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

- ► EMC SMD
- ► 3030 0.65t Series
- ► W/R/G/B 4-in-1

Release Date: 13 February 2025 Version: A1.1

N0M62S14

3030 0.65t Series

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RoHS Compliant

FEATURES:

- **Package:** TOP View EMC WRGB SMT Package
- **Forward Current:** 100/100/100/100mA*
- **Forward Voltage (typ.):** 3.1/2.3/2.9/3.1V
- **Luminous Flux (typ.):** 43/16/27/7lm@100mA
- **Colour:** Natural White/Red/Green/Blue
- **CCT/Wavelength:** 4000K/622/527/461nm
- **Viewing Angle:** 120°
- **Materials:**
  - Resin: Silicon
  - L/T Finish: Ag plated
- **Operating Temperature:** -40~+70°C
- **Storage Temperature:** -40~+70°C
- **Grouping Parameters:**
  - Forward Voltage
  - Luminous Flux
  - CCT/Dominant Wavelength
- **Soldering Methods:** Reflow
- **MSL Level:** 3 according to J-STD020
- **Packing:** 8mm tape with max.5000/reel, ø178mm (7'')

* in order of White/Red/Green/Blue

APPLICATIONS:

- Decorative Lighting
- Portable Lighting
- Outdoor Lighting
- Commercial Lighting
- Architectural Lighting
- Home Appliance
- Led Torch
- Mini Projector

CHARACTERISTICS:

Absolute Maximum Characteristics (T_a=25°C)

Parameter	Symbol	Ratings	Unit
DC Forward Current	I_F	150	mA
Pulse Forward Current (width≤100μS; duty≤1/10)	I_{FP}	225	mA
Power Dissipation	P_D	525/375/495/525*	mW
Reverse Voltage	V_R	5	V
Reverse Current @5V	I_R	10	μA
Junction Temperature	T_j	110	°C
Operating Temperature	T_{OPR}	-40~+70	°C
Storage Temperature	T_{STG}	-40~+70	°C
Soldering Temperature	T_{SOL}	230 or 260 for 10S	°C

* in order of White/Red/Green/Blue

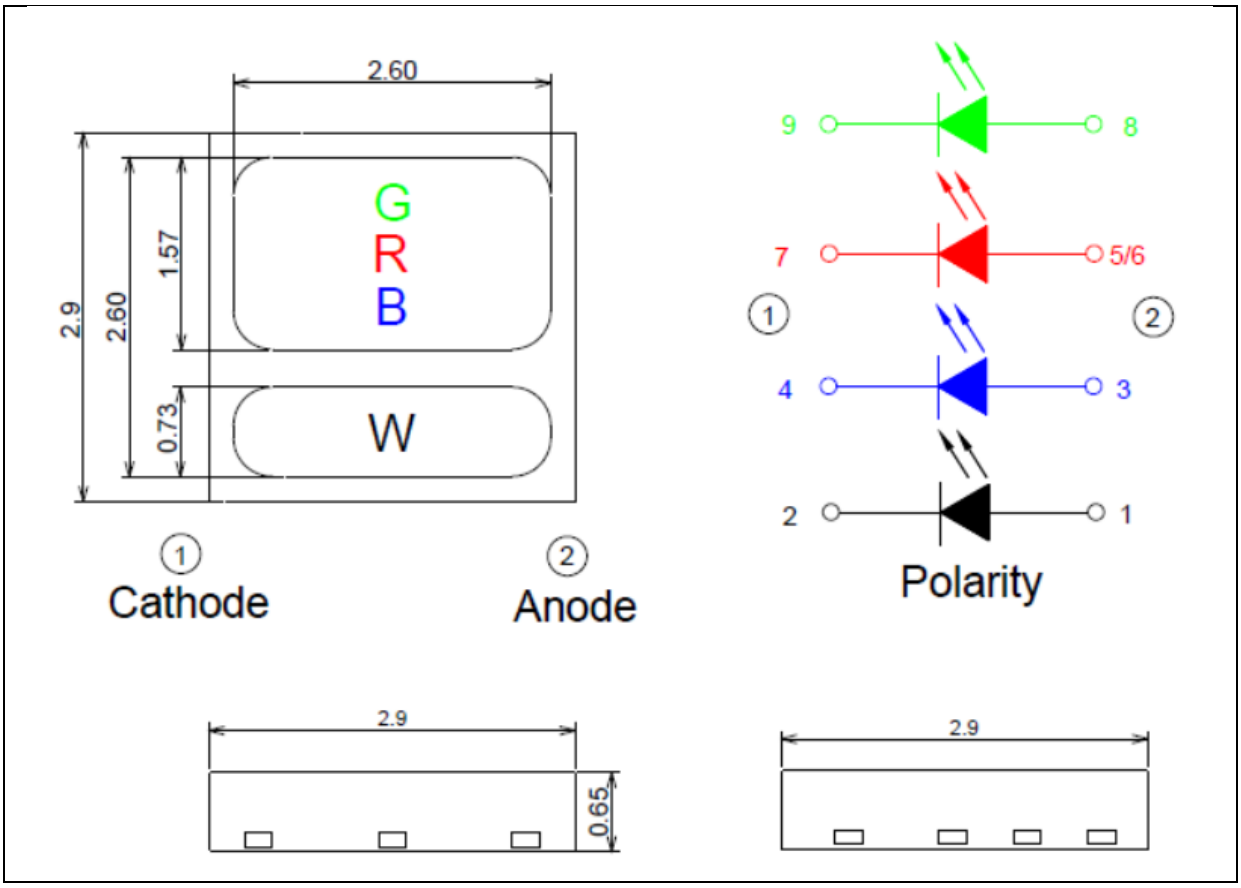
Electrical & Optical Characteristics (T_a=25°C)

