BRIGHTEK

BRIGHTEK (EUROPE) LIMITED

Brighten Up The World With LED!

ISO/TS 16949:2009 BS EN ISO 14001:2004 QC 080000 IECQ HSPM

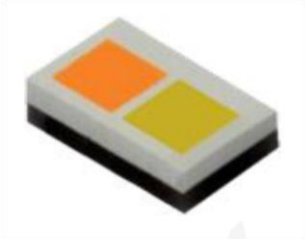
PRODUCT DATASHEET

ATTENTION
OBSERVE PRECAUTIONS FOR HANDLING ELECTROSTATIC SENSITIVE DEVICES

- ► Ceramic High Power
- ► 1519 0.8t Series
- ► Cool White 6000K / Gold White (PC Amber) 1700K

Release Date: 05 February 2023 Version: A1.1

N0D64S30ZPC



1519 0.8t Series

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RoHS Compliant

AUTOMOTIVE AEC-Q102

FEATURES:

- **Package:** Ceramic High-Power SMT Package
- **Forward Current:** 200/200mA*
- **Forward Voltage (typ.):** 3.1/3.0V
- **Luminous Flux (typ.):** 65/40lm@200mA
- **Colour:** Cool White / Gold White (PC Amber)
- **Colour Temperature (typ.):** 6000/1700K
- **Viewing angle:** 120/120°
- **Materials:**
  - Resin: Silicon (Yellow Diffused)
- **Operating Temperature:** -40~+125°C
- **Storage Temperature:** -40~+125°C
- **ESD:** 8KV (HBM: ANSI/JEDEC JS-001 Class 3B)
- **Grouping parameters:**
  - Forward Voltage
  - Luminous Flux
  - CIE Chromaticity
- **Soldering methods:** Reflow
- **MSL Level:** according to J-STD020 Level 2
- **Packing:** 8mm tape with max.3000pcs /reel, ø180mm (7'')

* in the order of Cool White/Gold White

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	500/500*	mA
Pulse Forward Current Duty 1/10, Pulse Width 10mS	I_{PF}	700/700	mA
Reverse Voltage	V_R	5/5	V
Reverse Current @5V	I_R	10/10	μA
Junction Temperature	T_j	150	°C
Thermal Resistance Junction to Solder Point	R_{THJ-S}	6/8	°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

