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

- ▶ PLCC6 SMD
- ▶ 3433 1.9t Series
- ▶ Red (622nm) / Green (527nm) / Blue (467nm)

Release Date: 01 December 2022 Version: A1.1

N0M45S26Z

3433 1.9t Series

3433 1.9t Series

RoHS Compliant

AUTOMOTIVE AEC-Q102

FEATURES (Red/Green/Blue*):

- **Package:** PLCC6 RGB Top View SMD Package
- **Forward Current:** 20/20/20mA
- **Forward Voltage (typ.):** 2.2/3.0/3.0V
- **Luminous Flux (typ.):** 1000/2210/440mcd@20mA
- **Colour:** Red/Green/Blue
- **CCT/Wavelength:** 622/527/467nm
- **Viewing angle:** 120/120/120°
- **Materials:**
  - Die: AlGaInP/InGaN/InGaN
  - Resin: Silicon (White Diffused)
- **Operating Temperature:** -40~+105°C
- **Storage Temperature:** -40~+105°C
- **ESD:** 6000V (HBM)
- **Grouping parameters:**
  - Forward voltage
  - Luminous intensity
  - Dominant Wavelength
- **Soldering methods:** Reflow soldering
- **MSL Level:** 2a according to JEDEC
- **Packing:** 12mm tape with Max.1000pcs/reel, ø180mm (7'')

APPLICATIONS:

- Automotive
- LED Display
- Switch Light
- 3C Application
- Decoration Lighting

CHARACTERISTICS:

Absolute Maximum Characteristics (Ta=25°C)

Parameter	Symbol	Ratings	Unit
Forward Current	I_F	50/50/50*	mA
Pulse Forward Current (duty 1/10; width 0.1ms)	I_{MAX}	100/100/100	mA
Reverse Voltage	V_R	5	V
Reverse Current @5V	I_R	10	μA
Electrostatic Discharge (HBM)	ESD	6000	V
Junction Temperature	T_j	110	°C
Thermal Resistance	R_{thJS}	150	°C/W
Soldering Temperature	T_{sol}	260	°C
Operating Temperature	T_{OPR}	-40~+105	°C
Storage Temperature	T_{STG}	-40~+105	°C

1. * In the order of Red/Green/Blue.

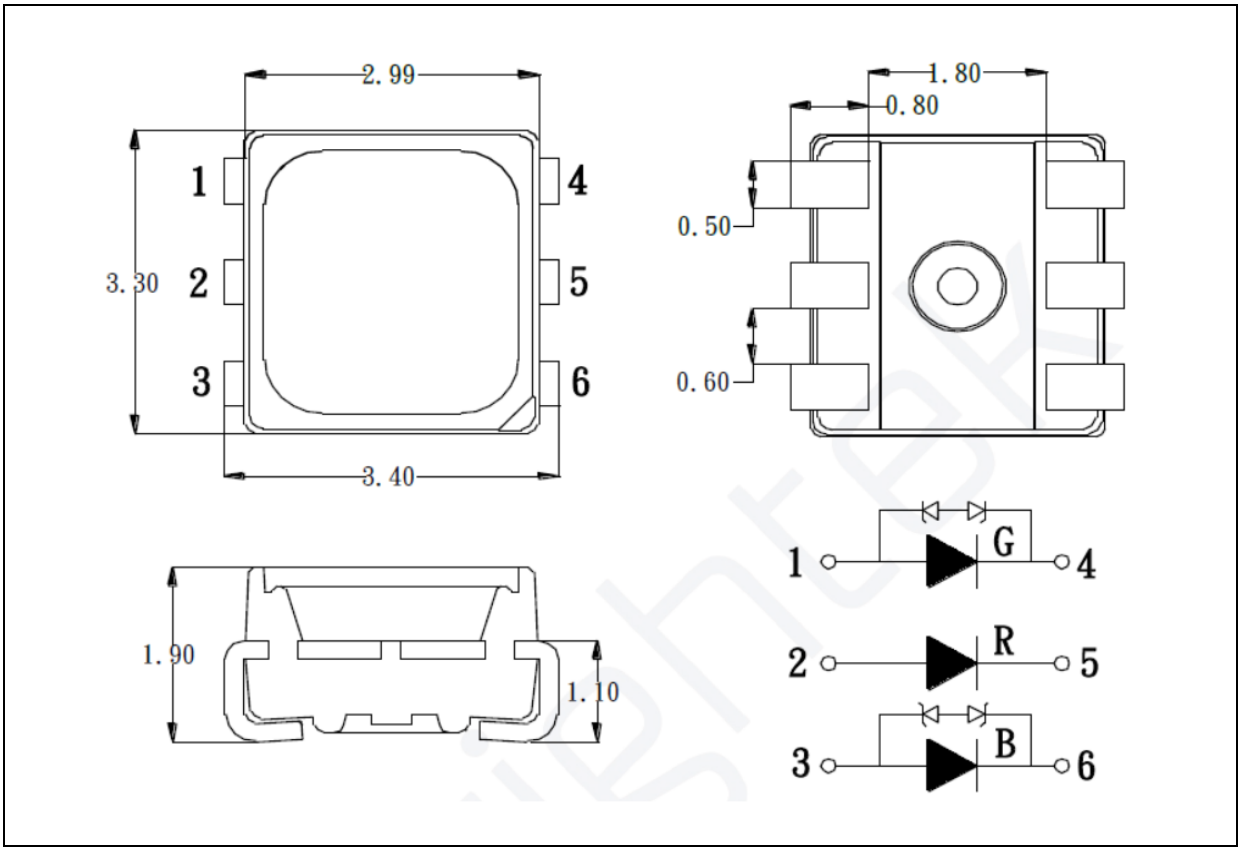
Electrical & Optical Characteristics (Ta=25°C)

