Luckylight

1.40mm Height 1206 Package With Inner Lens

Phototransistor

Technical Data Sheet

Part No.: S350PTC-1A

Features:

- ◇ Fast response time.
- ◇ High photo sensitivity.
- ◇ Small junction capacitance.
- ◇ Package in 8mm tape on 7” diameter reel.
- ◇ The product itself will remain within RoHS compliant Version.

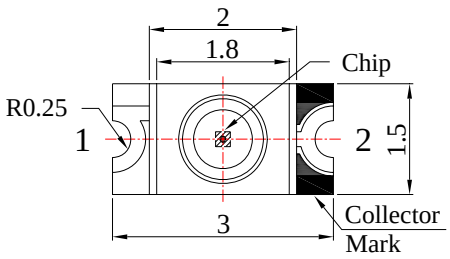
Descriptions:

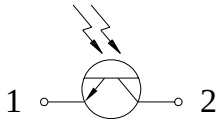
- ◇ The S350PT is a high speed and high sensitive silicon NPN phototransistor in miniature SMD package which is molded in a water clear epoxy with inner top view lens.
- ◇ Due to its water clear epoxy, the device is spectrally matched to visible and infrared emitting diode.

Applications:

- ◇ Automatic door sensor.
- ◇ Infrared applied system.
- ◇ Counters and sorters.
- ◇ Encoders.
- ◇ Floppy disk drive.
- ◇ Optoelectronic switch.
- ◇ Video camera, tape and card readers.
- ◇ Position sensors.
- ◇ Copier.
- ◇ Game machine.

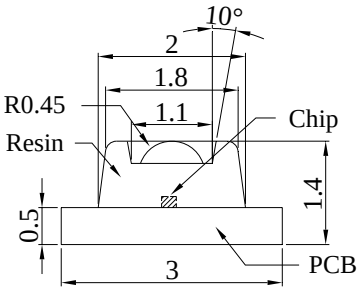
Package Dimension:

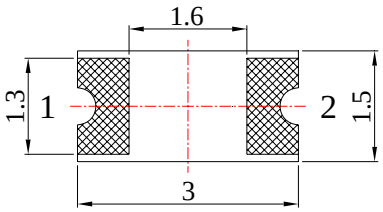




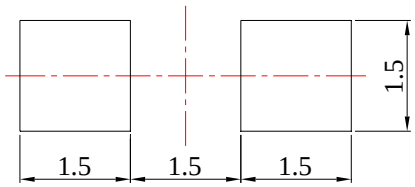
1 Emitter
2 Collector

Polarity





Recommended Soldering Pad Dimensions



Unit: mm
Tolerance: ± 0.10mm

Part No.	Chip Material	Lens Color	Source Color
S350PTC-1A	Silicon	Water Clear	Phototransistor

Notes:

1. All dimensions are in millimeters (inches).
2. Tolerance is ± 0.10 mm (.004″) unless otherwise specified.
3. Specifications are subject to change without notice.

Absolute Maximum Ratings (Ta=25°C)

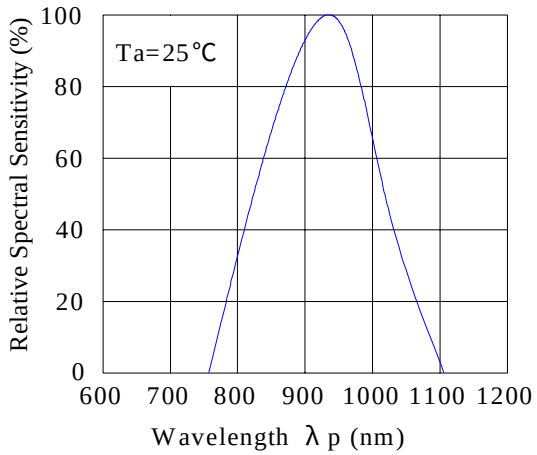
Parameters	Symbol	Rating	Unit
Power Dissipation At (or below) 25°C free Air Temperature	P_D	75	mW
Collector-Emitter Voltage	V_{CEO}	30	V
Emitter-Collector-Voltage	V_{ECO}	5	V
Collector Current	I_C	20	mA
Operating Temperature	Topr	-40°C to +80°C	
Storage Temperature	Tstg	-40°C to +85°C	
Soldering Temperature	Tsol	260°C for 5 Seconds	