* in the order of Cool White/Gold White

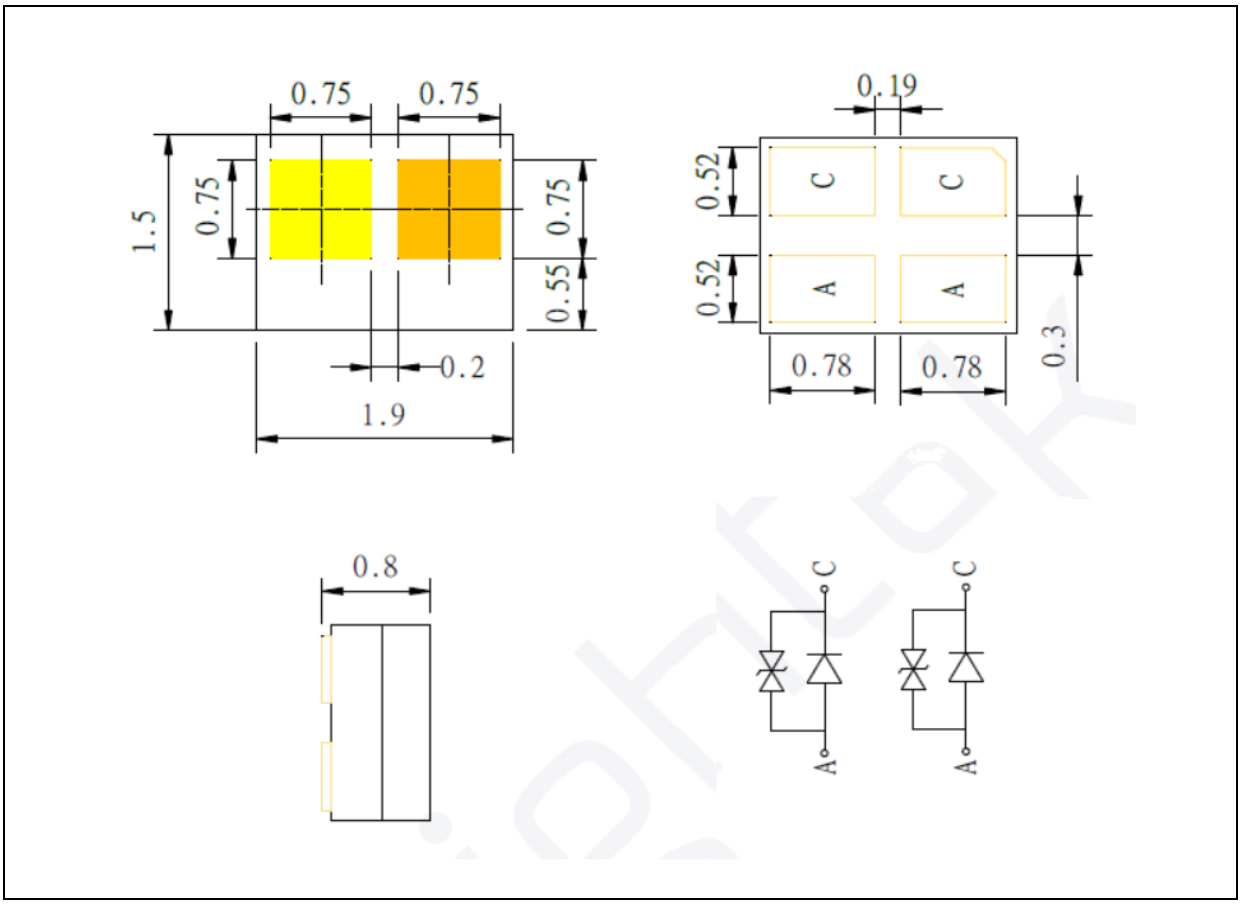
Electrical & Optical Characteristics (Ta=25°C)

Parameter	Symbol	Values			Unit	Test Condition
		Min.	Typ.	Max.		
Forward Voltage	V_F	2.8/2.8*	3.1/3.0	3.4/3.4	V	I_F=200mA
Luminous Flux	Φ_V	50/32	65/40	76/50	lm	I_F=200mA
Colour Temperature	CCT	5400/1600	6000/1700	6700/1800	K	I_F=200mA
Viewing Angle	$2\theta_{1/2}$	---	120/120	---	deg	I_F=200mA

1. Luminous flux (Φ_V) ±7%, Forward Voltage (V_F) ±0.05V, Viewing angle($2\theta_{1/2}$) ±10°
2. * in the order of Cool White/Gold White

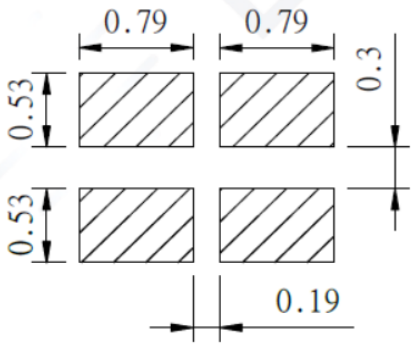
OUTLINE DIMENSION:

Package Dimension:

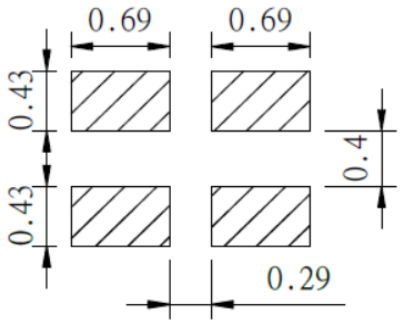


1. All dimensions are in millimetre (mm).
2. Tolerance ±0.13mm, unless otherwise noted.

Recommended Soldering Pad Dimension:



Recommended PCB Solder Pad



Recommended Stencil Pattern

1. Dimensions are in millimetre (mm).
2. Tolerance ±0.12mm with angle tolerance ±0.5°.

BINNING GROUPS:

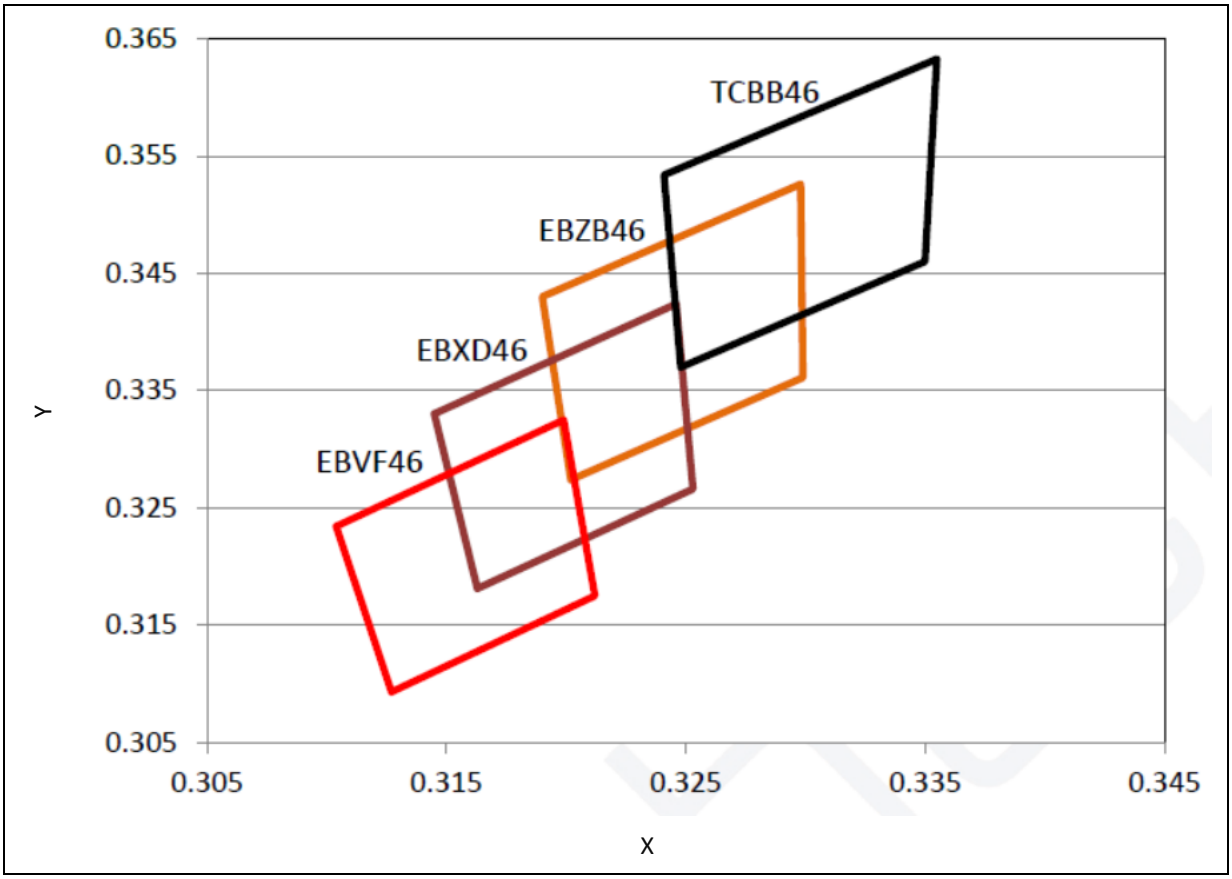
Forward Voltage Classifications (I_F = 200mA):

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 = 200mA):

Code		Min.	Max.	Unit
Cool White	21	50	58	lm
	22	58	66	
	23	66	76	
Gold White	18	32	38	lm
	19	38	44	
	20	44	50	

