



**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 SMD
- ▶ 3535 1.93t Series
- ▶ Red (630nm)

NOR57S94



Release Date: 28 December 2020 Version: A1.0



### 3535 1.93t Series

**RoHS**  
Compliant



#### FEATURES:

- **Package:** TOP View Ceramic SMT Package
- **Forward Current:** 350~700mA
- **Forward Voltage (typ.):** 2.1V
- **Luminous Flux (typ.):** 59lm@350mA
- **Colour:** Red
- **Peak Wavelength:** 620-640nm
- **Viewing angle:** 120°
- **Materials:**
  - Resin: Silicon (Water Clear)
  - L/T Finish: Ag plated
- **Operating Temperature:** -40~+85°C
- **Storage Temperature:** -40~+105°C
- **Grouping parameters:**
  - Forward Voltage
  - Luminous Flux
  - Peak Wavelength
- **Soldering methods:** Reflow
- **MSL Level:** MSL3 according to J-STD020
- **Packing:** 12mm tape with max.1000/reel,  $\phi$ 165mm (6.5")

#### APPLICATIONS:

- Decorative Lighting
- Portable Lighting
- Outdoor Lighting
- Commercial Lighting
- Architectural Lighting
- Plant Growing Light

## CHARACTERISTICS:

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

Parameter	Symbol	Ratings	Unit
DC Forward Current	I <sub>F</sub>	700	mA
Pulse Forward Current (width≤100μS; duty≤1/10)	I <sub>FP</sub>	1000	mA
Power Dissipation	P <sub>D</sub>	2000	mW
Reverse Voltage	V <sub>R</sub>	5	V
Reverse Current @5V	I <sub>R</sub>	10	μA
Junction Temperature	T <sub>j</sub>	115	°C
Thermal Resistance	R <sub>th(j-sp)</sub>	5	°C/W
Electrostatic Discharge (HBM)	ESD	1000	V
Operating Temperature	T <sub>OPR</sub>	-40~+85	°C
Storage Temperature	T <sub>STG</sub>	-40~+105	°C
Soldering Temperature	T <sub>SOL</sub>	230 or 260 for 10S	°C

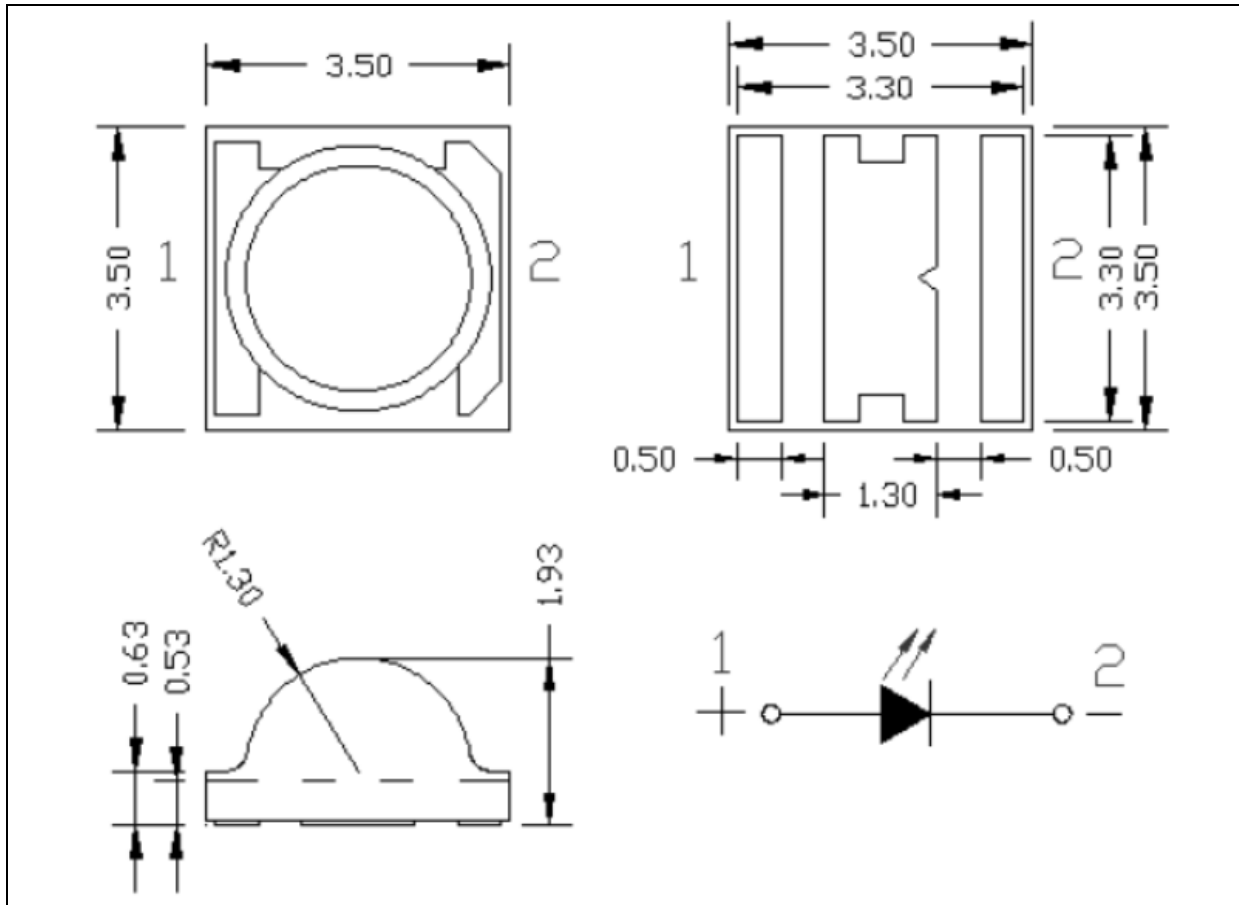
### Electrical & Optical Characteristics (Ta=25°C)

