

### Technical Data Sheet

#### 1.9mm Round Subminiature Axial Phototransistor

#### EAPST2520A1

#### Features

- Fast response time
- High photo sensitivity
- Small junction capacitance
- Compatible with infrared and vapor phase reflow solder process.
- Pb free
- RoHS Compliance
- The product itself will remain within RoHS compliant version.
- Compliance with EU REACH.
- Compliance Halogen Free .(Br <900 ppm ,Cl <900 ppm , Br+Cl < 1500 ppm)

#### Description

• EAPST2520A1 is a phototransistor in miniature SMD package which is molded in water clear plastic with spherical top view lens. The device is spectrally matched to infrared emitting diode.

#### Applications

- Miniature switch
- Counters and sorter
- Position sensor
- Infrared applied system

#### Device Selection Guide

Device No.	Chip Material	Lens Color
EAPST2520A1	Silicon	Black

Technical drawing of a collector-emitter module. The drawing includes a top view and a side view.

**Top View Dimensions:**

- Collector diameter:  $\phi 19 \pm 0.2$
- Collector length:  $2.5 \pm 0.1$
- Emitter length:  $2.0 \pm 0.2$
- Collector pin diameter:  $0.5 \pm 0.1$
- Emitter pin diameter:  $0.4 \pm 0.1$
- Collector pin callout: ①
- Emitter pin callout: ②

**Side View Dimensions:**

- Collector pin diameter:  $0.15 \pm 0.05$
- Collector pin length:  $7.0 \text{ min.}$
- Collector pin radius:  $R0.8 \pm 0.1$
- Collector pin length:  $1.1 \pm 0.1$
- Collector pin length:  $1.4 \pm 0.1$
- Collector pin length:  $7.0 \text{ min.}$
- Collector pin diameter:  $0.65 \pm 0.1$
- Collector pin length:  $1.3 \pm 0.1$
- Collector pin length:  $1.4 \pm 0.1$
- Collector pin diameter:  $0.75 \pm 0.1$
- Collector pin length:  $2.7 \pm 0.2$

**Callouts:**

- ① Collector
- ② Emitter

### Absolute Maximum Ratings (Ta=25°C)

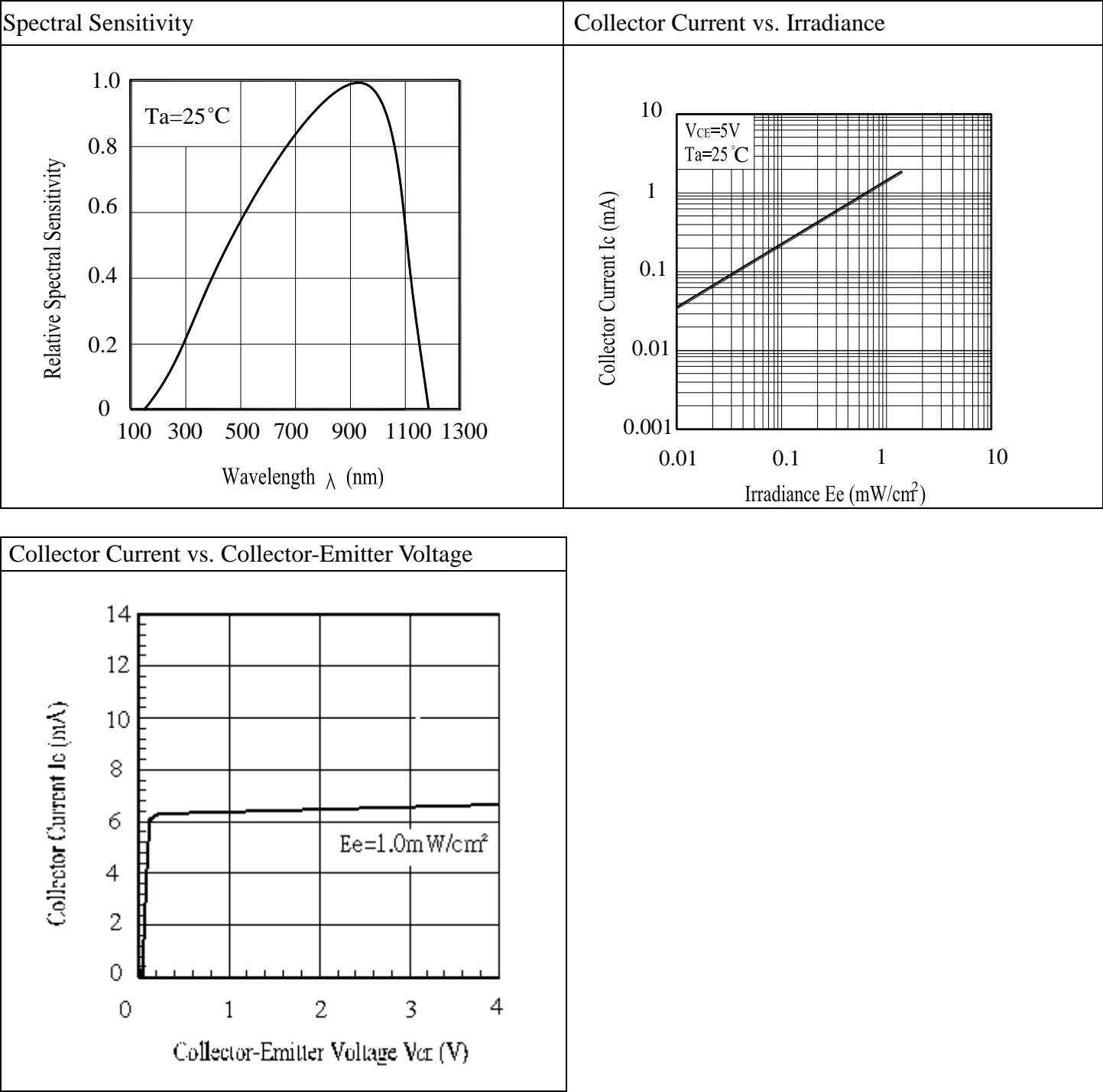
Parameter	Symbol	Rating	Unit
Collector-Emitter Voltage	$V_{CEO}$	30	V
Emitter-Collector-Voltage	$V_{ECO}$	5	V
Collector Current	$I_C$	20	mA
Operating Temperature	$T_{opr}$	-25 ~ +85	°C
Storage Temperature	$T_{stg}$	-40 ~ +100	°C
Soldering Temperature *1	$T_{sol}$	260	°C
Power Dissipation at(or below) 25°C Free Air Temperature	$P_c$	75	mW

