



**BRIGHTTEK**  
**BRIGHTTEK (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

NOM59S33



Release Date: 04 September 2022 Version: A1.1



### 3030 0.65t Series

**RoHS**  
Compliant



#### FEATURES:

- **Package:** TOP View EMC WRGB SMT Package
- **Forward Current:** 20/20/20/20mA\*
- **Forward Voltage (typ.):** 2.8/2.0/2.9/2.8V
- **Luminous Flux (typ.):** 7.5/3.0/6.2/0.8lm@20mA
- **Colour:** Natural White/Red/Green/Blue
- **CCT/Wavelength:** 5000K/620/525/455nm
- **Viewing angle:** 120°
- **Materials:**
  - Die: InGaN/AlGaInP/InGaN/InGaN
  - Resin: Silicon
  - L/T Finish: Ag plated
- **Operating Temperature:** -40~+105°C
- **Storage Temperature:** -40~+105°C
- **Grouping parameters:**
  - Forward Voltage
  - Luminous Flux
  - CCT/Dominant Wavelength
- **Soldering methods:** Reflow
- **Preconditioning:** MSL 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 (Ta=25°C)

Parameter	Symbol	Ratings	Unit
DC Forward Current	I <sub>F</sub>	60	mA
Pulse Forward Current (width≤100μS; duty≤1/10)	I <sub>FP</sub>	90	mA
Power Dissipation	P <sub>D</sub>	198/150/192/198*	mW
Reverse Voltage	V <sub>R</sub>	5	V
Reverse Current @5V	I <sub>R</sub>	10	μA
Junction Temperature	T <sub>j</sub>	110	°C
Electrostatic Discharge (HBM)	ESD	1000	V
Operating Temperature	T <sub>OPR</sub>	-40~+105	°C
Storage Temperature	T <sub>STG</sub>	-40~+105	°C
Soldering Temperature	T <sub>SOL</sub>	230 or 260 for 10S	°C

\* in order of White/Red/Green/Blue

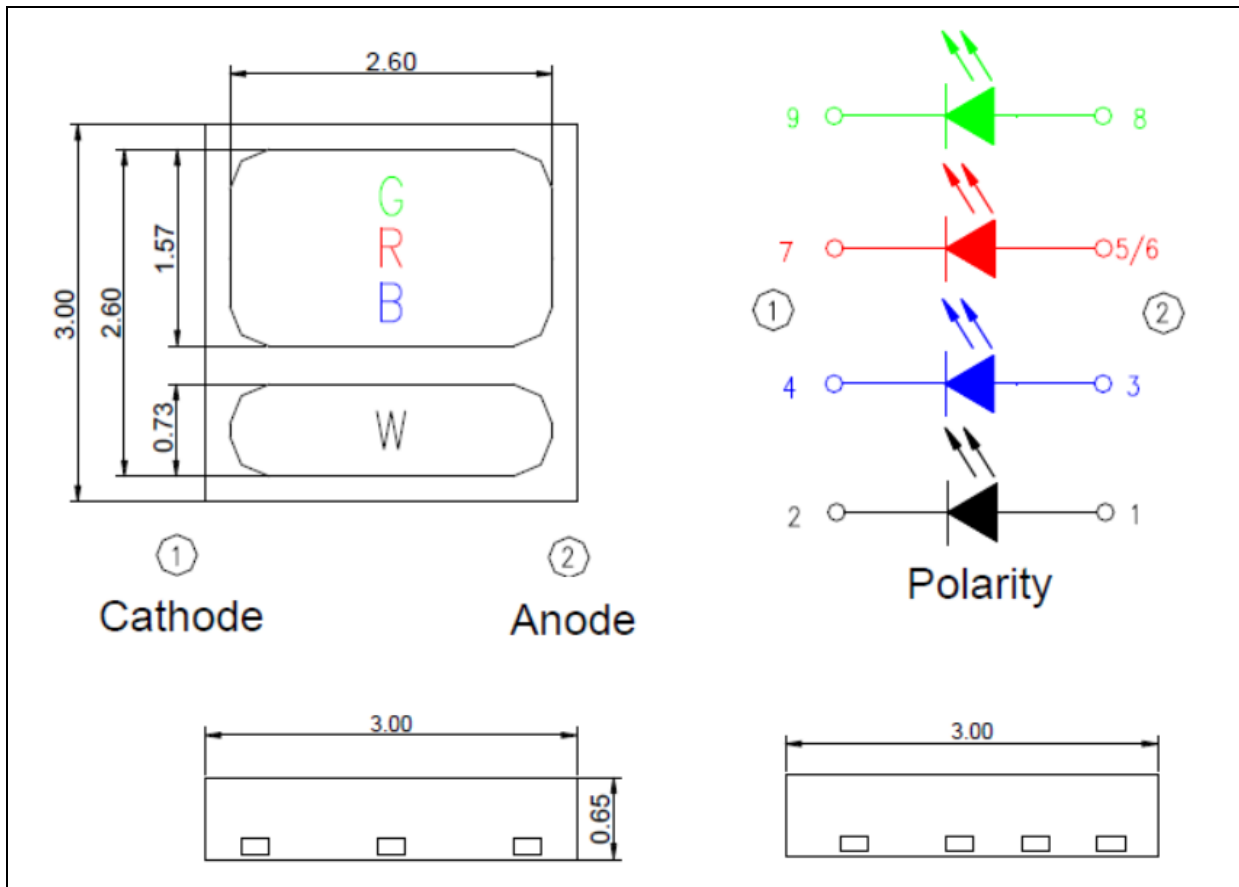
### Electrical & Optical Characteristics (Ta=25°C)

