

EAITRCA8

Features

- Fast response time
- High sensitivity
- Cut-Off visible wavelength
- Thin
- Compact
- Pb free



Description

• EAITRCA8 is a light reflection switch which includes a GaAs IR-LED transmitter and a NPN photo-transistor with a high photosensitive receiver for short distance, operating in the infrared range. Both components are mounted side-by-side in a plastic package.

Applications

- Camera
- VCR
- Floppy disk driver
- Cassette type recorder
- Various microcomputer control equipment

Device Selection Guide

Device No.	Chip Material
IR	GaAlAs
PT	Silicon

Absolute Maximum Ratings (Ta=25°C)

Parameter		Symbol	Ratings	Unit
Input	Power Dissipation at(or below) 25°C Free Air Temperature	Pd	75	mW
	Reverse Voltage	V _R	6	V
	Forward Current	I _F	50	mA
	Peak Forward Current (*1) Pulse width ≤100μs, Duty cycle=1%	I _{FP}	1	A
Output	Collector Power Dissipation	P _C	100	mW
	Collector Current	I _C	20	mA
	Collector-Emitter Voltage	B V _{CEO}	35	V
	Emitter-Collector Voltage	B V _{ECO}	6	V
Operating Temperature		T _{opr}	-25~+85	°C
Storage Temperature		T _{stg}	-30~+90	°C
Lead Soldering Temperature (*2) (1/16 inch form body for 5 seconds)		T _{sol}	260	°C

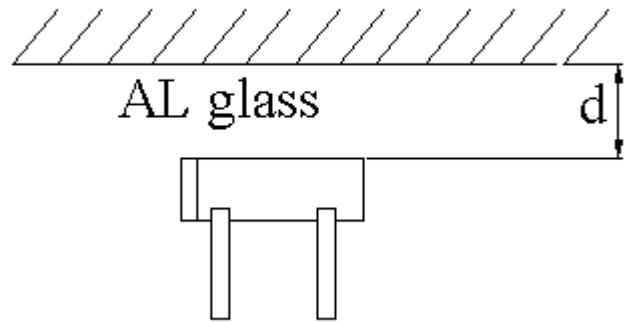
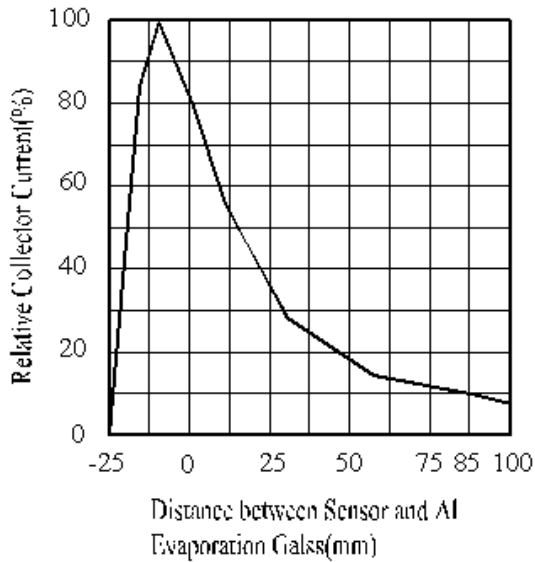
Notes: (*1) $t_w=100\ \mu\text{sec.}$, $T=10\ \text{msec.}$ (*2) $t=10\ \text{Sec}$

Electro-Optical Characteristics (Ta=25°C)