Electrical Optical Characteristics at Ta=25°C

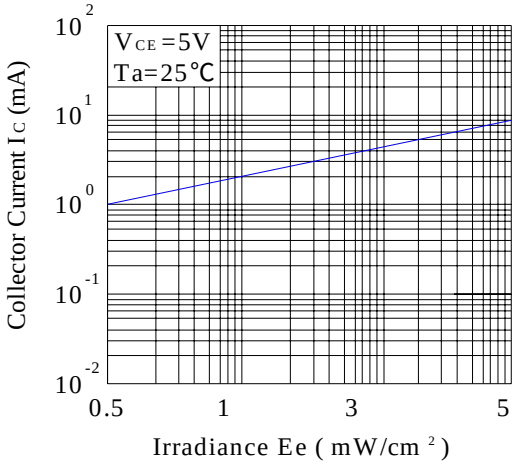
Parameters	Symbol	Min.	Typ.	Max.	Unit	Condition
Collector-Emitter Breakdown Voltage	BV_{CEO}	30	---	---	V	I_C=100μA, Ee=0mW/cm²
Emitter-Collector Breakdown Voltage	BV_{ECO}	5	---	---	V	I_E=100μA, Ee=0mW/cm²
Collector-Emitter Saturation Voltage	$V_{CE(SAT)}$	---	---	0.40	V	I_C=2mA, Ee=1mW/cm²
Collector Dark Current	I_{CEO}	---	---	100	nA	V_{CE}=20V, Ee=0mW/cm²
On State Collector Current	$I_{C(ON)}$	0.30	0.80	---	mA	V_{CE}=5V, Ee=1mW/cm²
Optical Rise Time (10% to 90%)	T_R	---	15	---	μs	V_{CE}=5V, I_C=1mA, R_L=1000Ω
Optical Fall Time (90% to 10%)	T_F	---	15	---		
Reception Angle	$2\theta_{1/2}$	---	60	---	Deg	
Wavelength Of Peak Sensitivity	λP	---	940	---	nm	
Rang Of Spectral Bandwidth	λ0.5	400	---	1100	nm	

Typical Electrical / Optical Characteristics Curves
(25℃ Ambient Temperature Unless Otherwise Noted)

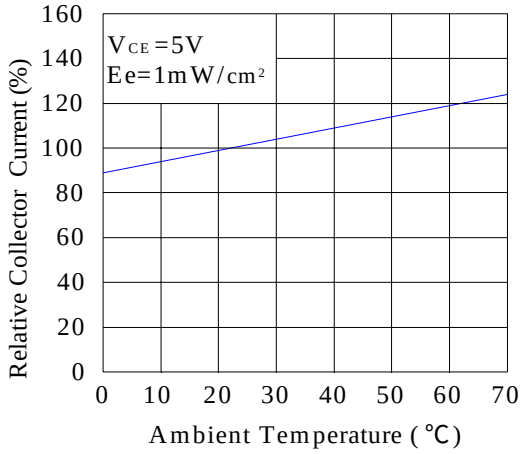
Spectral Sensitivity



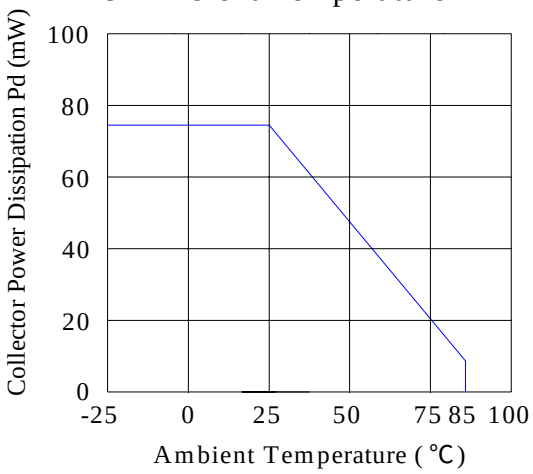
Collector Current & Irradiance



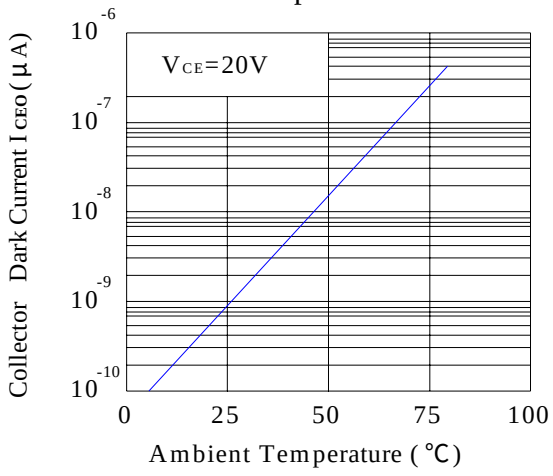
Relative Collector Current & Ambient Temperature



