BRIGHTEK

BRIGHTEK (EUROPE) LIMITED

Brighten Up The World With LED !

ISO/TS 16949:2009 BS EN ISO 14001:2004 QC 080000 IECQ HSPM

PRODUCT DATASHEET

ATTENTION
OBSERVE PRECAUTIONS FOR HANDLING ELECTROSTATIC SENSITIVE DEVICES

- ▶ Ceramic High Power
- ▶ 3535 2.3t Series
- ▶ Infrared (850nm)

Release Date: 24 November 2016 Version: A1.0

N0F28S85BF

3535 2.3t Series

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RoHS Compliant

FEATURES:

- **Package:** Black Ceramic SMT Package with Silicon Lens
- **Forward Current:** 1000~1200mA
- **Forward Voltage (typ.):** 3.4V
- **Radiant Power (typ.):** 1300mW@1A
- **Colour:** Infrared (IR)
- **Wavelength:** 840-870nm
- **Viewing angle:** 90°
- **Materials:**
  - Die: AlGaAs
  - Resin: Silicon (Water Clear)
  - L/T Finish: Ag plated
- **Operating Temperature:** -40~+85°C
- **Storage Temperature:** -40~+100°C
- **Grouping parameters:**
  - Forward Voltage
  - Radiant Power
  - Dominant Wavelength
- **Soldering methods:** Reflow
- **Preconditioning:** MSL2 according to J-STD020
- **Packing:** 12mm tape with 100pcs Min./reel, ø180mm (7'')

APPLICATIONS:

- Security Camera
- Motion Detection
- Night Viewer
- Surveillance

CHARACTERISTICS:

Absolute Maximum Characteristics (Ta=25°C)

Parameter	Symbol	Ratings	Unit
DC Forward Current	I_F	1200	mA
Reverse Voltage	V_R	5	V
Reverse Current @5V	I_R	10	μA
Junction Temperature	T_j	125	°C
Thermal Resistance Junction to Solder Point	R_{th}	11	°C/W
Electrostatic Discharge (HBM: MIL-STD-883 C 2)	ESD	2000	V
Operating Temperature	T_{OPR}	-40~+85	°C
Storage Temperature	T_{STG}	-40~+100	°C
Soldering Temperature	T_{SOL}	260	°C

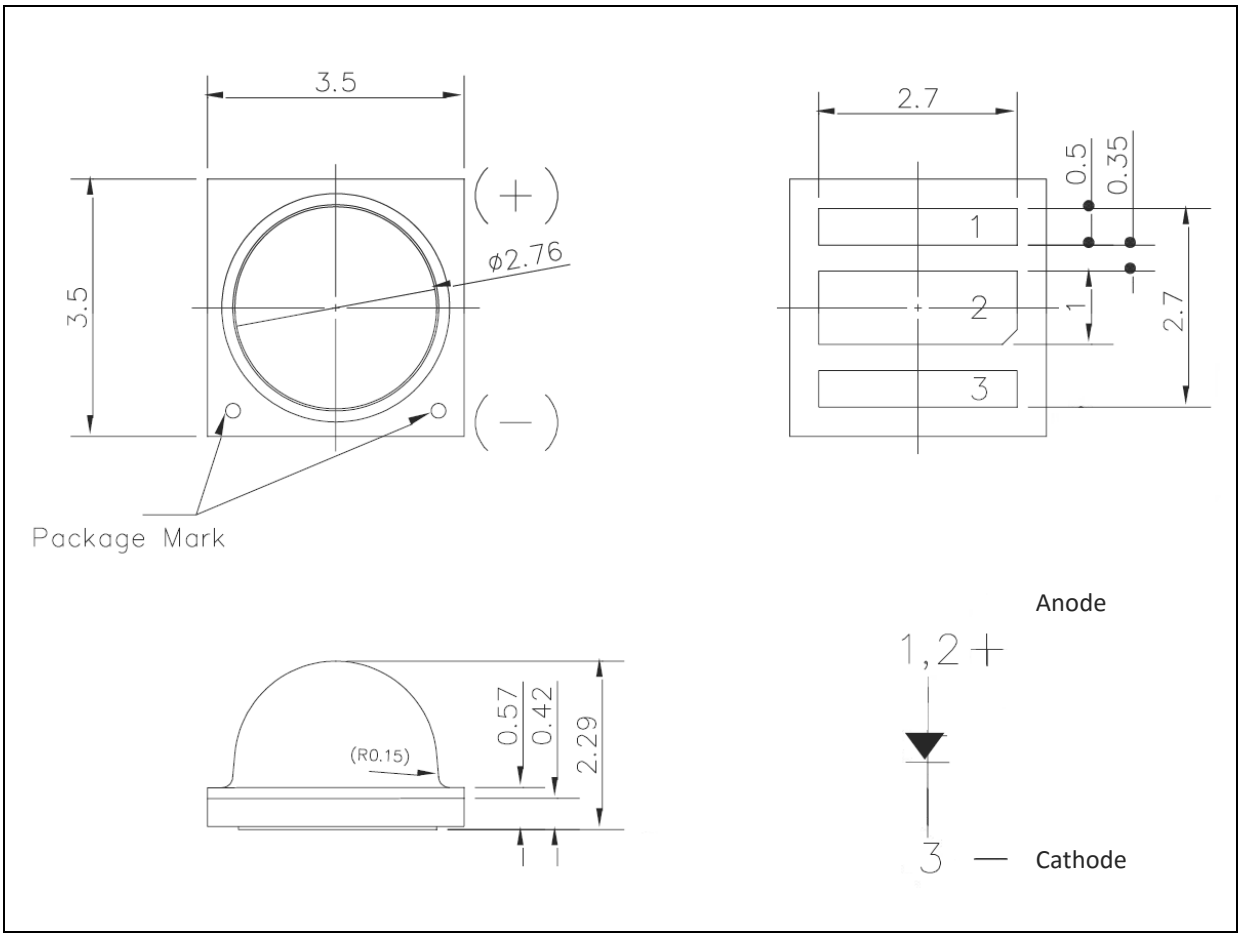
Electrical & Optical Characteristics (Ta=25°C)