Parameter	Symbol	Values			Unit	Test Condition
		Min.	Typ.	Max.		
Red - Forward Voltage	V_F	1.8	---	2.6	V	I_F=20mA
Red - Luminous Intensity	I_V	720	1000	1410	mcd	I_F=20mA
Red - Wavelength	W_P	615	---	630	nm	I_F=20mA
Green - Forward Voltage	V_F	2.6	---	3.4	V	I_F=20mA
Green - Luminous Intensity	I_V	1560	2210	3050	mcd	I_F=20mA
Green - Wavelength	W_P	520	---	535	nm	I_F=20mA
Blue - Forward Voltage	V_F	2.6	---	3.4	V	I_F=20mA
Blue - Luminous Intensity	I_V	320	440	600	mcd	I_F=20mA
Blue - Wavelength	W_P	460	---	475	nm	I_F=20mA
Viewing Angle	$2\theta_{1/2}$	---	120	---	deg	I_F=20mA

1. Luminous intensity (I_V) ±10%, Forward Voltage (V_F) ±0.1V, Viewing angle($2\theta_{1/2}$) ±5%, Wavelength (λ) ±1nm

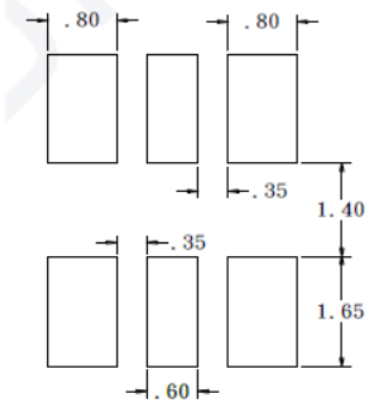
OUTLINE DIMENSION:

Package Dimension:



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

Recommended Soldering Pad Dimension:



Recommended PCB Solder Pad

1. Dimensions are in millimetre (mm).
2. Tolerance ±0.1mm with angle tolerance ±0.5°.

BINNING GROUPS:

Depend on the production outcome; the factory will amend the bin code to maintain the bins' centralization and even distribution. The standard intensity bin gap is 1.3 times accumulated per bin. For dominant wavelength the bin gap is Red: 5nm / Green: 3nm / Blue: 3nm.

Forward Voltage Classifications (I_F = 20mA):

Code		Min.	Max.	Unit
V	Red	1.8	2.6	V
	Green	2.6	3.4	
	Blue	2.6	3.4	

Luminous Intensity Classifications (I_F = 20mA):

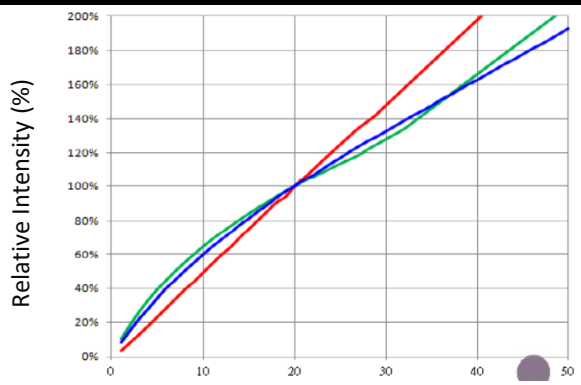
Code		Min.	Max.	Unit
IV	Red	720	1410	mcd
	Green	1560	3050	mcd
	Blue	320	600	mcd

Wavelength Classifications (I_F = 20mA):

