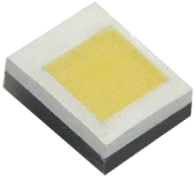


V51519W40WQZ1 Datasheet

1519 Series (L* W*H): 1.5*1.9*0.8mm



Applications

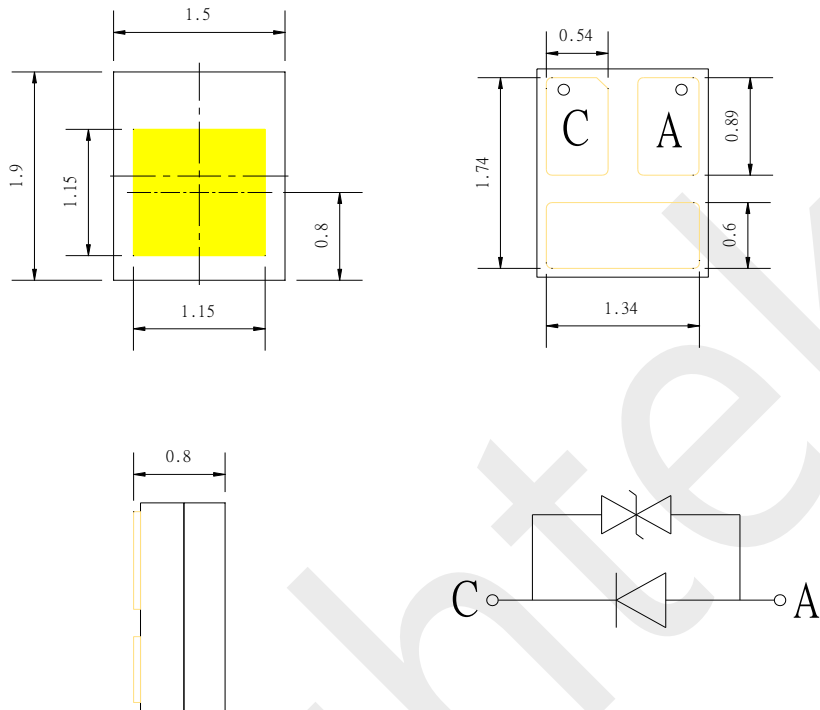
- Automotive electronics
- Others applications

Features

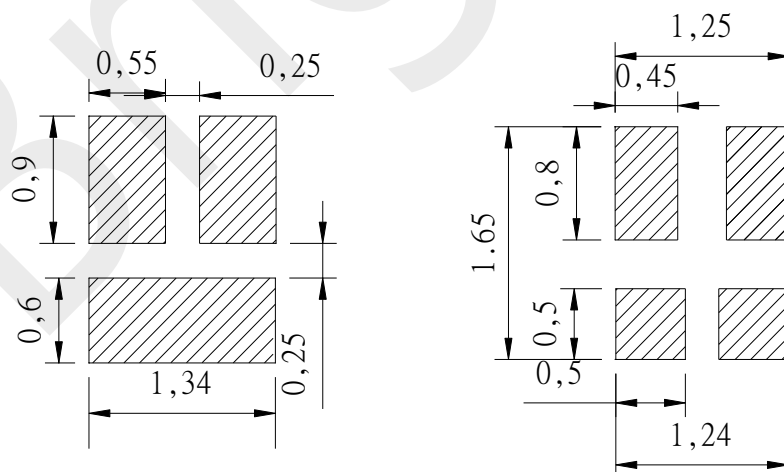
- Forward current: $\leq 1500\text{mA}$;
- Typical view angle 50% Iv: 120°
- RoHS2.0 and REACH-compliant
- Glue color: White
- Emitting color: White
- ESD level 8kV(HBM)
- Reliability Test: AEC Q-102qualified

V51519W40WQZ1

Dimensional Drawing



Recommend Pad layout



1. Dimensions are in millimeters.
2. General tolerance is ± 0.1 mm.

V51519W40WQZ1

Naming Rule

V5-1519-W40-W-Q-Z1

V5	1519	W40	W	Q	Z1
Type	Package Size	Wavelength	Glue Color	Condition Code	Serial Number
V5: Automotive	1519: 1.5* 1.9mm	Wxx: white	W: No request	Q: 1000mA	Z: Zener 1: Serial number

