



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 2-PIN SMD
- ▶ 5050 0.7t
- ▶ Natural White 5000K

NOW21S43



Release Date: 05 December 2022 Version: A1.2



5050 EMC Series

RoHS
Compliant



FEATURES:

- **Package:** Top View EMC White Package
- **Forward Current:** 200mA
- **Forward Voltage (typ.):** 18.0V
- **Luminous Flux (typ.):** 615lm@200mA
- **Colour:** Natural White
- **Colour Temperature (CCT):** 5000K
- **Viewing angle:** 120°
- **Materials:**
 - Die: InGaN
 - Resin: Silicon (Yellow Diffused)
 - Package: EMC
- **Operating Temperature:** -40~+105°C
- **Storage Temperature:** -40~+105°C
- **Grouping parameters:**
 - Forward Voltage
 - Luminous Flux
 - CIE Chromaticity
- **Soldering methods:** Reflow Soldering
- **MSL Level:** MSL3 according to J-STD020
- **Packing:** 12mm tape with max.2000/reel, ø178mm (7")

APPLICATIONS:

- General Lighting
- Portable Lighting
- Architectural Lighting
- Commercial Lighting
- Indoor Lighting
- Backlight for LCD

CHARACTERISTICS:

Absolute Maximum Characteristics (Ta=25°C)

Parameter	Symbol	Ratings	Unit
DC Forward Current	I _F	300	mA
Pulse Forward Current (Duty 1/10, width≤100μS)	I _{PF}	450	mA
Power Dissipation	P _D	6000	mW
Reverse Voltage	V _R	5	V
Reverse Current @10V	I _R	10	μA
Junction Temperature	T _j	120	°C
Thermal Resistance (Junction to Solder Point)	R _{THJ-SP}	2.5	°C/W
Operating Temperature	T _{OPR}	-40~+105	°C
Storage Temperature	T _{STG}	-40~+105	°C
Soldering Temperature	T _{SOL}	230/260 for 10S	°C
Colour Rendering Index	CRI	80	---

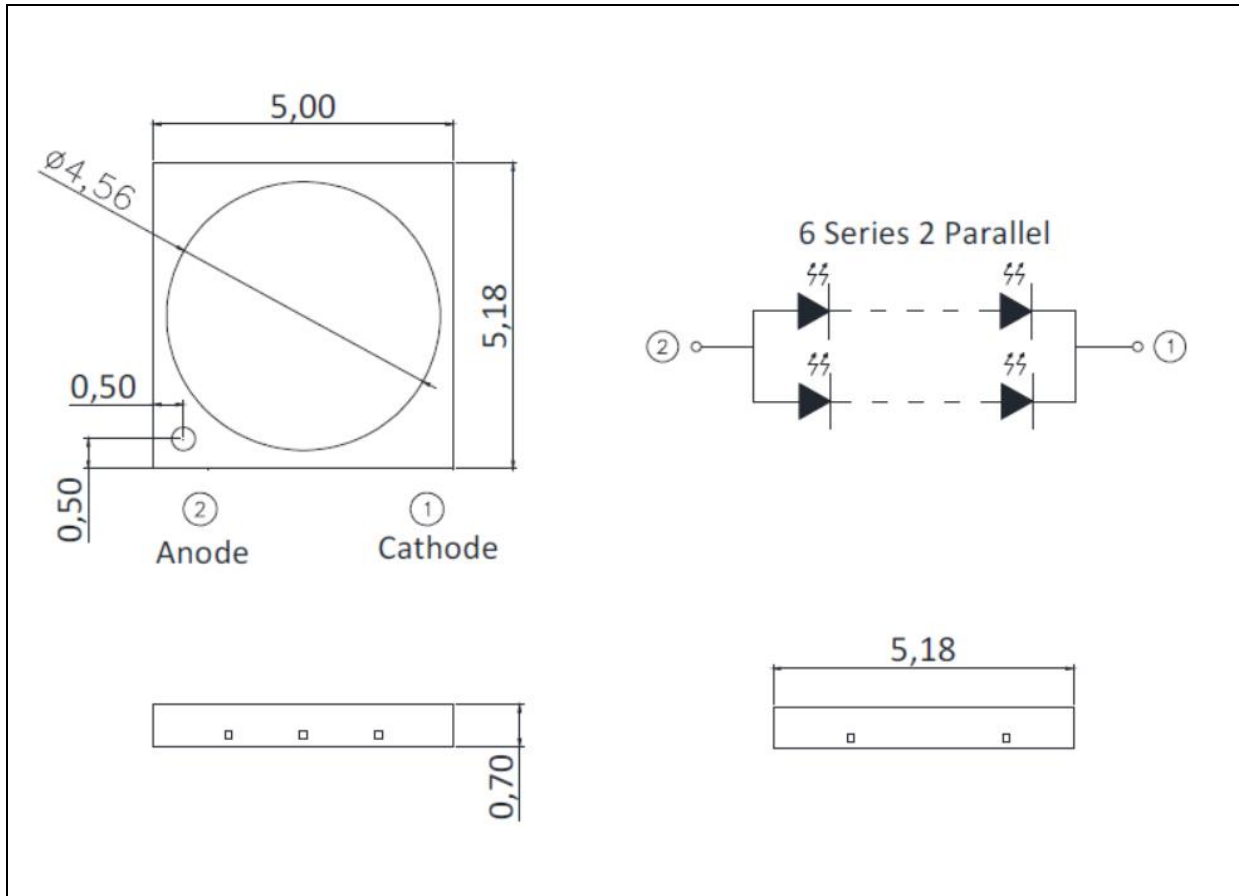
Electrical & Optical Characteristics (Ta=25°C)