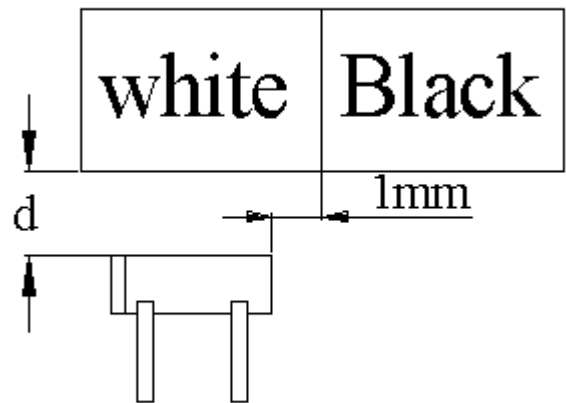
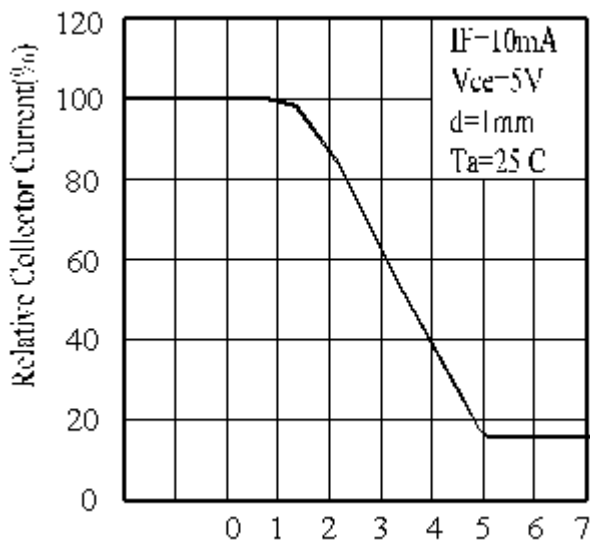
Parameter		Symbol	Min.	Typ.	Max.	Unit	Conditions
Input	Forward Voltage	V_F	---	1.2	1.4	V	$I_F=20mA$
	Reverse Current	I_R	---	---	10	μA	$V_R=6V$
	Peak Wavelength	λ_p	---	940	---	nm	$I_F=10mA$
Output	Dark Current	I_{CEO}	---	---	100	nA	$V_{CE}=10V$
Transfer Characteristics	Collect Current	$I_C(ON)$	0.5	---	15.0	mA	$V_{CE}=2V, I_F=4mA$
	Leakage Current	I_{CEOD}	---	---	5	μA	$V_{CE}=2V, I_F=4mA$
	Rise time	t_r	-	-	400	μs	$V_{CE}=2V$ $I_C=10mA$ $R_L=100\Omega, d=1mm$
	Fall time	t_f	-	-	400	μs	

Typical Electrical/Optical/Characteristics Curves for ITR

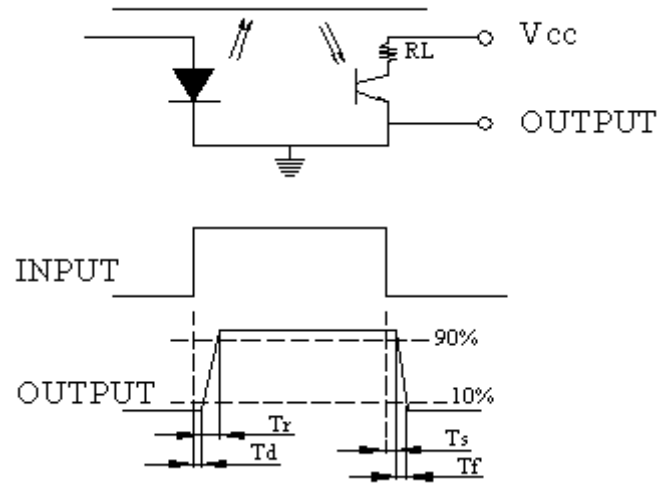
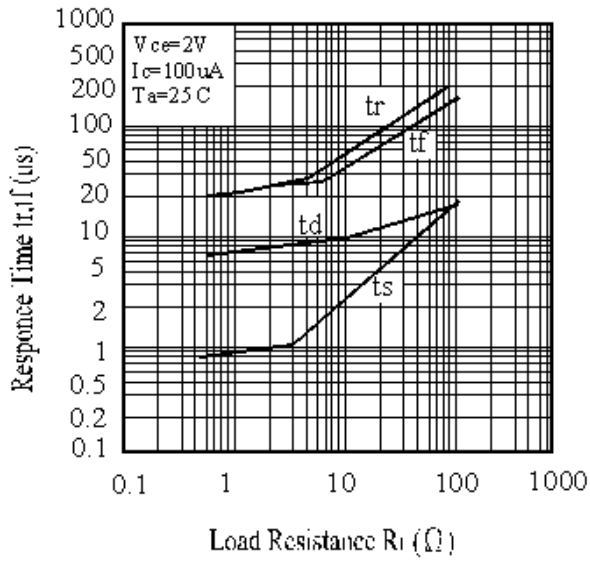
Relative Collector Current vs. Distance Between Sensor and Al Evaporation



Relative Collector Current vs. Card moving Distance d(mm)



