



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

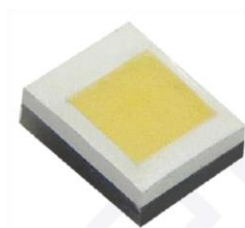


- ▶ Ceramic High Power
- ▶ 1519 0.8t Series
- ▶ Cool White 6000K

NOW51S56Z



Release Date: 23 April 2023 Version: A1.5



1519 0.8t Series

1519 0.8t Series

RoHS
Compliant



AUTOMOTIVE
AEC-Q102

FEATURES:

- **Package:** Ceramic High-Power SMT Package
- **Forward Current:** 500~1500mA
- **Forward Voltage (typ.):** 3.1V
- **Luminous Flux (typ.):** 175lm@500mA
- **Colour:** Cool White
- **Colour Temperature (CCT):** 5400~6700K
- **Viewing Angle:** 120°
- **Materials:**
 - Resin: Silicon (Yellow Diffused)
 - L/T Finish: Au plated
- **Operating Temperature:** -40~+125°C
- **Storage Temperature:** -40~+125°C
- **Grouping Parameters:**
 - Forward Voltage
 - Luminous Flux
 - CIE Chromaticity
- **Soldering Methods:** Reflow
- **MSL Level:** 2 according to J-STD020
- **Packing:** 8mm tape with max.3000pcs /reel, ø180mm (7")

APPLICATIONS:

- Automotive Exterior Lighting
- Decorative Lighting
- Portable Lighting
- Outdoor Lighting
- Commercial Lighting
- Indoor Lighting
- Industrial Lighting

CHARACTERISTICS:

Absolute Maximum Characteristics (Ta=25°C)

Parameter	Symbol	Ratings	Unit
DC Forward Current	I _F	1500	mA
Pulse Forward Current Duty 1/10, Pulse Width 10mS	I _{PF}	3000	mA
Reverse Voltage	V _R	5	V
Reverse Current @5V	I _R	10	μA
Junction Temperature	T _j	150	°C
Thermal Resistance Junction to Solder Point	R _{THJ-S}	4	°C/W
Electrostatic Discharge (HBM: ANSI/JEDEC JS-001 Class 3B)	ESD	8000	V
Operating Temperature	T _{OPR}	-40~+125	°C
Storage Temperature	T _{STG}	-40~+125	°C
Soldering Temperature	T _{SOL}	260	°C