Parameter	Symbol	Values			Unit	Test Condition
		Min.	Typ.	Max.		
Forward Voltage	V <sub>F</sub>	2.7/1.9/2.6/2.7*	2.8/2.0/2.9/2.8	3.3/2.5/3.2/3.3	V	I <sub>F</sub> =20mA
Luminous Flux	Φ <sub>v</sub>	6.0/1.0/4.0/0.1	7.5/3.0/6.2/0.8	14.0/5.0/11.0/3.0	lm	I <sub>F</sub> =20mA
White Colour Temperature	CCT	---	5000	---	K	I <sub>F</sub> =20mA
R/G/B Dominant Wavelength	λ <sub>D</sub>	615/520/450	---	625/530/460	nm	I <sub>F</sub> =20mA
Viewing Angle	2θ <sub>1/2</sub>	---	120	---	deg	I <sub>F</sub> =20mA

1. Luminous flux (Φ<sub>v</sub>) ±10%, Forward Voltage (V<sub>F</sub>) ±0.1V
2. \* in order of White/Red/Green/Blue

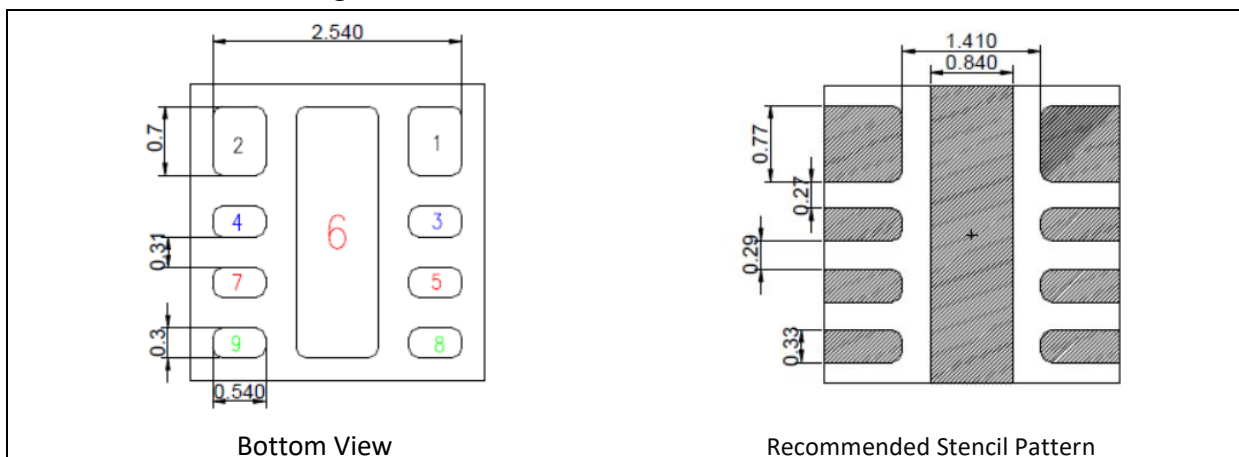
## OUTLINE DIMENSION:

Package Dimension:



1. All dimensions are in millimetre (mm).
2. Tolerance  $\pm 0.2\text{mm}$ , unless otherwise noted.

Recommended Soldering Pad Dimension:



1. Dimensions are in millimetre (mm).
2. Tolerance  $\pm 0.1\text{mm}$  with angle tolerance  $\pm 0.5^\circ$ .

**BINNING GROUPS:**


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 Forward Voltage Classifications ( $I_F = 20\text{mA}$ ):

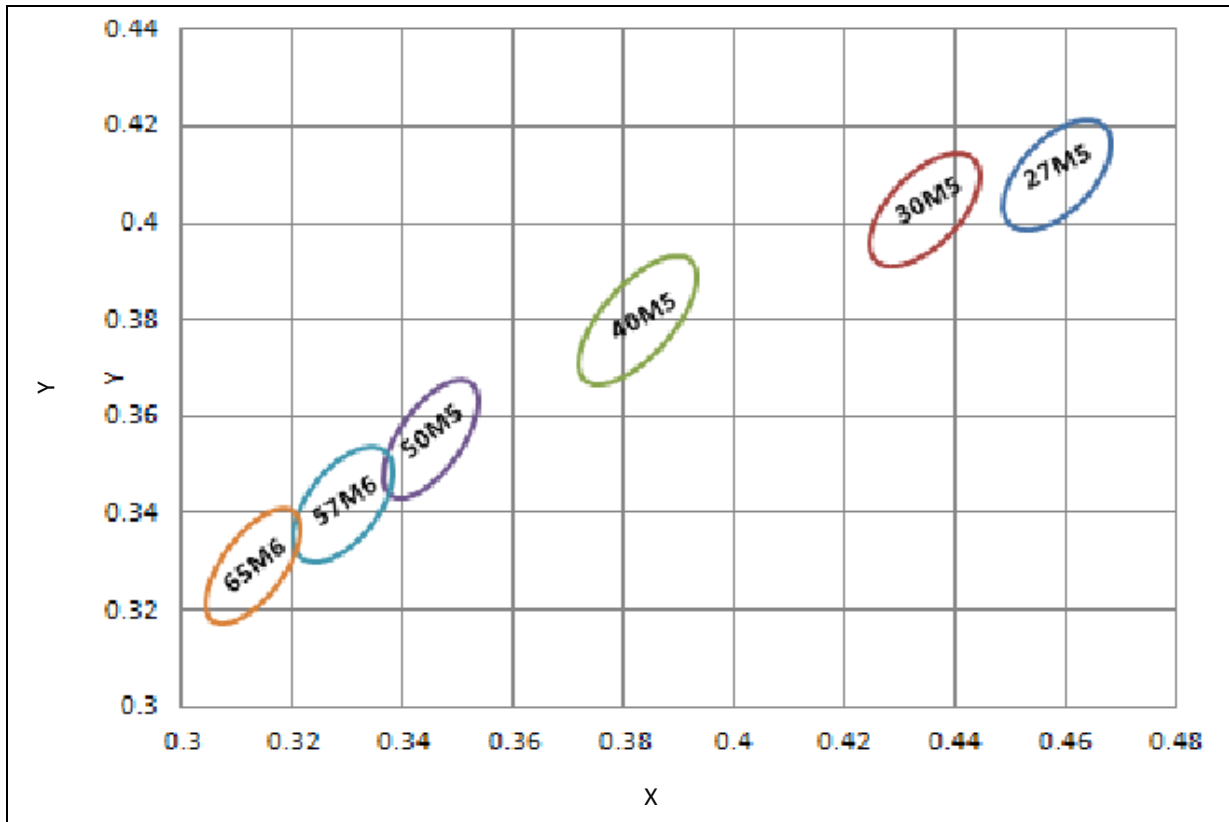
Code		Min.	Max.	Unit
White	WA1	2.7	3.3	V
Red	RA1	1.9	2.5	V
Green	GA1	2.7	3.3	V
Blue	BA1	2.6	3.1	V

