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

- ► PLCC6 SMD
- ► 3433 1.92t Series
- ► Cool White (6000K)

Release Date: 13 December 2024 Version: A1.2

N0W40S14Z

3433 1.92t Series

3433 1.92t Series

RoHS Compliant

AUTOMOTIVE AEC-Q102

FEATURES:

- **Package:** PLCC6 Top View White SMT Package
- **Forward Current:** 140mA
- **Forward Voltage (typ.):** 3.1V
- **Luminous Intensity (typ.):** 17270mcd (54lm)@140mA
- **Colour:** Cool White
- **Colour Temperature (CCT):** 5710~6530K
- **Viewing Angle:** 120°
- **Materials:**
  - Resin: Silicon (Yellow Diffused)
  - L/T Finish: Ag plated
- **Operating Temperature:** -40~+105°C
- **Storage Temperature:** -40~+105°C
- **ESD (HBM):** 6kV
- **Grouping Parameters:**
  - Forward voltage
  - Luminous intensity
  - CIE Chromaticity
- **Soldering Methods:** IR Reflow
- **MSL:** acc. to JEDEC Level 2a (J-STD20D)
- **Packing:** 12mm tape with max.1000/reel, ø178mm (7'')

APPLICATIONS:

- Automotive
- Decorative Lighting
- Backlighting
- Indicator
- Dashboard
- Display

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CHARACTERISTICS:

Absolute Maximum Characteristics (Ta=25°C)

Parameter	Symbol	Ratings	Unit
Forward Current	I_F	240	mA
Pulse Forward Current Duty 1/10, width 0.1ms	I_{PF}	700	mA
Reverse Voltage	V_R	5	V
Reverse Current @10V	I_R	10	μA
Junction Temperature	Tj	125	°C
Electrostatics Discharge (HBM)	ESD	6000	V
Operating Temperature	T_{OPR}	-40~+105	°C
Storage Temperature	T_{STG}	-40~+105	°C
Thermal Resistance Junction to Solder Point	R_{thJ-S}	40	°C/W
Thermal Resistance Junction to Ambient Point	R_{thJ-A}	70	°C/W
Soldering Temperature	T_{SD}	260	°C
Colour Rendering Index	CRI	min.80	---

Electrical & Optical Characteristics (Ta=25°C)

Parameter	Symbol	Values			Unit	Test Condition
		Min.	Typ.	Max.		
Forward Voltage	V_F	2.7	3.1	3.6	V	I_F=140mA
Luminous Intensity	I_V	10100	17270	---	mcd	I_F=140mA
Luminous Flux	Φ_V	---	54	---	lm	I_F=140mA
Chromaticity Coordinates	X	---	0.3220	---	---	I_F=140mA
	Y	---	0.3350	---		
Peak Wavelength	λ_P	---	451	---	nm	I_F=140mA
Spectral Width 50%	$\Delta\lambda$	---	19	---	nm	I_F=140mA
Colour Temperature	CCT	5710	6020	6530	K	I_F=140mA
Viewing Angle	$2\theta_{1/2}$	---	120	---	deg	I_F=140mA

