



**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

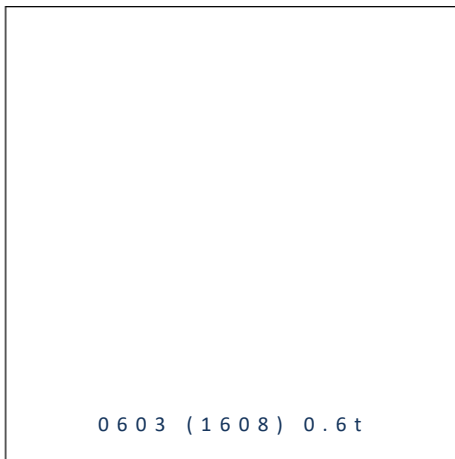


- ▶ CHIP / PCB SMD
- ▶ 0603 (1608) 0.6t
- ▶ Cool White (5000~7700K)

NOW42S37Z



Release Date: 26 February 2021 Version: A1.0



0603 (1608) 0.6t

### 0603 (1608) 0.6t

**RoHS Compliant**



#### FEATURES:

- **Package:** Top View CHIP SMD Package
- **Forward Current:** 20mA
- **Forward Voltage (typ.):** 3.1V
- **Luminous Intensity (typ.):** 450mcd@20mA
- **Colour:** Cool White
- **Colour Temperature (CCT):** 5000~7700K
- **Viewing angle:** 140°
- **Materials:**
  - Die: InGaN
  - Resin: Silicon (Yellow Diffused)
  - L/T Finish: Au plated
- **Operating Temperature:** -40~+85°C
- **Storage Temperature:** -40~+100°C
- **ESD (HBM):** 6KV
- **Grouping parameters:**
  - Forward Voltage
  - Luminous Intensity
  - CIE Chromaticity
- **Soldering methods:** Reflow Soldering
- **Preconditioning:** MSL2a according to J-STD020
- **Packing:** 8mm tape with max.4000/reel, ø180mm (7")

#### APPLICATIONS:

- Backlighting
- Consumer Goods
- Indicators
- Torch Lights
- Toy Lights
- Decorating Lights

## CHARACTERISTICS:

### Absolute Maximum Characteristics (Ta=25°C)

Parameter	Symbol	Ratings	Unit
DC Forward Current	I <sub>F</sub>	30	mA
Pulse Forward Current @Duty 1/10, 0.1ms	I <sub>PF</sub>	100	mA
Power Dissipation	P <sub>d</sub>	100	mW
Reverse Voltage	V <sub>R</sub>	5	V
Reverse Current @10V	I <sub>R</sub>	10	μA
Junction Temperature	T <sub>j</sub>	110	°C
Electrostatic Discharge (HBM)	ESD	6000	V
Operating Temperature	T <sub>OPR</sub>	-40~+85	°C
Storage Temperature	T <sub>STG</sub>	-40~+100	°C
Soldering Temperature	T <sub>SOL</sub>	260	°C