Parameter	Symbol	Values			Unit	Test Condition
		Min.	Typ.	Max.		
Forward Voltage	V <sub>F</sub>	1.8	2.1	2.8	V	I <sub>F</sub> =350mA
Luminous Flux	Φ <sub>V</sub>	44	---	88	lm	I <sub>F</sub> =350mA
Dominant Wavelength	λ <sub>D</sub>	620	---	640	nm	I <sub>F</sub> =350mA
Viewing Angle	2θ <sub>1/2</sub>	---	120	---	deg	I <sub>F</sub> =350mA

1. Luminous flux (Φ<sub>V</sub>) ±10%, Forward Voltage (V<sub>F</sub>) ±0.1V

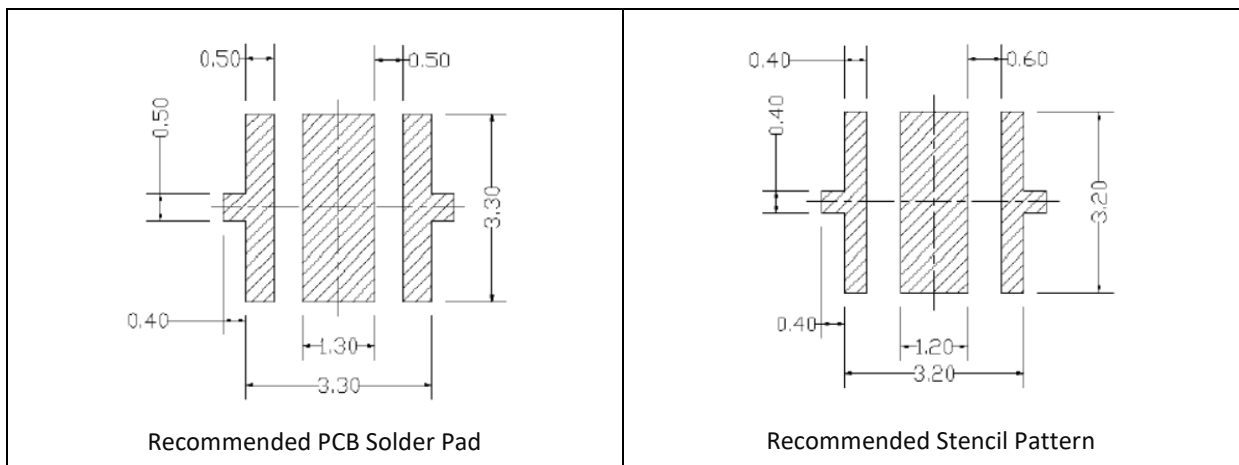
## OUTLINE DIMENSION:

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:**


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 Forward Voltage Classifications ( $I_F = 350\text{mA}$ ):