Parameter	Symbol	Values			Unit	Test Condition
		Min.	Typ.	Max.		
Forward Voltage	V_F	3.0	---	3.8	V	I_F=1A
Radiant Power	P_O	1000	---	1500	mW	I_F=1A
Dominant Wavelength	λ_D	840	---	870	nm	I_F=1A
Viewing Angle	$2\theta_{1/2}$	---	90	---	deg	I_F=1A

1. Radiant Power (P_O) ±7%, Forward Voltage (V_F) ±0.05V, Viewing angle($2\theta_{1/2}$) ±10°
2. IS standard testing

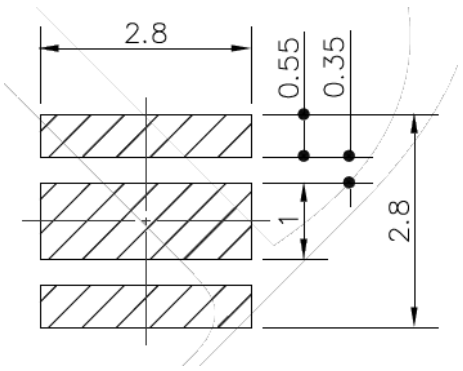
OUTLINE DIMENSION:

Package Dimension:

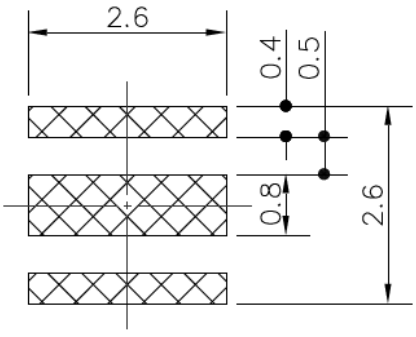


1. All dimensions are in millimetre (mm).
2. Tolerance ±0.13mm, unless otherwise noted.

Recommended Soldering Pad Dimension:



Recommended PCB Solder Pad



Recommended Stencil Pattern

1. Dimensions are in millimetre (mm).
2. Tolerance ±0.12mm with angle tolerance ±0.5°.

BINNING GROUPS:

Forward Voltage Classifications (I_F = 1A):

Code	Min.	Max.	Unit
V3032	3.0	3.2	V
V3234	3.2	3.4	
V3436	3.4	3.6	
V3638	3.6	3.8	

Radiant Power Classifications (I_F = 1A):

