

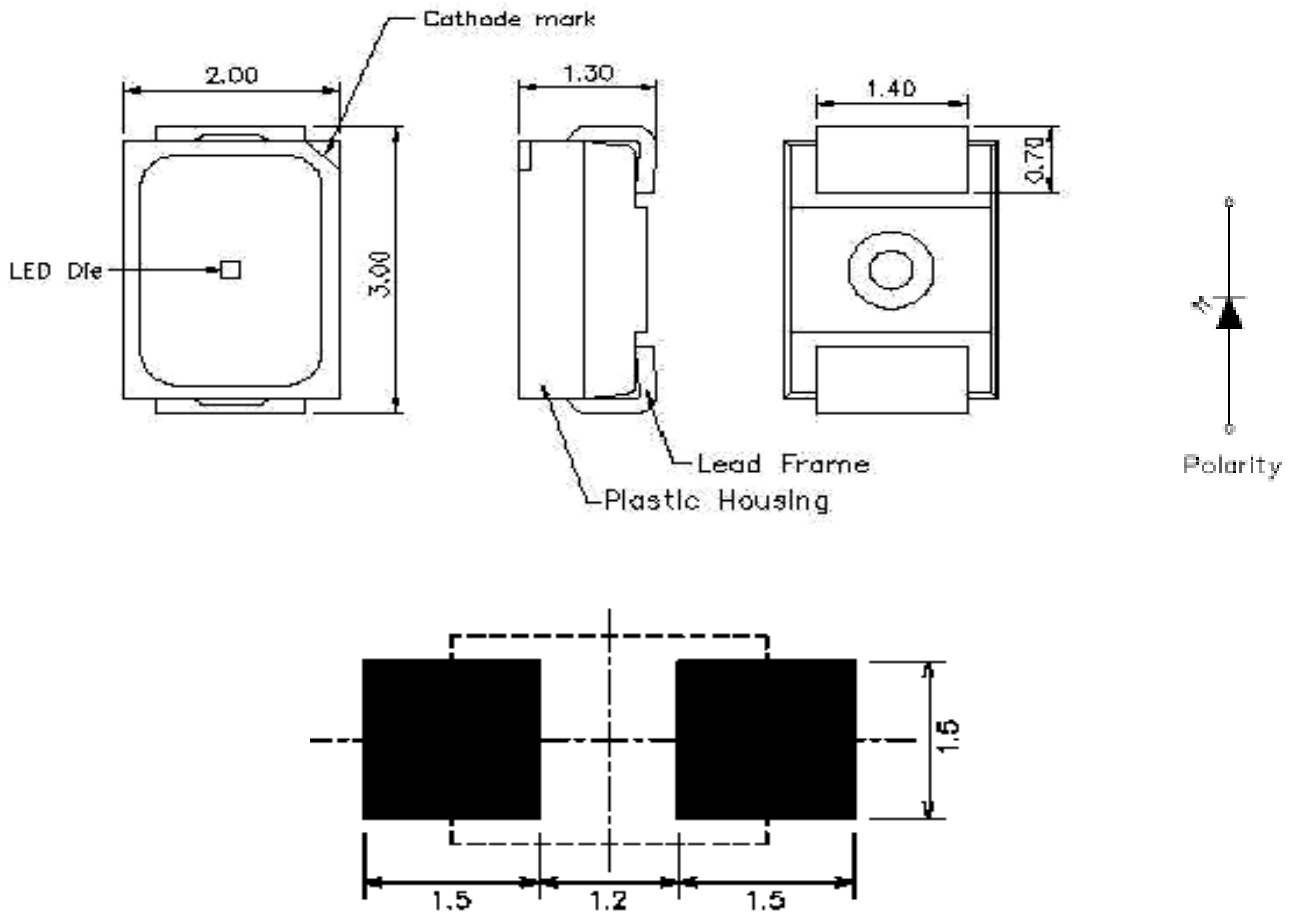


# SHARLIGHT ELECTRONICS CO., LTD.

## SPECIFICATION FOR APPROVAL

Part No. : SLM-3020Nx40-xx1-HT

### Package Dimensions



Part NO.	Chip Material	Color Temperature	Emission Color	CRI
SLM-3020NW40-A01-HT	InGaN	5250~9500K	Cool White	≥70
SLM-3020NS40-A01-HT	InGaN	3750~5250K	Natural White	≥70
SLM-3020NY40-A01-HT	InGaN	2750~3750K	Warm White	≥70
SLM-3020NW40-B01-HT	InGaN	5250~9500K	Cool White	≥80
SLM-3020NS40-B01-HT	InGaN	3750~5250K	Natural White	≥80
SLM-3020NY40-B01-HT	InGaN	2750~3750K	Warm White	≥80

**Notes:**

1. All dimensions are in millimeters.
2. Tolerance is ±0.25mm unless otherwise noted.
3. Specifications are subject to change without notice.



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### Absolute Maximum Ratings at TA=25°C

Parameter	Maximum Rating	Unit
Power Dissipation	64	mW
Peak Forward Current (Condition for IFP per chip is pulse of 1/10 duty and 0.1msec width)	100	mA
Forward Current	20	mA
Reverse Voltage	5	V
Operating Temperature Range	-40°C to + 85°C	
Storage Temperature Range	-40°C to + 85°C	

### Electrical / Optical Characteristics at TA=25°C

(Each chip @ 20mA, TA=25°C)

Color	Part No.	CRI	Lumen Performance	VF(V)	
			IV(mcd) Typ	typ	max
Cool White	SLM-3020NW40-A01-HT	≥ 70	2600	2.9	3.5
Neutral White	SLM-3020NS40-A01-HT	≥ 70	2600		
Warm White	SLM-3020NY40-A01-HT	≥ 70	2600		
Cool White	SLM-3020NW40-B01-HT	≥ 80	2300		
Neutral White	SLM-3020NS40-B01-HT	≥ 80	2300		
Warm White	SLM-3020NY40-B01-HT	≥ 80	2300		

### Bin Code.

#### ■ Iv Bin:

Color	Bin Code	Spec. Range (mcd)
Pure White	Z61	2010-2125 mcd
	Z62	2125-2250 mcd
	Z71	2250-2385 mcd
	Z72	2385-2530 mcd
	Z81	2530-2685 mcd
	Z82	2685~2850mcd

#### ■ Vf Bin:

Bin Code	Spec. Range
H2	2.9-3.0V
H3	3.0-3.1V
H4	3.1-3.2V
J1	3.2-3.3V
J2	3.3-3.4V
J3	3.4-3.5V

Luminous Intensity Measurement Allowance is ±7%

Forward Voltage Measurement Allowance is ±0.05V

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### Color Rank:

B0A		7500~8000k		B1A		7500~8000k		B0B		7500~8000k		B1B		7500~8000k		B0C		8000~8500k		B1C		8000~8500k		B0D		8000~8500k		B1D		8000~8500k	
x	y	x	y	x	y	x	y	x	y	x	y	x	y	x	y	x	y	x	y	x	y	x	y	x	y	x	y	x	y	x	y
0.298	0.262	0.2915	0.298	0.302	0.297	0.29625	0.3045	0.29825	0.3045	0.29825	0.3045	0.29825	0.3045	0.29825	0.3045	0.29825	0.3045	0.29825	0.3045	0.29825	0.3045	0.29825	0.3045	0.29825	0.3045	0.29825	0.3045	0.29825	0.3045	0.29825	0.3045
0.2915	0.298	0.293	0.31826	0.29825	0.3045	0.3045	0.3045	0.3045	0.3045	0.3045	0.3045	0.3045	0.3045	0.3045	0.3045	0.3045	0.3045	0.3045	0.3045	0.3045	0.3045	0.3045	0.3045	0.3045	0.3045	0.3045	0.3045	0.3045	0.3045	0.3045	
0.29625	0.3045	0.298	0.32003	0.301	0.311	0.295	0.334	0.29475	0.29	0.29725	0.30803	0.299125	0.29575	0.292025	0.315565	0.3035	0.3015	0.298	0.3225	0.298	0.32663	0.301	0.311	0.295	0.334	0.29475	0.29	0.29725	0.30803	0.299125	0.29575
0.302	0.267	0.29825	0.3045	0.306	0.292	0.301	0.311	0.299125	0.29575	0.292025	0.315565	0.3035	0.3015	0.298	0.3225	0.298	0.32663	0.301	0.311	0.295	0.334	0.29475	0.29	0.29725	0.30803	0.299125	0.29575	0.292025	0.315565	0.3035	0.3015
0.298	0.262	0.2915	0.298	0.302	0.297	0.29625	0.3045	0.29825	0.3045	0.29825	0.3045	0.29825	0.3045	0.29825	0.3045	0.29825	0.3045	0.29825	0.3045	0.29825	0.3045	0.29825	0.3045	0.29825	0.3045	0.29825	0.3045	0.29825	0.3045	0.29825	0.3045