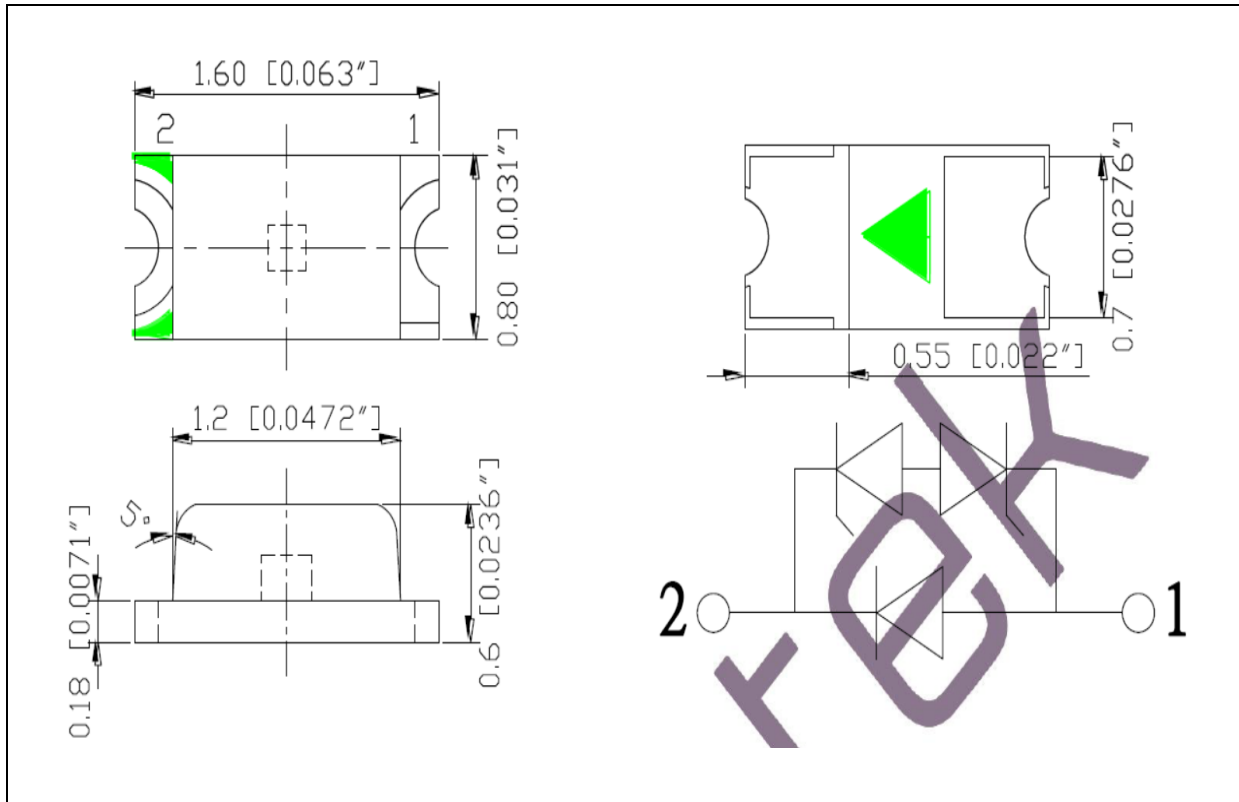
### Electrical & Optical Characteristics (Ta=25°C)

Parameter	Symbol	Values			Unit	Test Condition
		Min.	Typ.	Max.		
Forward Voltage	V <sub>F</sub>	2.5	3.1	3.7	V	I <sub>F</sub> =20mA
Luminous Intensity	I <sub>v</sub>	250	450	800	mcd	I <sub>F</sub> =20mA
Chromaticity Coordinates	X	---	0.3320	---	---	I <sub>F</sub> =20mA
	Y	---	0.3430	---		
Colour Temperature	CCT	5010	---	7700	K	I <sub>F</sub> =20mA
Viewing Angle	2θ <sub>1/2</sub>	---	140	---	deg	I <sub>F</sub> =20mA

1. Luminous Intensity (Φ<sub>v</sub>) ±10%, Forward Voltage (V<sub>F</sub>) ±0.1V, Colour Coordinate: ±0.005, Viewing Angle(2θ<sub>1/2</sub>) ±5%

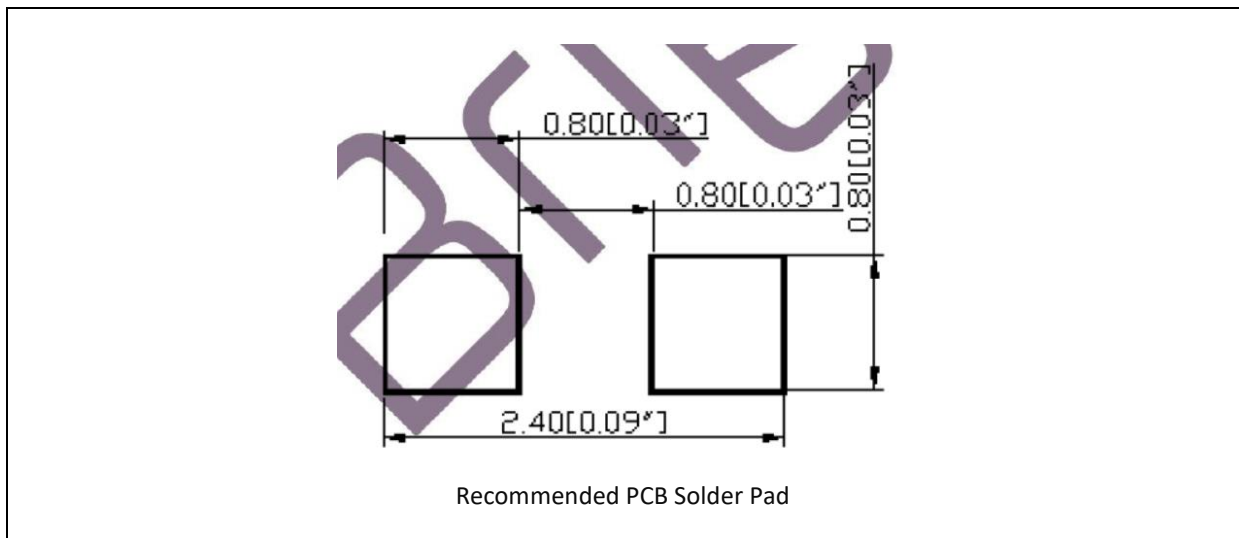
## OUTLINE DIMENSION:

### 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  $\pm 0.1\text{mm}$  with angle tolerance  $\pm 0.5^\circ$ .

**BINNING GROUPS:**


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

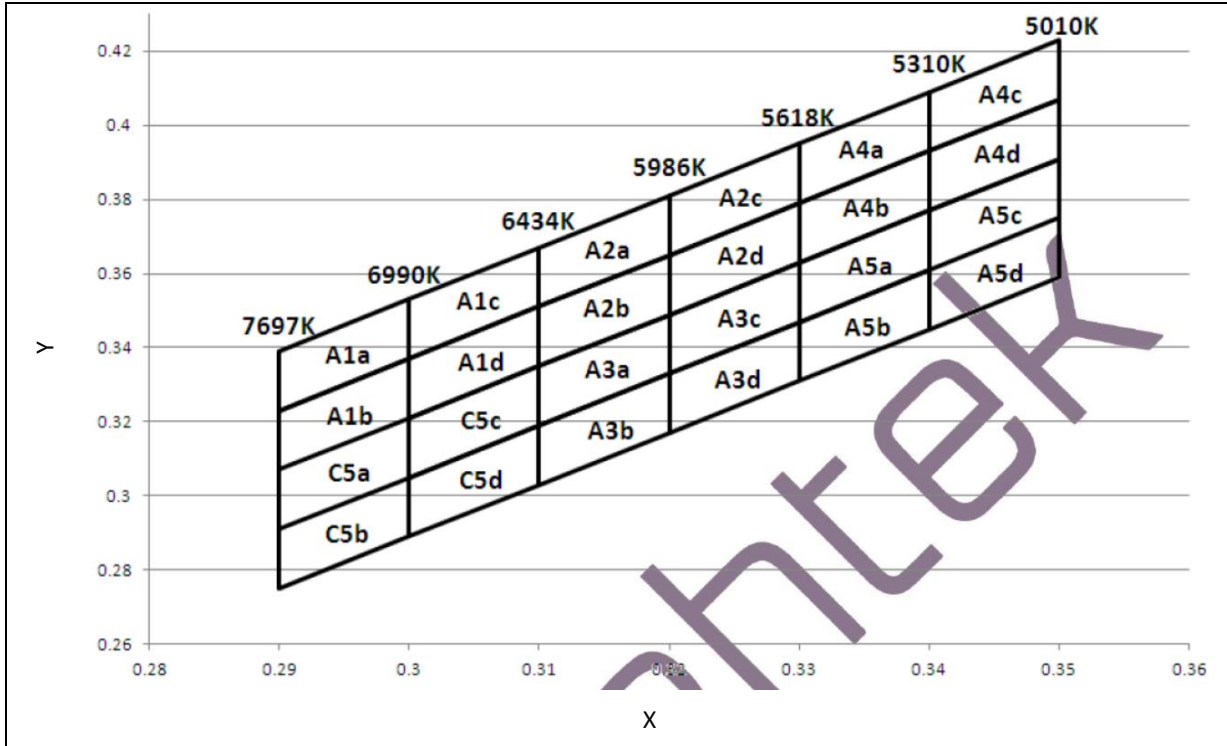
Code	Min.	Max.	Unit
e	2.5	2.8	V
f	2.8	3.1	
g	3.1	3.4	
h	3.4	3.7	