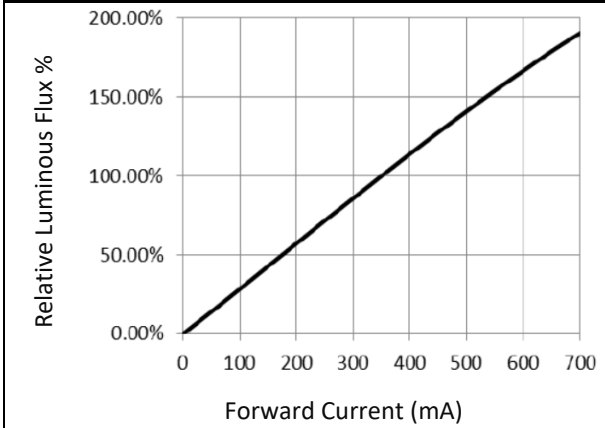
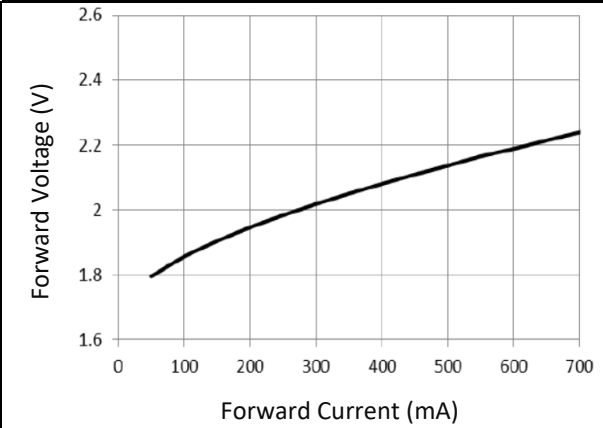
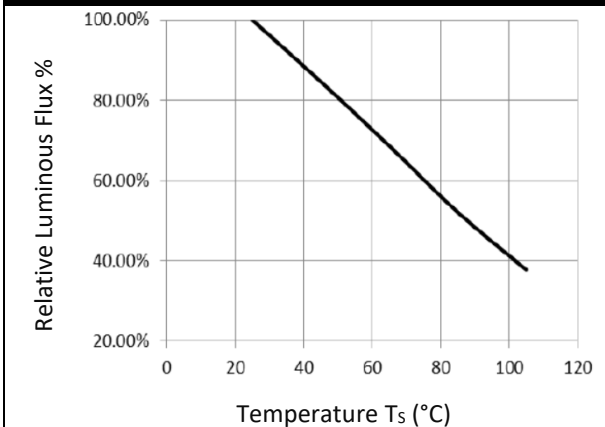
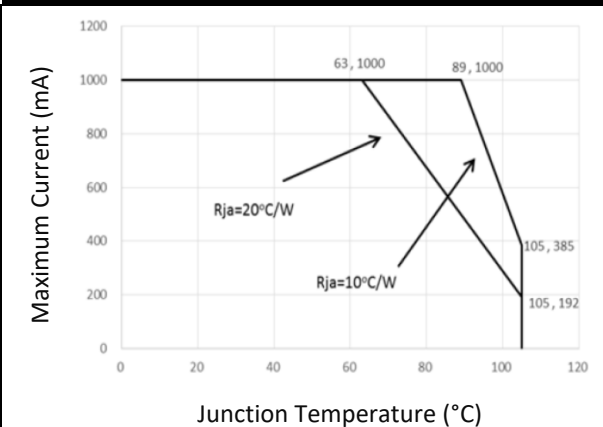
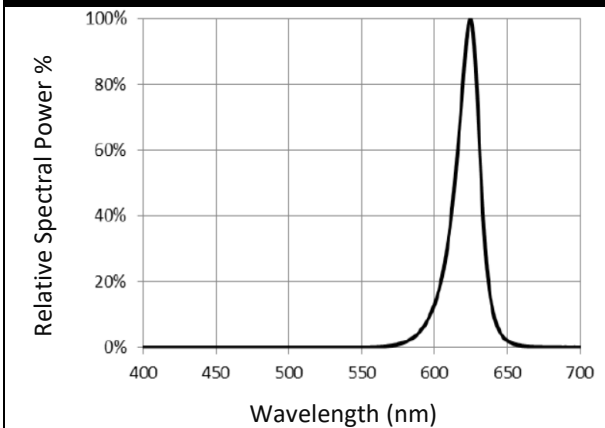
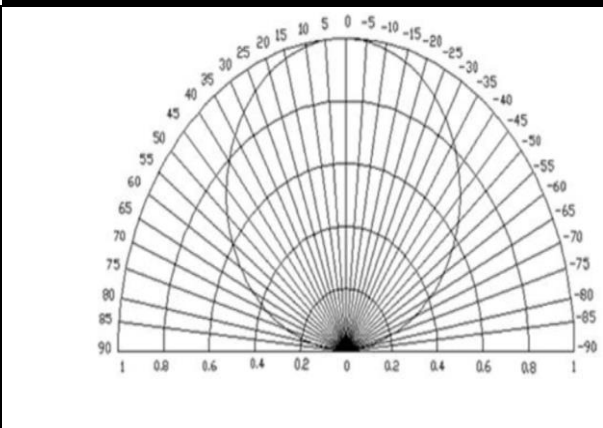
Code	Min.	Max.	Unit
C3	1.8	2.0	V
D3	2.0	2.2	
E3	2.2	2.4	
F3	2.4	2.6	
G3	2.6	2.8	