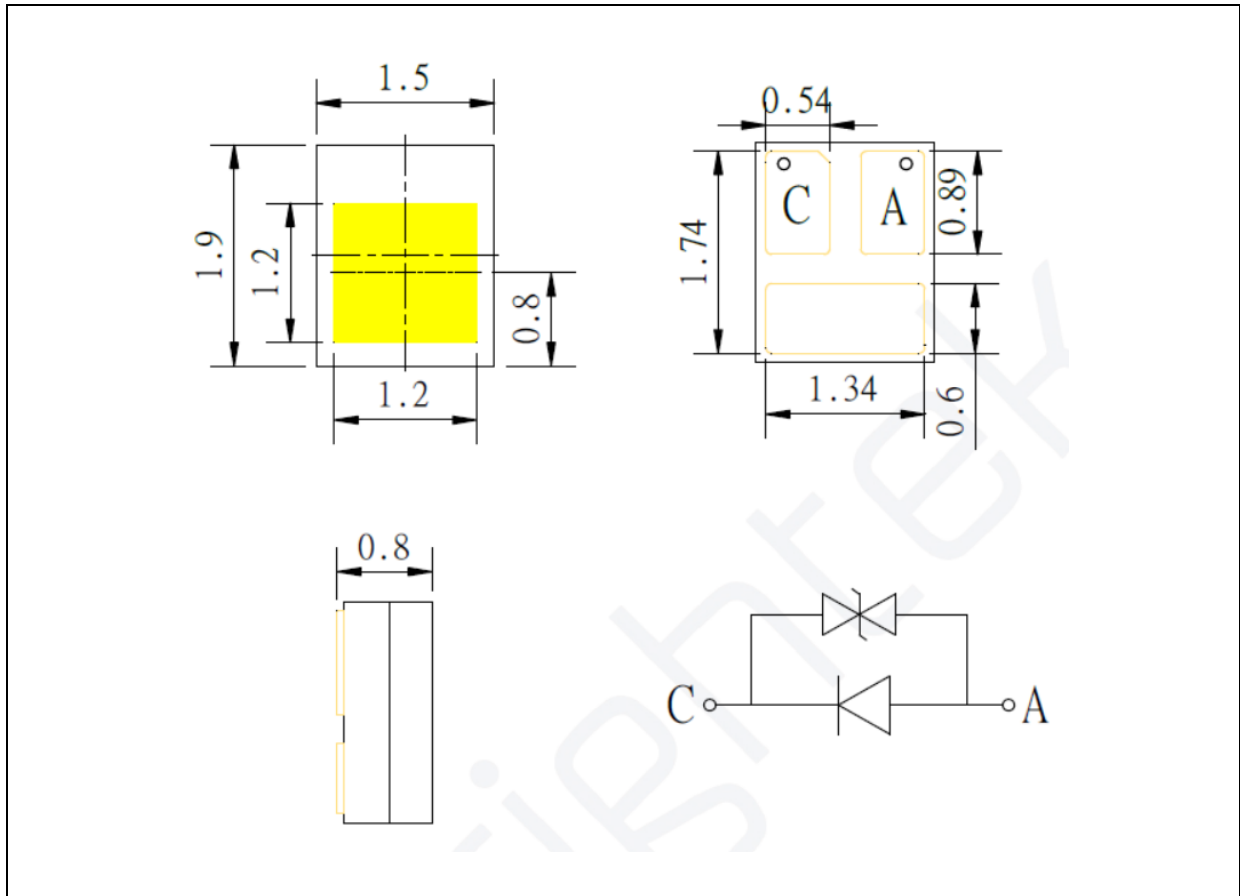
Electrical & Optical Characteristics (Ta=25°C)

Parameter	Symbol	Values			Unit	Test Condition
		Min.	Typ.	Max.		
Forward Voltage	V _F	2.8	---	3.4	V	I _F =500mA
Luminous Flux	Φ _V	150	---	200	lm	I _F =500mA
Chromaticity Coordinates	X	0.3100	---	0.3380	---	I _F =500mA
	Y	0.3120	---	0.3660		
Color Temperature	CCT	5400	6000	6700	K	I _F =500mA
Viewing Angle	2θ _{1/2}	---	120	---	deg	I _F =500mA

1. Luminous flux (Φ_V) ±7%, Forward Voltage (V_F) ±0.05V, Viewing angle(2θ_{1/2}) ±10°

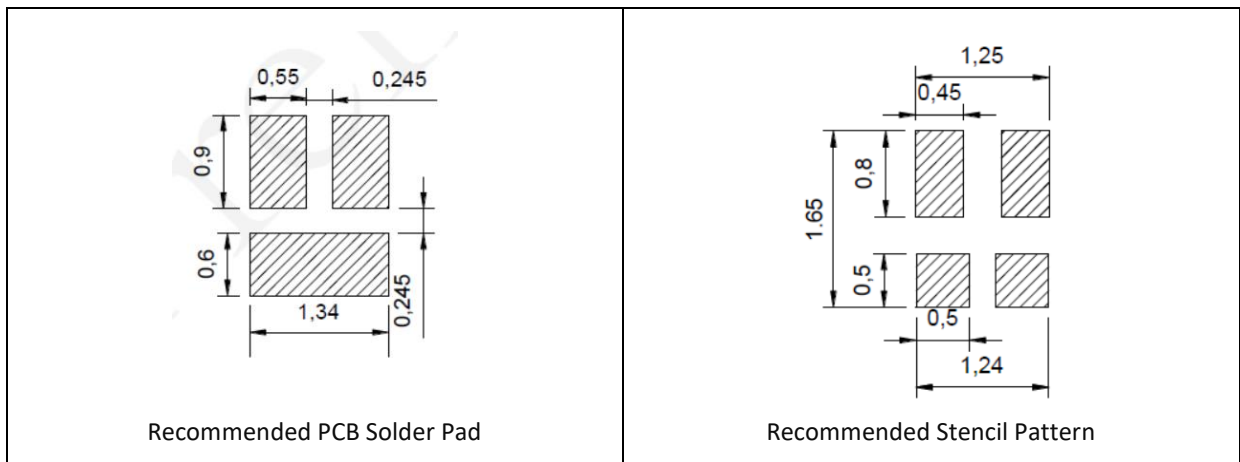
OUTLINE DIMENSION:

Package Dimension:



1. All dimensions are in millimetre (mm).
2. Tolerance $\pm 0.13\text{mm}$, unless otherwise noted.

Recommended Soldering Pad Dimension:



1. Dimensions are in millimetre (mm).
2. Tolerance $\pm 0.12\text{mm}$ with angle tolerance $\pm 0.5^\circ$.

BINNING GROUPS:

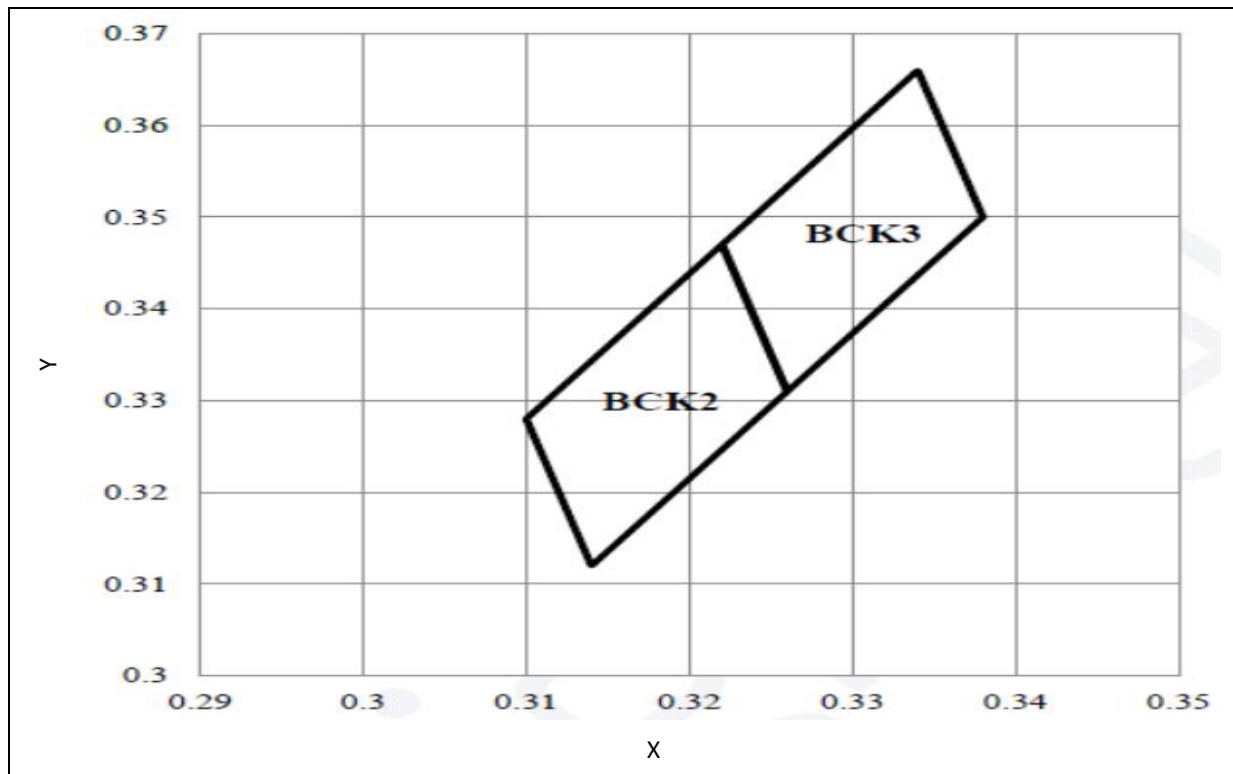
Forward Voltage Classifications ($I_F = 500\text{mA}$):