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

Code	Min.	Max.	Unit
N	250	320	mcd
O	320	400	
P	400	500	
Q	500	630	
R	630	800	



**CIE CHROMATICITY DIAGRAM:**



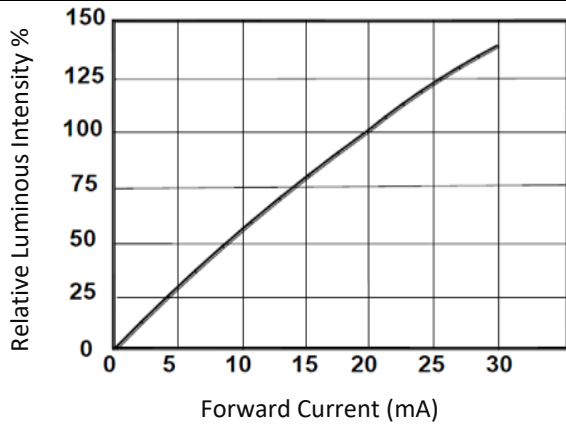
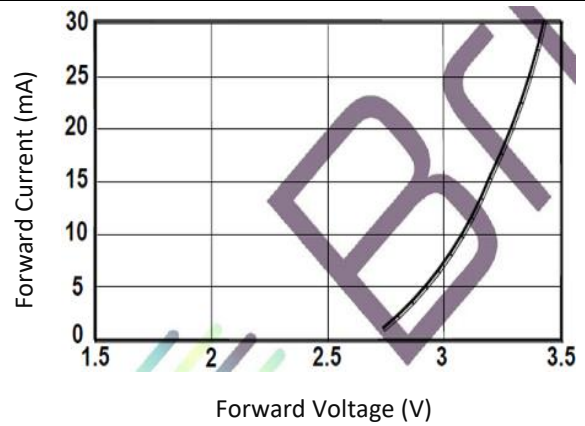
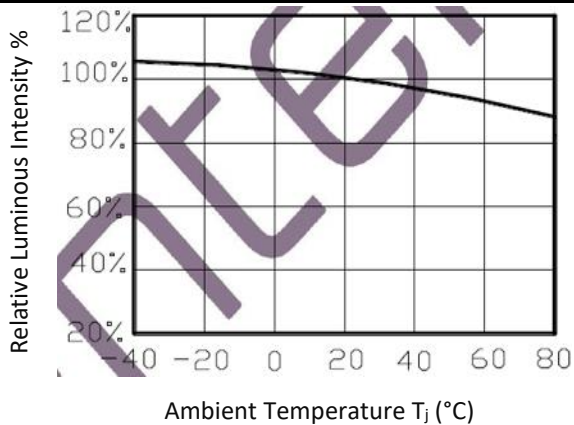
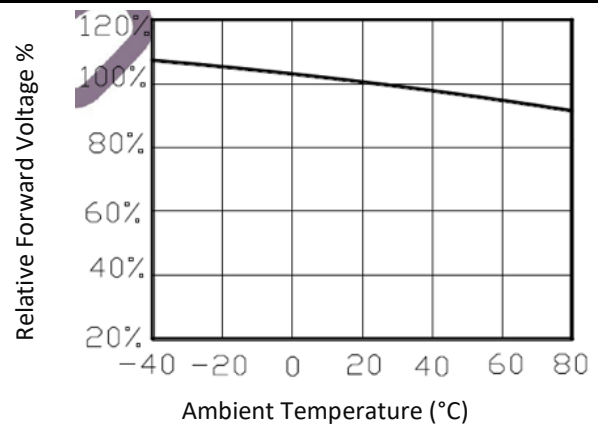
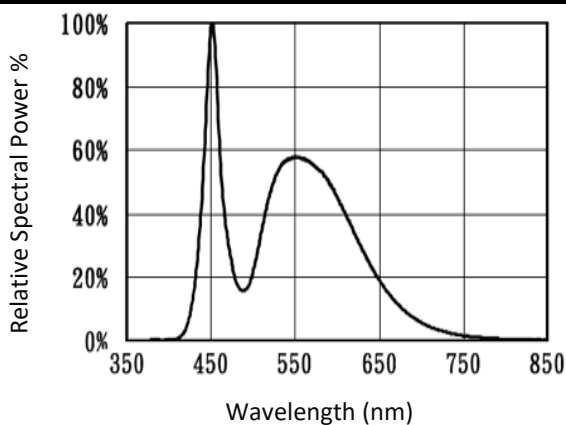
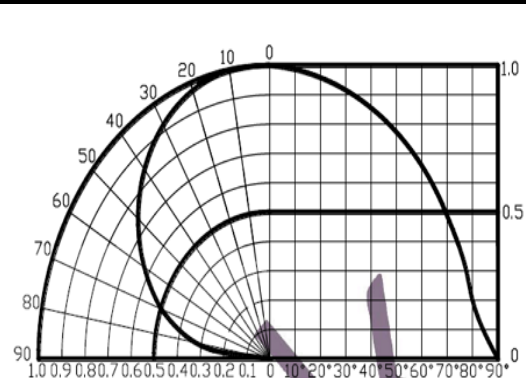
**Chromaticity Coordinates Classifications ( $I_F = 20\text{mA}$ ):**