Parameter	Symbol	Values			Unit	Test Condition
		Min.	Typ.	Max.		
Forward Voltage	V _F	16	18	20	V	I _F =200mA
Luminous Flux	Φ _v	550	615	---	lm	I _F =200mA
Chromaticity Coordinates	X	---	0.3451	---	---	I _F =200mA
	Y	---	0.3554	---		
Colour Temperature	CCT	4745	5028	5311	K	I _F =200mA
Viewing Angle	2θ _{1/2}	---	115	---	deg	I _F =200mA

1. Luminous flux (Φ_v) ±10%, Forward Voltage (V_F) ±0.1V, CRI ±2

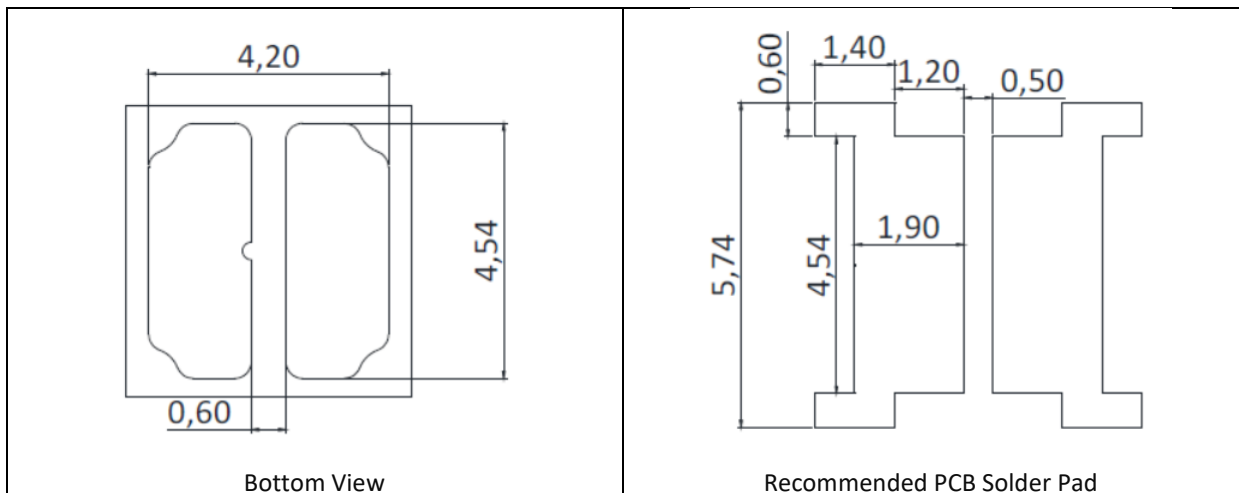
OUTLINE DIMENSION:

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 $\pm 0.5^\circ$.