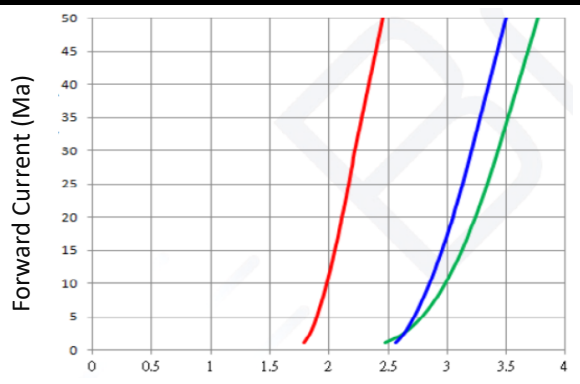
Code		Min.	Max.	Unit
WL	Red	615	630	nm
	Green	520	535	
	Blue	460	475	

ELECTRO-OPTICAL CHARACTERISTICS:

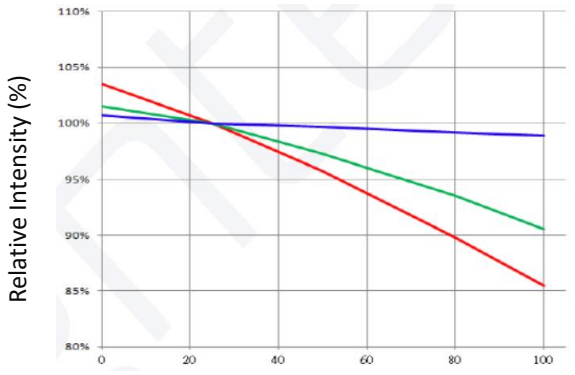
Relative Intensity v.s. Forward Current



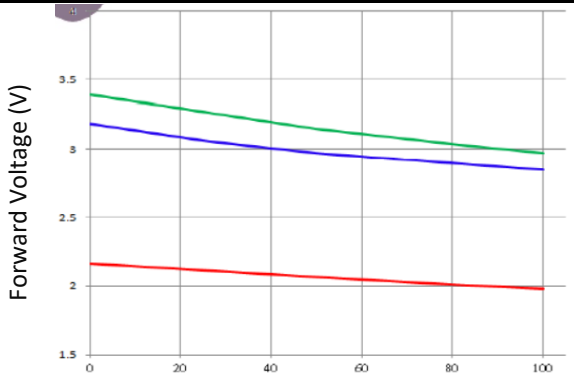
Forward Current v.s. Forward Voltage



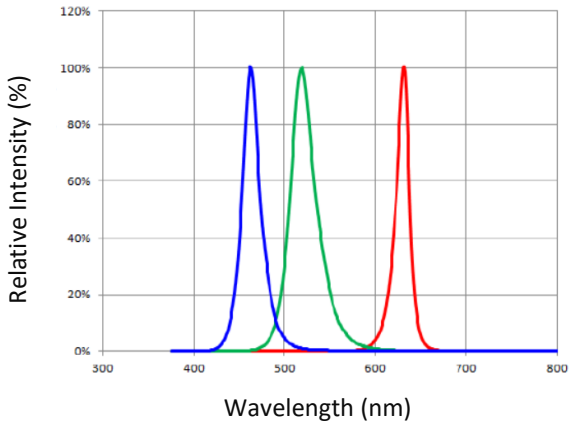
Relative Intensity v.s. Ambient Temperature



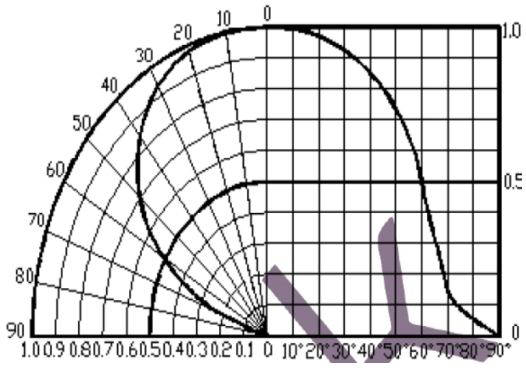
Forward Voltage v.s. Ambient Temperature



