

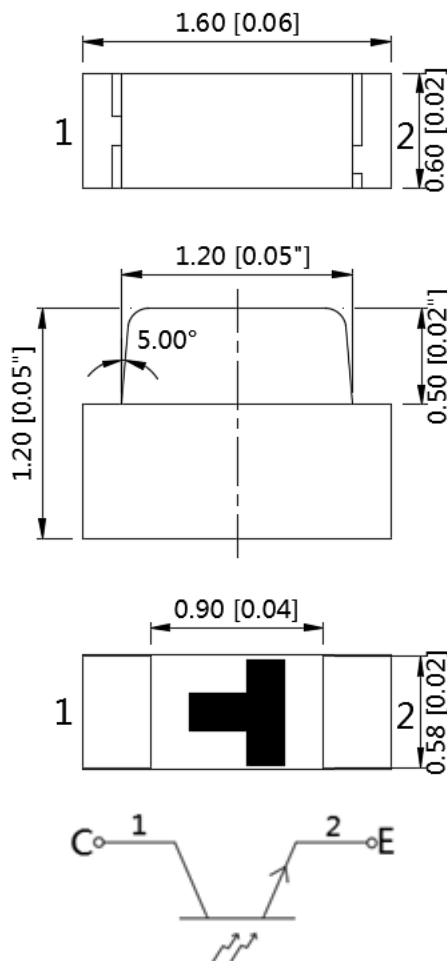
■ Features

- Meet RoHS.
- Mono-color type.
- 0602 Package in 8 mm tape on 7" diameter reels.
- Suitable for all SMT assembly methods.
- Compatible with automatic placement equipment.
- Compatible with infrared and vapor phase reflow solder process.

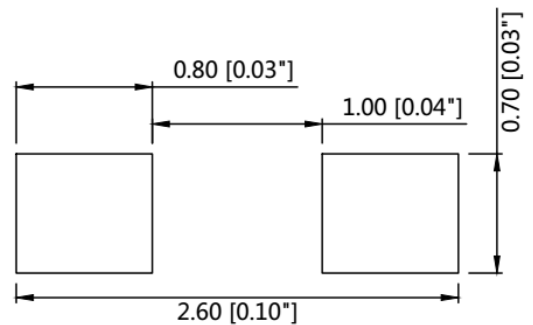
■ Typical Applications

- Automotive: Dashboards, stop lamps, turn signals.
- Backlighting: LCDs, Key pads advertising.
- Status indicators: Consumer & industrial electronics.
- General use.

■ Package Dimensions



Recommend Pad Layout



Notes:

1. All dimensions are in millimeters (inches).
2. Tolerance is $\pm 0.10\text{mm}$ (0.004') unless otherwise specified.

■ Device Selection Guide

Chip Material	Lens Color
Silicon	Black

■ Absolute Maximum Ratings at Ta=25℃:

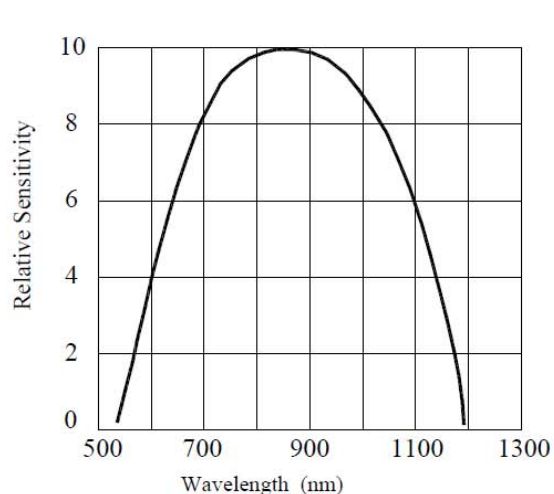
Parameter	Symbol	Maximum	Unit
Collector-emitter Voltage	Vceo	30	V
Emitter-collector Voltage	Vceo	5	V
Operating Temperature Range	Topr	-40℃ to +85℃	
Storage Temperature Range	Tstg	-40℃ to +100℃	
Lead Soldering Temperature [2.0mm from body]	Tsol	Reflow Soldering : 260 ℃ for 10 sec. Hand Soldering : 350 ℃ for 3 sec.	