Code	Min.	Max.	Unit
L	2.8	3.0	V
M	3.0	3.2	
N	3.2	3.4	

Luminous Flux Classifications ($I_F = 500\text{mA}$):

Code	Min.	Max.	Unit
29	150	170	lm
30	170	200	

CIE CHROMATICITY DIAGRAM:

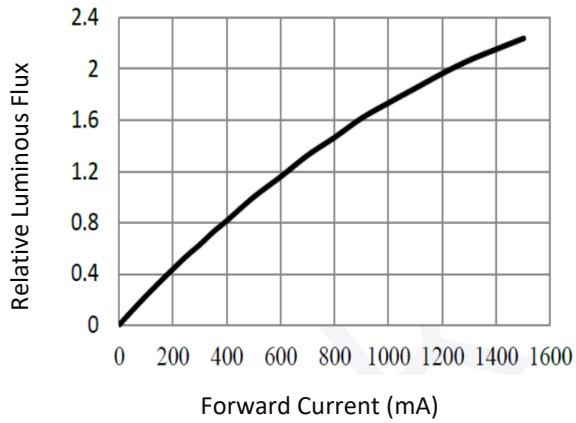


Chromaticity Coordinates Classifications ($I_F = 500\text{mA}$):

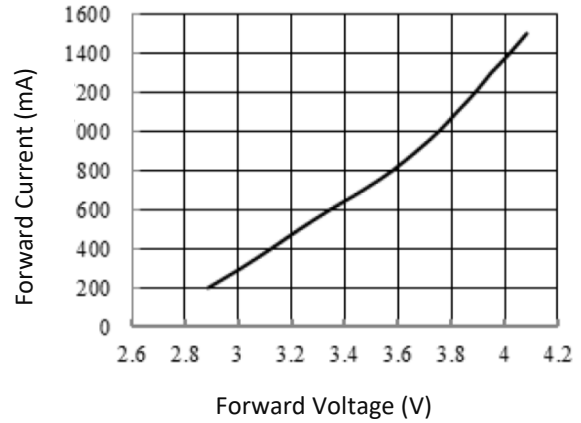
	1		2		3		4	
	X	Y	X	Y	X	Y	X	Y
BCK2	0.3100	0.3280	0.3140	0.3120	0.3260	0.3310	0.3220	0.3470
BCK3	0.3220	0.3470	0.3260	0.3310	0.3380	0.3500	0.3340	0.3660

ELECTRO-OPTICAL CHARACTERISTICS:

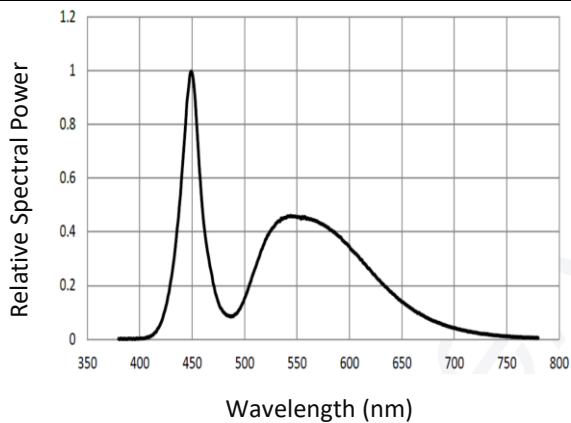
Relative Luminous Flux v.s. Forward Current