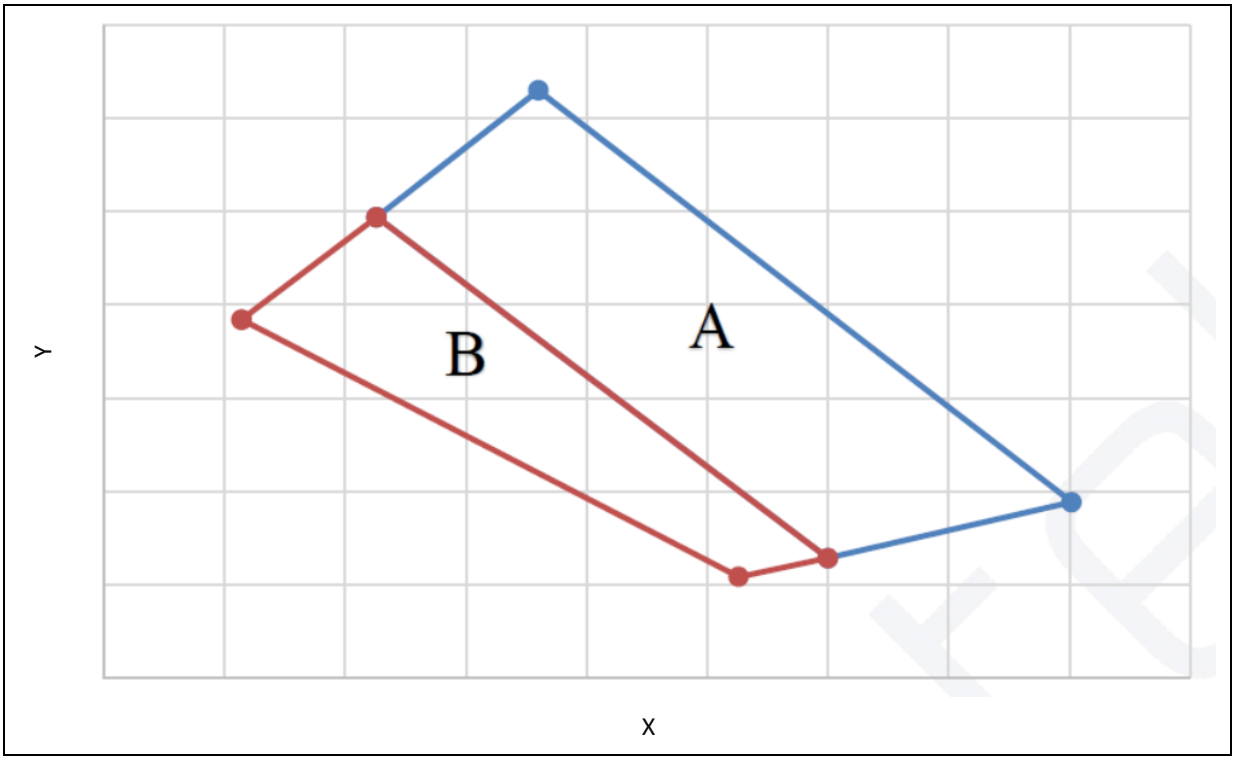
CIE CHROMATICITY DIAGRAM (COOL WHITE):



Chromaticity Coordinates Classifications (I_F = 200mA):

	1		2		3		4	
	X	Y	X	Y	X	Y	X	Y
TCBB46	0.3248	0.3370	0.3350	0.3460	0.3355	0.3633	0.3241	0.3534
EBZB46	0.3202	0.3274	0.3299	0.3361	0.3298	0.3526	0.3190	0.3430
EBXD46	0.3163	0.3181	0.3253	0.3266	0.3246	0.3424	0.3145	0.3330
EBVF46	0.3127	0.3093	0.3212	0.3175	0.3199	0.3325	0.3104	0.3234

CIE CHROMATICITY DIAGRAM (GOLD WHITE):

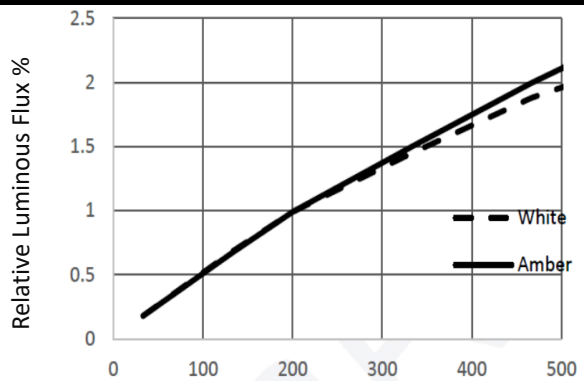


Chromaticity Coordinates Classifications (I_F = 200mA):