■ Electrical/Optical Characteristics at Ta=25℃:

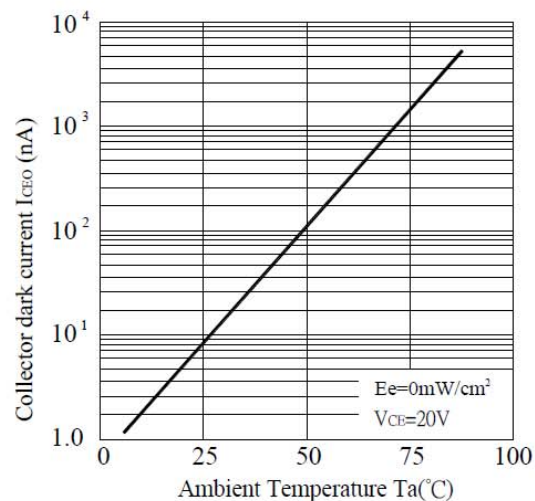
Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Collector-emitter breakdown voltage	$V_{(V)CEO}$	Ee=0mW/cm ² Ic=100μA	30	—	—	V
Emitter-collector breakdown voltage	$V_{(V)ECO}$	Ee=0mW/cm ² IE=100μA	5	—	—	V
Collector-emitter saturation voltage	$V_{(SAT)CE}$	IB=100uA IC=2mA	—	—	0.2	V
Rise time	Tr	VCE=5V Ic=1mA RL=1000	—	15	—	uS
Fall time	Tf		—	15	—	uS
Collector Dark Current	ICEO	Ee=0mW/ cm ² VCE=20V	—	—	60	nA
On State Collector Current	IC(ON)	Ee=1mW/ cm ² VCE=5V	0.4	0.6	—	mA
Peak Sensitivity Wavelength	λP	—	—	940	—	nm

■ Typical Electrical/Optical Characteristic Curves

(25°C Ambient Temperature Unless Otherwise Noted)



Spectral Sensitivity VS. Peak Wavelength



Collector Dark Current VS. Ambient Temperature

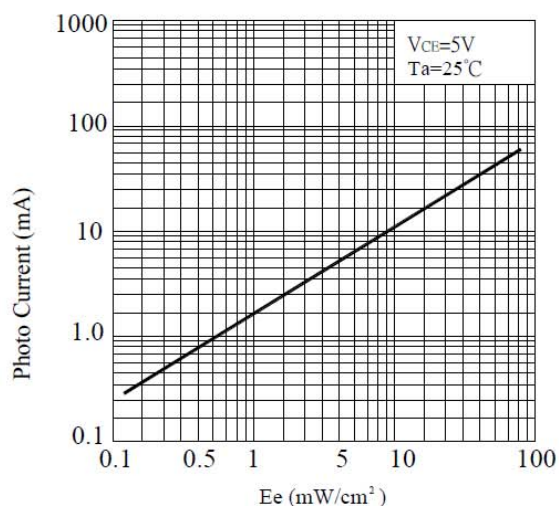
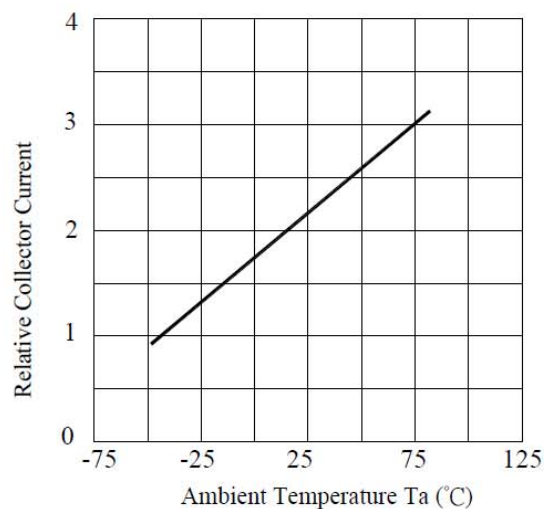