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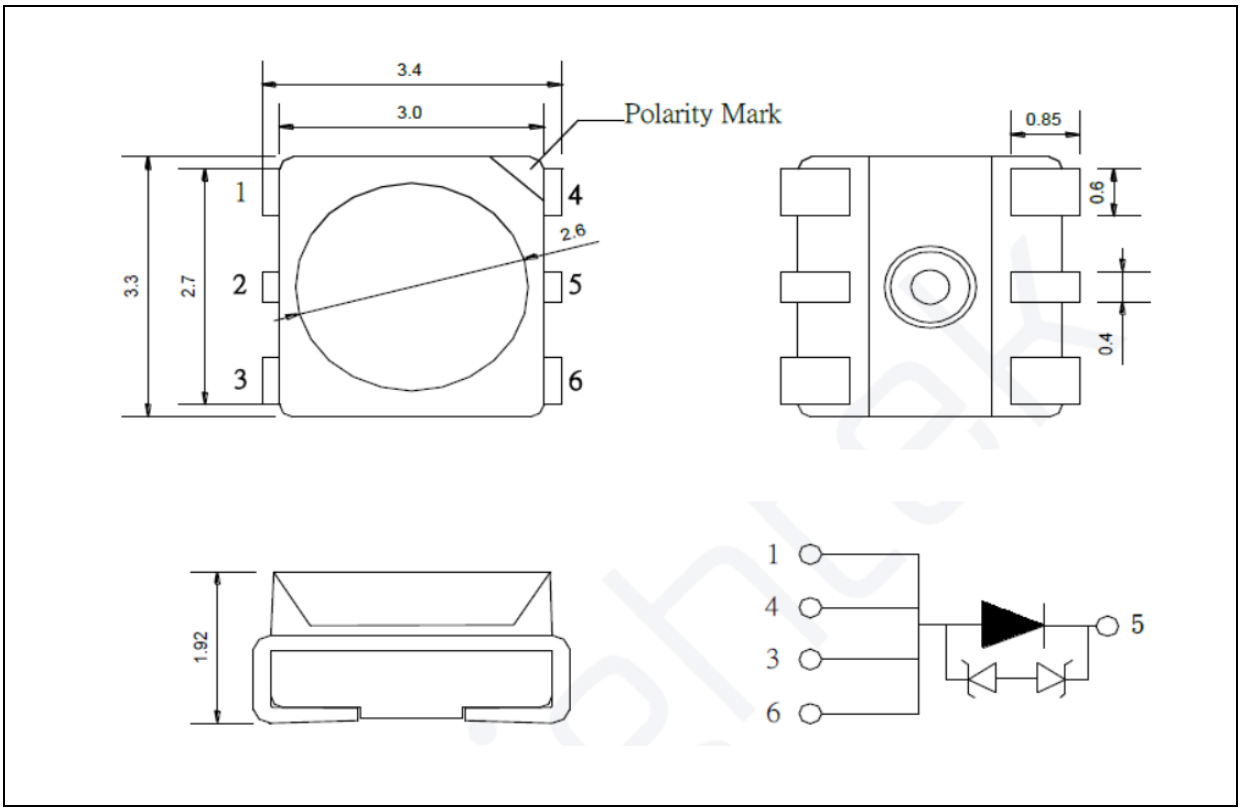
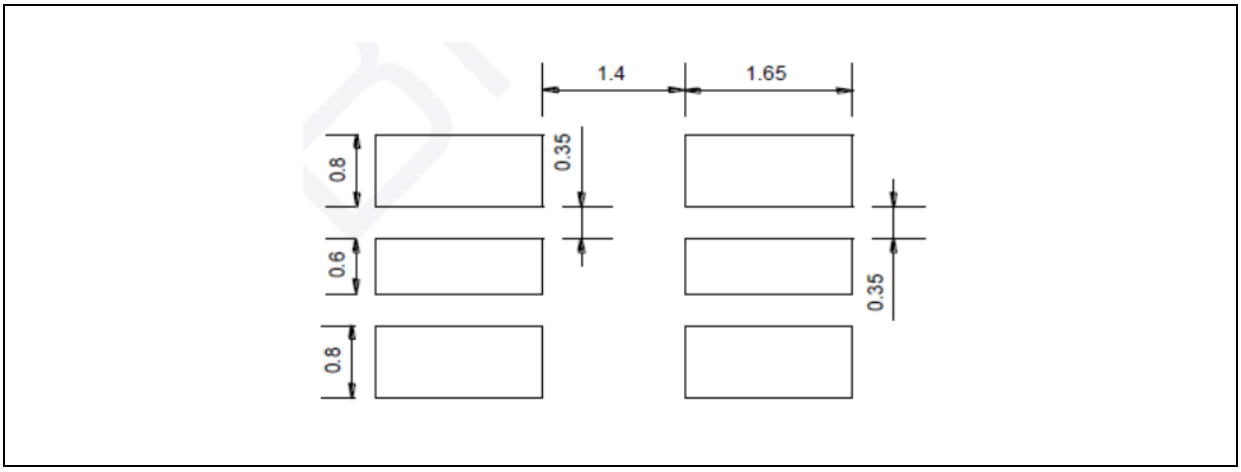
OUTLINE DIMENSION:

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°.