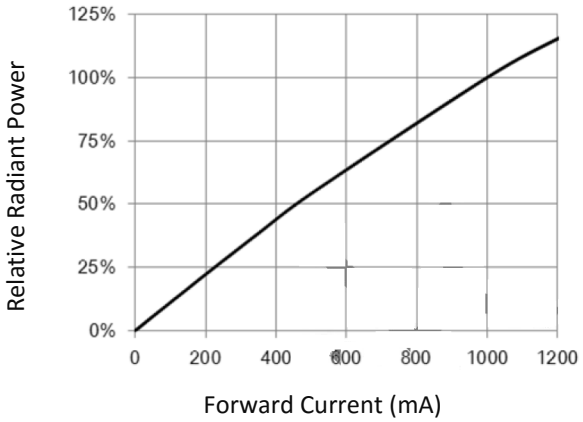
Code	Min.	Max.	Unit
PB0	1000	1100	mW
PB1A	1100	1300	
PB3A	1300	1500	

Dominant Wavelength Classifications (I_F = 1A):

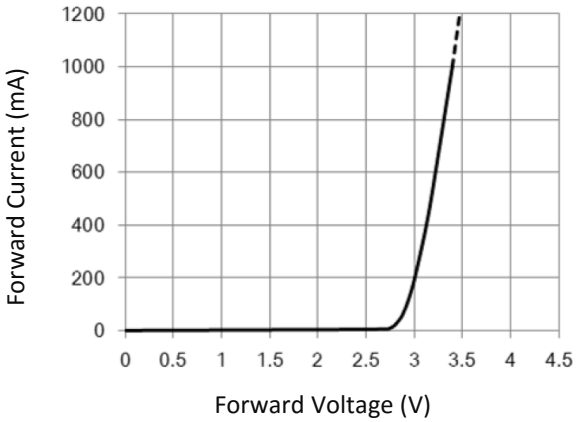
Code	Min.	Max.	Unit
IR1	840	870	nm

ELECTRO-OPTICAL CHARACTERISTICS:

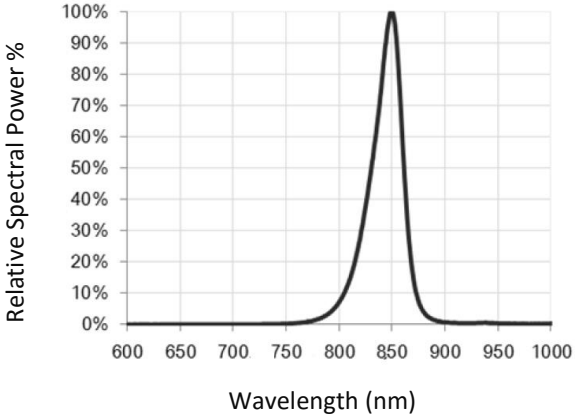
Relative Radiant Power v.s. Forward Current