Note: It maintains a tolerance of x, y ±0.005

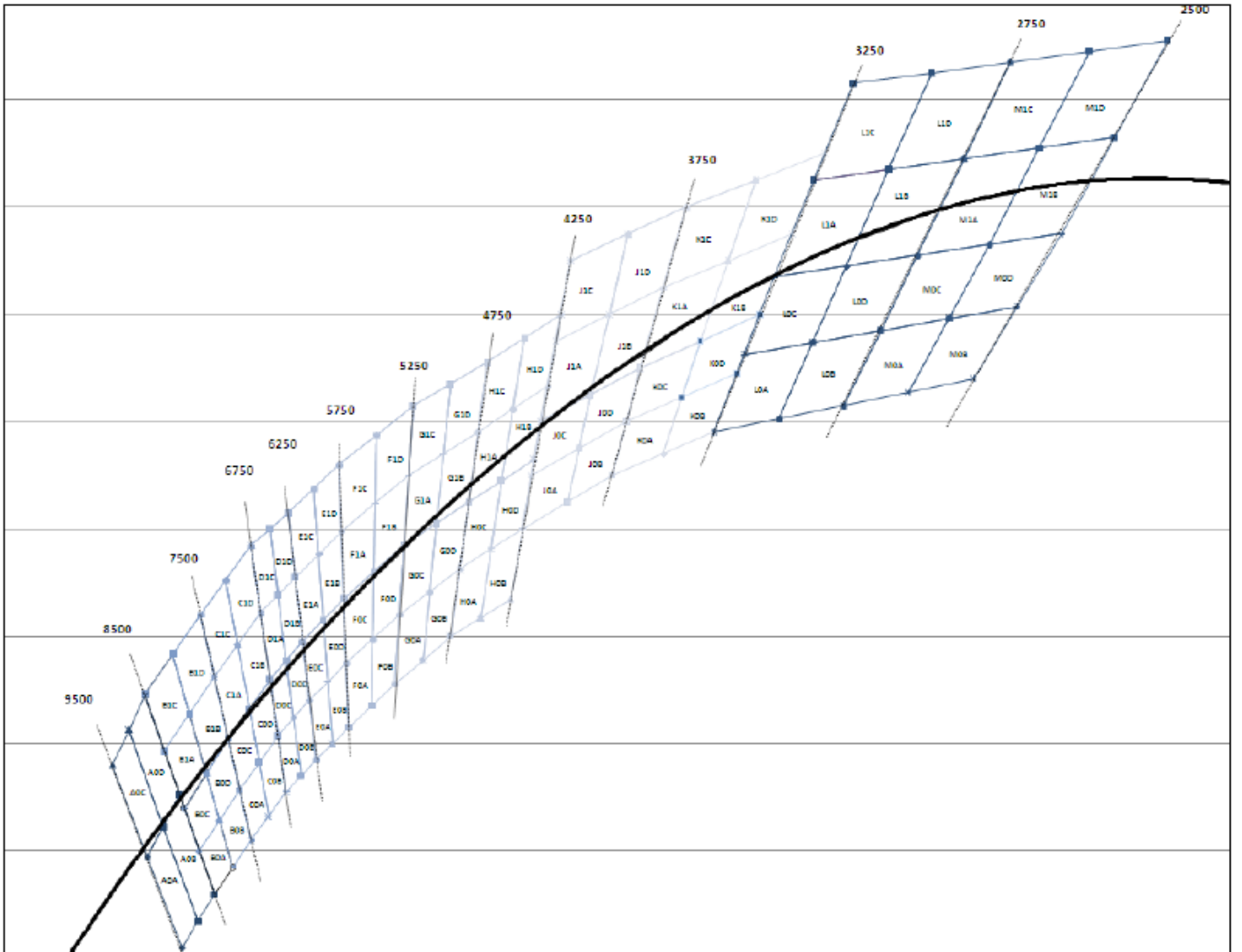


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## SPECIFICATION FOR APPROVAL

Part No. : SLM-3020Nx40-xx1-HT