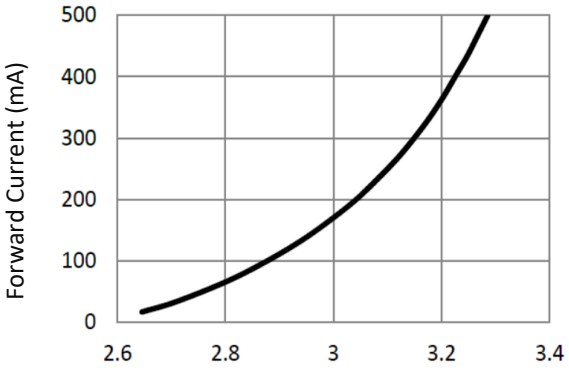
	1		2		3		4	
	X	Y	X	Y	X	Y	X	Y
A	0.5613	0.5901	0.4247	0.4094	0.5800	0.5680	0.4064	0.4315
B	0.5557	0.5800	0.4192	0.4064	0.5763	0.5613	0.4054	0.4247

ELECTRO-OPTICAL CHARACTERISTICS:

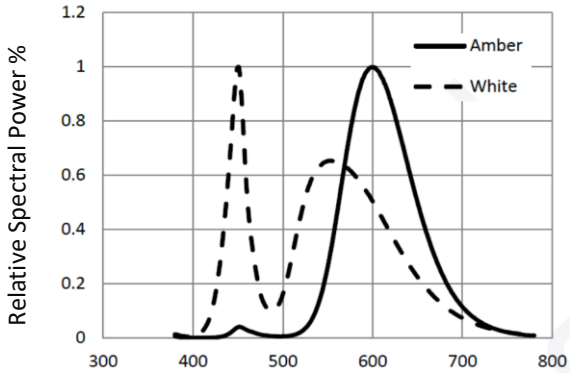
Relative Luminous Flux v.s. Forward Current