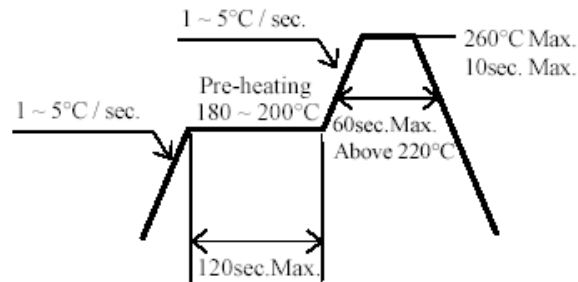
Response Time vs. Load Resistance



Recommended Method of Storage

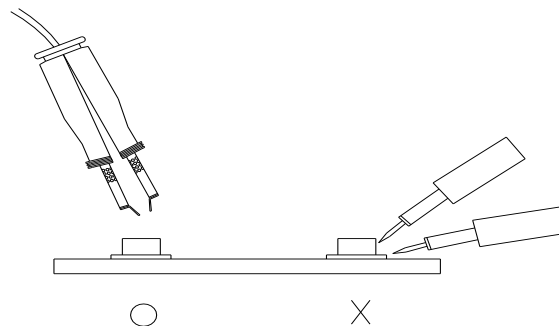
The following are general recommendations for moisture sensitive level (MSL) 4 storage and use:

- Shelf life in sealed bag: 12 months at $< 40\text{ }^{\circ}\text{C}$ and $< 90\%$ relative humidity (RH)
- After bag is opened, devices that will be subjected to reflow solder or other high temperature process must
 - a) Mounted within 72 hours of factory conditions $< 30\text{ }^{\circ}\text{C}/60\%$ RH, or
 - b) Stored at $<20\%$ RH
- Devices require bake, before mounting, if:
Humidity Indicator Card is $> 20\%$ when read at $23 \pm 5\text{ }^{\circ}\text{C}$
- If baking is required, devices may be baked:
 - a) 192 hours at $40\text{ }^{\circ}\text{C}$, and $<5\%$ RH(dry air/nitrogen) or
 - b) 96 hours at $60\text{ }^{\circ}\text{C}$, and $<5\%$ RH for all device containers
 - c) 24 hours at $125\text{ }^{\circ}\text{C}$
- Soldering Condition
 - a) Pb-free solder temperature profile

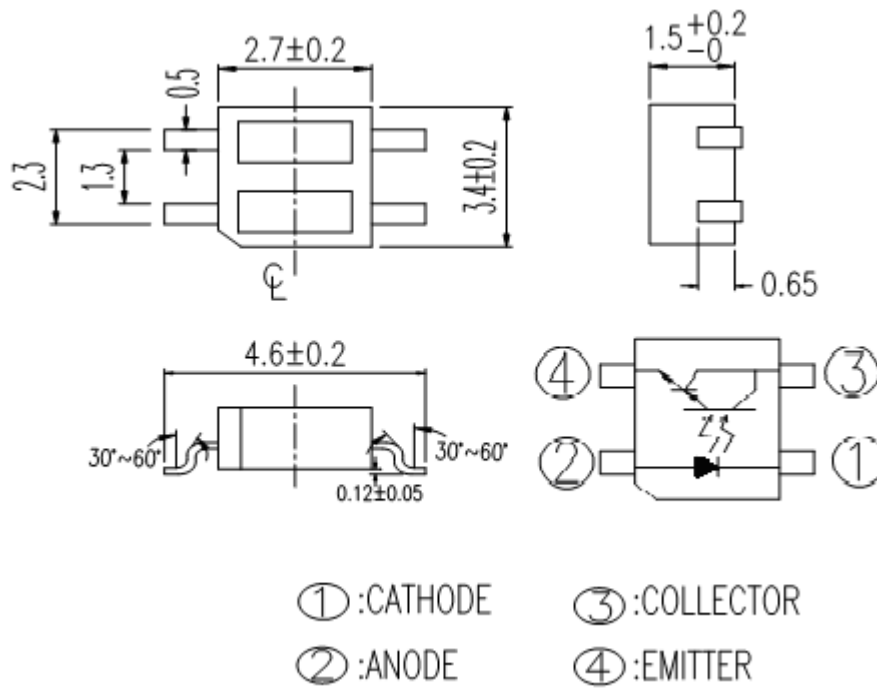


- b) Reflow soldering should not be done more than two times.
 - c) When soldering, do not put stress on the LEDs during heating.
 - d) After soldering, do not warp the circuit board.
- Repairing

Repair should not be done after the LEDs have been soldered. When repairing is unavoidable, a double-head soldering iron should be used (as below figure). It should be confirmed beforehand whether the characteristics of the LEDs will or will not be damaged by repairing.