**Notes: \*1:Soldering time  $\leq 5$  seconds.**

**Electro-Optical Characteristics (Ta=25°C)**

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Rang Of Spectral Bandwidth	$\lambda_{0.5}$	400	---	1100	nm	---
Wavelength Of Peak Sensitivity	$\lambda_P$	---	940	---	nm	---
Collector-Emitter Breakdown Voltage	$BV_{CEO}$	30	---	---	V	$I_C=100\mu A$ $E_e=0mW/cm^2$
Emitter-Collector Breakdown Voltage	$BV_{ECO}$	5	---	---	V	$I_E=100\mu A$ $E_e=0mW/cm^2$
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	---	---	0.4	V	$I_C=2mA$ $E_e=1m W/cm^2$
Collector Dark Current	$I_{CEO}$	---	---	100	nA	$V_{CE}=20V$ $E_e=0mW/cm^2$
On State Collector Current	$I_{C(ON)}$	1.0	1.5	---	mA	$V_{CE}=5V$ $E_e=1mW /cm^2$
Rise Time	$t_r$	---	15	---	$\mu S$	$V_{CE}=5V$ $I_C=1mA$ $R_L=1000\Omega$
Fall Time	$t_f$	---	15	---		

Typical Electrical/Optical/Characteristics Curves



## ● Precautions For Use

### 1. Over-current-proof

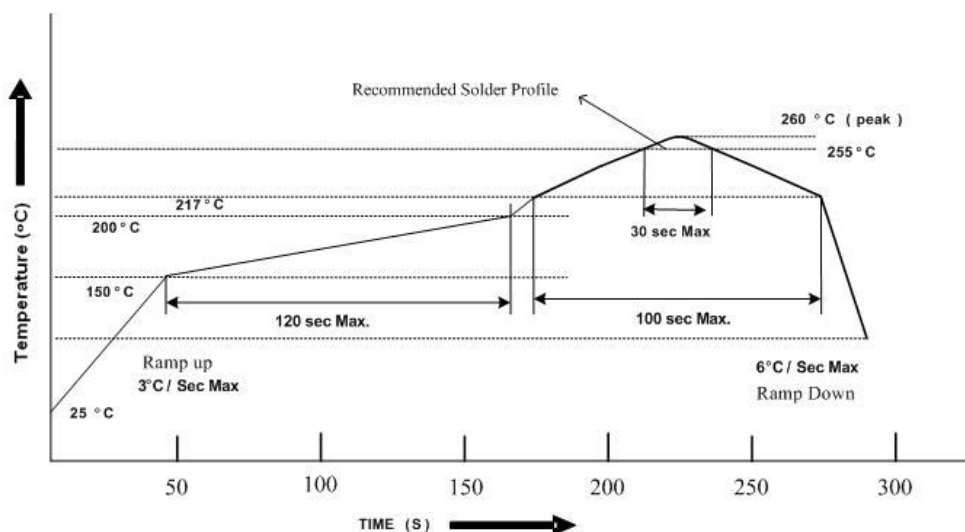
Customer must apply resistors for protection , otherwise slight voltage shift will cause big current change ( Burn out will happen ).