### Color Rank Coordinates



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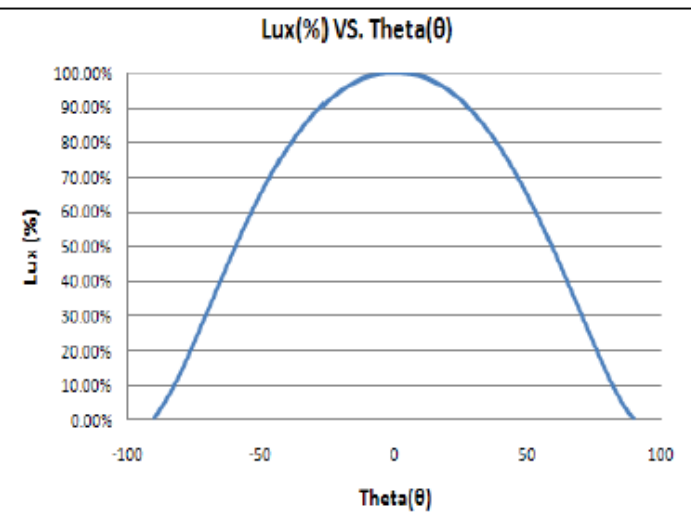
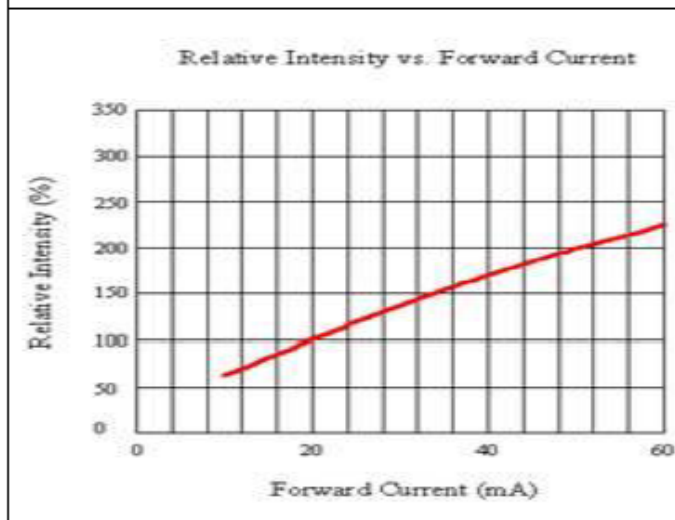
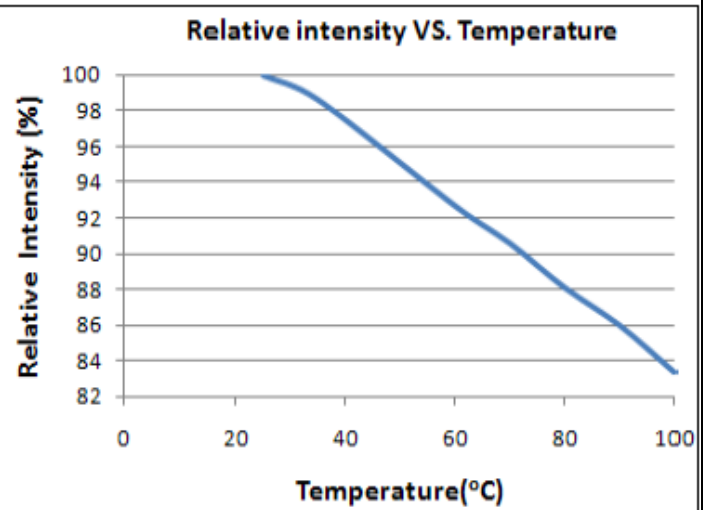
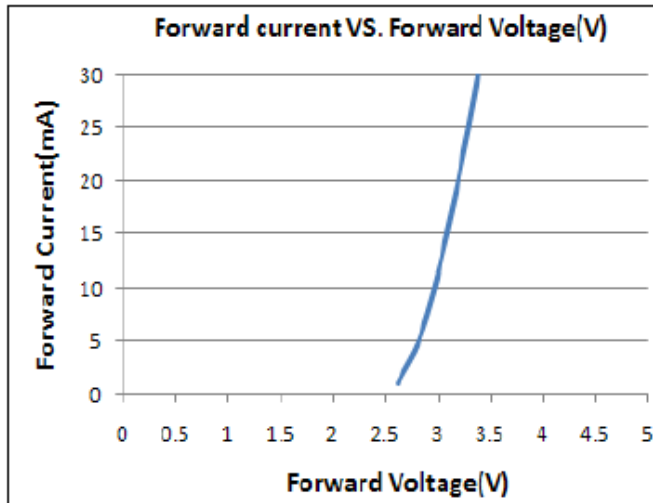


