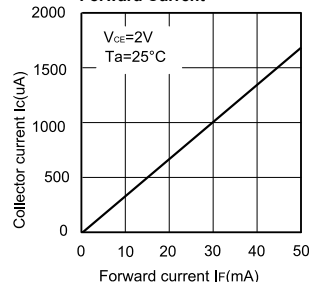


Fig. 3 Collector Current vs. Collector-Emitter Voltage

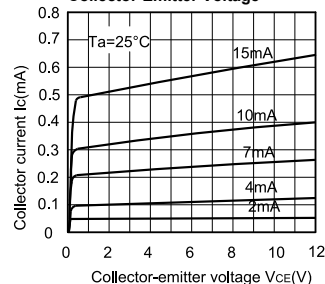


Fig. 4 Relative Collector Current vs. Ambient Temperature

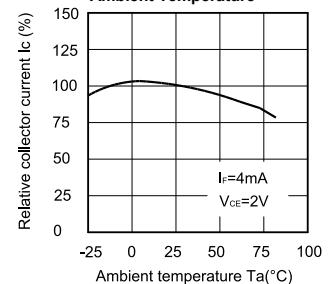


Fig. 5 Response Time vs. Load Resistance

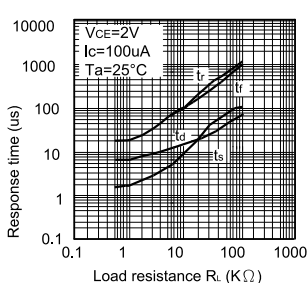


Fig. 6 Collector Dark Current vs. Ambient Temperature

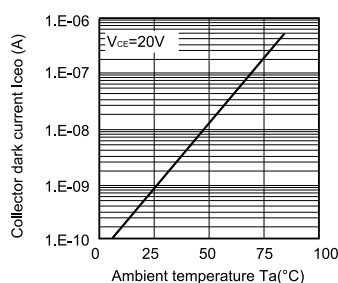


Fig. 7 Relative Collector Current vs. Distance Between Sensor and Al Evaporation Glass

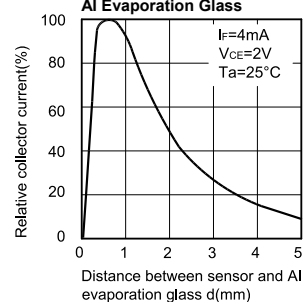
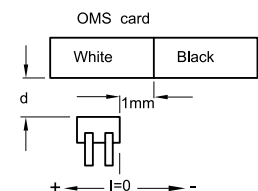
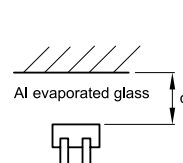
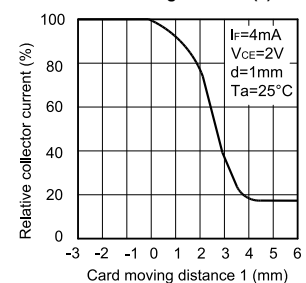


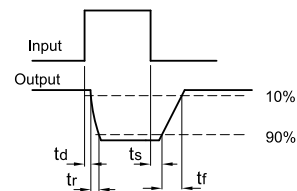
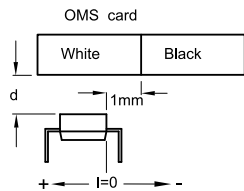
Fig. 8 Relative Collector Current vs. Card Moving Distance (1)



Card moving distance 1(mm)

Relative collector current (%)

$I_F=4\text{mA}$
 $V_{CE}=2\text{V}$
 $d=1\text{mm}$
 $T_a=25^\circ\text{C}$



The graph illustrates the temperature profile of a thermocouple over time. The Y-axis represents Temperature in degrees Celsius (°C), ranging from 0 to 300. The X-axis represents Time in seconds (sec), ranging from 0 to 120. The profile shows a preheat phase (0-60 sec) with a maximum rate of 4°C/s, reaching 100°C. A dwell at 100°C for 60 sec max is indicated. The main heating phase (60-75 sec) has a maximum rate of 255°C/5 sec, peaking at 255°C. A cooling phase (75-120 sec) has a maximum rate of 30°C.

- Notes:**
1. Recommend pre-heat temperature of 105°C or less (as measured with a thermocouple attached to the LED pins) prior to immersion in the solder wave with a maximum solder bath temperature of 260°C
 2. Peak wave soldering temperature between 245°C – 255°C for 3 sec (5 sec max).
 3. Do not apply stress to the epoxy resin while the temperature is above 85°C.
 4. *Future should not incur stress on the component when mounting and during soldering process.*
 5. SAC 305 solder alloy is recommended.
 6. No more than one wave soldering pass.
 7. After opening the package: The LEDs should be kept at 30°C or less and 60%RH or less. The LEDs should be soldered within 72 hours (3days) after opening the package.

150pcs / IC Tube

1500pcs / 10pcs IC Tube

10pcs IC Tube / Bag

22.5K / Box

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Label

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