



**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
- ▶ 6868 3.7t Series
- ▶ Natural White / Red / Green / Blue

NOM52S87



Release Date: 17 September 2020 Version: A1.0



### 6868 3.7t Series

**RoHS**  
Compliant



#### FEATURES (White/Red/Green/Blue\*):

- **Package:** Ceramic SMT Package with Silicon Lens
- **Forward Current:** 350/350/350/350mA
- **Forward Voltage (typ.):** 3.2/2.2/3.4/3.2V
- **Luminous Flux (typ.):** 95/40/75/20lm@350mA
- **Colour:** Natural White/Red/Green/Blue
- **CCT/Wavelength:** 4000K/625/525/455nm
- **Viewing angle:** 60°
- **Materials:**
  - Die: InGaN/AlGaInP/InGaN/InGaN
  - Resin: Silicon (Water Clear)
- **Operating Temperature:** -40~+85°C
- **Storage Temperature:** -40~+100°C
- **Grouping parameters:**
  - Forward voltage
  - Luminous flux
  - CCT/Wavelength
- **Soldering methods:** IR Reflow soldering
- **Preconditioning:** MSL 3 according to J-STD020
- **Packing:** 16mm tape with min.100pcs/reel, ø180mm (7")

#### APPLICATIONS:

- Decoration Lighting
- Wall Washer
- Spot Light
- Outdoor Lighting
- Mini Projector

**CHARACTERISTICS:**


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

Parameter	Symbol	Ratings	Unit
Forward Current	I <sub>F</sub>	350/350/350/350*	mA
Maximum Forward Current	I <sub>MAX</sub>	1000/1000/1000/1000	mA
Pulse Current D=0.01s Duty 1/10	I <sub>FP</sub>	1200/1200/1200/1200	mA
Reverse Voltage	V <sub>R</sub>	-5	V
Reverse Current @5V	I <sub>R</sub>	10	μA
Junction Temperature	T <sub>j</sub>	135	°C
Thermal Resistance	R <sub>TH</sub>	2.5	°C/W
Soldering Temperature	T <sub>SOL</sub>	260	°C
Operating Temperature	T <sub>OPR</sub>	-40~+85	°C
Storage Temperature	T <sub>STG</sub>	-40~+100	°C

1. \* In the order of White/Red/Green/Blue.