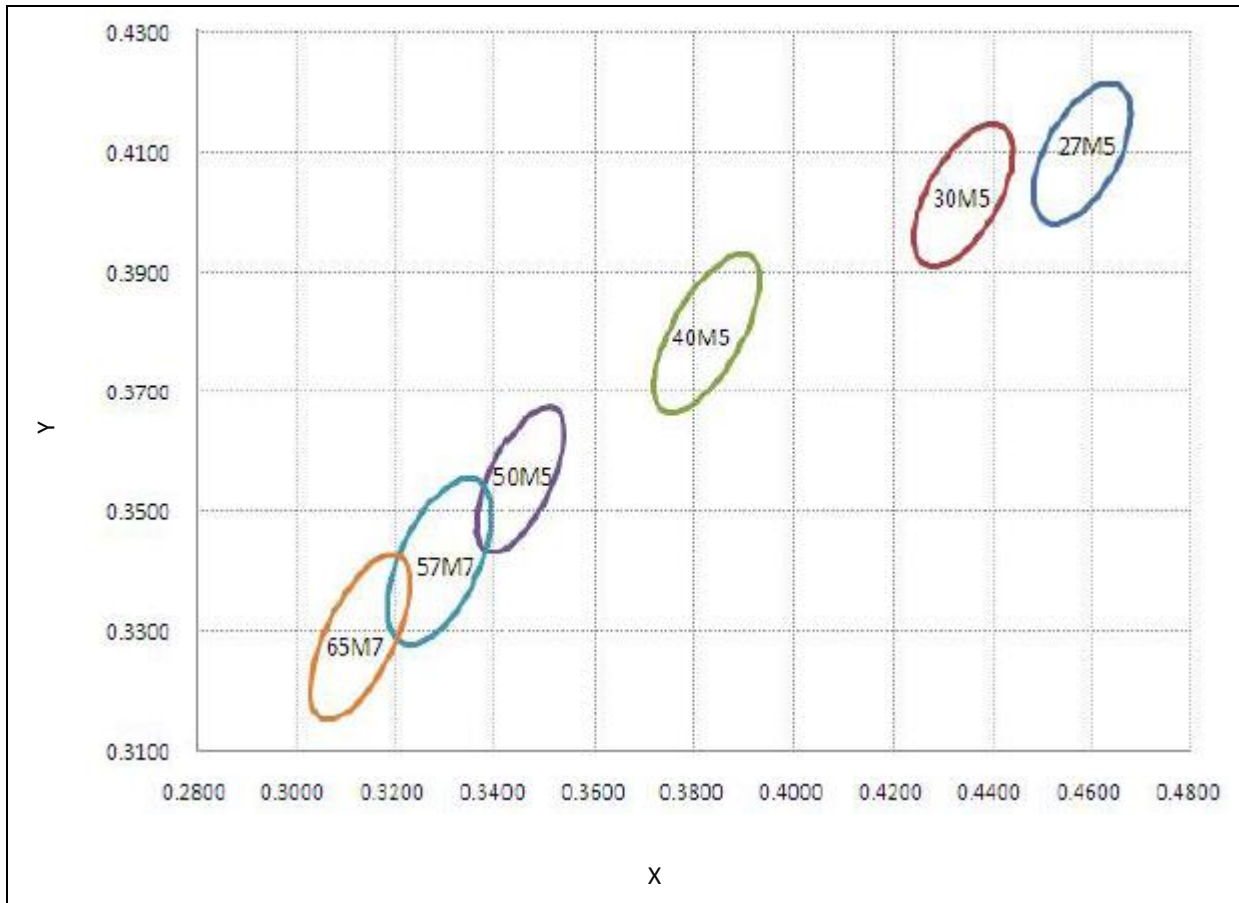
BINNING GROUPS:

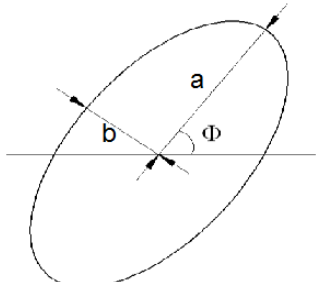
 Forward Voltage Classifications ($I_F = 200\text{mA}$):

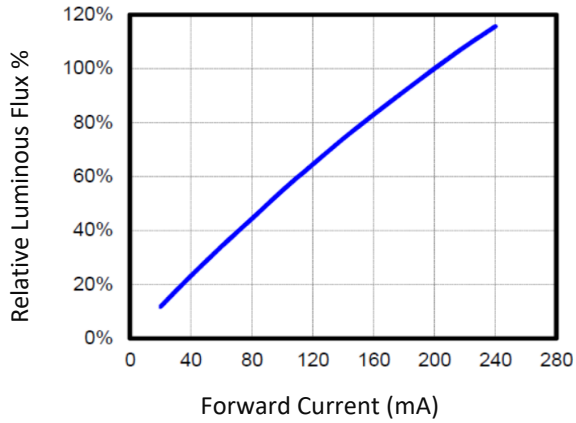
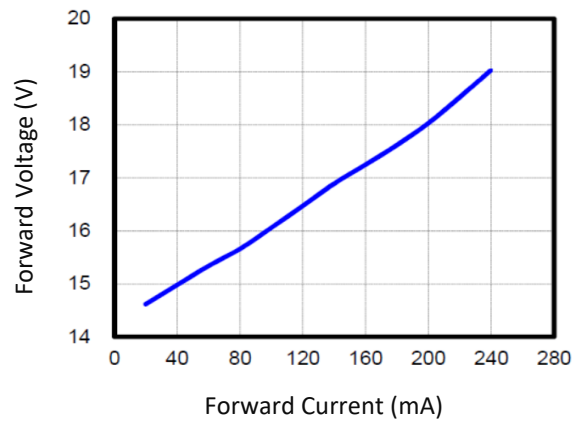
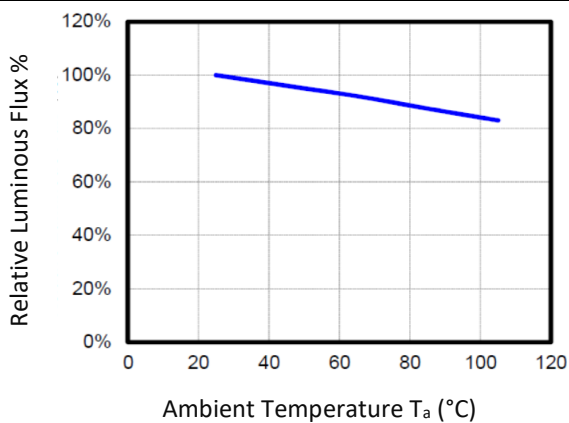
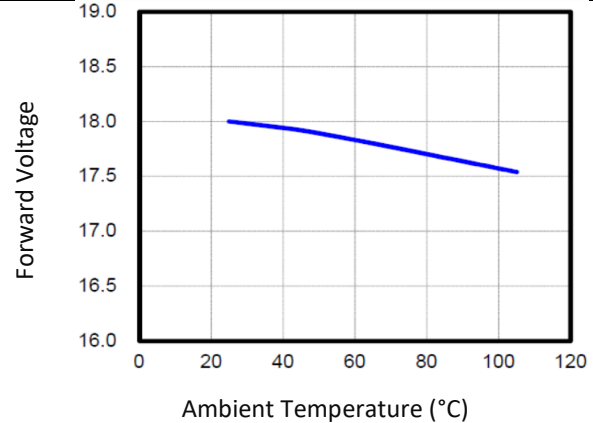
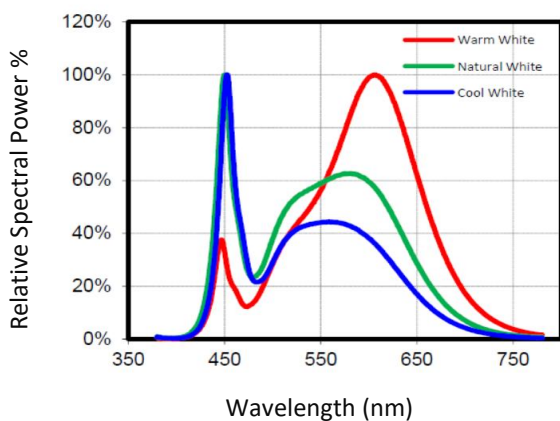
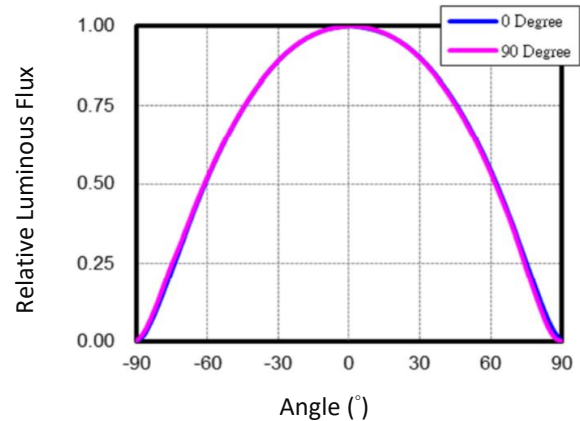
Code	Min.	Max.	Unit
6A	16	18	V
6B	18	20	