Maximum Ratings

T_A : 25 °C

Parameter	Symbol	Values	Unit
Forward current	I _F	max. 1500	mA
Pulse forward current	I _{PF}	max. 3000	mA
Power Dissipation	P _D	max. 5700	mW
Reverse voltage	V _R	max. 5	V
Junction temperature	T _j	max. 150	°C
Operating temperature	T _{op}	min. -40	°C
		max. 125	
Storage temperature	T _{stg}	min. -40	°C
		max. 125	
Soldering temperature	T _{SD}	max. 260	°C
Thermal Resistance Junction/ Solder Point	R _{THJ-S}	max. 10	°C /W
Thermal Resistance Junction/Ambient Point	R _{THJ-A}	max. 15	°C /W

1. There is no maximum or typical voltage parameter.
2. For other ambient, limited setting of current will be depended on de-rating curves.
3. Duty 1/10, pulse width 0.1ms.
4. The maximum of soldering time is 10 seconds in T_{SD}.

V51519W40WQZ1

Characteristics

IF : 1000mA | TA : 25 °C

Parameter	Symbol		Values	Unit
Color Coordinate	Cx/Cy		0.3230	
			0.3400	
View angle	$2\theta_{1/2}$	typ.	120	°
Luminous Flux	Φ_V	min.	360	lm
		typ.	400	
		max.	420	
Forward voltage	V_F	min.	3.2	V
		typ.	3.5	
		max.	3.8	
Reverse current ($V_R=5V$)	I_R	max.	10	μA

1. Tolerance of Measure:

Forward Voltage: $\pm 0.1V$, Luminous Flux: $\pm 10\%Lm$, Color Coordinate ± 0.005

V51519W40WQZ1

Bin groups

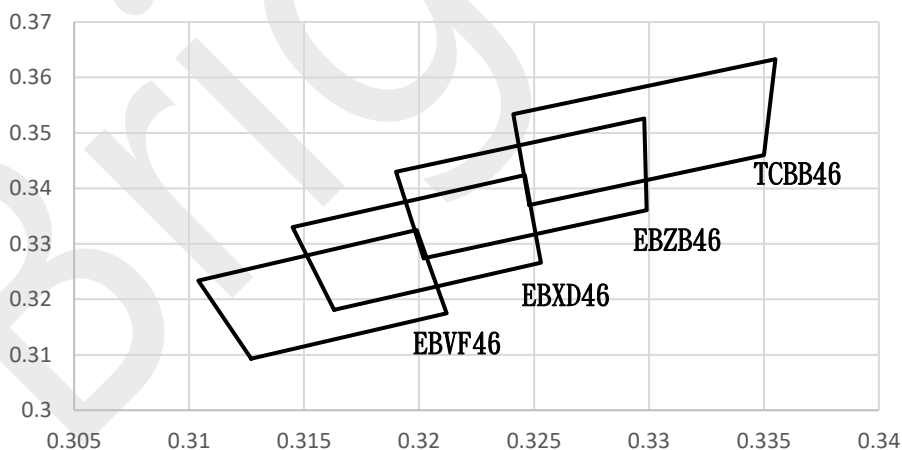
1. Luminous Flux (IF=1000mA)

Group		Values	Unit
	min.	360	lm
	max.	380	
	min.	380	
	max.	400	
	min.	400	
	max.	420	

2. Forward Voltage (IF=1000mA)

Group		Values	Unit
	min.	3.2	V
	max.	3.4	
	min.	3.4	
	max.	3.6	
	min.	3.6	
	max.	3.8	