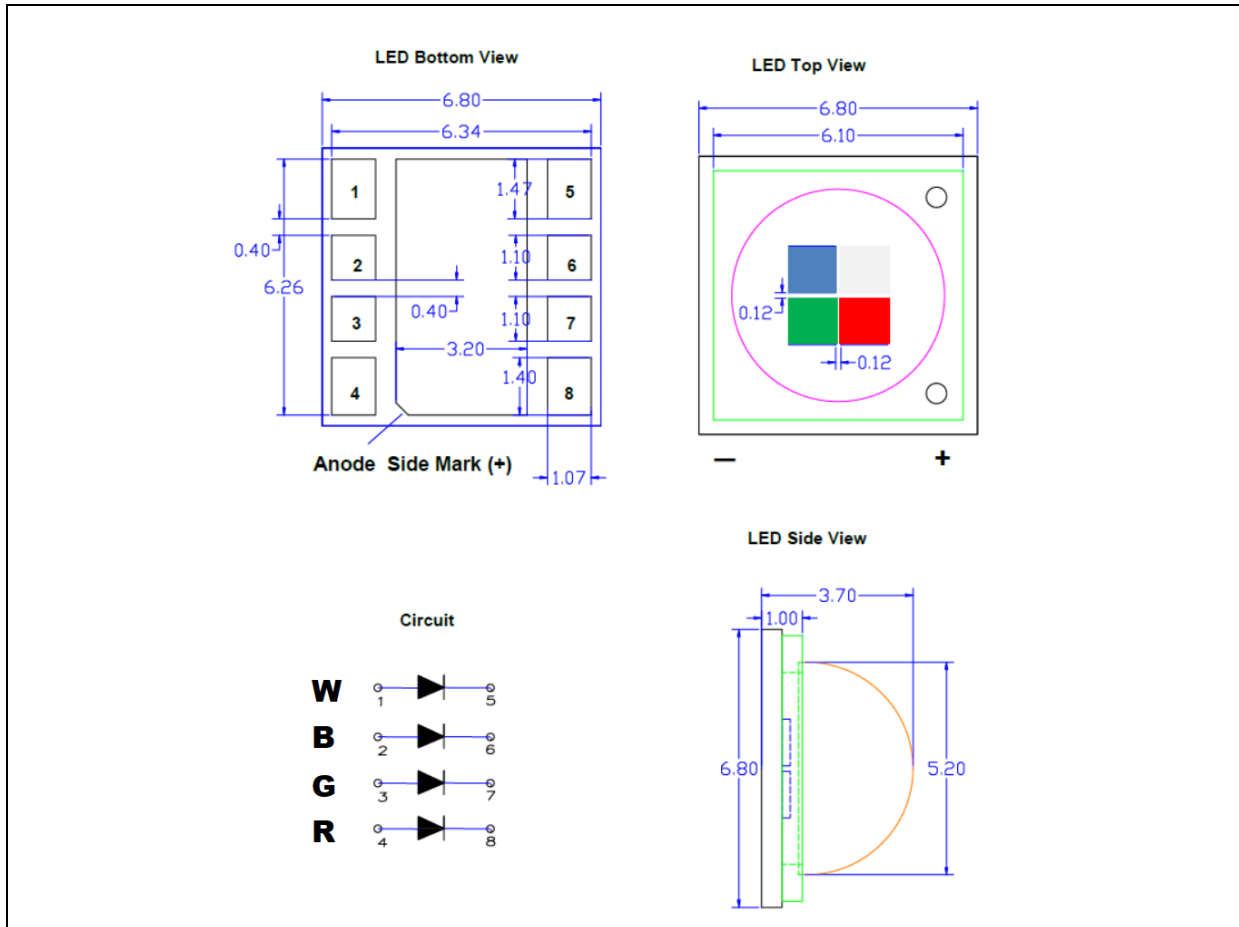
## Electrical &amp; Optical Characteristics (Ta=25°C)

Parameter	Symbol	Values			Unit	Test Condition
		Min.	Typ.	Max.		
White - Forward Voltage	V <sub>F</sub>	2.8	3.2	3.6	V	I <sub>F</sub> =350mA
White - Luminous Flux	Φ <sub>V</sub>	80	95	110	lm	I <sub>F</sub> =350mA
White – Colour Temperature	CCT	3470	---	4330	K	I <sub>F</sub> =350mA
Red - Forward Voltage	V <sub>F</sub>	1.8	2.2	2.6	V	I <sub>F</sub> =350mA
Red - Luminous Flux	Φ <sub>V</sub>	30	40	50	lm	I <sub>F</sub> =350mA
Red - Wavelength	W <sub>P</sub>	620	---	630	nm	I <sub>F</sub> =350mA
Green - Forward Voltage	V <sub>F</sub>	3.0	3.4	3.8	V	I <sub>F</sub> =350mA
Green - Luminous Flux	Φ <sub>V</sub>	60	75	90	lm	I <sub>F</sub> =350mA
Green - Wavelength	W <sub>P</sub>	520	---	530	nm	I <sub>F</sub> =350mA
Blue - Forward Voltage	V <sub>F</sub>	2.8	3.2	3.6	V	I <sub>F</sub> =350mA
Blue - Luminous Flux	Φ <sub>V</sub>	15	20	25	lm	I <sub>F</sub> =350mA
Blue - Wavelength	W <sub>P</sub>	450	---	460	nm	I <sub>F</sub> =350mA
Viewing Angle	2θ <sub>1/2</sub>	---	60	---	deg	I <sub>F</sub> =350mA