### 2. Storage

- 2.1 Do not open moisture proof bag before the products are ready to use.
- 2.2 Before opening the package, the LEDs should be kept at 30°C or less and 90%RH or less.
- 2.3 The LEDs should be used within a year.
- 2.4 After opening the package, the LEDs should be kept at 30°C or less and 60%RH or less.
- 2.5 The LEDs should be used within 168 hours (7 days) after opening the package.
- 2.6 If the moisture absorbent material (silica gel) has faded away or the LEDs have exceeded the storage time, baking treatment should be performed using the following conditions.  
Baking treatment : 60±5°C for Min 24 hours.

### 3. Soldering Condition

#### 3.1 Pb-free solder temperature profile



3.2 Reflow soldering should not be done more than two times.

3.3 When soldering, do not put stress on the LEDs during heating.

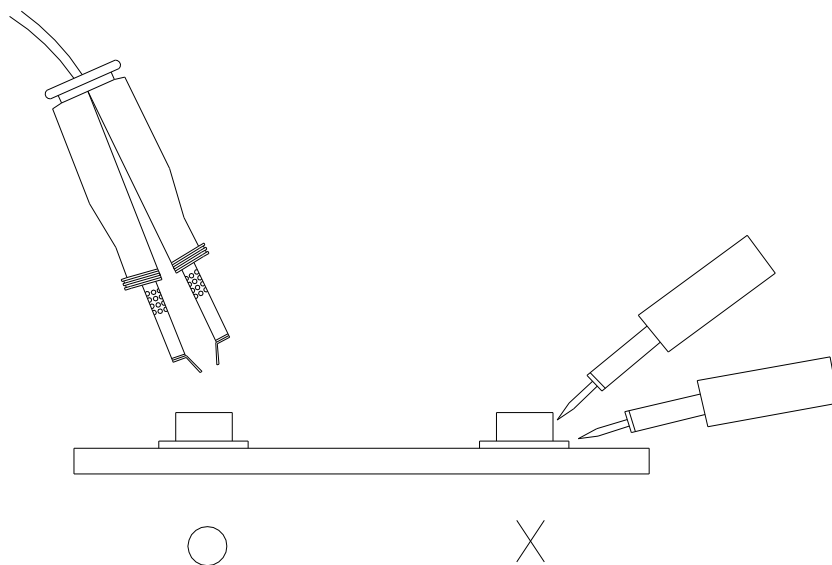
3.4 After soldering, do not warp the circuit board.

#### 4. Soldering Iron

Each terminal is to go to the tip of soldering iron temperature less than 350°C for 3 seconds within once in less than the soldering iron capacity 25W. Leave two seconds and more intervals, and do soldering of each terminal. Be careful because the damage of the product is often started at the time of the hand solder.

#### 5. 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.



## Packing Quantity Specification

1000PCS/1Bag

## Label Form Specification

The diagram shows a rectangular label with the following elements:

- EVERLIGHT AMERICA** logo at the top center.
- RoHS** logo at the top right.
- Fields for **CPN: XXXXXXXXXX**, **P/N: XXXXXXXXXX**, **QTY: XXXX**, **LOT NO: XXXXXXXXXXXXXXXXXXXX**, and **REFERENCE: XXXXXXXXXX**.
- Fields for **CAT: XXX**, **HUE: XXX**, and **REF: XXX**.
- Barcode for **REFERENCE: XXXXXXXXXX**.
- MADE IN TAIWAN** at the bottom.

CPN: Customer's Production Number

P/N : Production Number

QTY: Packing Quantity

CAT: Ranks

HUE: Peak Wavelength

REF: Reference

LOT No: Lot Number

MADE IN TAIWAN: Production Place

## 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.
3. These specification sheets include materials protected under copyright of Everlight Americas corporation. Please don't reproduce or cause anyone to reproduce them without Everlight Americas's consent.