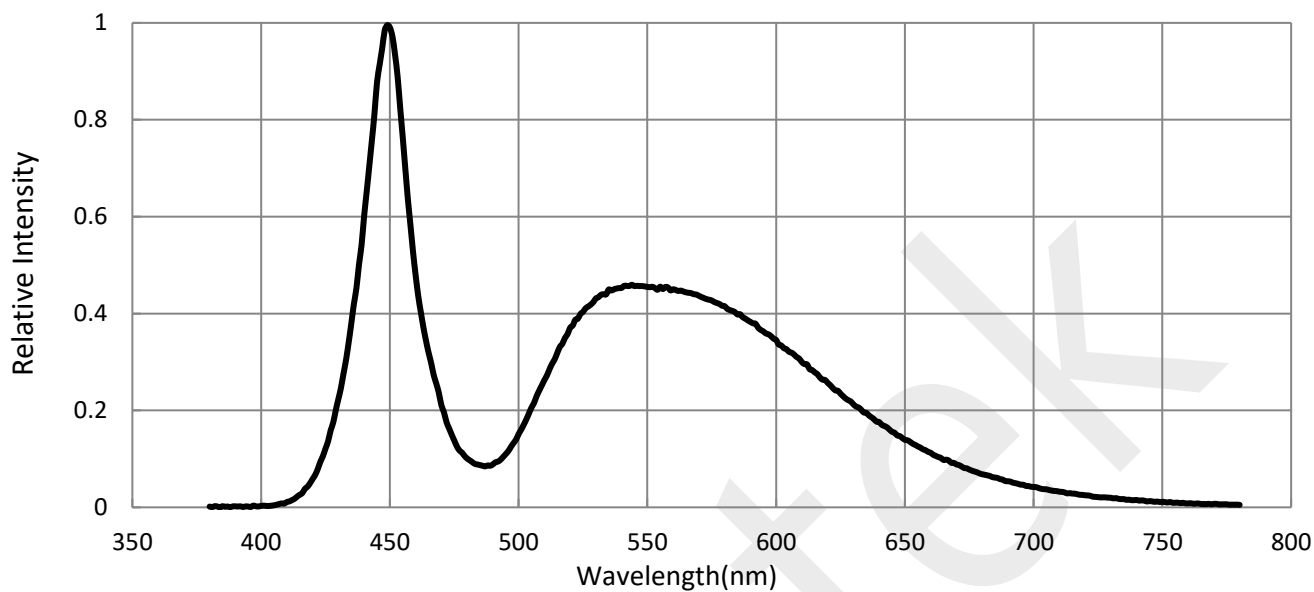
3. Chromaticity Coordinate Groups



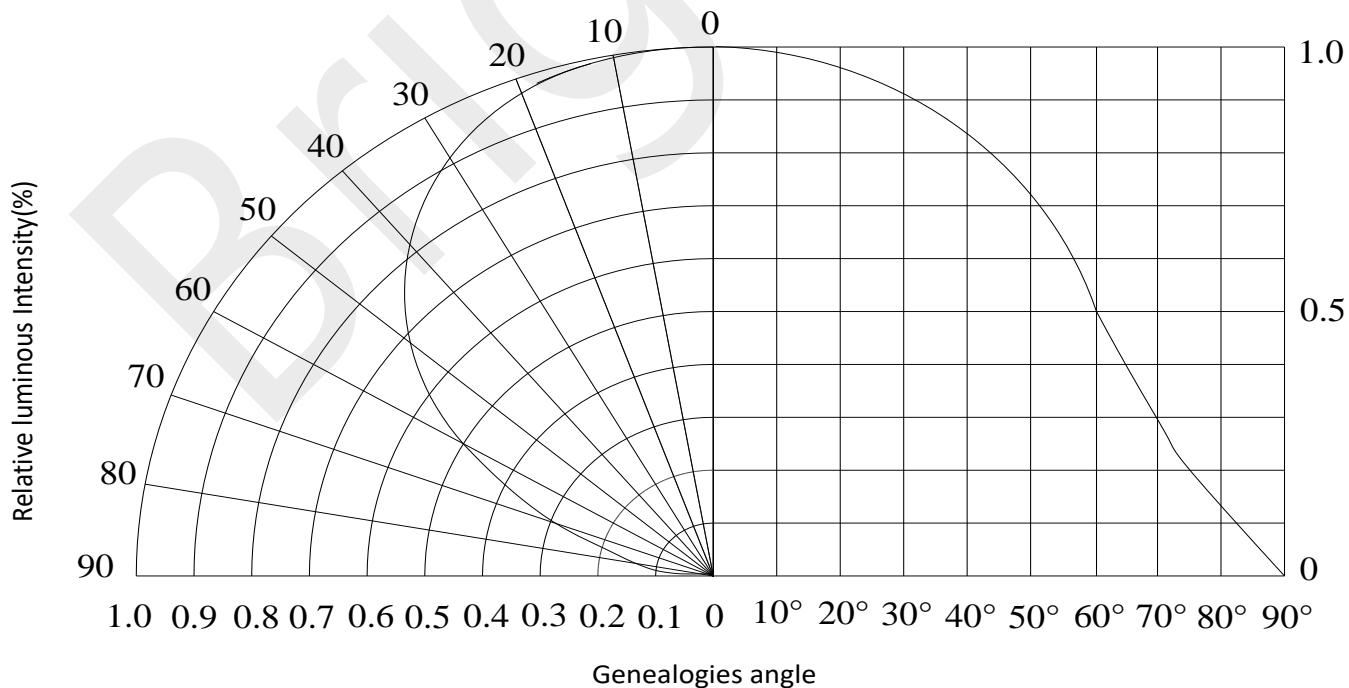
Group								
BIN	x	y	x	y	x	y	x	y
EBVF46	0.3127	0.3093	0.3212	0.3175	0.3199	0.3325	0.3104	0.3234
EBZB46	0.3202	0.3274	0.3299	0.3361	0.3298	0.3526	0.319	0.343
EBXD46	0.3163	0.3181	0.3253	0.3266	0.3246	0.3424	0.3145	0.333
TCBB46	0.3248	0.337	0.335	0.346	0.3355	0.3633	0.3241	0.3534