 1. Luminous intensity (I<sub>v</sub>) ±5%, Forward Voltage (V<sub>F</sub>) ±0.1V

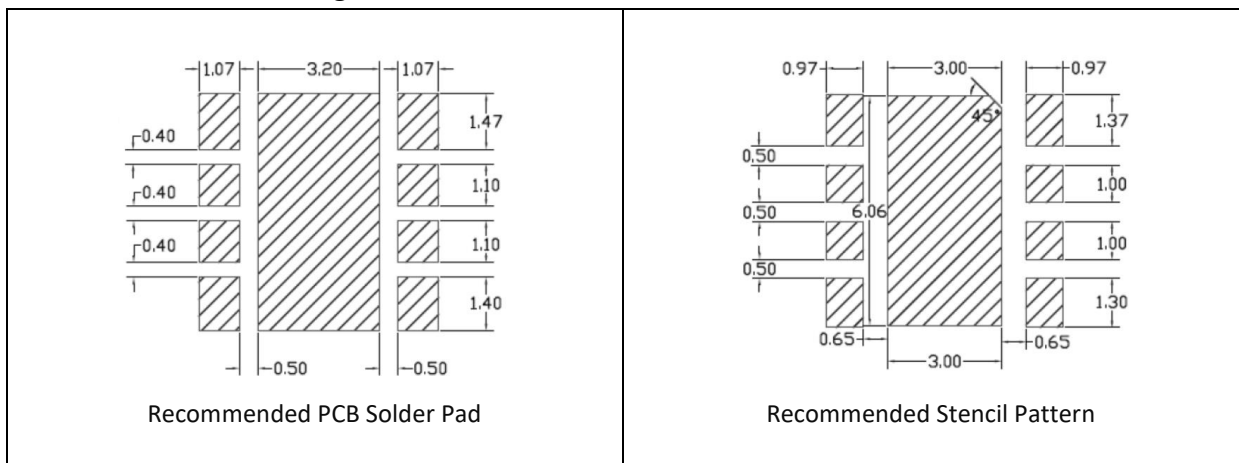
## OUTLINE DIMENSION:

Package Dimension:



1. All dimensions are in millimetre (mm).
2. Tolerance  $\pm 0.1\text{mm}$ , 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 ( $I_F = 350\text{mA}$ ):

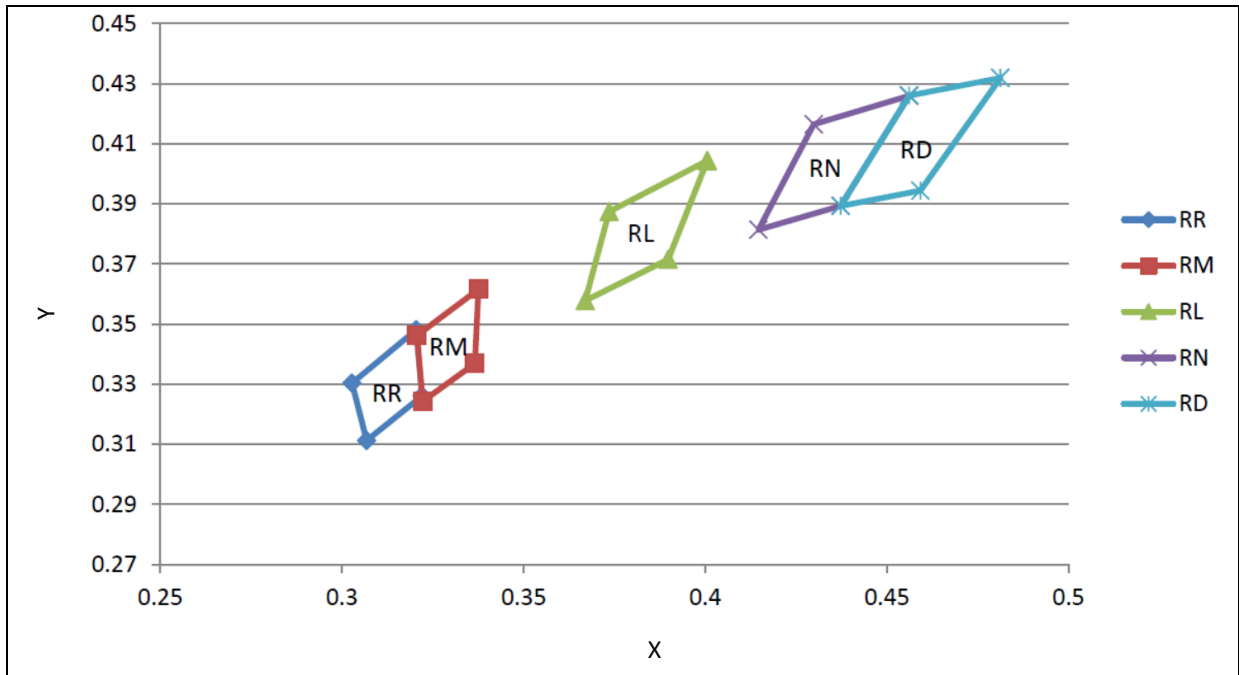
Code		Min.	Max.	Unit
VA	NW	2.8	3.6	V
	R	1.8	2.6	
	G	3.0	3.8	
	B	2.8	3.6	