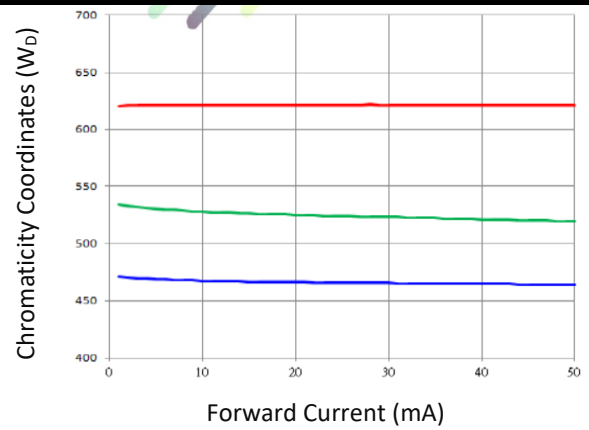
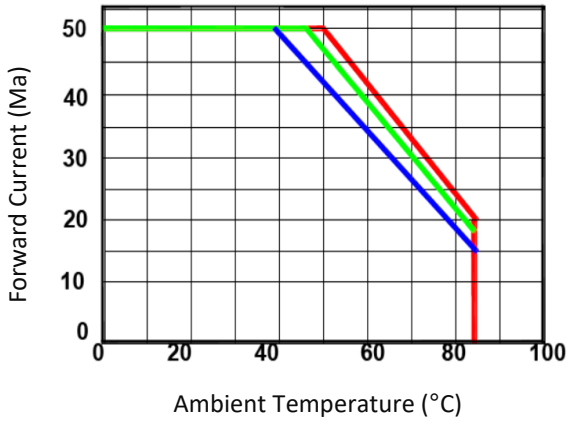
Relative Spectral Distribution



Directive Radiation

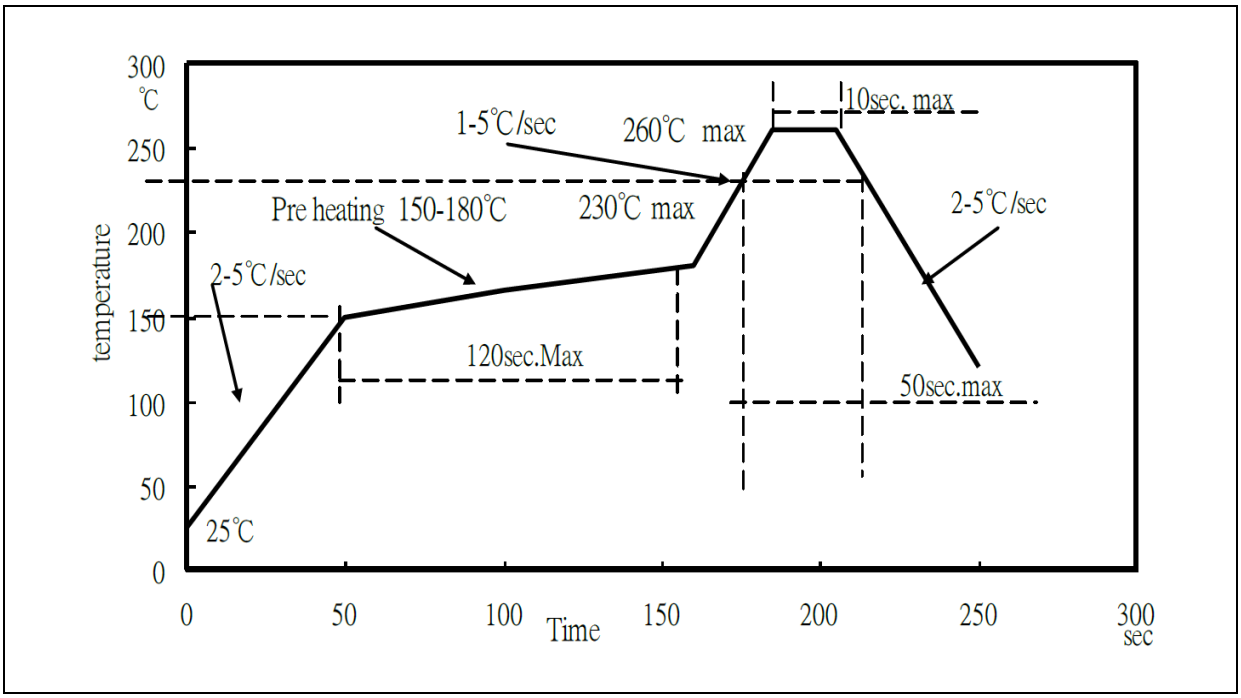


ELECTRO-OPTICAL CHARACTERISTICS:

Colours Shifting v.s. Forward Current	Maximum Current v.s. Ambient Temperature
	

RECOMMENDED SOLDERING PROFILE:

Lead-free Solder:



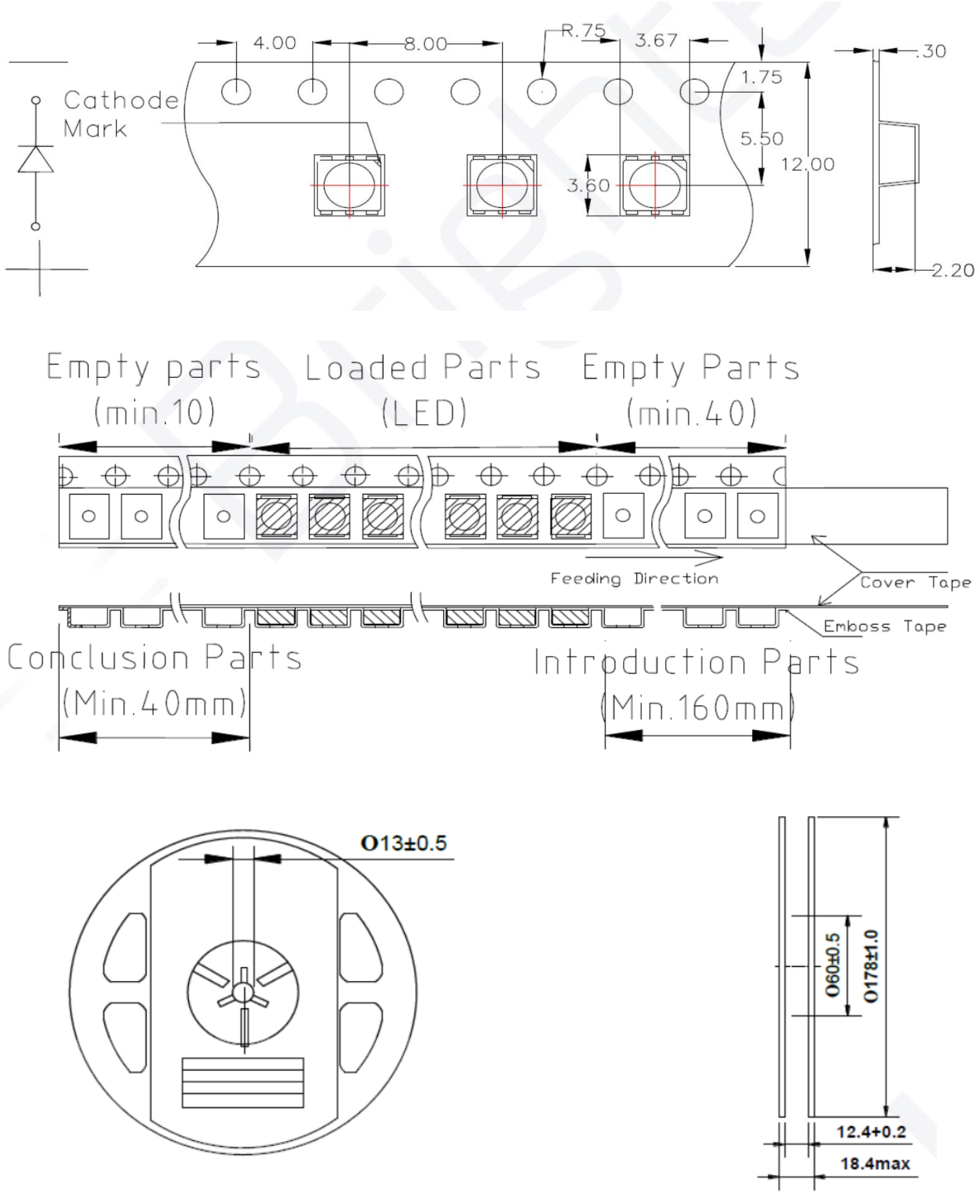
Note:

1. Maximum reflow soldering: 1 time.
2. Recommended reflow temperature is 240°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.

PACKING SPECIFICATION:

Reel Dimension:

Max.1000pcs/reel



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 months 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 <10% R.H. and apply baking before use.

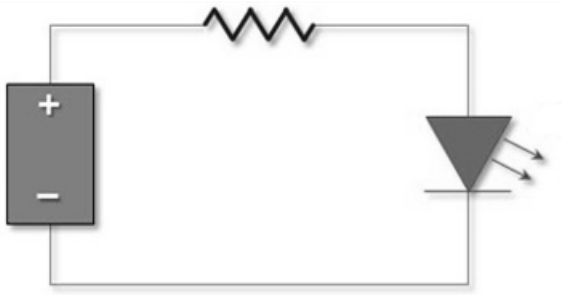
Baking:

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 6hrs 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	07/04/2018	Datasheet set-up.
A1.1	01/12/2022	Automotive AEC-Q102 qualified; upgrade ESD and MSL level.