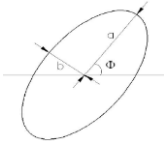
 Luminous Flux Classifications ( $I_F = 20\text{mA}$ ):

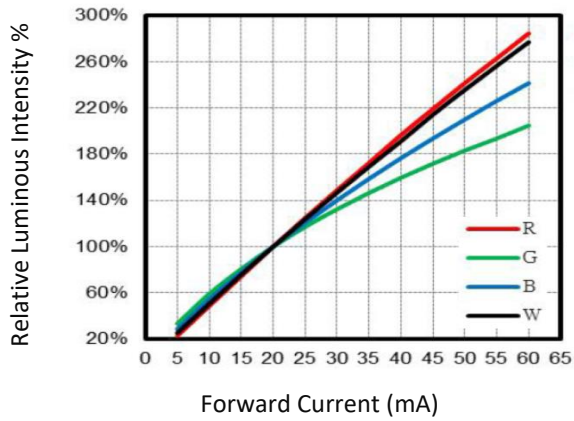
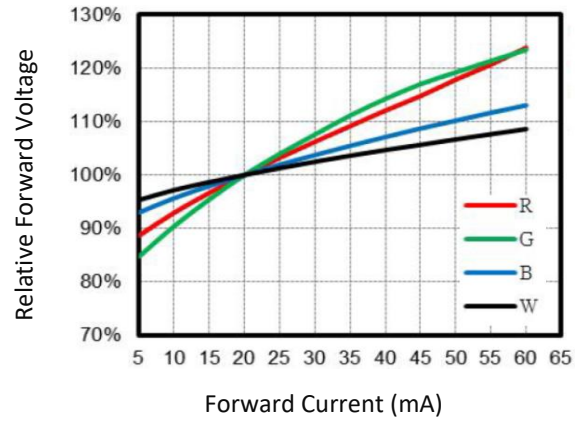
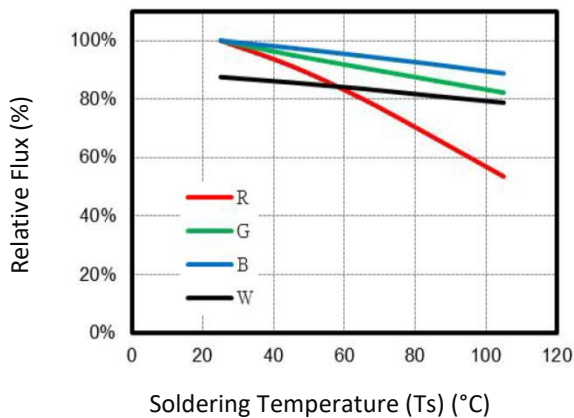
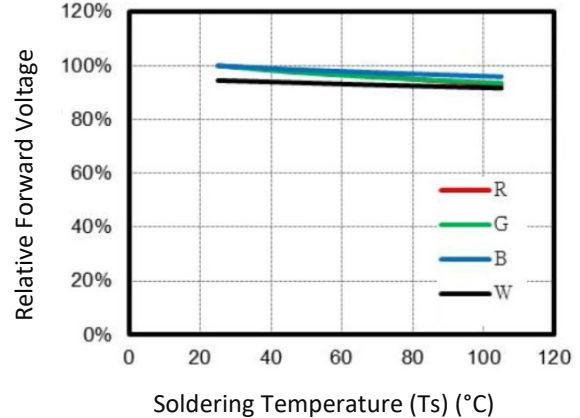
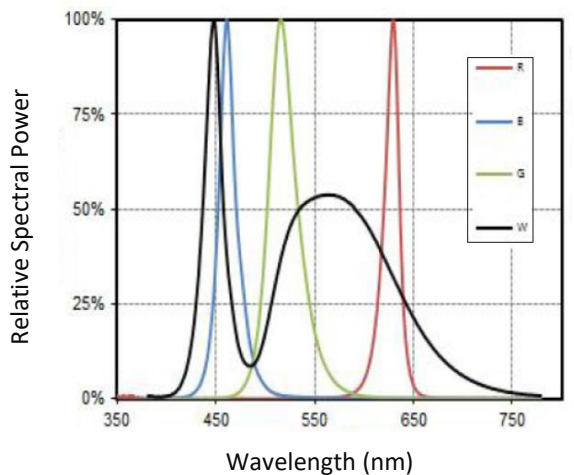
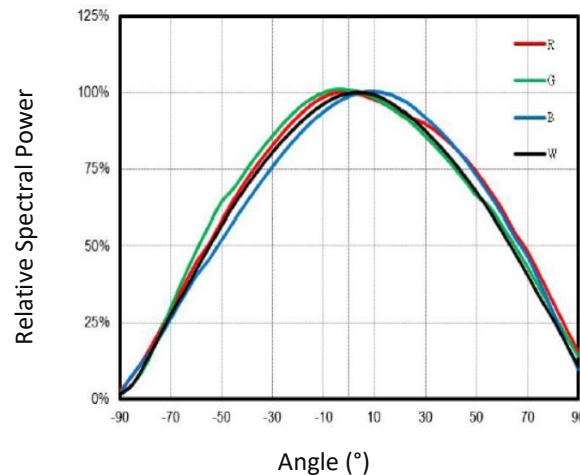
Code		Min.	Max.	Unit
White	WM1	6	14	lm
Red	RM1	1	5	lm
Green	GM1	4	11	lm
Blue	BM1	0.1	3	lm