V51519W40WQZ1

Relative Spectral Power Distribution



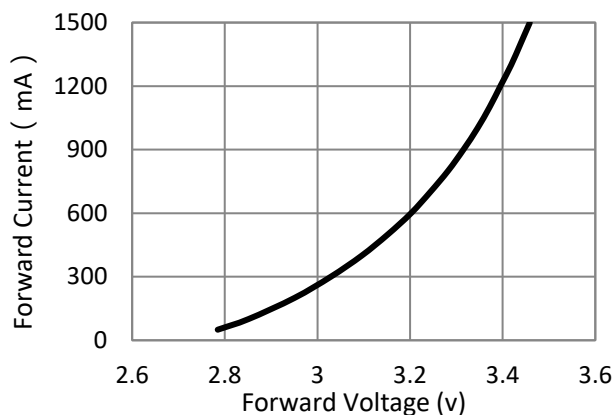
Typical Diagram Characteristics of Radiation



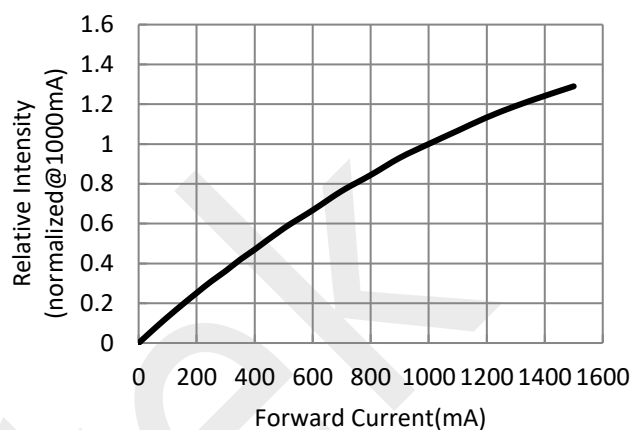
V51519W40WQZ1

Electronic-Optical Characteristics

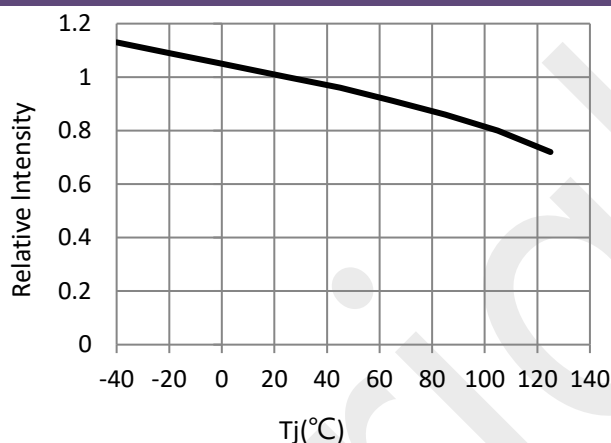
Forward Current vs. Forward Voltage



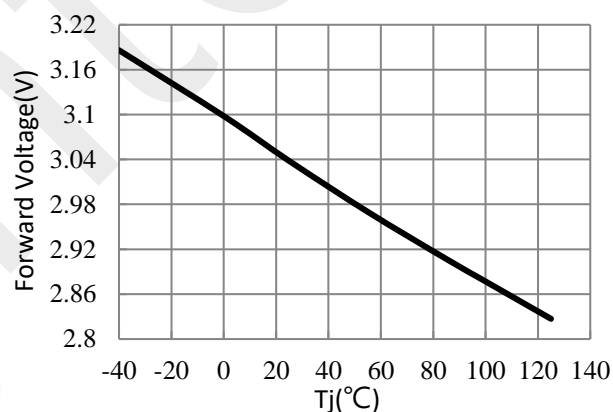
Relative Intensity vs. Forward Current



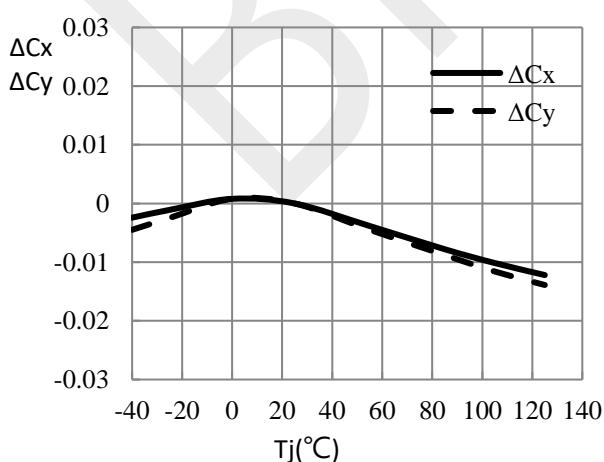
Relative Luminous Flux vs. Solider Temperature