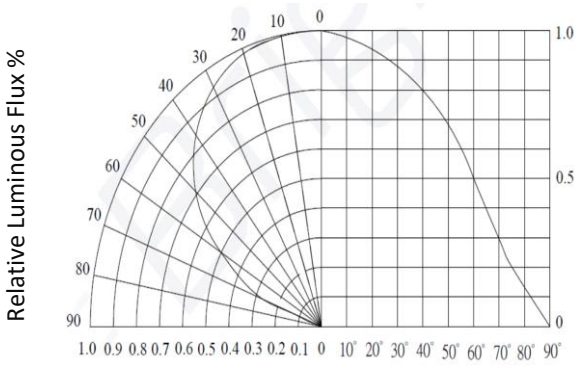
Forward Current v.s. Forward Voltage



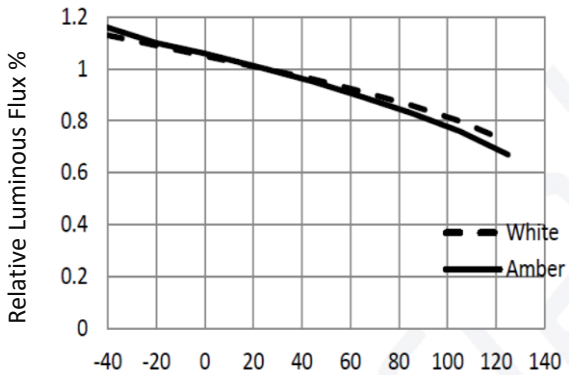
Relative Spectral Power v.s. Wavelength



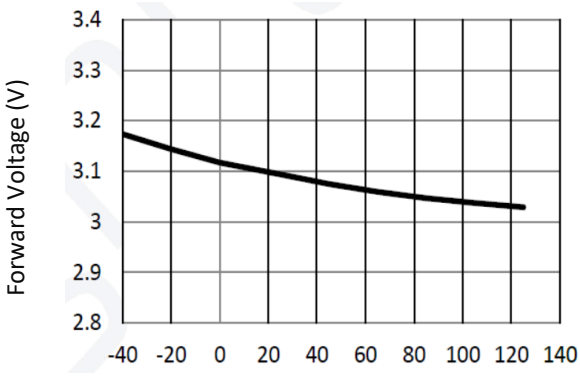
Directive Radiation



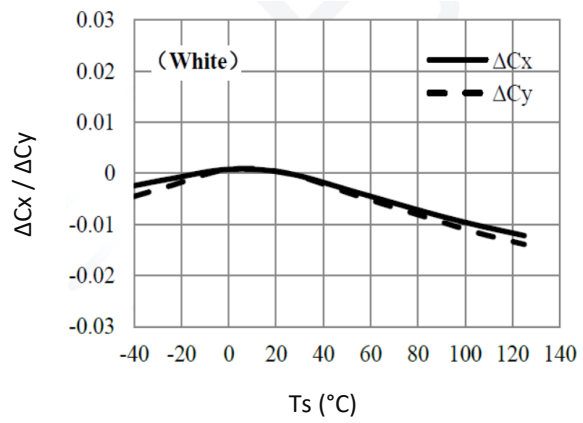
Relative Luminous Flux v.s. Solder Temperature



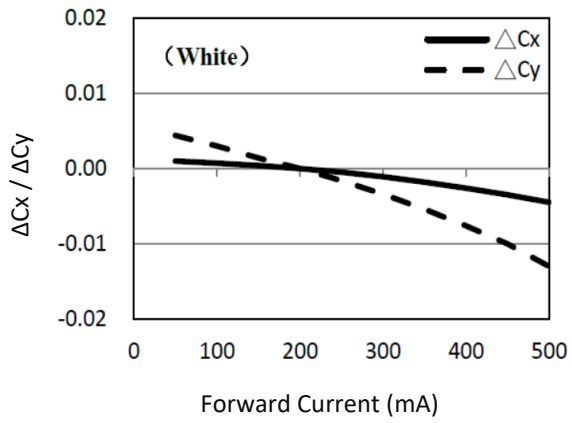
Forward Voltage v.s. Solder Temperature



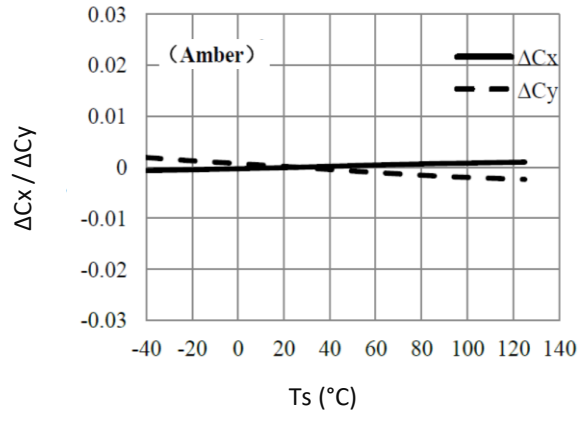
Chromaticity Coordinate Shift v.s. Solder Temp.



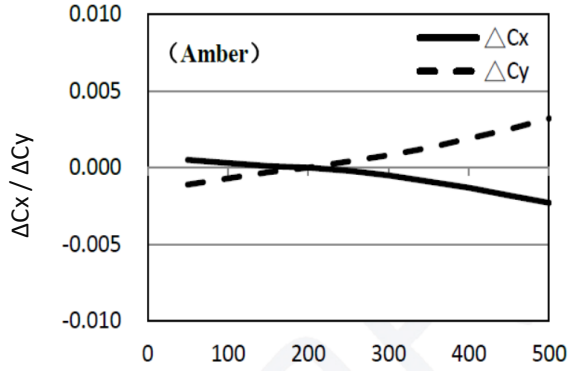
Chromaticity Coordinate Shift v.s. Current



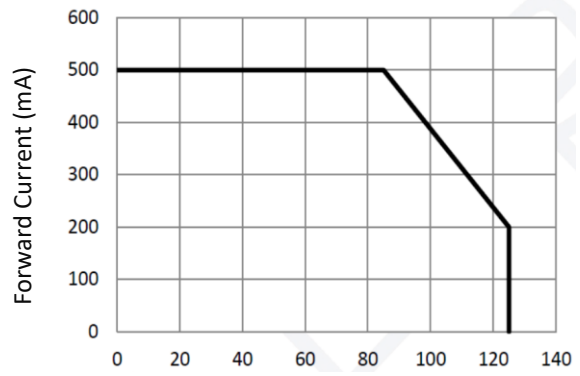
Chromaticity Coordinate Shift v.s. Solder Temp.