 Dominant Wavelength Classifications ( $I_F = 20\text{mA}$ ):

Code		Min.	Max.	Unit
Red	RC1	615	625	nm
	RC2	620	625	
Green	GC1	520	525	nm
	GC2	525	530	
Blue	BC1	450	455	nm
	BC2	455	460	

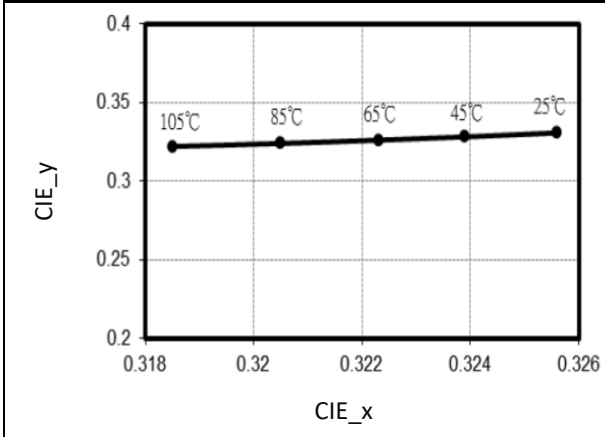
**CIE CHROMATICITY DIAGRAM:**

**Chromaticity Coordinates Classifications ( $I_F = 20\text{mA}$ ):**

	Code	Centre		Radius		Angle
		X	Y	a	b	$\Phi$
	50M5	0.3451	0.3554	0.013700	0.005900	59.37