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BINNING GROUPS:

Forward Voltage Classifications (I_F = 140mA):

Code	Min.	Max.	Unit
H	2.7	3.0	V
I	3.0	3.3	
J	3.3	3.6	

Luminous Intensity Classifications (I_F = 140mA):

Code	Min.	Max.	Unit
24	10100	13130	mcd
25	13130	17000	
26	17000	22110	
27	22110	27638	

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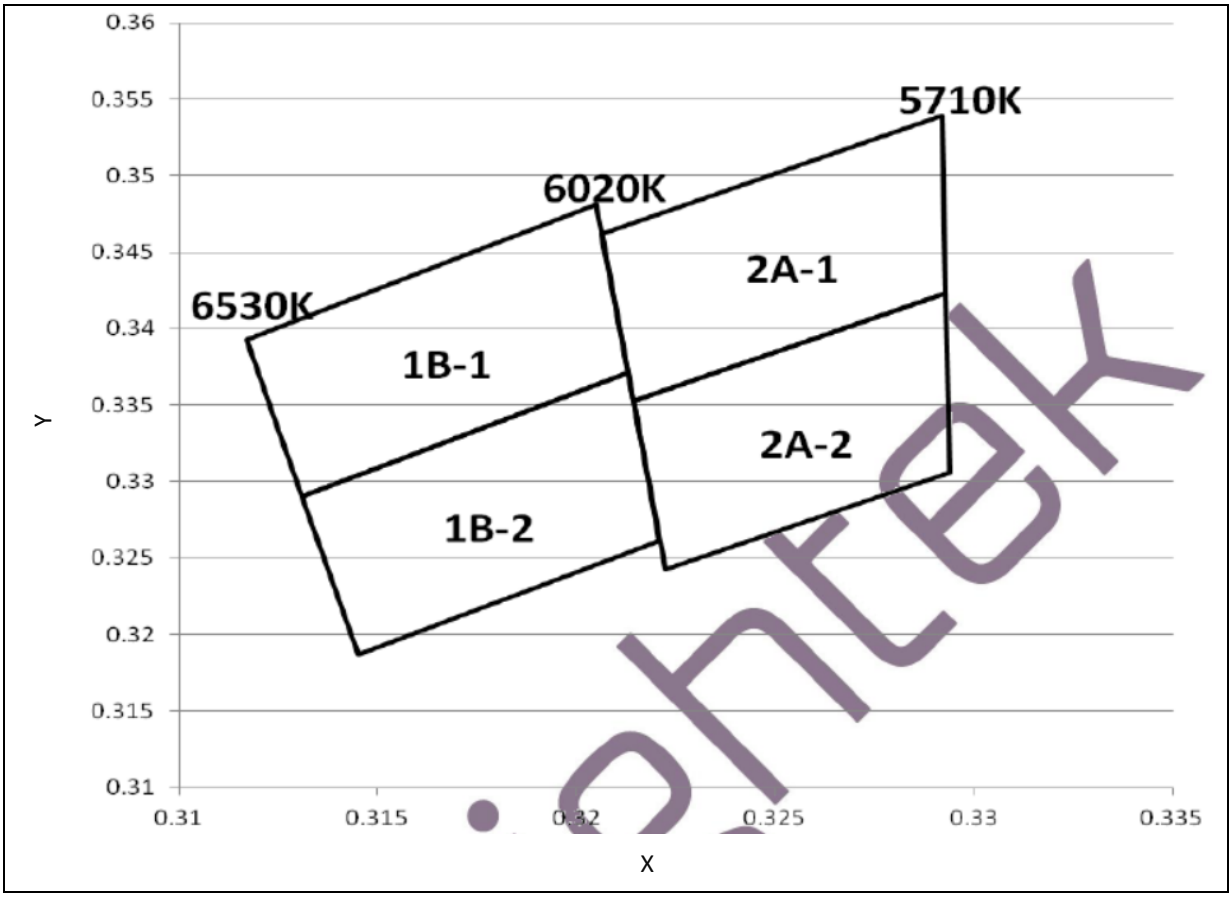
CIE CHROMATICITY DIAGRAM:



Chromaticity Coordinates Classifications (I_F = 140mA):

	1		2		3		4	
	X	Y	X	Y	X	Y	X	Y
1B-1	0.3205	0.3481	0.3117	0.3393	0.3131	0.3290	0.3213	0.3371
1B-2	0.3213	0.3371	0.3131	0.3290	0.3145	0.3187	0.3221	0.3261
2A-1	0.3292	0.3539	0.3206	0.3462	0.3214	0.3353	0.3293	0.3424
2A-2	0.3293	0.3423	0.3214	0.3353	0.3222	0.3243	0.3294	0.3306

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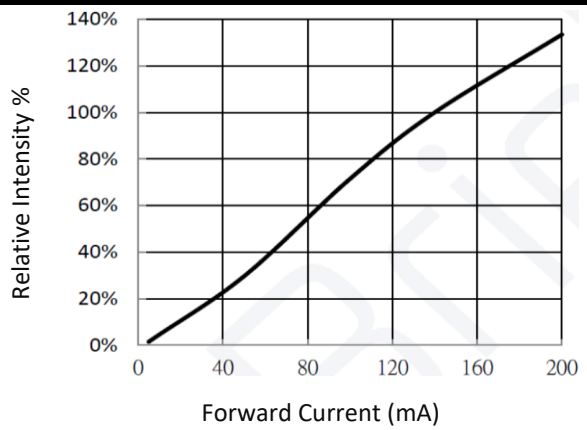
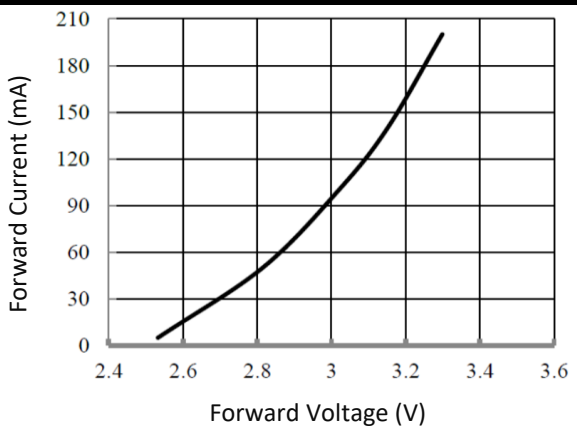
ELECTRO-OPTICAL CHARACTERISTICS:

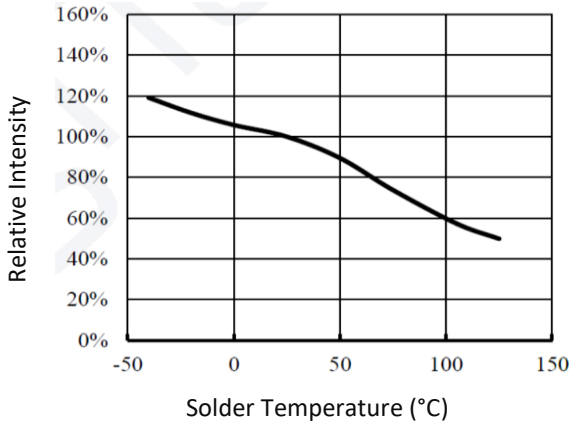
Relative Intensity v.s. Forward Current



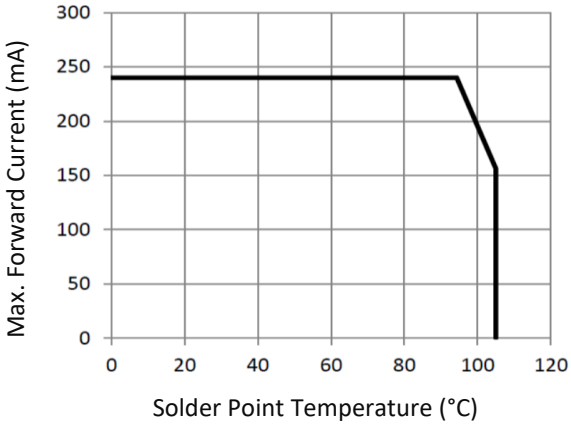
Forward Current v.s. Forward Voltage



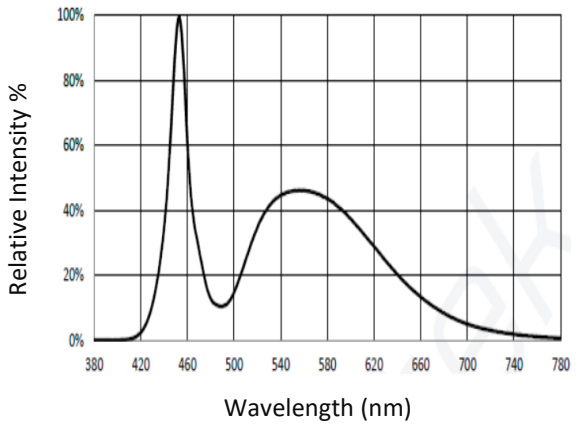
Relative Intensity v.s. Temperature



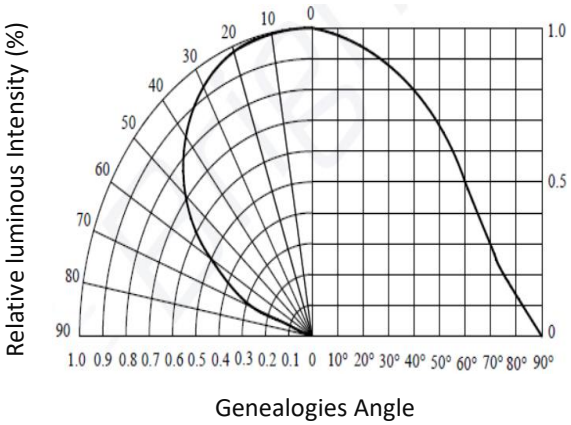
Forward Current Derating Curve



Relative Intensity v.s. Wavelength



Directive Radiation



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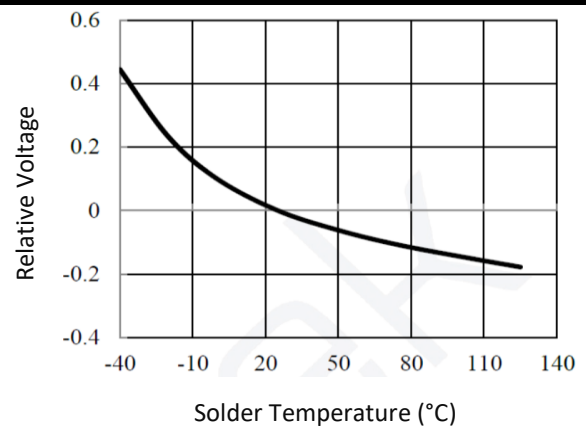
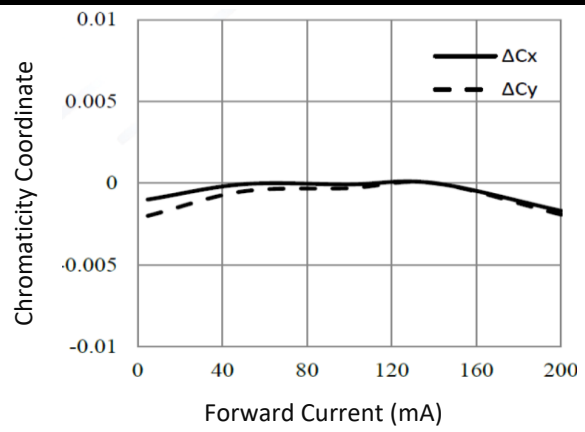
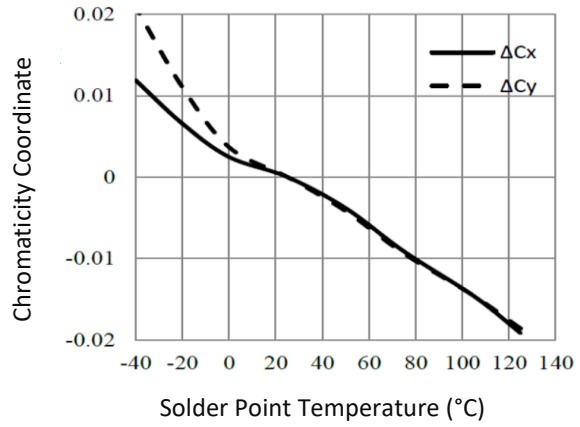
Relative Voltage v.s. Temperature