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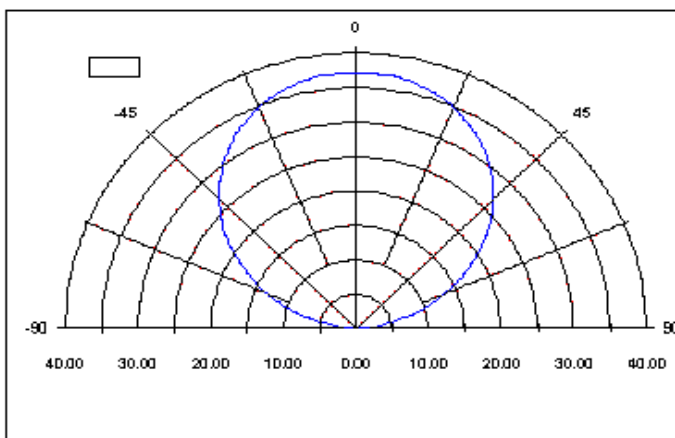
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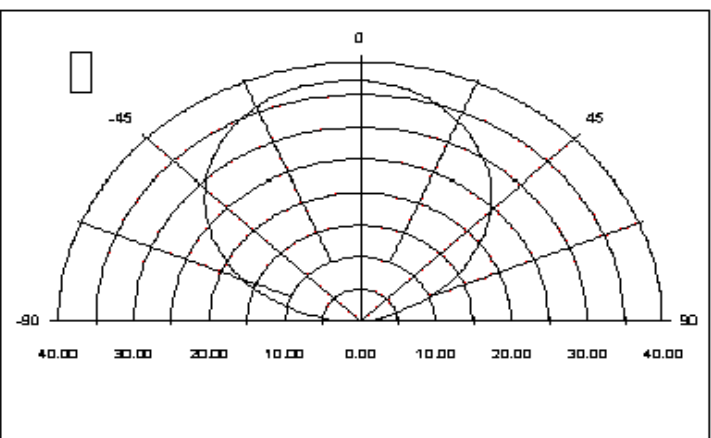
### Typical Electro-Optical-Thermal Characteristics Curves (TA=25°C Unless Otherwise Noted)