	1		2		3		4	
	X	Y	X	Y	X	Y	X	Y
A1a	0.2900	0.3230	0.2900	0.3390	0.3000	0.3530	0.3000	0.3370
A1b	0.2900	0.3070	0.2900	0.3230	0.3000	0.3370	0.3000	0.3210
A1c	0.3000	0.3370	0.3000	0.3530	0.3100	0.3670	0.3100	0.3510
A1d	0.3000	0.3210	0.3000	0.3370	0.3100	0.3510	0.3100	0.3350
A2a	0.3100	0.3510	0.3100	0.3670	0.3200	0.3810	0.3200	0.3650
A2b	0.3100	0.3350	0.3100	0.3510	0.3200	0.3650	0.3200	0.3490
A2c	0.3200	0.3650	0.3200	0.3810	0.3300	0.3950	0.3300	0.3790
A2d	0.3200	0.3490	0.3200	0.3650	0.3300	0.3790	0.3300	0.3630
A3a	0.3100	0.3190	0.3100	0.3350	0.3200	0.3490	0.3200	0.3330
A3b	0.3100	0.3030	0.3100	0.3190	0.3200	0.3330	0.3200	0.3170
A3c	0.3200	0.3330	0.3200	0.3490	0.3300	0.3630	0.3300	0.3470
A3d	0.3200	0.3170	0.3200	0.3330	0.3300	0.3470	0.3300	0.3310
A4a	0.3300	0.3790	0.3300	0.3950	0.3400	0.4090	0.3400	0.3930
A4b	0.3300	0.3630	0.3300	0.3790	0.3400	0.3930	0.3400	0.3770