X, Y Shift v.s. Forward Current



X, Y Shift v.s. Temperature



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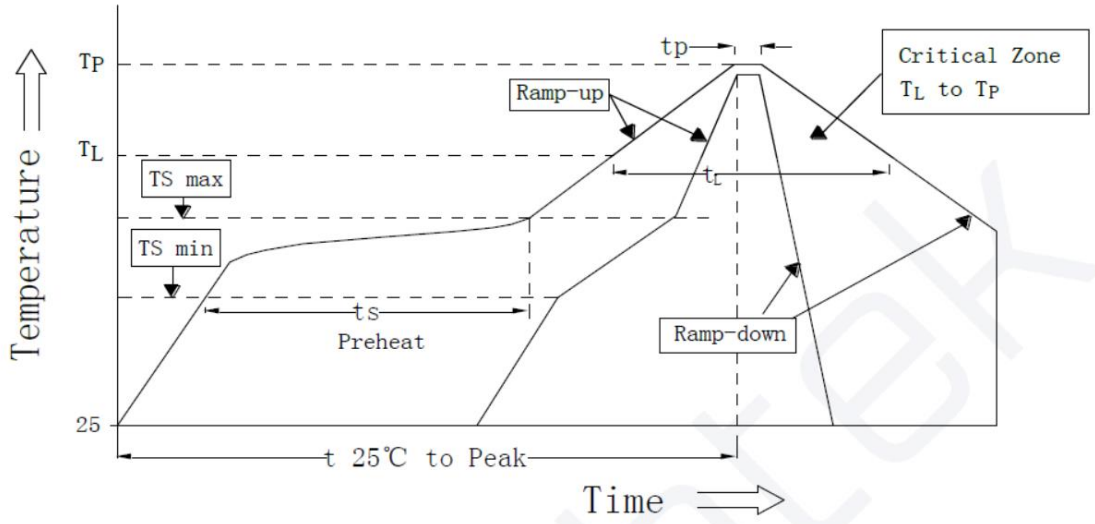
RECOMMENDED SOLDERING PROFILE:

IR 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	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: 3 times.
2. Recommended reflow temperature 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.