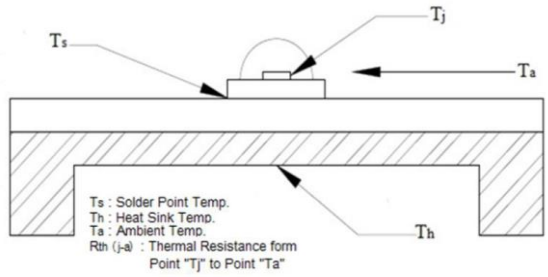


Chromaticity Coordinate Shift v.s. Current



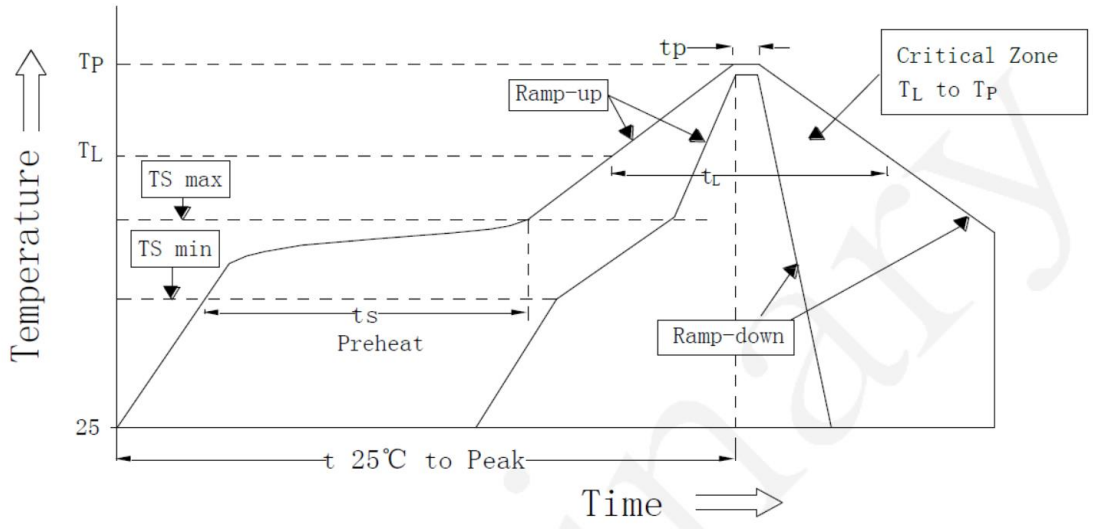
Forward Current Derating Curve





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 t_S ($T_{S\,min}$ to $T_{S\,max}$)	t_S	60	100	120	s
Ramp-up rate to peak ($T_{S\,max}$ to T_P)			2	3	K/s
Liquidus temperature	T_L		217		°C
Time above liquidus temperature	t_L		80	100	s
Peak temperature	T_P		245	260	°C
Time within 5 °C of the specified peak temperature T_P - 5 K	t_P	10	20	30	s
Ramp-down Rate (T_P to 100 °C)			3	4	K/s
Time 25 °C to T_P				480	s