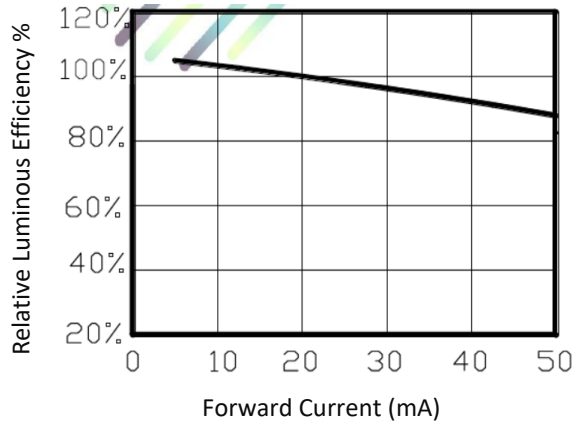
**CIE CHROMATICITY DIAGRAM:**


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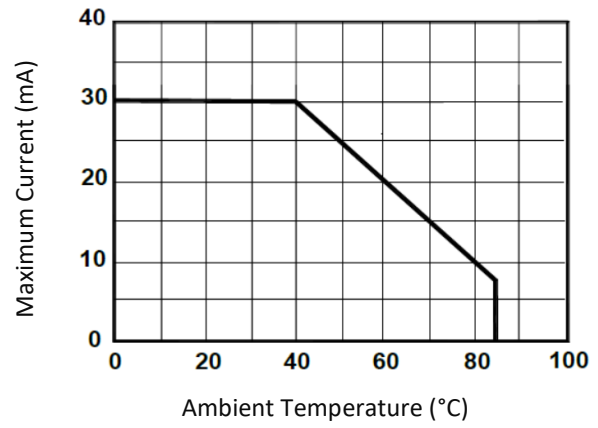
	1		2		3		4	
	X	Y	X	Y	X	Y	X	Y
A4c	0.3400	0.4090	0.3400	0.3930	0.3500	0.4070	0.3500	0.4230
A4d	0.3400	0.3930	0.3400	0.3770	0.3500	0.3910	0.3500	0.4070
A5a	0.3300	0.3470	0.3300	0.3630	0.3400	0.3770	0.3400	0.3610
A5b	0.3300	0.3310	0.3300	0.3470	0.3400	0.3610	0.3400	0.3450
A5c	0.3400	0.3770	0.3400	0.3610	0.3500	0.3750	0.3500	0.3910
A5d	0.3400	0.3610	0.3400	0.3450	0.3500	0.3590	0.3500	0.3750
C5a	0.2900	0.2910	0.2900	0.3070	0.3000	0.3210	0.3000	0.3050
C5b	0.2900	0.2750	0.2900	0.2910	0.3000	0.3050	0.3000	0.2890
C5c	0.3000	0.3050	0.3000	0.3210	0.3100	0.3350	0.3100	0.3190
C5d	0.3000	0.2890	0.3000	0.3050	0.3100	0.3190	0.3100	0.3030

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

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

**Relative Luminous Intensity v.s. Ambient Temp.**

**Relative Forward Voltage v.s. Ambient Temp.**

**Relative Spectral Power v.s. Wavelength**

**Directive Radiation**


Relative Emission Efficiency v.s. Forward Current



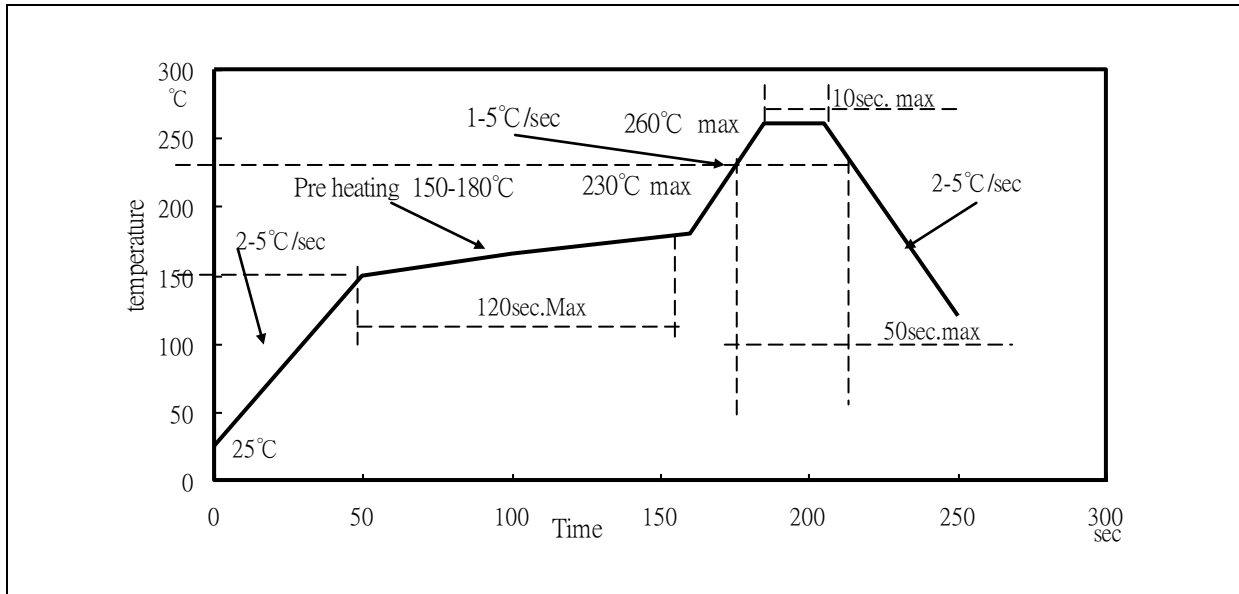
Forward Current Derating Curve





## RECOMMENDED SOLDERING PROFILE:

IR Reflow Lead-free Solder:

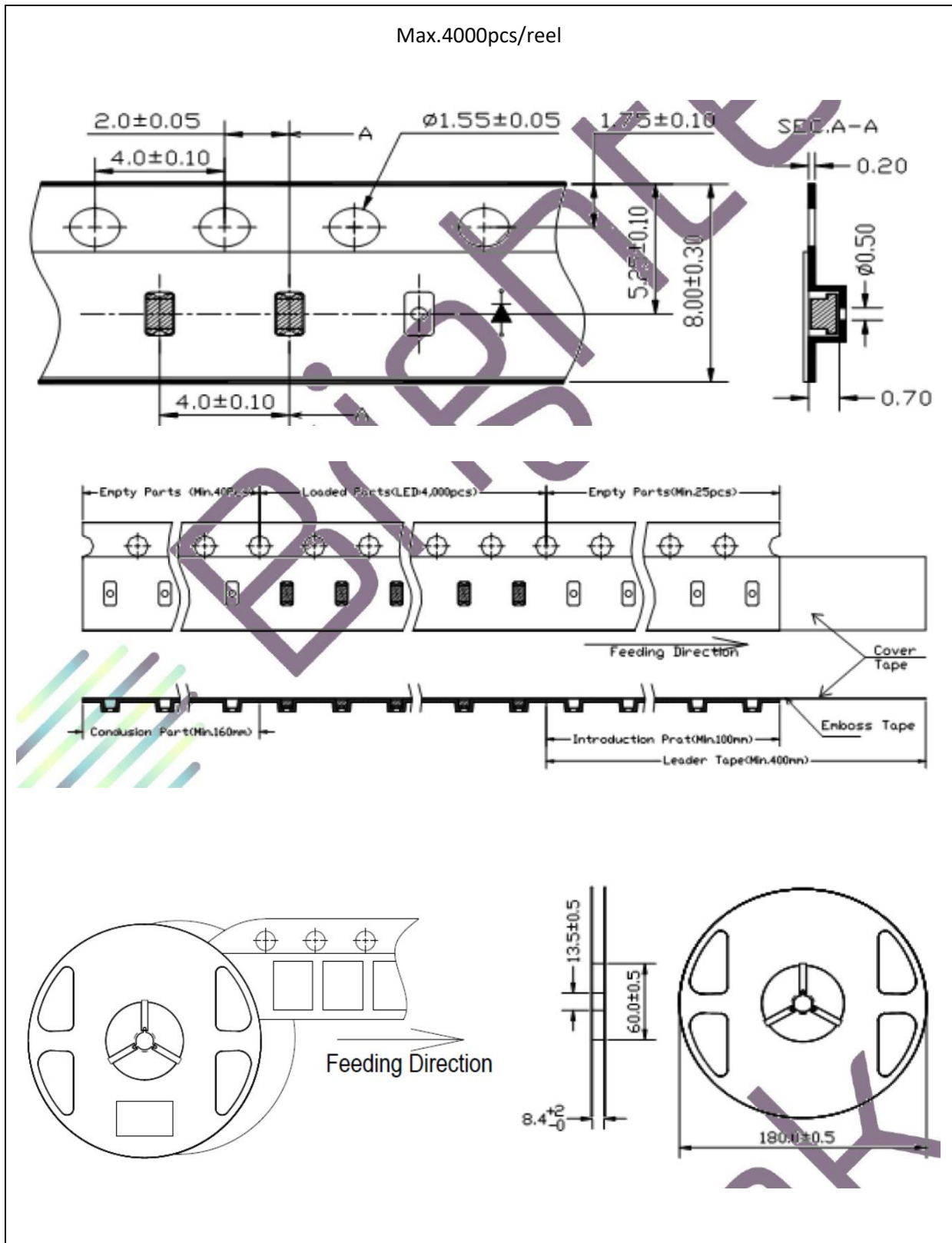


Note:

1. Recommended soldering temperature: 240°C. The maximum soldering temperature should be limited to 260°C.
2. Maxima reflow soldering: 3 times.
3. Before, during, and after soldering, should not apply stress on the components and PCB board.

**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.

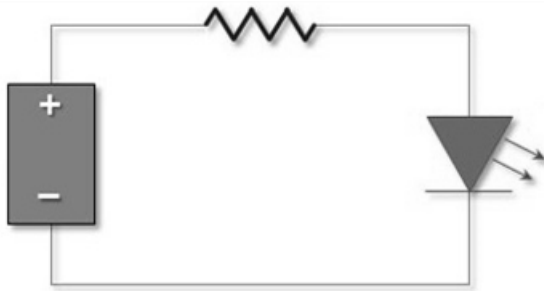
### Baking:

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 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	26/02/2021	Datasheet set-up.