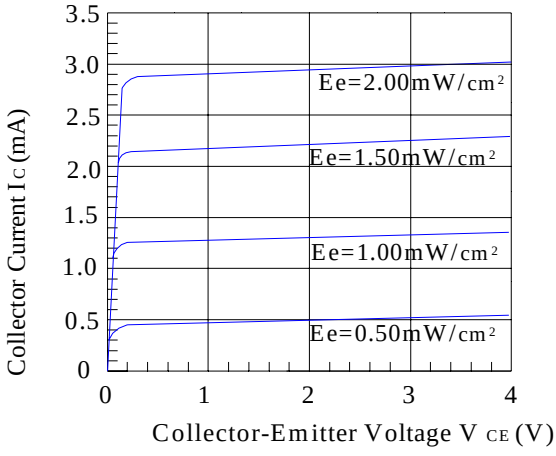
Collector Power Dissipation & Ambient Temperature



Collector Dark Current & Ambient Temperature



Collector Current & Collector-Emitter Voltage



Reliability Test Item And Condition:

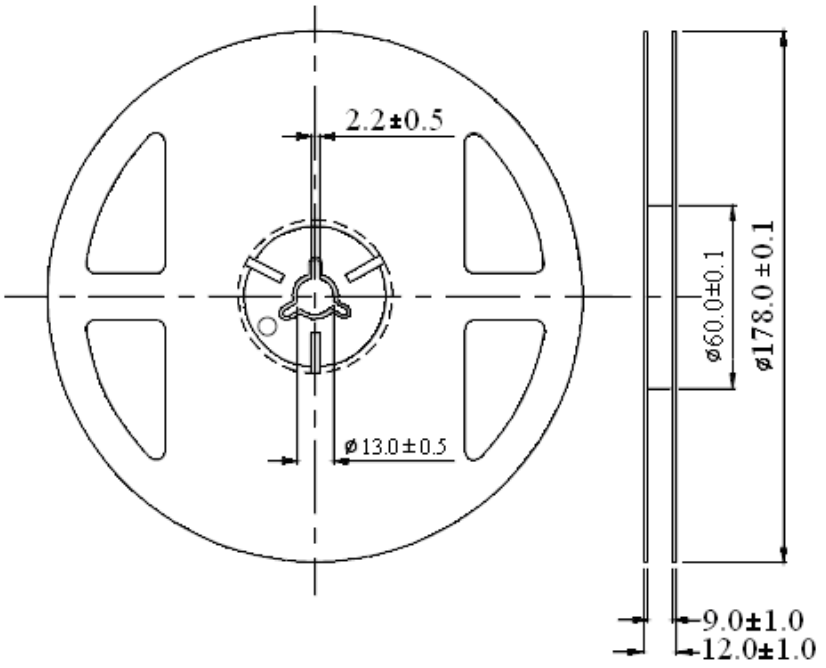
The reliability of products shall be satisfied with items listed below:

Confidence level: 90%.

LTPD: 10%.

No.	Item	Test Conditions	Test Hours/ Cycles	Sample Sizes	Failure Judgment Criteria	Ac/ Re
1	Reflow Soldering	TEMP.: 260°C±5°C 5secs	6mins	22pcs	$I_{C(ON)} \leqq L \times 0.8$ L: Lower Specification Limit	0/1
2	Temperature Cycle	H: +100°C 15mins ↕ 5 mins L: -40°C 15mins	50Cycles	22pcs		0/1
3	Thermal Shock	H: +100°C 15mins ↕ 10secs L: -10°C 5mins	50Cycles	22pcs		0/1
4	High Temperature Storage	TEMP.: +100°C	1000hrs	22pcs		0/1
5	Lower Temperature Storage	TEMP.: -40°C	1000hrs	22pcs		0/1
6	DC Operating Life	V_{CE}=5V	1000hrs	22pcs		0/1
7	High Temperature/ High Humidity	85°C / 85% R.H	1000hrs	22pcs		0/1