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

Code		Min.	Max.	Unit
LA	NW	80	110	lm
	R	30	50	
	G	60	90	
	B	15	25	

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

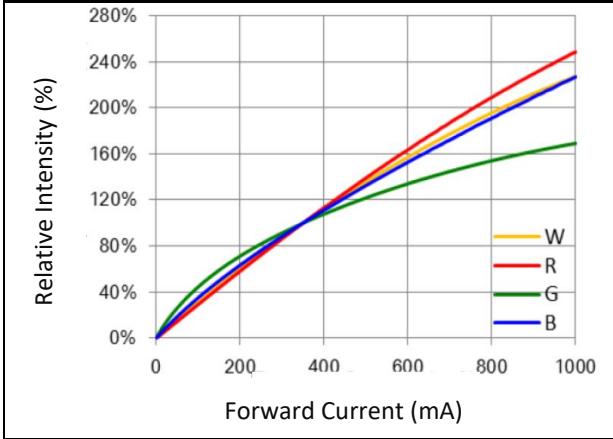
Code		Min.	Max.	Unit
NL	NW	3470	4330	K/nm
	R	620	630	
	G	520	530	
	B	450	460	

**CIE CHROMATICITY DIAGRAM:**

 Chromaticity Coordinates Classifications ( $I_F = 350\text{mA}$ ):

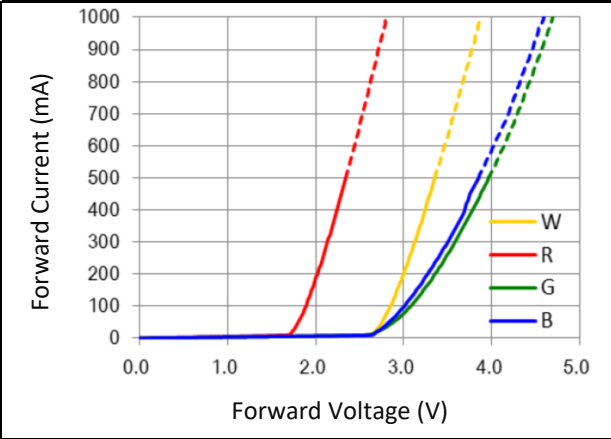
	1		2		3		4	
	X	Y	X	Y	X	Y	X	Y
RL	0.4006	0.4044	0.3736	0.3874	0.3670	0.3578	0.3898	0.3716