 Luminous Flux Classifications ( $I_F = 350\text{mA}$ ):

Code	Min.	Max.	Unit
AN	44	51	lm
AP	51	58	
AQ	58	65	
AR	65	72	
AS	72	80	
AT	80	88	

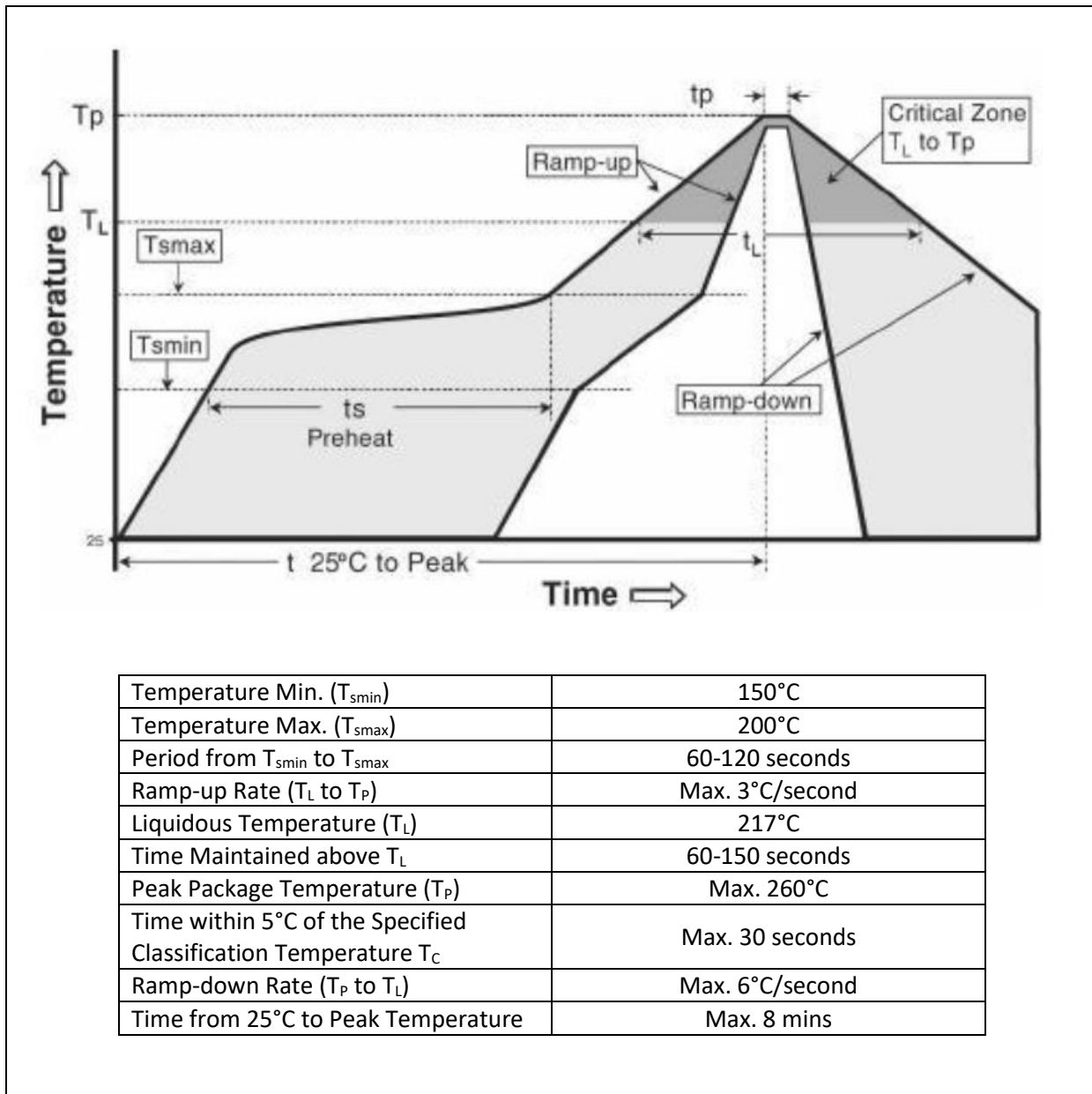
 Dominant Wavelength Classifications ( $I_F = 350\text{mA}$ ):