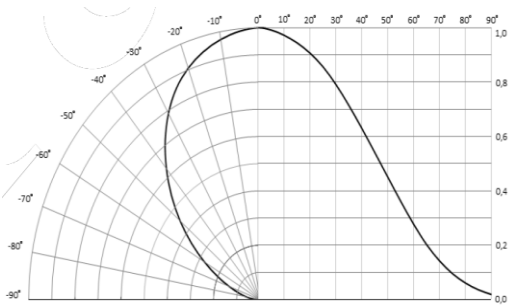
Forward Current v.s. Forward Voltage



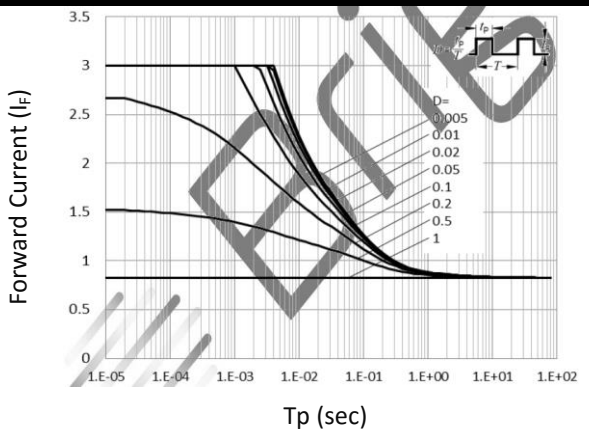
Relative Spectral Power v.s. Wavelength



Directive Radiation

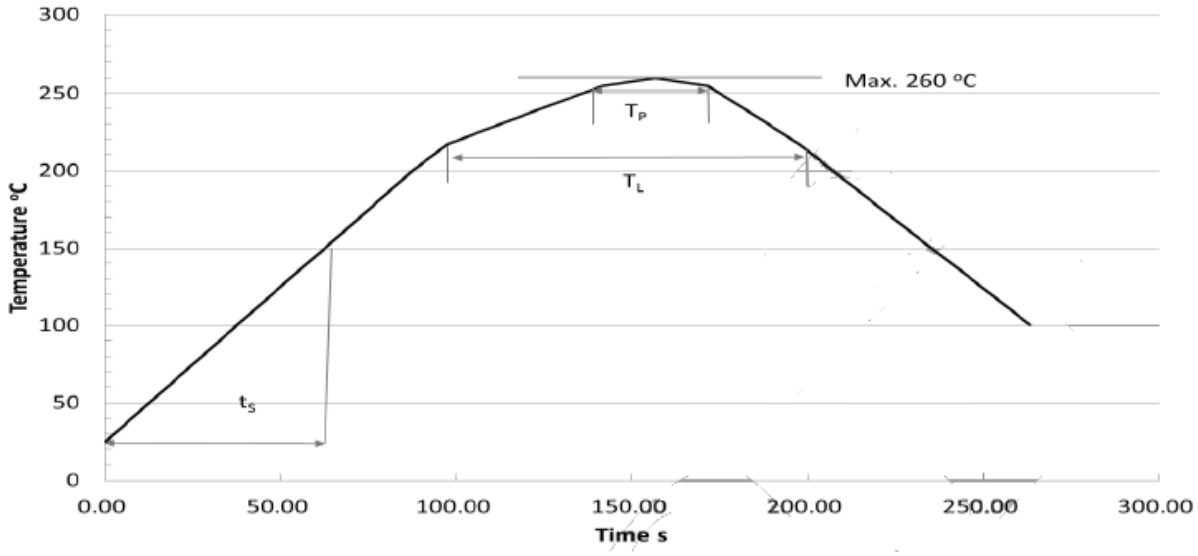


Pulse Handling Capability



RECOMMENDED SOLDERING PROFILE:

Reflow Lead-free Solder:



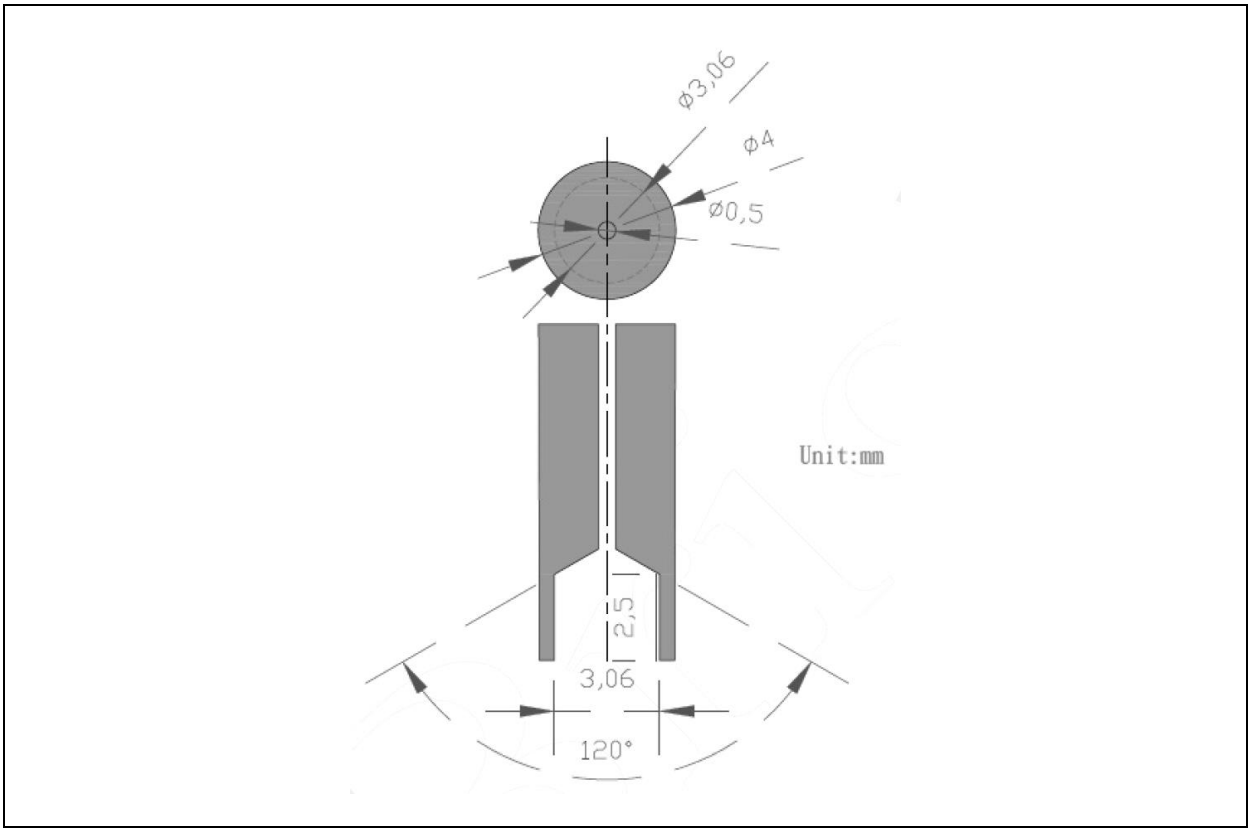
Profile Feature	Symbol	Pb-Free (SnAgCu) Assembly			Unit
		Minimum	Recommendation	Maximum	
Ramp-up Rate to Preheat (25°C to 150°C)			2	3	K/s
Time t_S (T_{Smin} to T_{smax})	t_S	60	100	120	s
Ramp-up Rate to Peak (T_{Smax} to T_P)			2	3	K/s
Liquidus Temperature	T_L		217		°C
Time above Liquidus temperature	t_L		80	100	s
Peak Temperature	T_P		245	260	°C
Time within 5 °C of the specified peaktemperature T_P - 5 K	t_P	10	20	30	s
Ramp-down Rate (T_P to 100 °C)			3	4	K/s
Time 25 °C to T_P				480	s