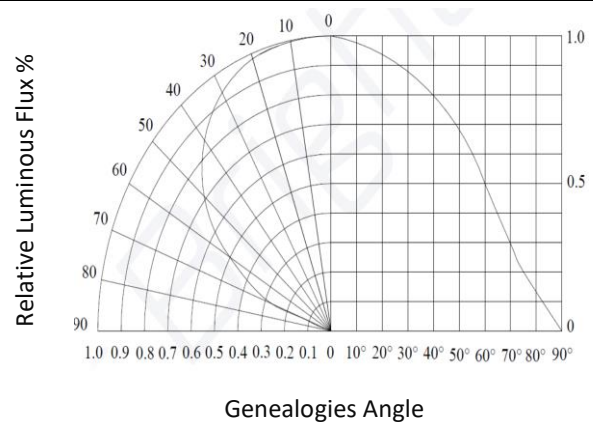
Forward Current v.s. Forward Voltage



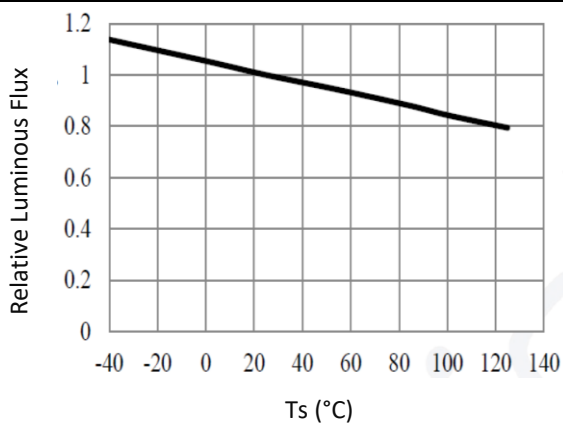
Relative Spectral Power v.s. Wavelength



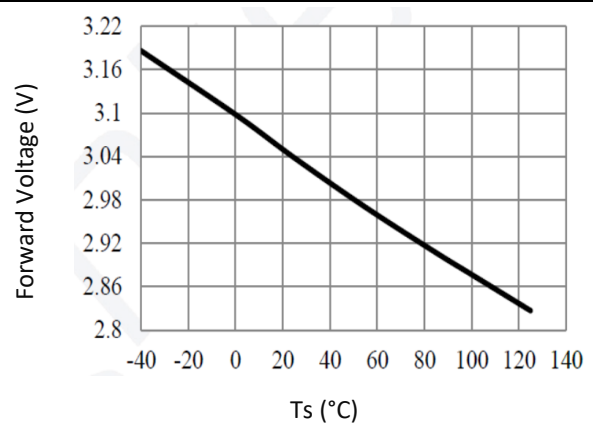
Directive Radiation



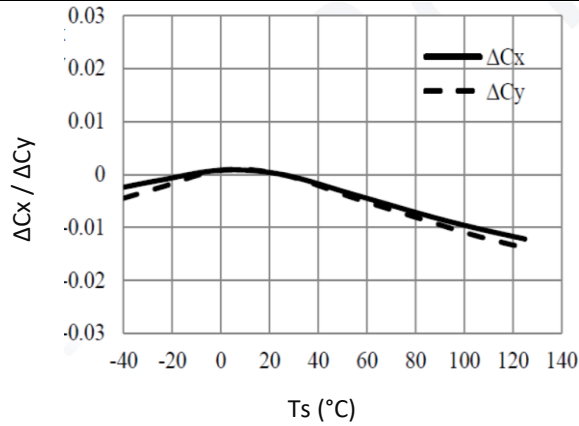
Relative Luminous Flux v.s. Solder Temperature