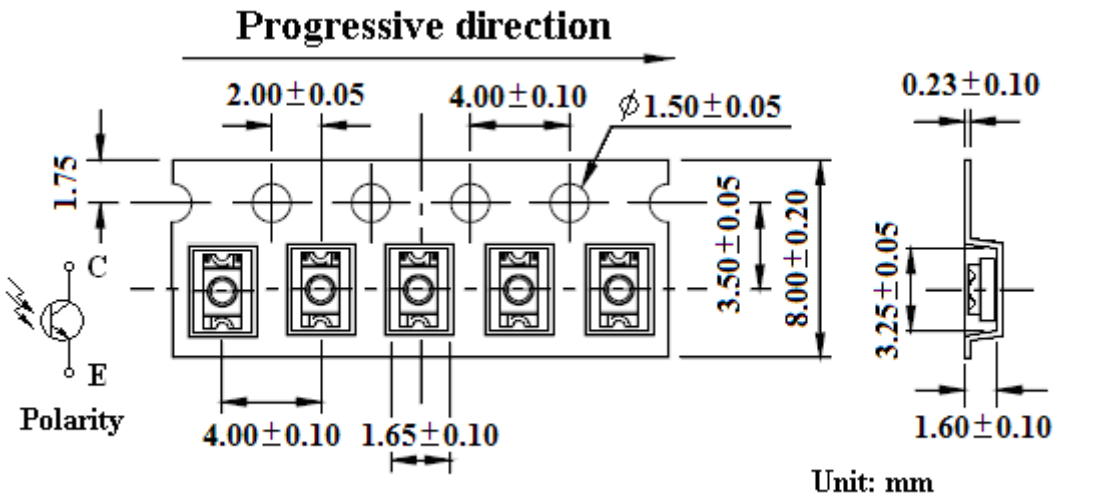
Reel Dimensions:



Unit: mm
Tolerance: ±0.25mm

Carrier Tape Dimensions:

Loaded quantity 2000 PCS Per reel.



Unit: mm
Tolerance: ±0.10mm

Please read the following notes before using the product:

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℃ or less and 80%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℃ 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 adsorbent material has fabled away or the LEDs have exceeded the storage time, baking treatment should be performed using the following conditions. Baking treatment: 60±5℃ for 24 hours.

3. Soldering Condition

When soldering, for Lamp without stopper type and must be leave a minimum of 3mm clearance from the base of the lens to the soldering point.

To avoided the Epoxy climb up on lead frame and was impact to non-soldering problem, dipping the lens into the solder must be avoided.

Do not apply any external stress to the lead frame during soldering while the LED is at high temperature.

Recommended soldering conditions:

Soldering Iron		Wave Soldering	
Temperature Soldering Time	300℃ Max. 3 sec. Max. (one time only)	Pre-heat Pre-heat Time Solder Wave Soldering Time	100℃ Max. 60 sec. Max. 260℃ Max. 5 sec. Max.

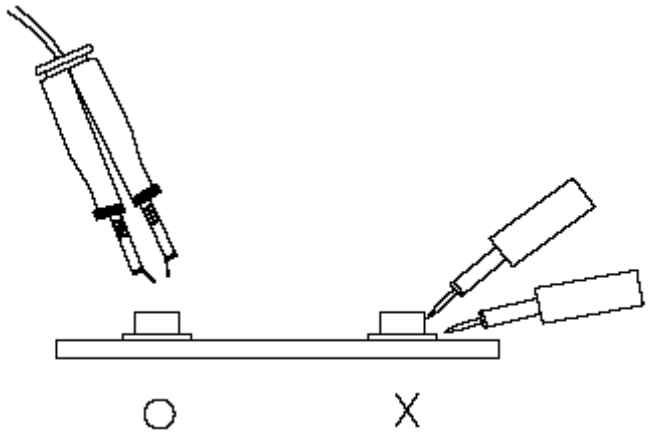
Note: Excessive soldering temperature and / or time might result in deformation of the LED lens or catastrophic failure of the LED.

4. Soldering Iron

Each terminal is to go to the tip of soldering iron temperature less than 260℃ for 5 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.



6. Caution in ESD

Static Electricity and surge damages the LED. It is recommended to use a wrist band or anti-electrostatic glove when handling the LED. All devices, equipment and machinery must be properly grounded.