Photo current VS. Irradiance



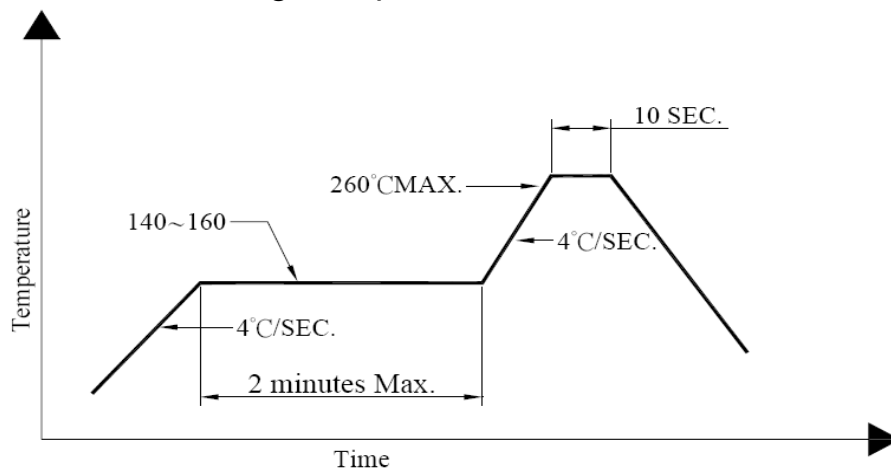
Collector Current VS. Ambient Temperature

■ Precautions :**1. Storage**

- Recommend storage environment:
Temperature: $5^{\circ}\text{C} \sim 30^{\circ}\text{C}$ ($41^{\circ}\text{F} \sim 86^{\circ}\text{F}$) Relative Humidity: 60% RH Max.
- Product in the original sealed package is recommended to be assembled within 168 hours of opening.
- 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.
 - a. Baking treatment: $60 \pm 5^{\circ}\text{C}$ for 24 hours.
 - b. Fold the opened bag firmly and keep in dry environment.

2. Cleaning

- Surface condition of this device may change when organic solvents such as trichloroethylene or acetone were applied.
- Avoid using organic solvent.
- Recommend ultrasonic method 300W Max.

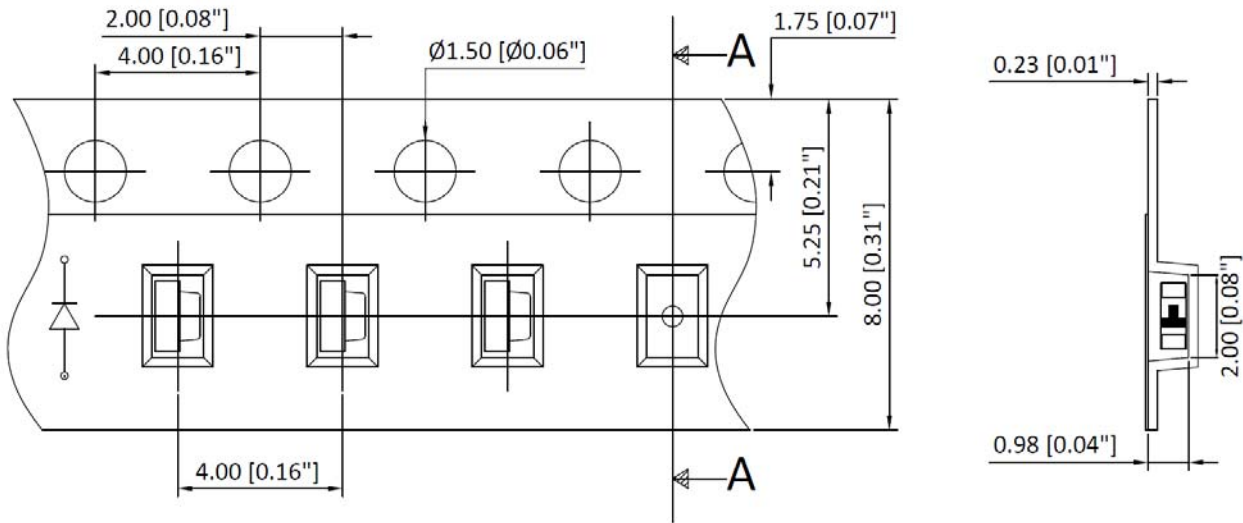
■ SMT Reflow Soldering Temp/Time:**■ Reflow soldering**