### Directive Characteristics



### Directive Characteristics





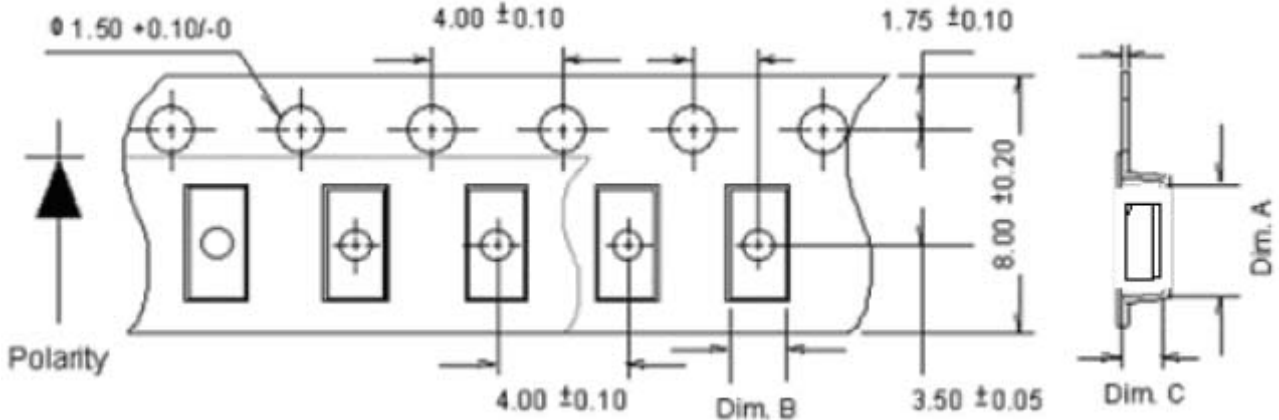


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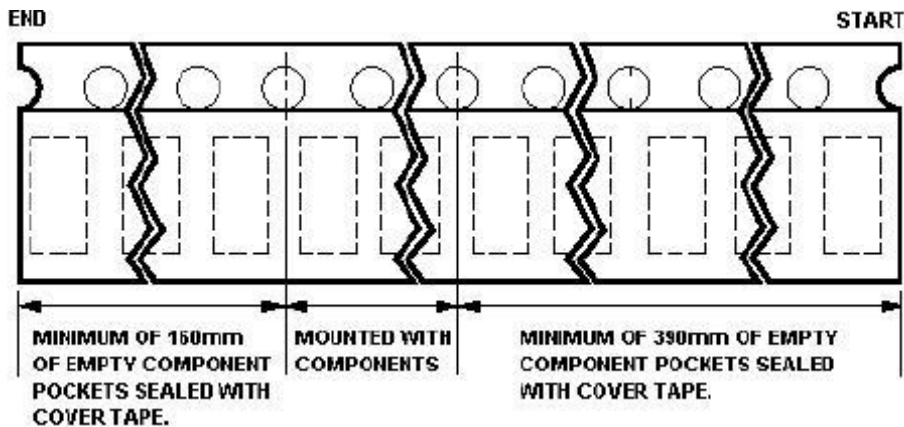
Part No. : SLM-3020Nx40-xx1-HT