Parameter	Symbol	Values			Unit	Test Condition
		Min.	Typ.	Max.		
Forward Voltage	V_F	2.9/1.9/2.7/2.9*	3.1/2.3/2.9/3.1	3.5/2.5/3.3/3.5	V	I_F=100mA
Luminous Flux	Φ_V	37/13/23/5	43/16/27/7	47/25/39/12	lm	I_F=100mA
White Colour Temperature	CCT	---	4000	---	K	I_F=100mA
R/G/B Dominant Wavelength	λ_D	617/522/452	---	626/531/470	nm	I_F=100mA
Viewing Angle	$2\theta_{1/2}$	---	120	---	deg	I_F=100mA

1. Luminous flux (Φ_V) ±10%, Forward Voltage (V_F) ±0.1V
2. * in order of White/Red/Green/Blue

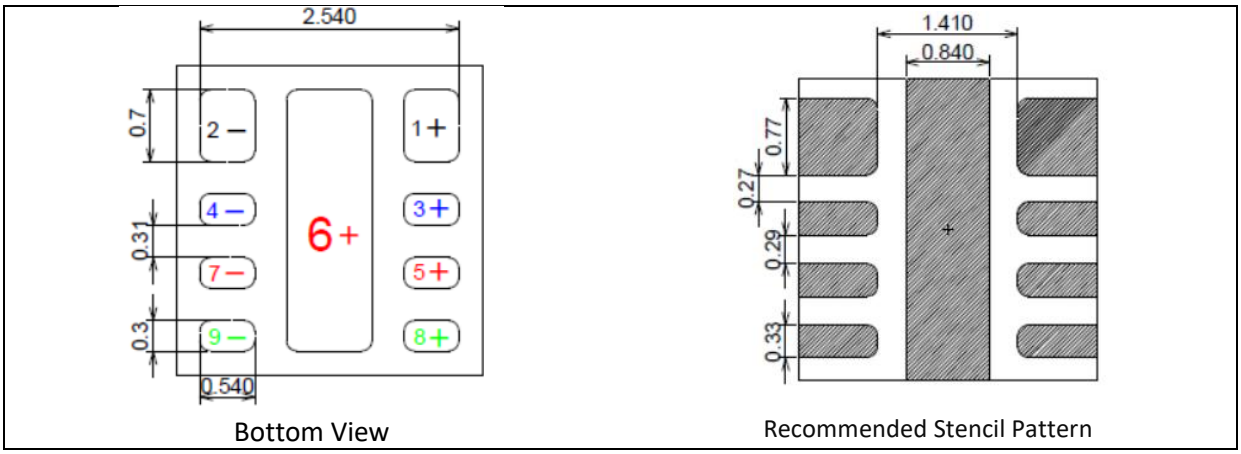
OUTLINE DIMENSION:

Package Dimension:



1. All dimensions are in millimetre (mm).
2. Tolerance ±0.2mm, unless otherwise noted.

Recommended Soldering Pad Dimension:



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

BINNING GROUPS:

Forward Voltage Classifications (I_F = 100mA):

Code		Min.	Max.	Unit
White	BB1	2.9	3.5	V
Red	RA1	1.9	2.5	V
Green	GB1	2.9	3.5	V
Blue	BB1	2.9	3.5	V

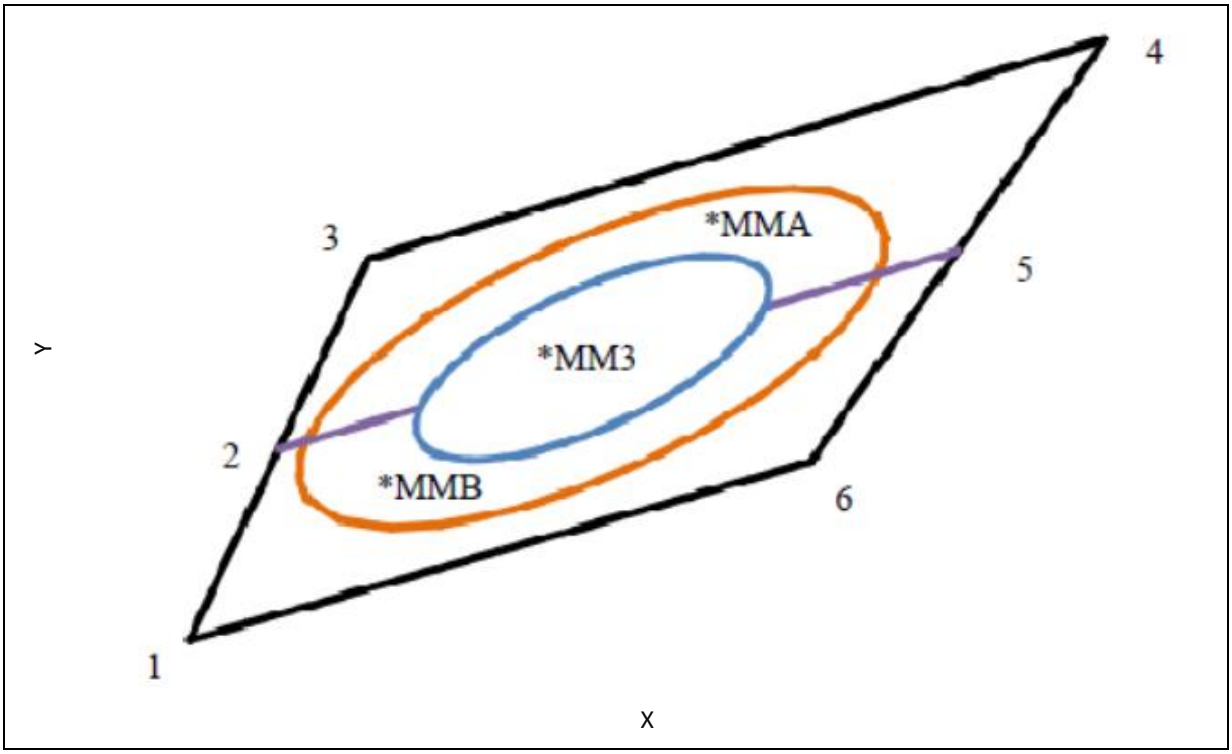
Luminous Flux Classifications (I_F = 100mA):