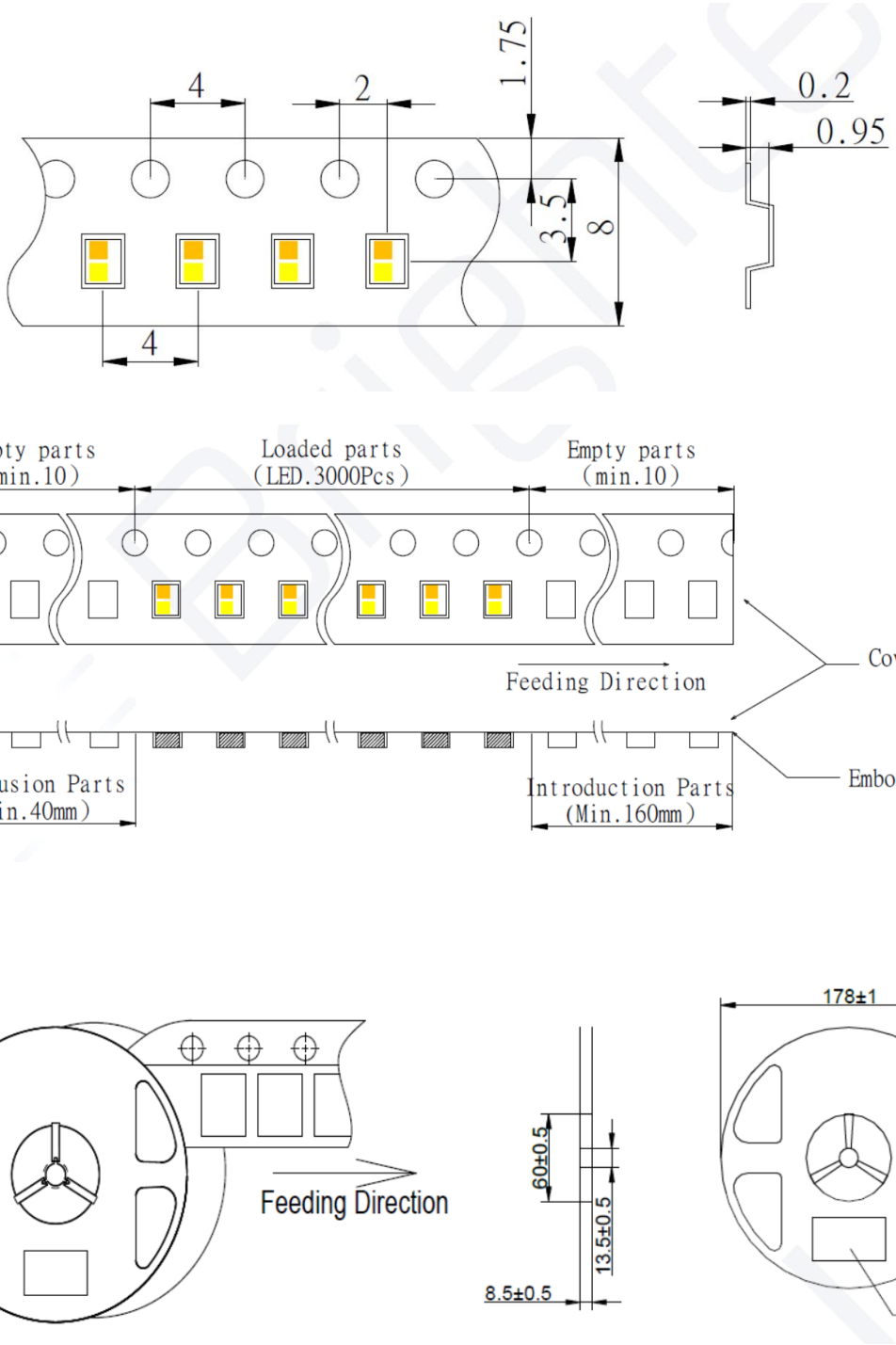
Note:

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:

Max.3000pcs/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.

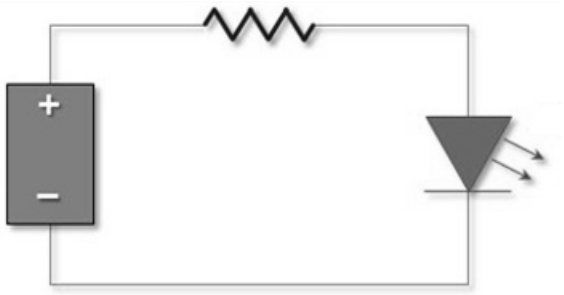
Baking:

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 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	02/08/2021	Datasheet set-up.
A1.1	05/02/2023	New datasheet format.