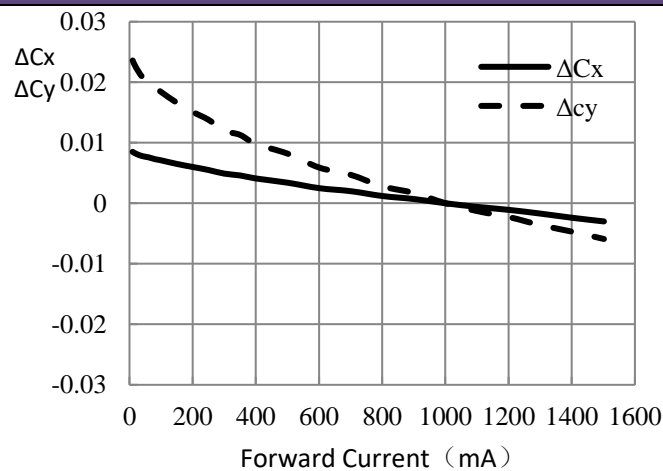
Forward Voltage vs. Solider Temperature



Chromaticity Coordinate Shift vs. Solider Temperature

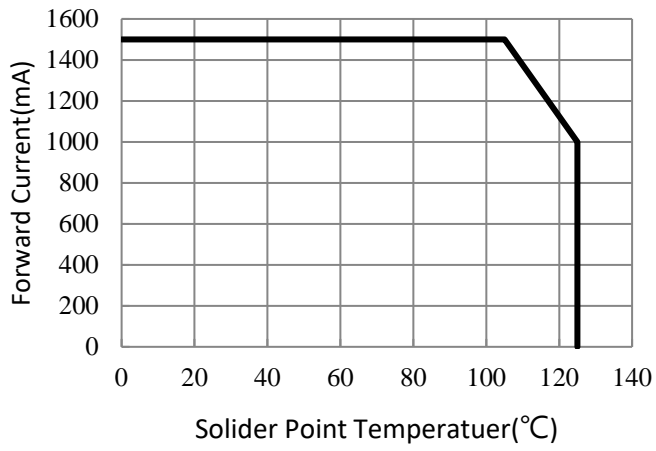


Chromaticity Coordinate Shift vs. Forward Current



V51519W40WQZ1

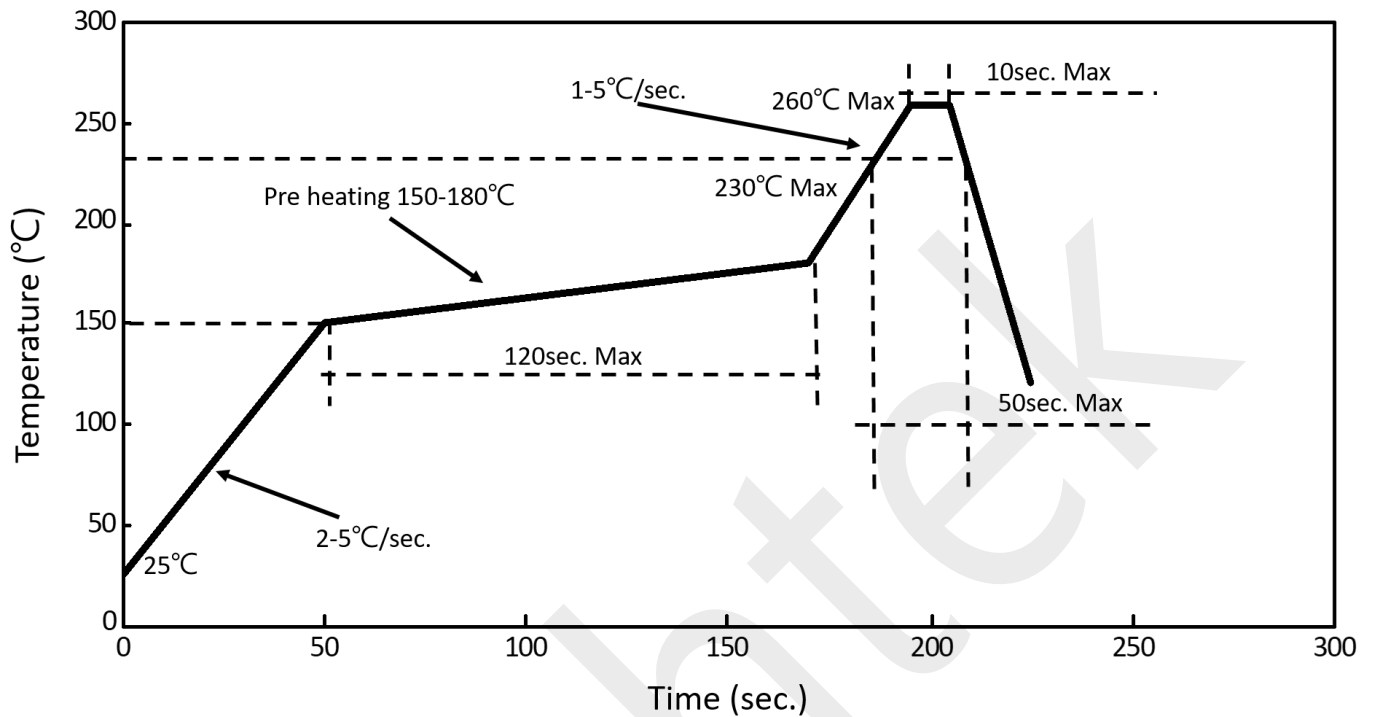
Thermal Design for De-rating



Brightek

V51519W40WQZ1

Reflow Soldering Profile

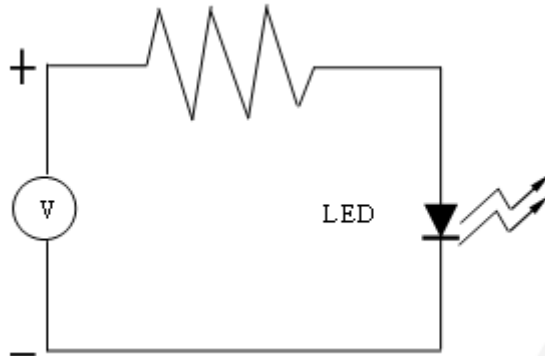


1. We recommend the reflow temperature 240°C ($\pm 5^\circ\text{C}$).the maximum soldering temperature should be limited to 260°C.
2. Do not stress the silicone resin while it is exposed to high temperature.
3. The reflow process should not exceed 2 times.

V51519W40WQZ1

Test Circuit and Handling Precautions

1. Test circuit



2. Handling precautions

2.1 Over-current-proof

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