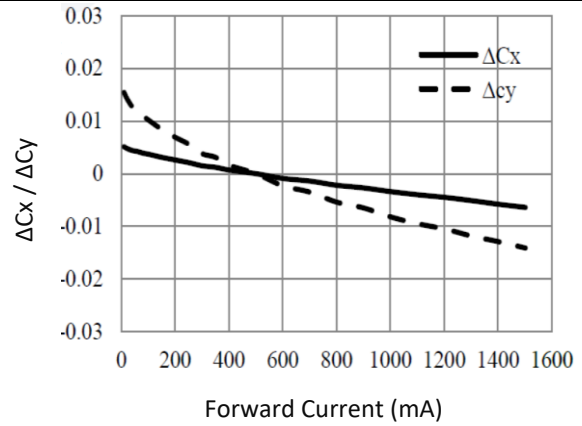
Forward Voltage v.s. Solder Temperature



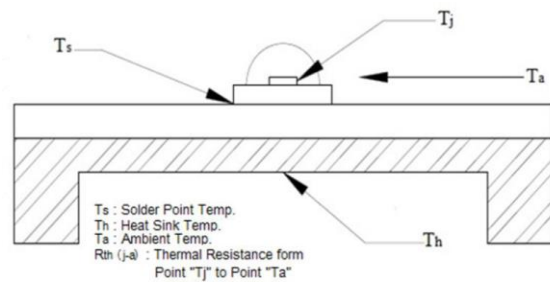
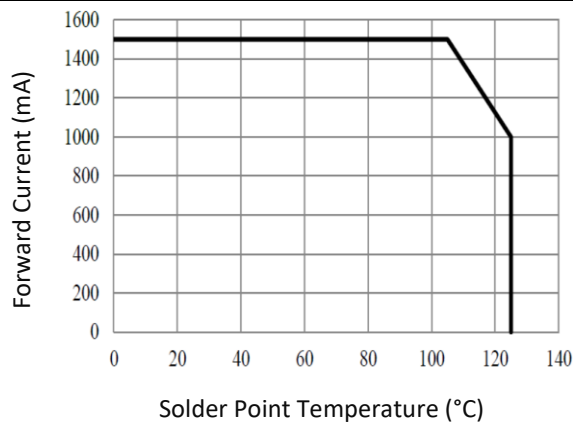
Chromaticity Coordinate Shift v.s. Solder Temp.



Chromaticity Coordinate Shift v.s. Current

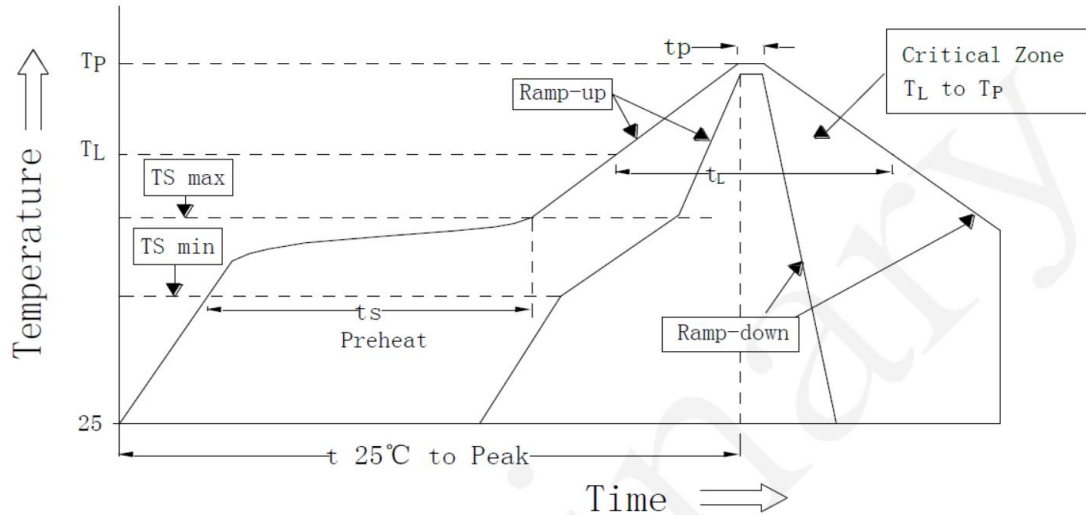


Forward Current Derating Curve



RECOMMENDED SOLDERING PROFILE:

Reflow Lead-free Solder:



Profile Feature	Symbol	Pb-Free (SnAgCu) Assembly			Unit
		Min.	Recommendation	Max.	
Ramp-up rate to preheat (25°C to 150°C)			2	3	K/s
Time ts (TS min to TS max)	ts	60	100	120	s
Ramp-up rate to peak (TS max to TP)			2	3	K/s
Liquidus temperature	TL		217		°C
Time above liquidus temperature	tL		80	100	s
Peak temperature	TP		245	260	°C
Time within 5 °C of the specified peak temperature TP - 5 K	tp	10	20	30	s
Ramp-down Rate (TP to 100 °C)			3	4	K/s
Time 25 °C to TP				480	s