Code	Min.	Max.	Unit
R1	620	625	nm
R2	625	630	
R3	630	635	
R4	635	640	

**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. Junction Temp.**

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

**Directive Radiation**


## RECOMMENDED SOLDERING PROFILE:

Reflow Lead-free Solder:

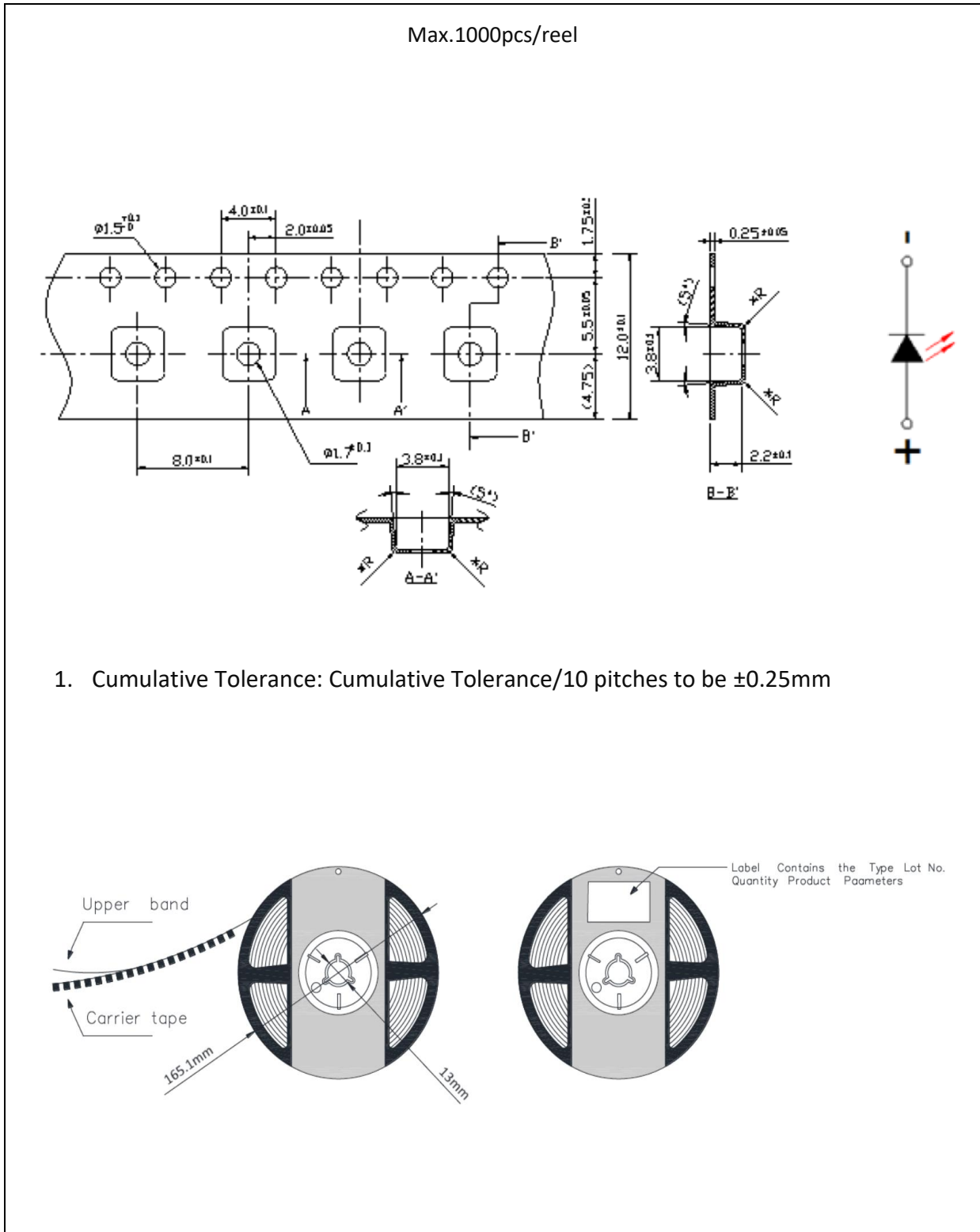


Note:

1. Maxima 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:

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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 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-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:**

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Version	Date	Summary of Revision
A1.0	28/12/2020	Datasheet set-up.