2.2 Storage

- ① It is recommended to store the products in the following conditions:
 - Humidity: 60% R.H. Max.
 - Temperature : $5^{\circ}\text{C}\sim 30^{\circ}\text{C}$ ($41^{\circ}\text{F}\sim 86^{\circ}\text{F}$)
- ② Shelf life in sealed bag: 12 month at $< 5^{\circ}\text{C}\sim 30^{\circ}\text{C}$ and $< 60\%$ R.H. after the package is Opened, the products should be used within 4 weeks or they should be keeping to storage at $\leq 20\%$ R.H. with zip-lock sealed.

2.3 Baking

Suggest packing open after 4 weeks, before use baking products, conditions as follows:

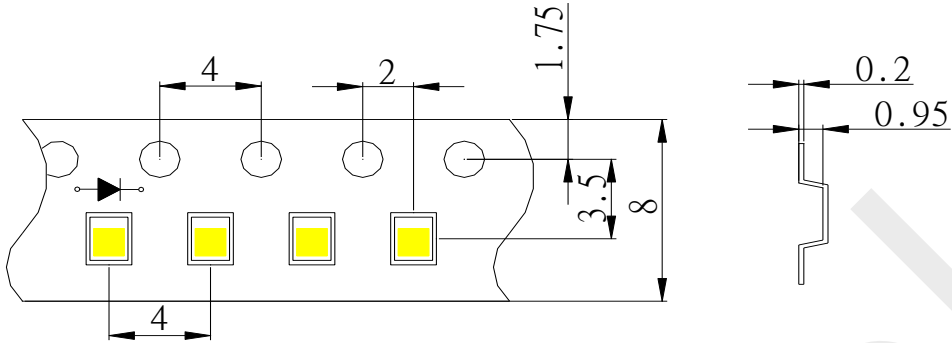
- ① $60\pm 3^{\circ}\text{C}$ X 6hrs and $< 5\%$ RH, for reel
- ② $125\pm 3^{\circ}\text{C}$ X 2hrs, for single LED

It shall be normal to see slight color fading of carrier (light yellow) after baking in process.