Note:

1. Maximum reflow soldering: 3 times.
2. Recommended soldering temperature is 245°C. The maximum soldering temperature should be limited to 260°C.
3. Before, during, and after soldering, should not apply stress on the components and PCB board.

RECOMMENDED NOZZLE FOR SMT:

Recommended Pick & Place Nozzle:

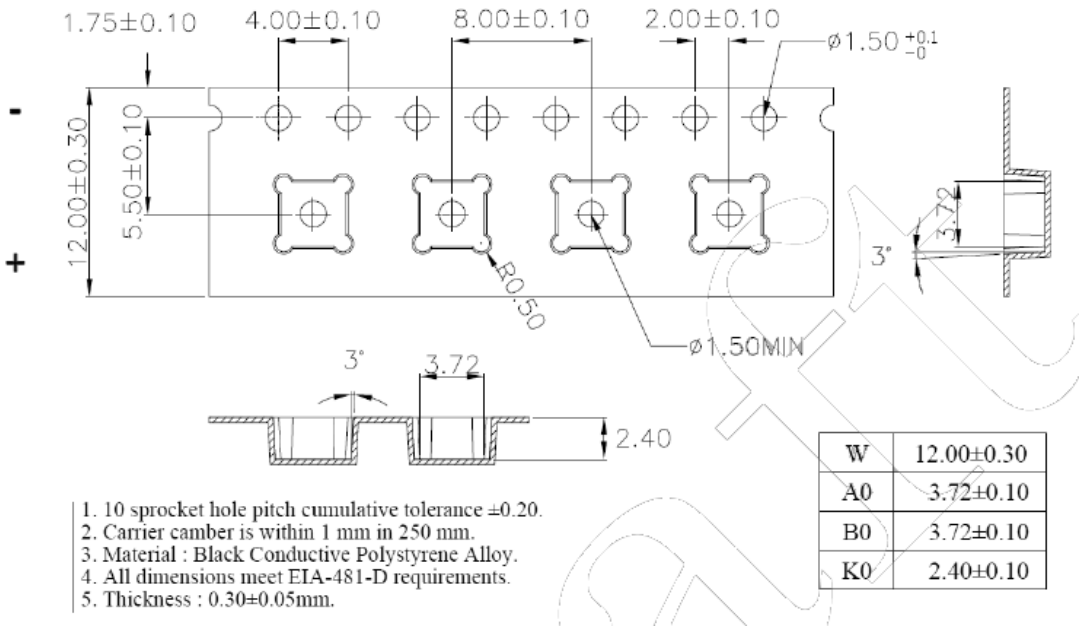


1. All dimensions are in millimetre (mm).
2. Tolerance ±0.1mm, unless otherwise noted.

PACKING SPECIFICATION:

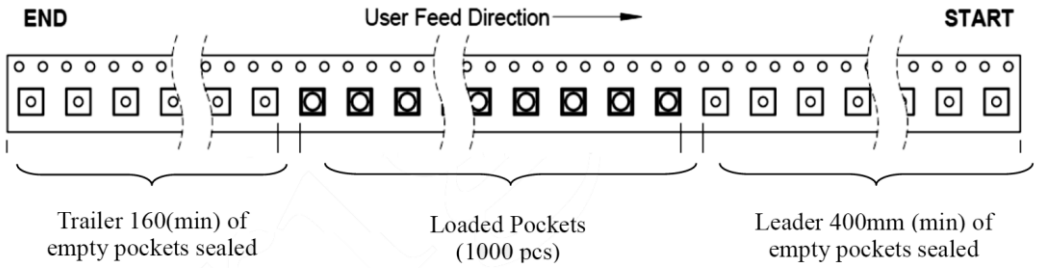
Reel Dimension:

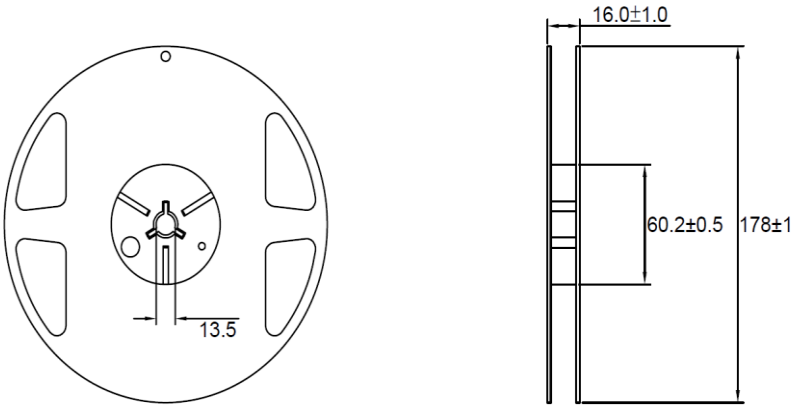
100pcs Min./reel (Maximum 1000pcs)



W	12.00±0.30
A0	3.72±0.10
B0	3.72±0.10
K0	2.40±0.10

1. 10 sprocket hole pitch cumulative tolerance ±0.20.
2. Carrier camber is within 1 mm in 250 mm.
3. Material : Black Conductive Polystyrene Alloy.
4. All dimensions meet EIA-481-D requirements.
5. Thickness : 0.30±0.05mm.





PRECAUTIONS OF USE:

Storage:

It is recommended to store the products in the following conditions:

- Humidity: 60% R.H. Max.
- Temperature: 5°C~30°C (41°F ~86°F).

Shelf life in sealed bag: 12 month at 5°C~30°C and <60% R.H.

Once the package is opened, the products should be used within a week. Otherwise, they should be kept in a damp-proof box with descanting agent and apply baking at 60°C±5°C for 15hrs before use.

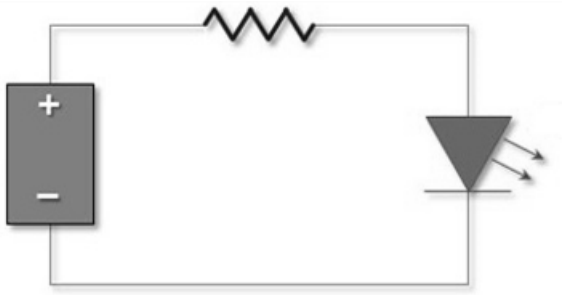
Baking:

It is recommended to bake the LED before soldering if the pack has been unsealed for longer than 24hrs. The suggested baking conditions are as followings:

- 60±3°C x 24hrs and <5%RH, taped / reel package.

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

Testing Circuit:



Must apply resistor(s) for protection (over current proof).

Cleaning:

Use alcohol-based cleaning solvents such as isopropyl alcohol to clean the LED carrier / package. Avoid putting any stress force directly on to the LED lens.

ESD (Electrostatic Discharge):

Static Electricity or power surge will damage the LED. Use of a conductive wrist band or anti-electrosatic glove is recommended when handing the LED all time. All devices, equipment, machinery, work tables, and storage racks must be properly grounded.

In the events of manual working in process, make sure the devices are well protected from ESD at any time.

REVISION RECORD:

Version	Date	Summary of Revision
A1.0	24/11/2016	Datasheet set-up.