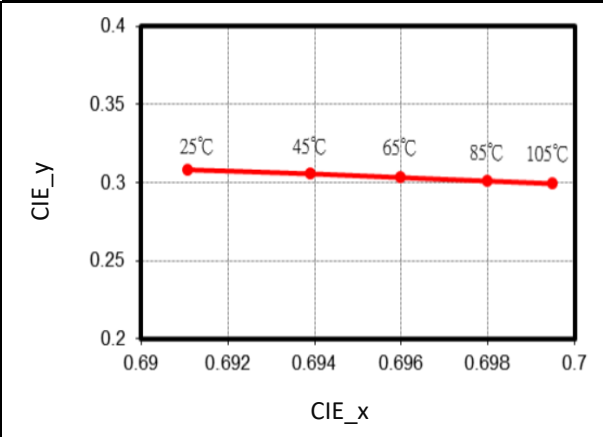
**ELECTRO-OPTICAL CHARACTERISTICS:**
**Relative Luminous Intensity v.s. Forward Current**

**Forward Current v.s. Relative Forward Voltage**

**Relative Flux v.s. Soldering Temperature**

**Forward Voltage v.s. Soldering Temperature**

**Luminous Spectrum**

**Directive Radiation**


## ELECTRO-OPTICAL CHARACTERISTICS:

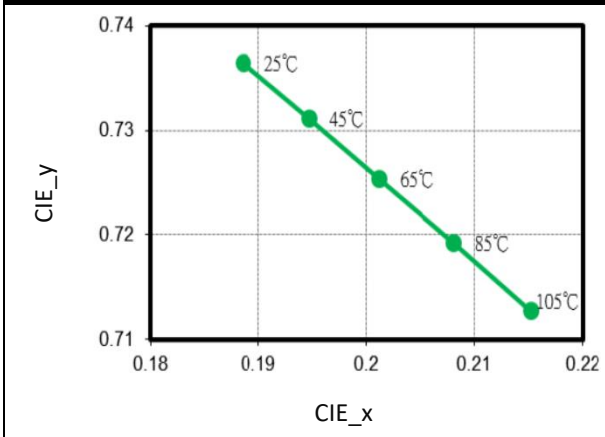
### White Shift v.s. Soldering Temperature



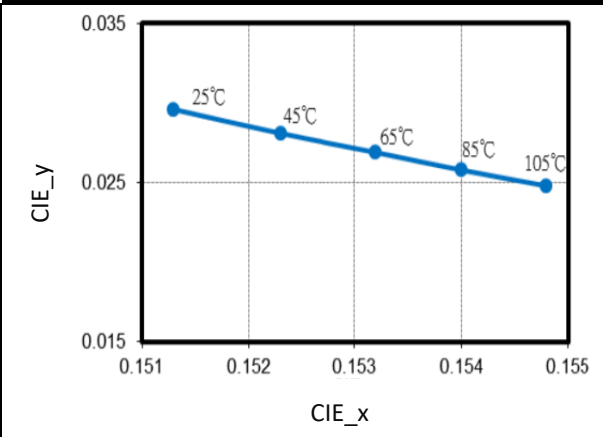
### Red Shift v.s. Soldering Temperature



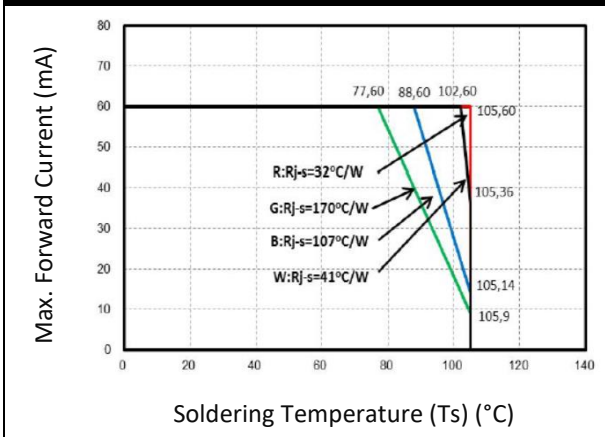
### Green Shift v.s. Soldering Temperature