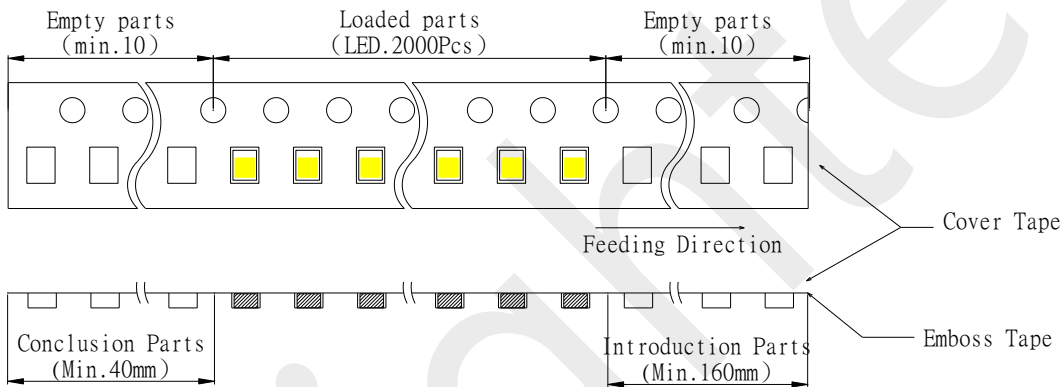
V51519W40WQZ1

Tapping

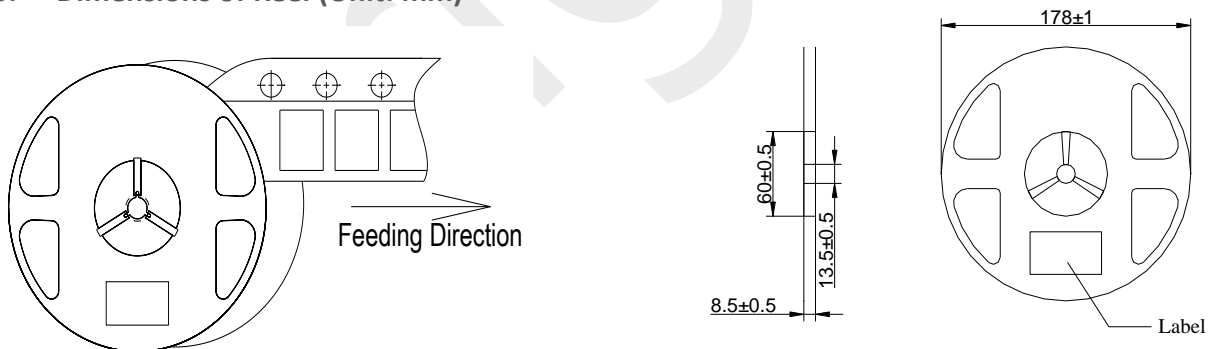
1. Dimensions of Tape (Unit: mm)