- Recommend use of upper and lower heater type reflow furnace.
- 260°C Max for up to 10 seconds, one time only.
- Pre-heat is 150°C Max for up to 2 minutes Max.
- In case of screen-printing, keep metal mask thickness between 0.2mm and 0.3mm.
- When soldering, do not put stress on the LEDs during heating.

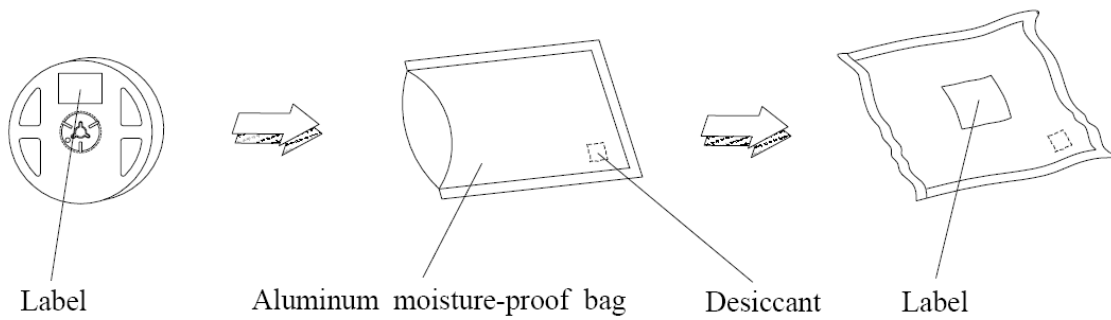
■ Soldering iron

- When hand soldering, keep the temperature of iron below less 300°C less than 3 seconds.
- The hand solder should be done only one times.

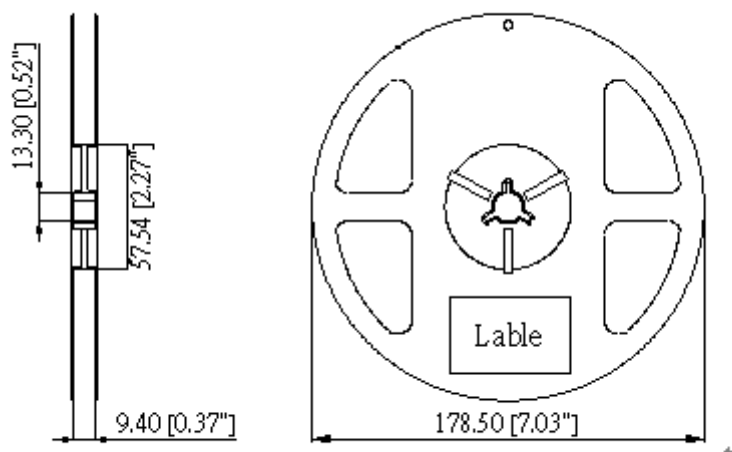
Carrier Tape Dimensions: Loaded quantity 4000 PCS per reel.



Moisture Resistant Packaging



Reel Dimensions



Notes:

1. All dimensions are in mm, tolerance is $\pm 2.0\text{mm}$ unless otherwise noted.
2. Specifications are subject to change without notice.