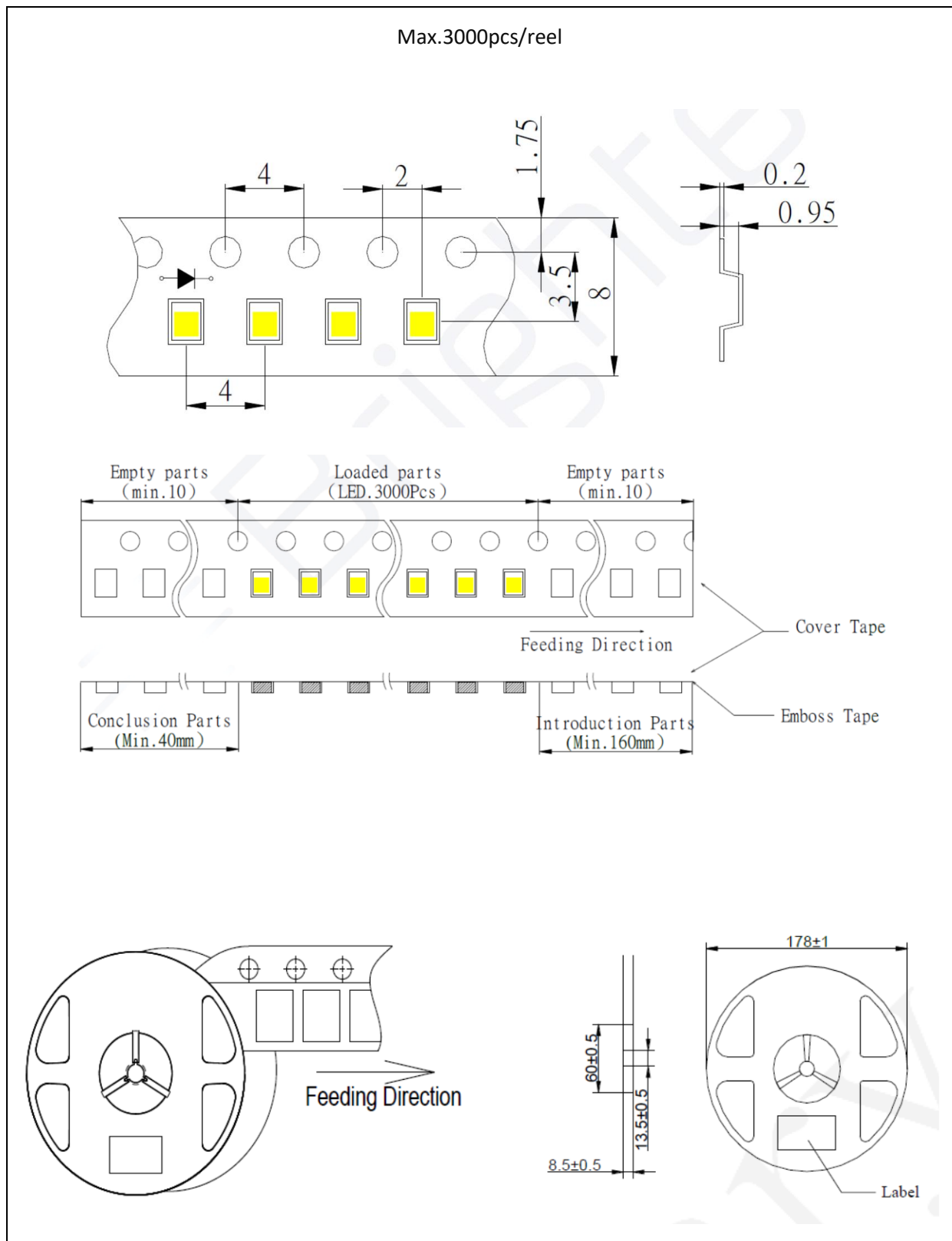
Note:

1. Maximum reflow soldering: 2 times.
2. The 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:



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±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-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:

Version	Date	Summary of Revision
A1.0	11/06/2020	Datasheet set-up.
A1.1	22/04/2022	New datasheet format.
A1.2	29/11/2022	Update bin table and charts.
A1.3	30/11/2022	Update Au plating.
A1.4	15/12/2022	Correct colour temperature unit.
A1.5	23/04/2023	Revise pulse mode pulse width.