**Packaging Tape, Reel, and Packing Model Tape Dimension Quantity: 2000 PCS/Reel**

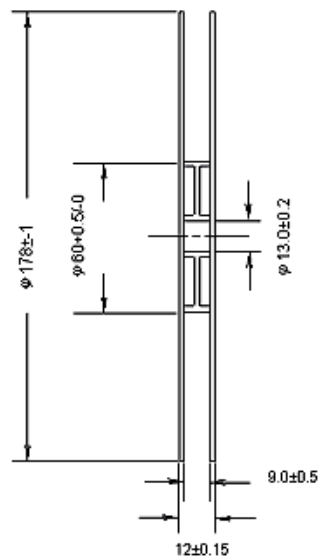
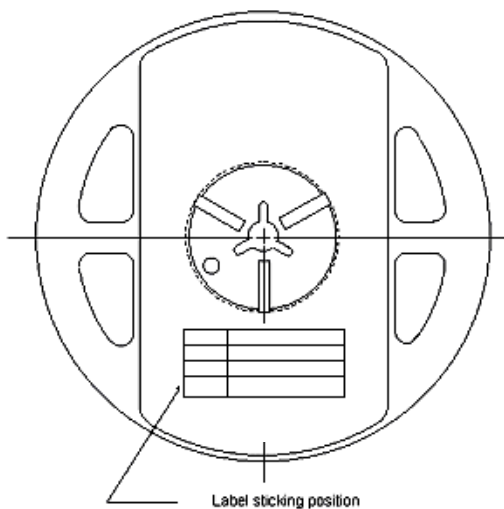


Dim. A	Dim. B	Dim. C	Q'ty/Reel
$3.30 \pm 0.10$	$2.25 \pm 0.10$	$1.65 \pm 0.10$	2K

Unit: mm



### Reel Dimension



**5 Reels per box**



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## SPECIFICATION FOR APPROVAL

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### Precaution for Use

- (1). The chips should not be used directly in any type of fluid such as water, oil, organic solvent, etc.
- (2). When the LEDs are illuminating, the maximum ambient temperature should be first considered before operation.
- (3). LEDs must be stored in a clean environment. A sealed container with a nitrogen atmosphere is necessary if the storage period is over 3 months after shipping.
- (4). The LEDs are recommended to be used within seven days after unpacked. In accordance with MSL 2a: After the bag is opened, devices that will be subjected to infrared reflow, vapor-phase reflow, or equivalent processing must be mounted within 672 hours at factory conditions of  $\leq 30^{\circ}\text{C}/60\%\text{RH}$ .
- (5). The appearance and specifications of products may be modified for improvement. We will provide PCN for any change or improvement.
- (6). The LEDs are sensitive to the static electricity and surge. It is strongly recommended to use a grounded wrist band and anti-electrostatic glove when handling the LEDs. If a voltage over the absolute maximum rating is applied to LEDs, it will damage LEDs. Damaged LEDs will show some abnormal characteristics such as remarkable increase of leak current, lower turn-on voltage and getting unlit at low current.

### Precaution of Application

#### Designing 1: Soldering pattern

The dimensions of the recommended soldering pattern may not meet every user. Please confirm and study first before designing the soldering pattern in order to obtain the best performance of soldering.

#### Designing 2: Circuit layout

Due to the circuit design is not available, assuming the circuit is in parallel and a resistor that is put in series in the circuit, it cannot provide an effective current-limiting function to the LEDs due to each LED had a different inherent resistance. In general, the LEDs usually have a different inherent resistance. Different inherent resistance will cause different current, the LED on the different path would be driven at different power, and the result was the LED with a higher resistance would be dimmer than the other. To solve this situation, a suitable resistor is put in series with each LED to limit the current disparity through the LED will be very useful.

#### Designing 3: Max Rating

Any application should refer to the specifications of absolute maximum ratings.

#### Dry Pack

Any SMD optical device, like this chip LED, is **MOISTURE SENSITIVE device**. Avoid absorbing moisture at any time during transportation or storage. Every reel will be packaged in the moisture barrier anti-static bag (Specific bag material will depend upon customers' requirement or option). And the bag is well sealed before shipment. By customer's requirement, we will put a humidity indicator in each moisture barrier anti-static bag before shipment.