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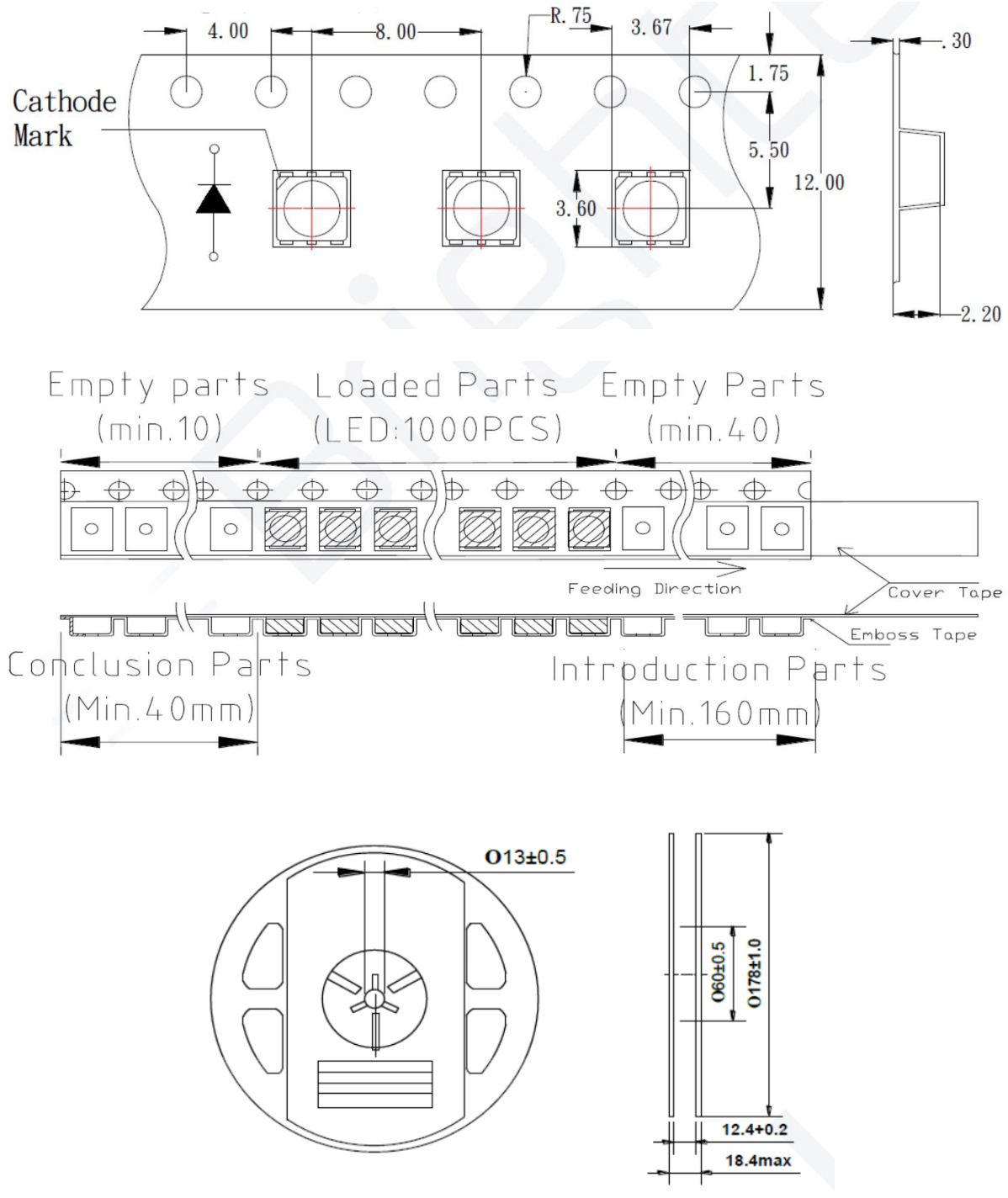
PACKING SPECIFICATION:

Reel Dimension:

Max.1000pcs/reel



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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.

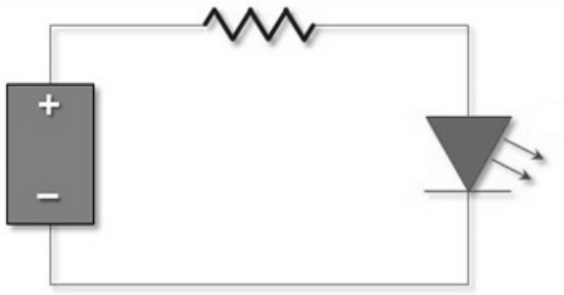
Baking:

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 6hrs and <5%RH, for 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.

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REVISION RECORD:

Version	Date	Summary of Revision
A1.0	03/11/2020	Datasheet set-up.
A1.1	03/10/2021	New datasheet format.
A1.2	13/12/2024	Update bin range.

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