Code		Min.	Max.	Unit
White	WN4	37	47	lm
Red	RN1	13	19	lm
	RN2	19	25	
Green	GN1	23	31	lm
	GN2	31	39	
Blue	BN2	5	12	lm

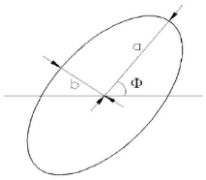
Dominant Wavelength Classifications (I_F = 100mA):

Code		Min.	Max.	Unit
Red	RE1	617	620	nm
	RE2	620	623	
	RE3	623	626	
Green	GE2	522	525	nm
	GE3	525	528	
	GE4	528	531	
Blue	BE2	452	455	nm
	BE3	455	458	
	BE4	458	461	
	BE5	461	464	
	BE6	464	467	
	BE7	467	470	

CIE CHROMATICITY DIAGRAM:



Chromaticity Coordinates Classifications (I_F = 100mA):



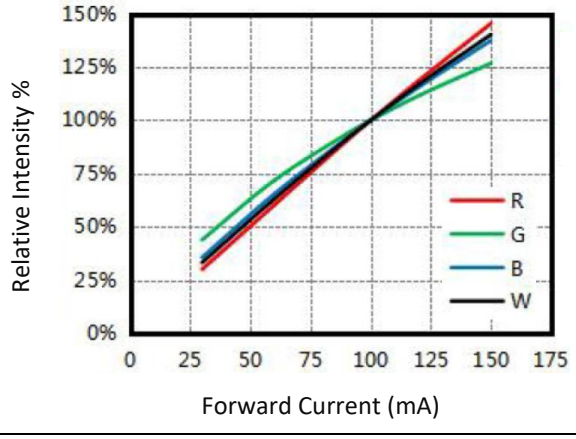
Code	Centre		Radius		Angle
	X	Y	a	b	Φ
5MM-3STEP	0.3825	0.3798	0.009390	0.004020	53.43
5MM-5STEP	0.3825	0.3798	0.015650	0.006700	53.43

Chromaticity Coordinates Classifications (I_F = 20mA):

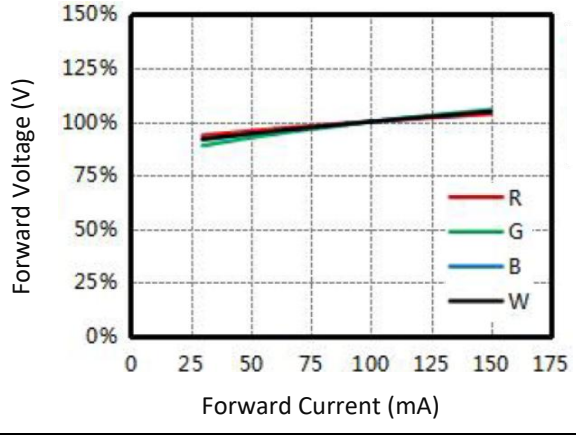
	1		2		3		4	
	X	Y	X	Y	X	Y	X	Y
1256	0.3677	0.3579	0.3710	0.3727	0.3959	0.3881	0.3905	0.3717
2345	0.3710	0.3727	0.3743	0.3875	0.4013	0.4045	0.3959	0.3881

ELECTRO-OPTICAL CHARACTERISTICS:

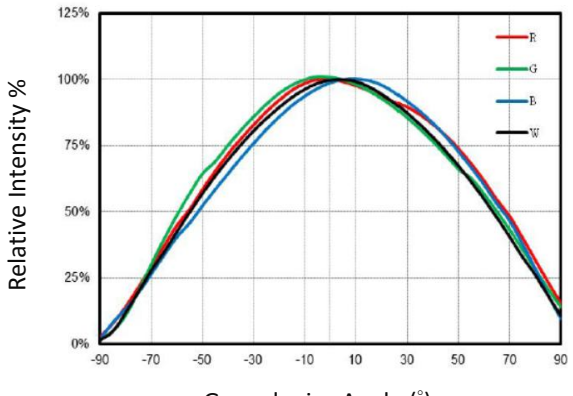
Relative Intensity v.s. Forward Current



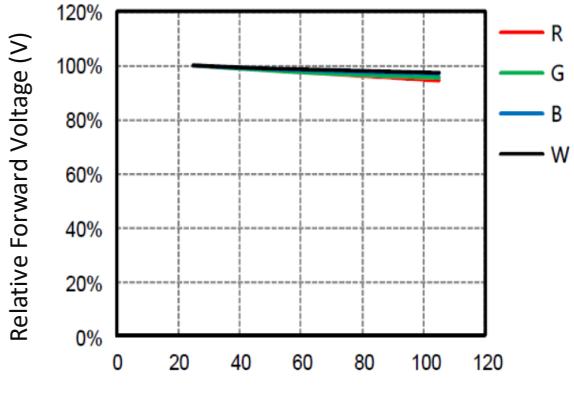
Forward Current v.s. Forward Voltage



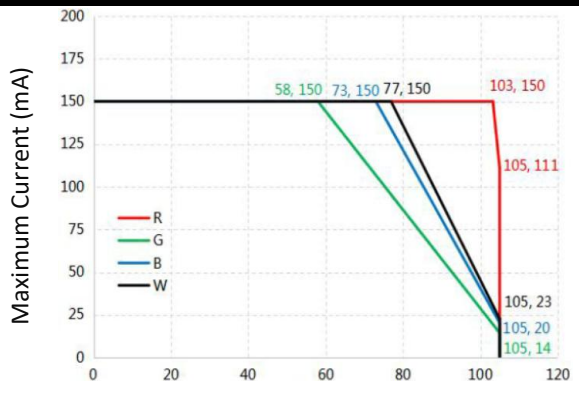
Relative Intensity v.s. Angular Displacement



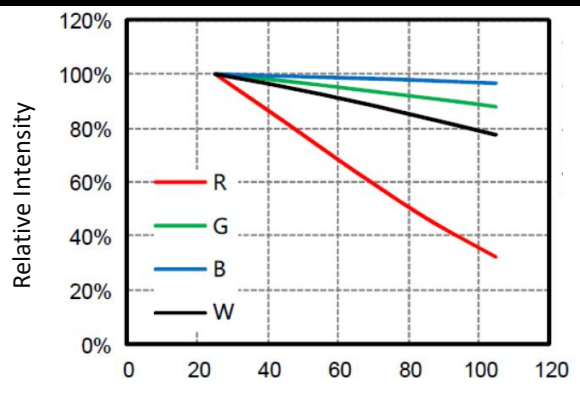
Relative Forward Voltage v.s. Temperature