 Luminous Flux Classifications ($I_F = 200\text{mA}$):

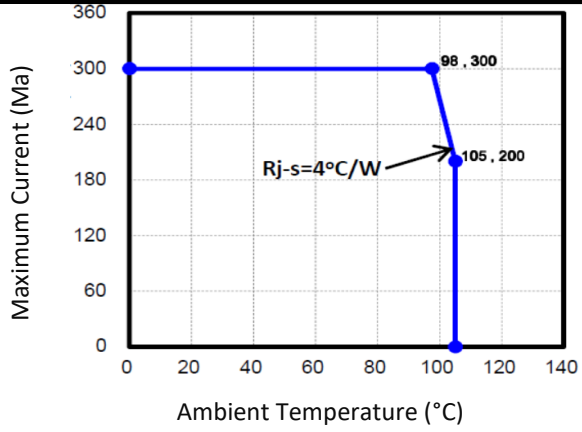
Code	Min.	Max.	Unit
GM	550	600	lm
GN	600	650	
GP	650	700	
GQ	700	750	

CIE CHROMATICITY DIAGRAM:

Chromaticity Coordinates Classifications ($I_F = 200\text{mA}$):

	Code	Centre		Radius		Angle
		X	Y	a	b	Φ
	50M5 (5 STEPS)	0.3451	0.3554	0.013700	0.005900	59.37