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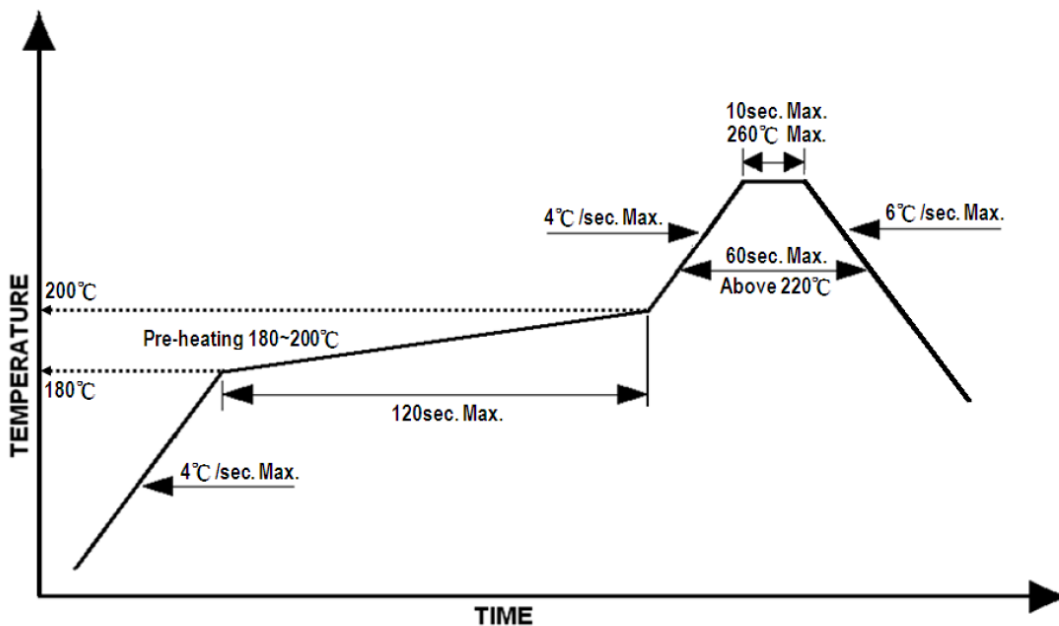
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### Reflow Soldering

1. Recommend soldering paste specifications:
2. Operating temp.: Above 220 °C ,60sec
3. Peak temp.:260 °CMax.,10sec Max.
4. Never take next process until the component is cooled down to room temperature after reflow.
5. The recommended reflow soldering profile (measuring on the surface of the LED terminal) is following:

Lead-free Solder



### Cleaning

The conditions of cleaning after soldering:

An alcohol-based solvent such as isopropyl alcohol (IPA) is recommended.

Temperature×Time: <50 °C×30sec, or <30 °C×3min

Ultra sonic cleaning: < 15W/ bath; Bath volume: 1liter max.

Curing: 100 °C max, <3min

Do not contact with component on the assembly board.





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Part No. : SLM-3020Nx40-xx1-HT

**※Note :**

**Recommended storage conditions :**

1. Storage Condition:

- a. don't open the sealed bag until the Reflow Soldering ◦
- b. before open the sealed bag, please keep bag at Ambient Temperature from 5 to 25°C(41°F~77°F) and Relative Humidity < 60% ◦
- c. storage life: within 6 months ◦

2. Once overdue the storage life or after open the sealed bag for 12 hours , the LED has to be oven at 70°C for 24 hours before the Reflow Soldering ◦

3. After oven the LED, the Reflow Soldering has to be completed within 12 hours. ◦

Otherwise, the oven LED has to be sealed in bag again and storage at Ambient Temperature of 23 +/- 5°C & RH 5~30% ◦