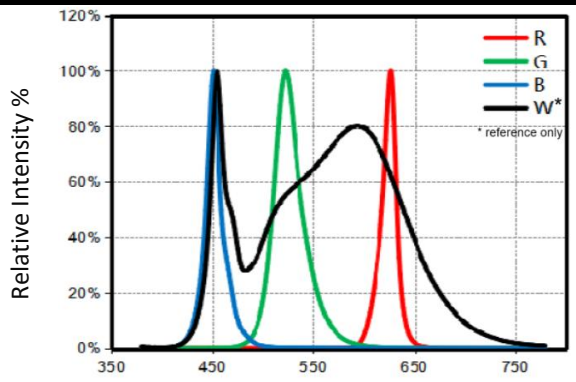
Temperature Derating Chart



Relative Intensity Flux v.s. Temperature

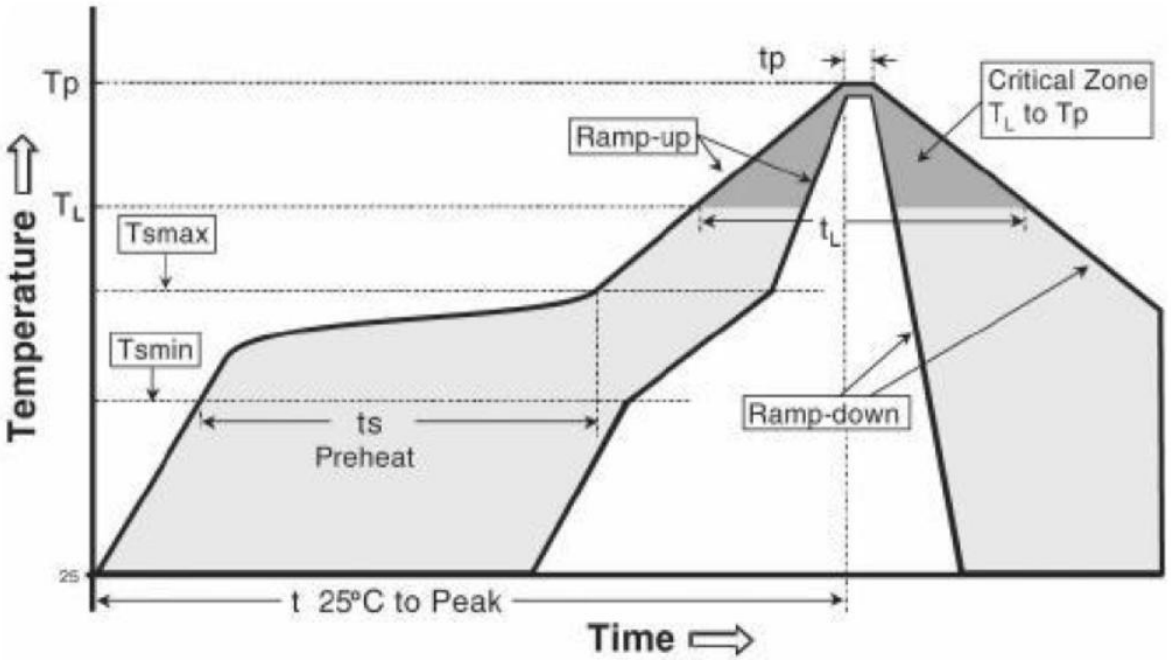


Relative Intensity v.s. Wavelength



RECOMMENDED SOLDERING PROFILE:

Reflow Lead-free Solder:



Temperature Min. (T_{smin})	150°C
Temperature Max. (T_{smax})	200°C
Period from T_{smin} to T_{smax}	60-120 seconds
Ramp-up Rate (T_L to T_P)	Max. 3°C/second
Liquidous Temperature (T_L)	217°C
Time Maintained above T_L	60-150 seconds
Peak Package Temperature (T_P)	Max. 260°C
Time within 5°C of the Specified Classification Temperature T_C	Max. 30 seconds
Ramp-down Rate (T_P to T_L)	Max. 6°C/second
Time from 25°C to Peak Temperature	Max. 8 mins

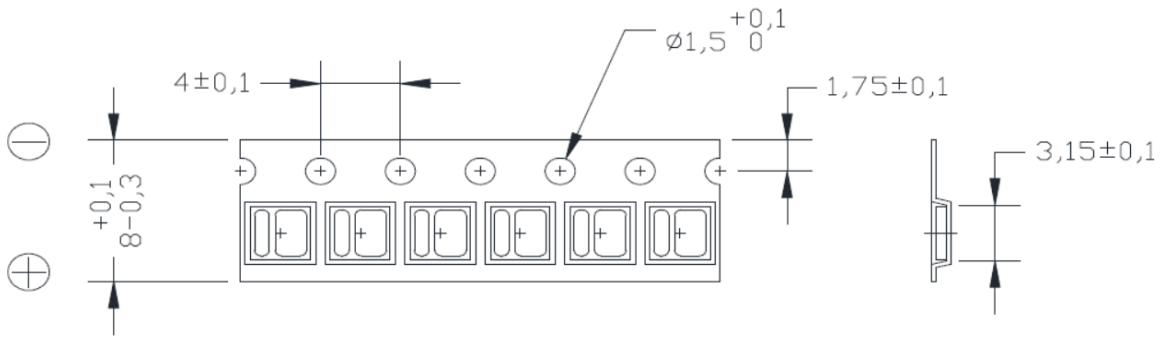
Note:

1. Die slug is to be soldered.
2. Maximum reflow soldering: 2 times. Between two soldering it should not be longer than 24 hours.
3. Before, during, and after soldering, should not apply stress on the components and PCB board.
4. Recommended soldering temperature: 240°C. The maximum soldering temperature should be limited to 260°C for max. 10seconds.

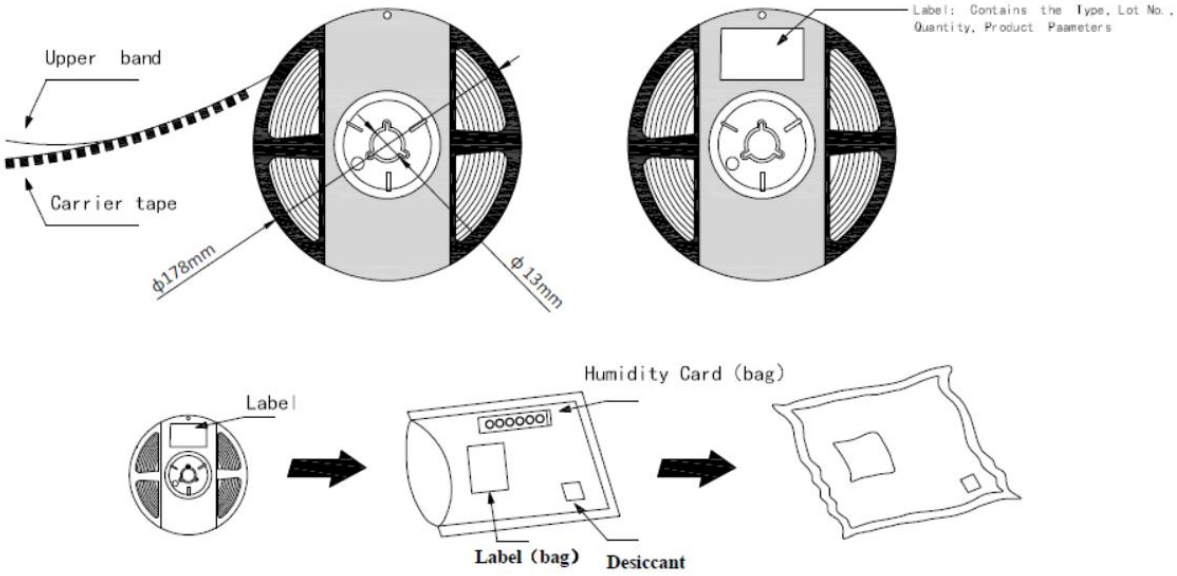
PACKING SPECIFICATION:

Reel Dimension:

Max.5000pcs/reel



1. Cumulative Tolerance: Cumulative Tolerance/10 pitches to be ±0.2mm



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.

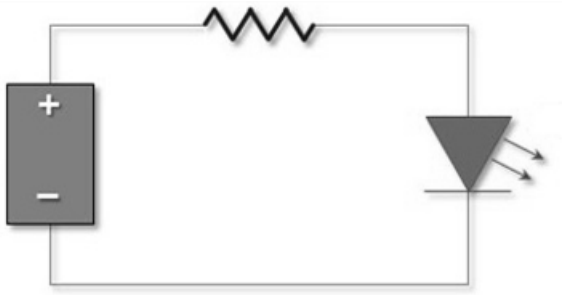
Baking:

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±5°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	04/09/2022	Datasheet set-up.
A1.1	13/02/2025	Update sorting current to 100mA and add characteristics curves.