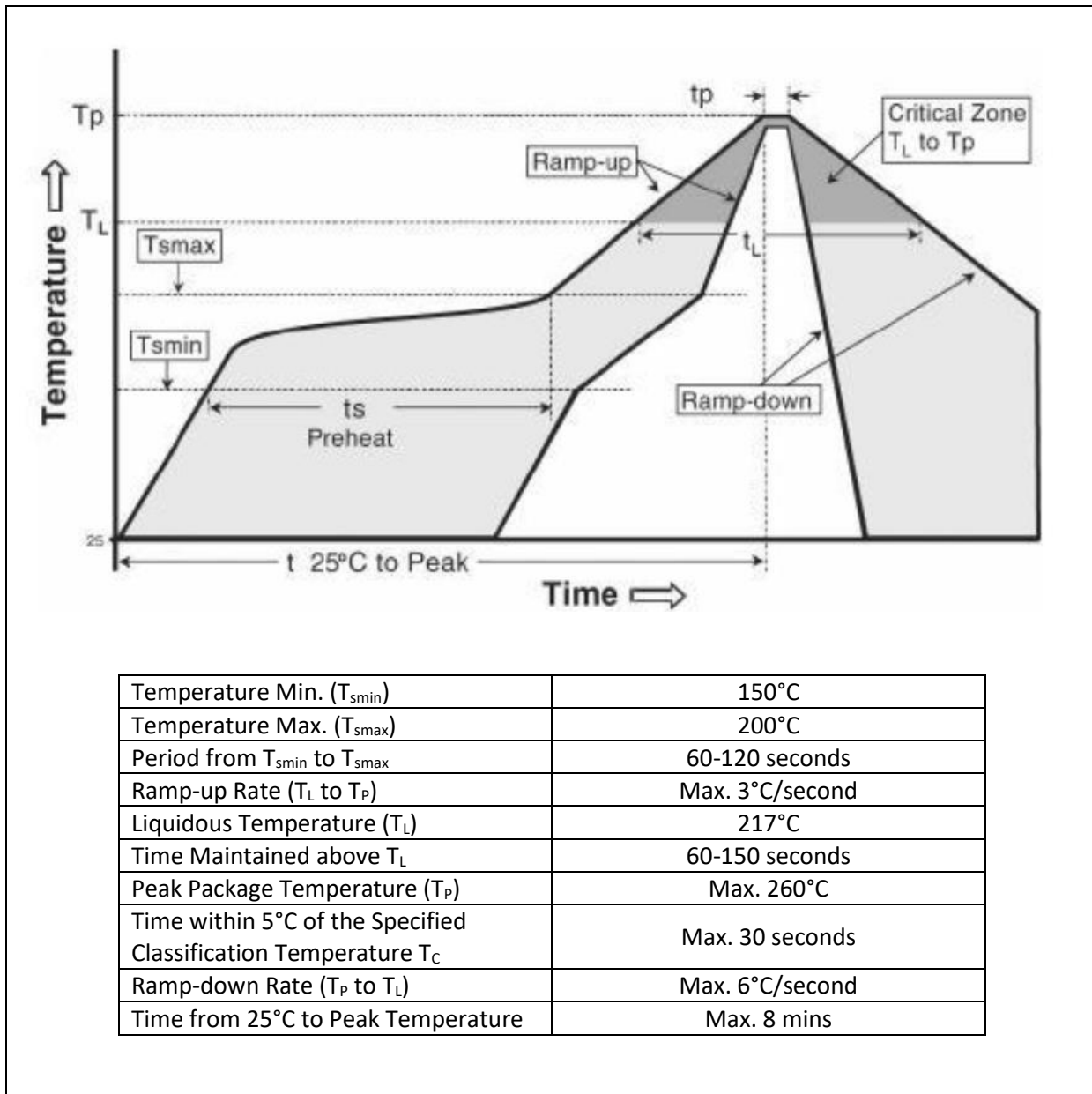
ELECTRO-OPTICAL CHARACTERISTICS:
Relative Luminous Flux v.s. Forward Current

Forward Current v.s. Forward Voltage

Relative Luminous Flux v.s. Ambient Temp.

Forward Voltage v.s. Ambient Temp.

Relative Spectral Power v.s. Wavelength

Directive Radiation


Forward Current Derating Curve



RECOMMENDED SOLDERING PROFILE:

Reflow Lead-free Solder:

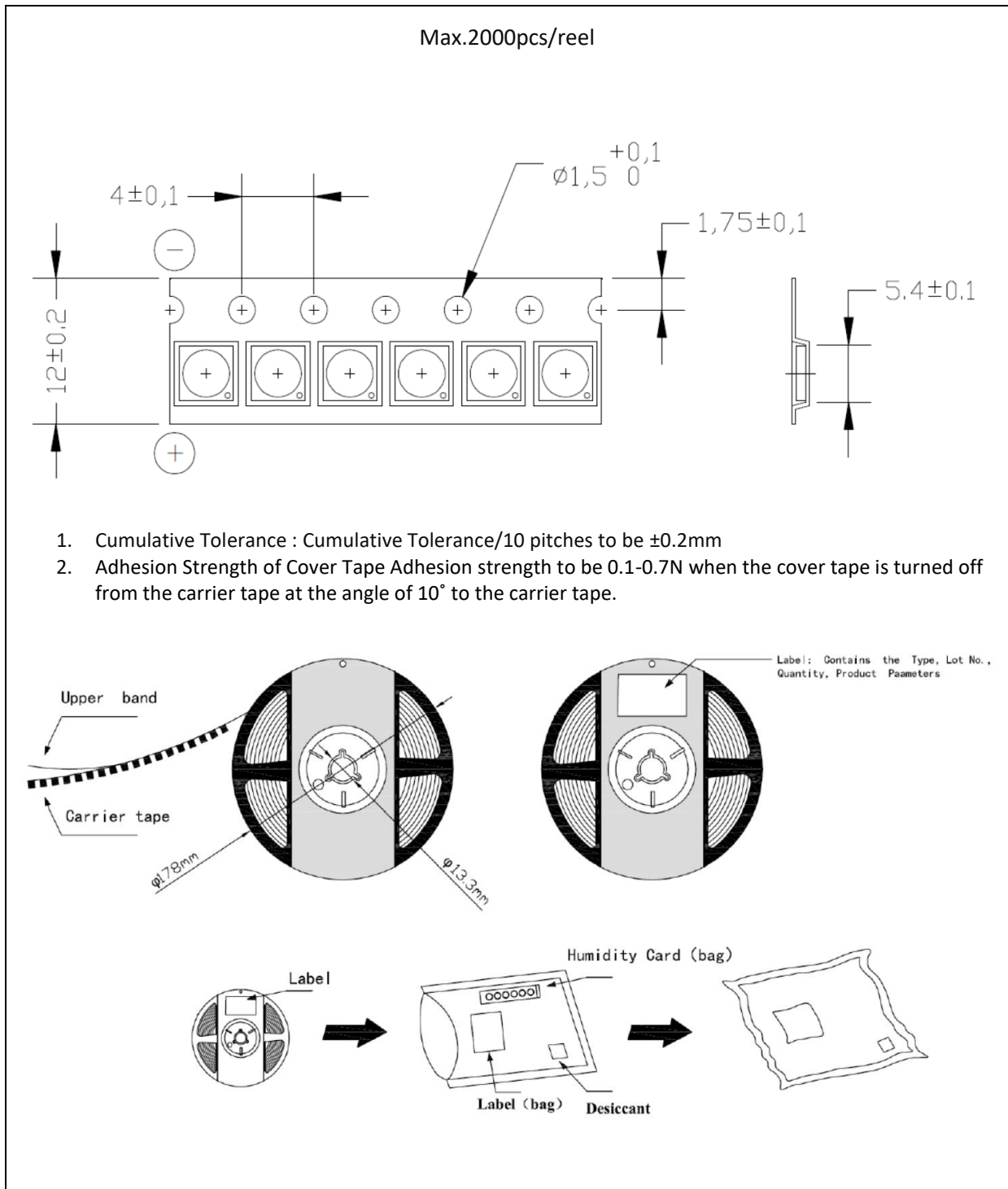


Note:

1. Maximum reflow soldering: 2 times.
2. Before, during, and after soldering, should not apply stress on the components and PCB board.
3. 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:

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.

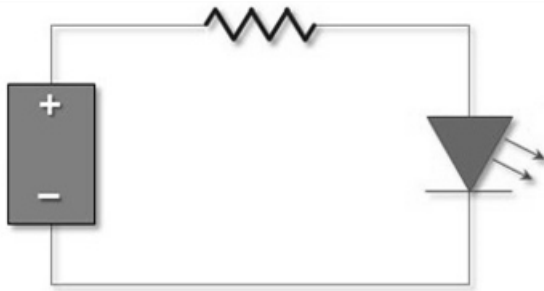
Baking:

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-electrosatic 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:

Version	Date	Summary of Revision
A1.0	24/08/2016	Datasheet set-up.
A1.1	15/07/2020	Update description and storage condition.
A1.2	05/12/2022	Revise flux bin range.