2. Arrangement of Tape



3. Dimensions of Reel (Unit: mm)

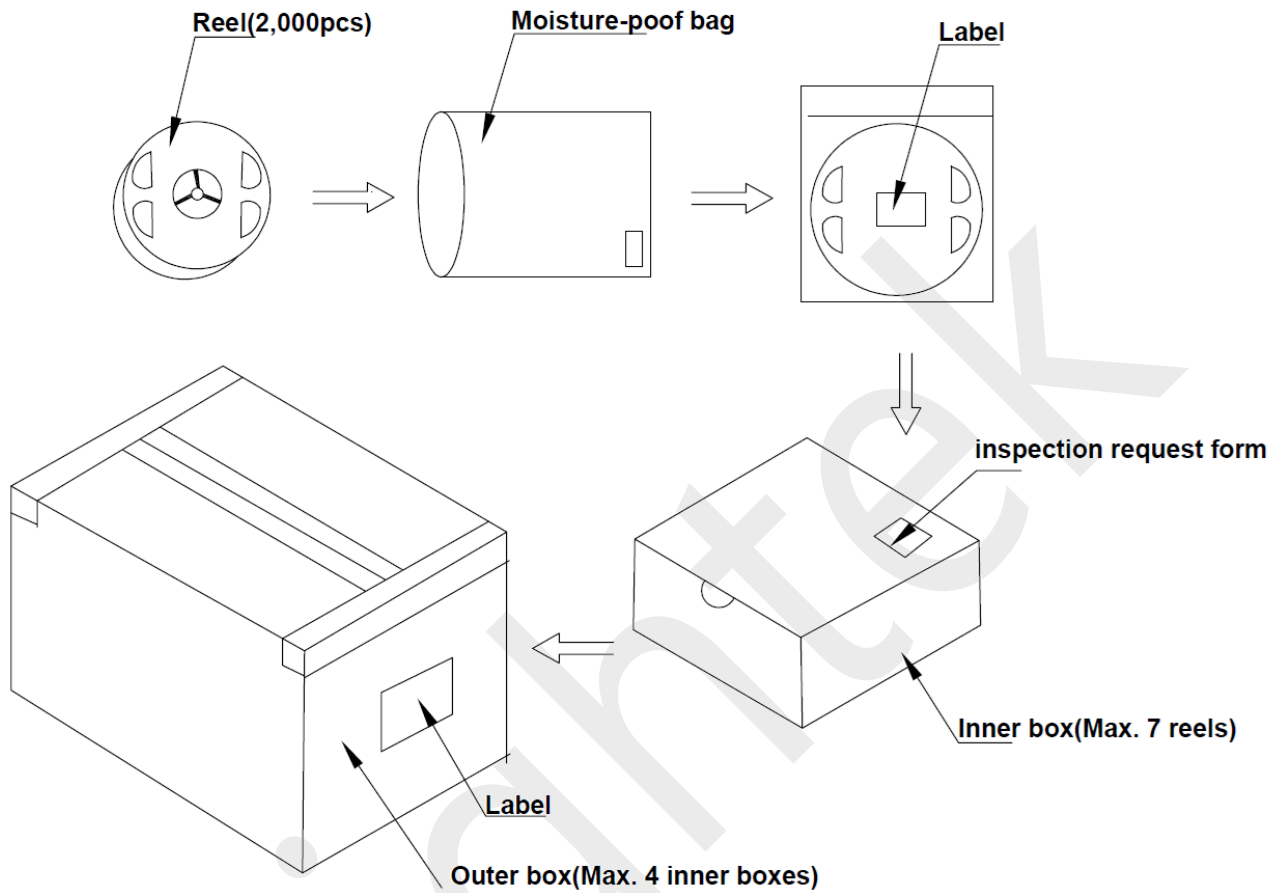


Notes:

1. Empty component pockets are sealed with top cover tape
2. The cathode is oriented towards the tape sprocket hole in accordance with ANSI/EIA RS-481 specifications
3. 2,000pcs per reel
4. The remainder packing in multiples of 500pcs.

V51519W40WQZ1

Packing



Reeled product (max.2,000) is packed in a sealed moisture-proof bag. Seven bags are packed in an inner box (size: about 260 X 230 X 100 mm) and four inner boxes are in an outer box (size: about 480 X 275 X 215 mm). On the label of moisture-proof bag, there should be the information of Part No., Lot No. and quantity number; also the total quantity number should be on inspection request form on outer box

Precautions

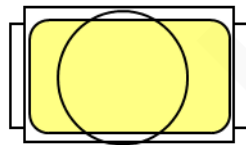
1. Abnormal situation caused by improper setting of collet

To choose the right collet is the key issue in improving the product's quality. LED is different from other electronic components, which is not only about electrical output but also for optical output. This characteristic made LED more fragile in the process of SMT. If the collet's lowering down height is not well set, it will bring damage to the gold wire at the time of collet's picking up and loading which will cause the LED fail to light up, light up now and then or other quality problems.

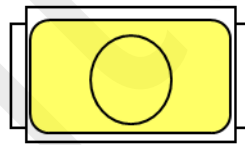
2. How to choose the collet

During SMT, please choose the collet that has larger outer diameter than the lighting area of lens, in case that improper position of collet will damage the gold wire inside the LED. Different collets fit for different products, please refer to the following pictures cross out.

Outer diameter of collet should be larger than the lighting area



Picture 1 (✓)



Picture 2 (X)

3. Other points for attention

- No pressure should be exerted to the epoxy shell of the SMD under high temperature.
- Do not scratch or wipe the lens since the lens and gold wire inside are rather fragile and cross out easy to break.
- LED should be used as soon as possible when being taken out of the original package, and should be stored in anti-moisture and anti-ESD package.

4. This usage and handling instruction is only for your reference.