## ELECTRO-OPTICAL CHARACTERISTICS:

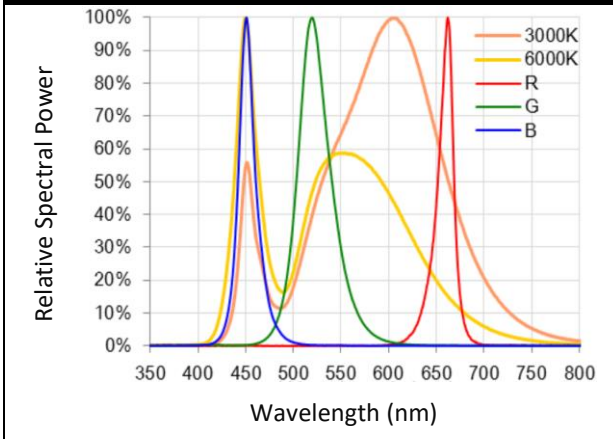
Relative Intensity v.s. Forward Current



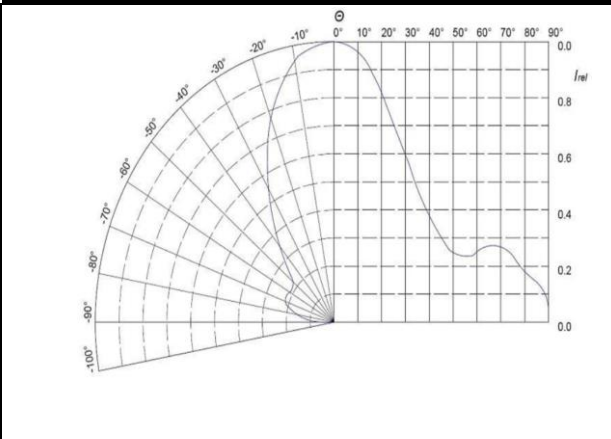
Forward Current v.s. Forward Voltage



Luminous Spectrum

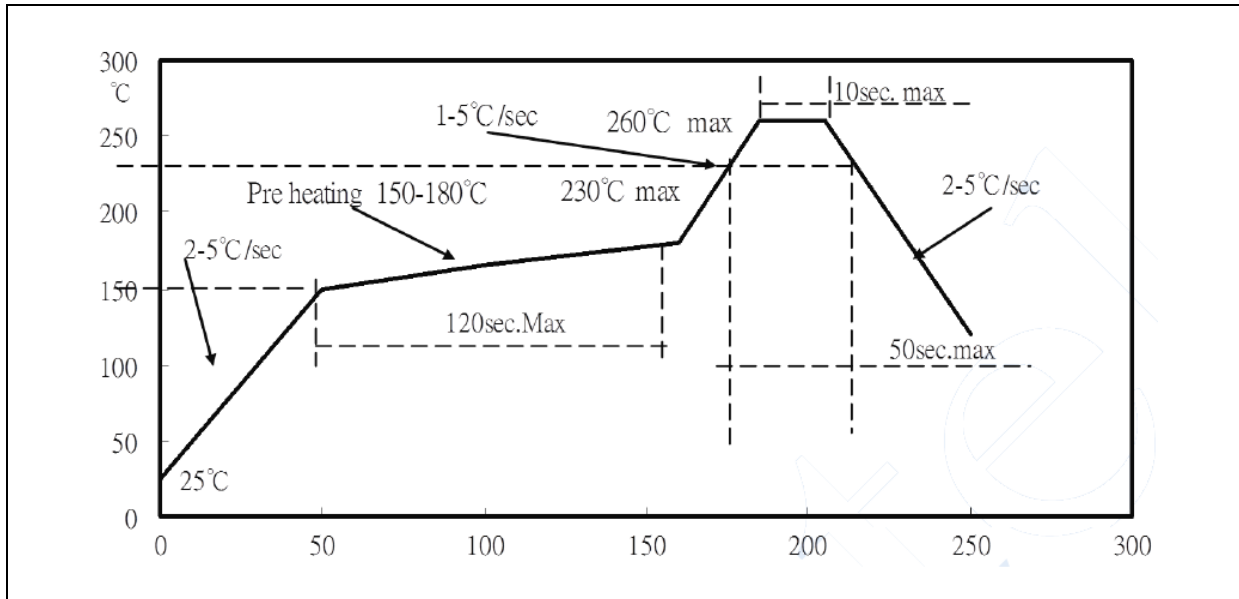


Directive Radiation



## RECOMMENDED SOLDERING PROFILE:

Lead-free Solder:



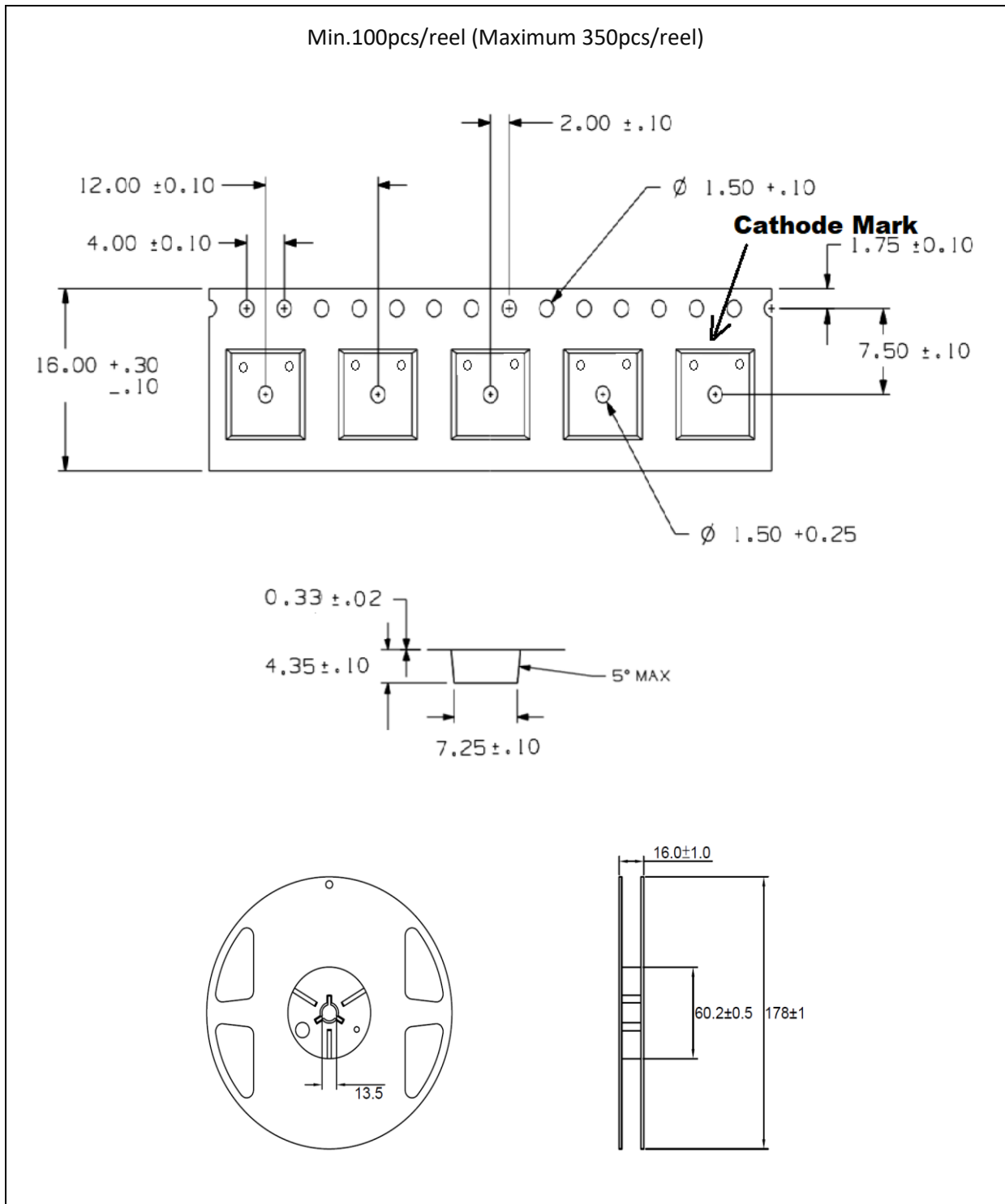
Note:

1. Maximum reflow soldering: 3 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:

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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.

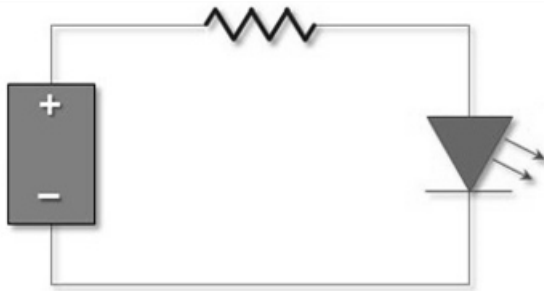
### Baking:

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±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:**

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Version	Date	Summary of Revision
A1.0	17/09/2020	Datasheet set-up.