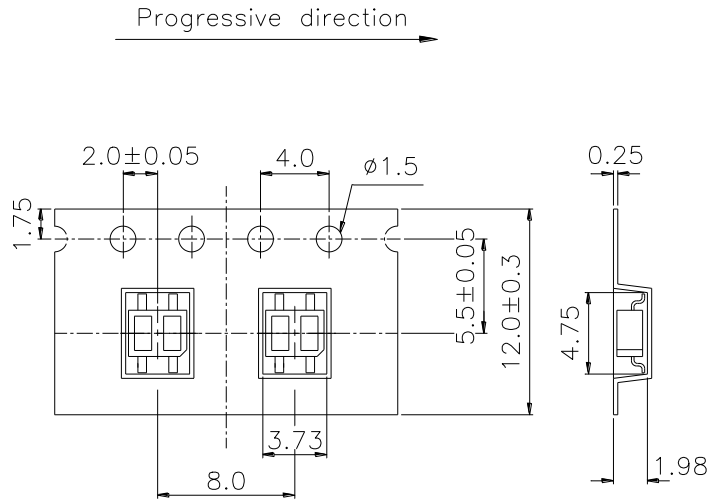


Package Dimension



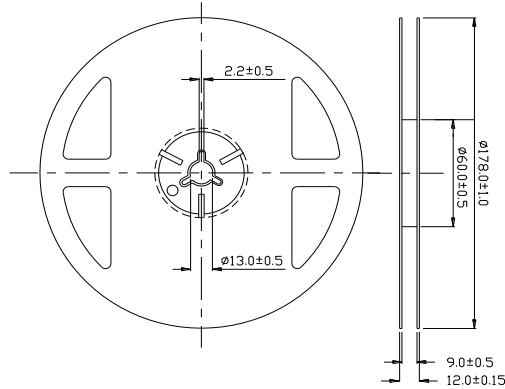
- Notes:**
1. All dimensions are in millimeters
 2. Tolerances unless dimensions ± 0.25 mm

Taping Dimension

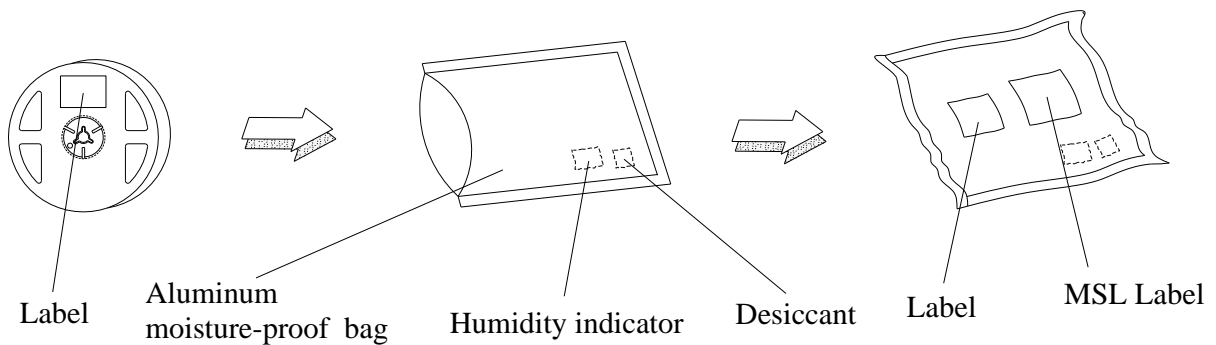


General Tolerance ± 0.1
UNIT:mm

Reel Dimensions



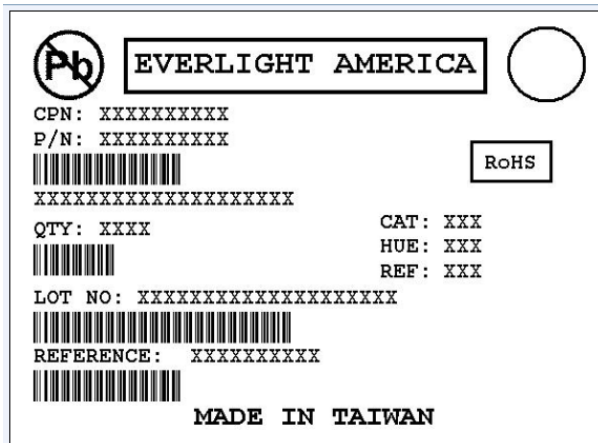
Moisture Resistant Packaging



Packing Quantity Specification

1. 1000 Pcs/ 1Reel
2. 15 Reel /1 Box
3. 2 Box/ 1 Carton

Label Form Specification



- CPN: Customer's Product Number
- P/N: Product Number
- QTY: Packing Quantity
- CAT: Luminous Intensity Rank
- HUE: Dom. Wavelength Rank
- REF: Forward Voltage Rank
- LOT No: Lot Number
- X: Month
- Reference: Identify Label Number

Notes

1. Above specification may be changed without notice. EVERLIGHT Americas will reserve authority on material change for above specification.
2. When using this product, please observe the absolute maximum ratings and the instructions for using outlined in these specification sheets. EVERLIGHT Americas assumes no responsibility for any damage resulting from use of the product which does not comply with the absolute maximum ratings and the instructions included in these specification sheets.
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