### Blue Shift v.s. Soldering Temperature

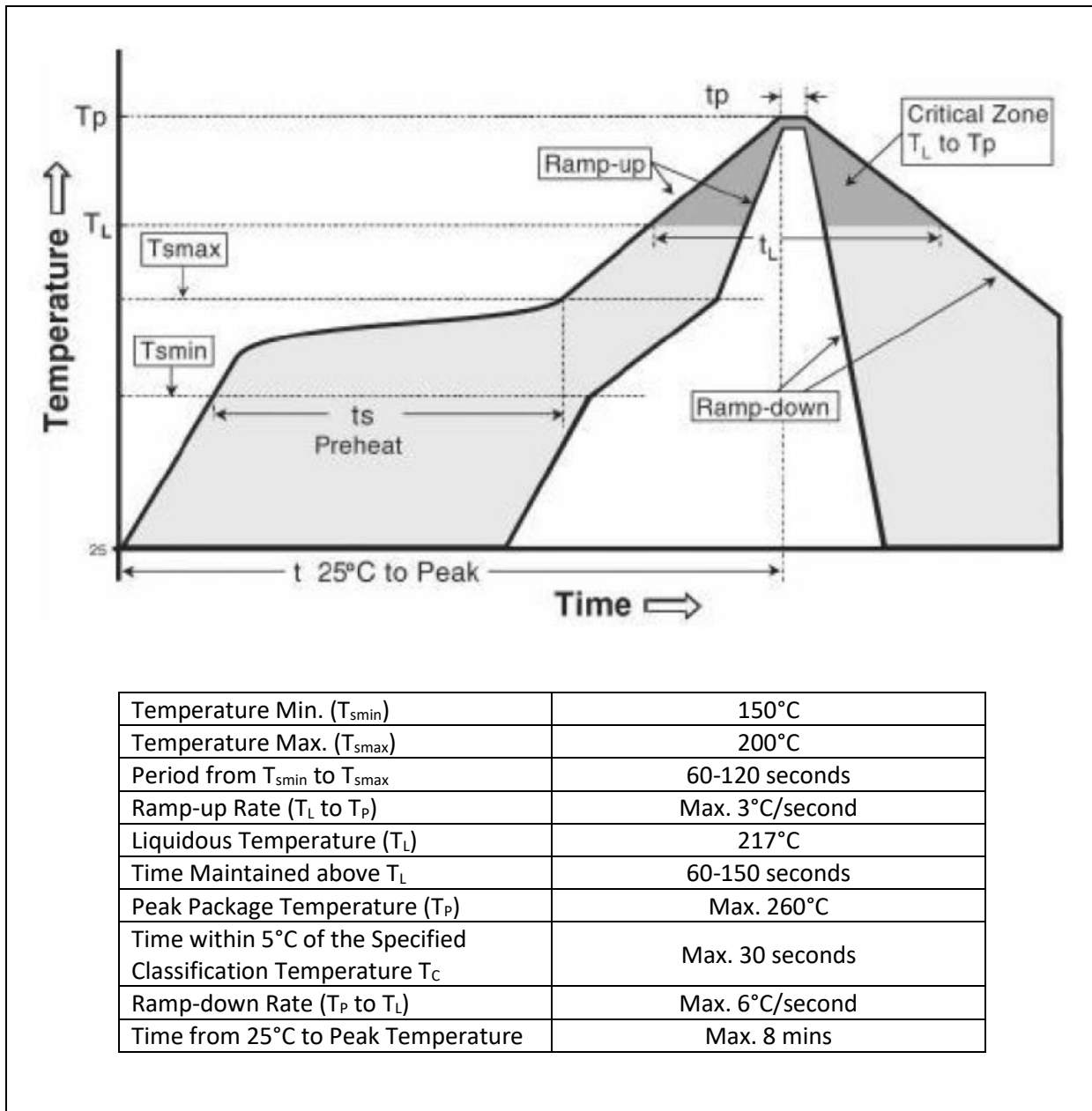


### Soldering Temperature v.s. Max. Current



## RECOMMENDED SOLDERING PROFILE:

Reflow Lead-free Solder:



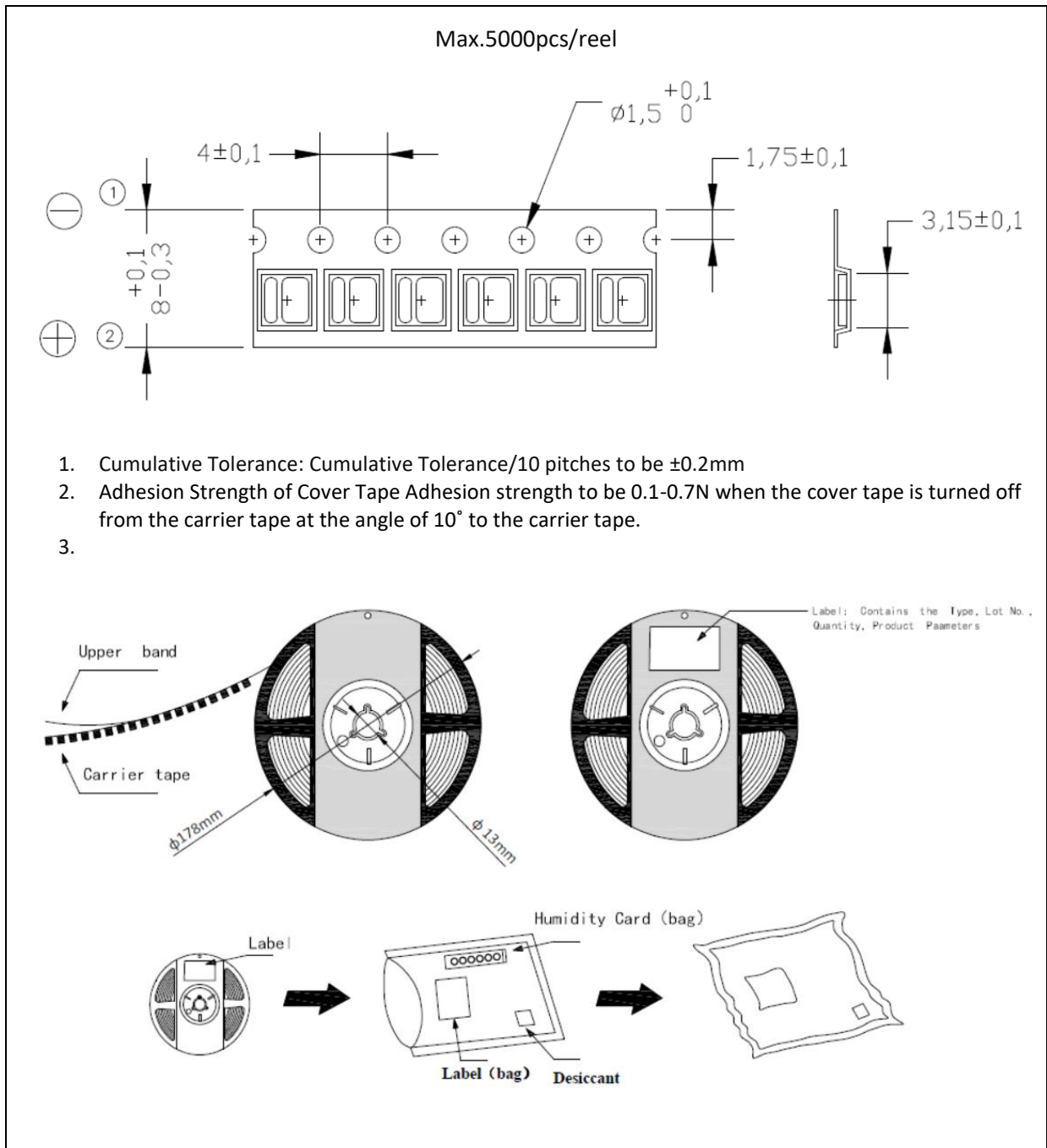
Note:

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: 230°C. The maximum soldering temperature should be limited to 260°C for max. 10seconds.



## PACKING SPECIFICATION:

Reel Dimension:



## PRECAUTIONS OF USE:

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### 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 desiccating 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-electrostatic glove is recommended when handling 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:**

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Version	Date	Summary of Revision
A1.0	02/06/2021	Datasheet set-up.
A1.1	04/09/2022	Refine wavelength bin gape and update flux rating.