



# N3535U High Power UVB and UVC

## Introduction

The UVB N3535U-WNx5 and UVC N3535U-XNx5 High Power Series LED from TSLC brings industry leading technology to the UV lighting market with its high reliability and performance. With a ceramic substrate, the N3535U-WNx5 and N3535U-XNx5 are ideal for anti-bacterial and disinfection applications.

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**RoHS Compliant**

## Characteristics

### A Series Absolute Maximum Ratings (T<sub>j</sub>=25°C)

Parameter	Rating
	N3535U UVB/UVC Series
DC Forward Current (mA)	350 mA
LED Operating Temperature	-40°C~60°C
Storage Temperature	-40°C~105°C
Soldering Temperature	Max. 260°C / refer attached profile
ESD Sensitivity	2,000 V HBM (JESD-22A-114-B)
Reverse Voltage	Not designed to be driven in reverse bias
Preconditioning	Acc. to JEDEC Level 5a

### General Characteristics at 350mA

Part number	Color	Peak Wavelength λ <sub>p</sub>		2θ <sub>1/2</sub>	Temperature Coefficient of Vf (mV/°C)	Thermal Resistance Junction to Pad (°C/W)
		Min	Max		ΔVf /ΔTJ	Rθ <sub>J-L</sub>
N3535U-XNx5 x: M 110-130 ° : I 70-90 ° : E 40-60 °	VA1	260	270	40-130	-2~-4	7.4
	VA2	270	280	40-130	-2~-4	7.4
	VA3	280	290	40-130	-2~-4	7.4

Part number	Color	Peak Wavelength λ <sub>p</sub>		2θ <sub>1/2</sub>	Temperature Coefficient of Vf (mV/°C)	Thermal Resistance Junction to Pad (°C/W)
		Min	Max		ΔVf /ΔTJ	Rθ <sub>J-L</sub>
N3535U-WNx5 x: M 110-130 ° : I 70-90 ° : E 40-60 °	VB1	300	310	40-130	-2~-4	7.4
	VB2	310	320	40-130	-2~-4	7.4

#### Notes:

1. The peak wavelength is measured with an accuracy of ±1nm
2. All values stated are subject to the limits and set up of TSLC's testers. All other measurement data are defined as long-term production mean values and are only given for reference.
3. A critical component is a component used in a life-support device or system whose failure can reasonably be expected to cause the failure of that life-support device or system, or to affect its safety or effectiveness of that device or system. Life support devices or systems are intended (i) to be implanted in the human body, or (ii) to

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support and/or maintain and sustain human life. If they fail, it is reasonable to assume that the health of the user may be endangered. Components used as a critical component must be approved in writing by TSLC Corporation.

4. These devices emit high intensity UV/NUV light. Necessary precautions must be taken during operation. Do not look directly into the light or look through the optical system when in operation. Protective eyewear should be worn at all times during operation.
5. Do not drive at rated current for more than 3 seconds without proper thermal management.
6. Always follow thermal design recommendations in the relevant Application Note.

## Radiometric Power and Forward Voltage ( $T_j=25^{\circ}\text{C}$ )

Part number	Color	Performance at Test Current (350mA)				
		Group	Radiometric Power (mW)		VF	
			Min	Max	Min	Max
N3535U-XNx5	VA1 (260-270nm)	NA3	20	30	5.0	7.5
		NA4	30	40		
		NA5	40	50		
	VA2-A4 (270-290nm)	NA5	40	55	5.0	7.5
		NB1	55	70		
		NB2	70	85		
N3535U-WNx5	VB1-B2 (300-320nm)	NB3	85	100	5.0	7.5
		NC1	100	120		
		NB1	55	70		
		NB2	70	85		

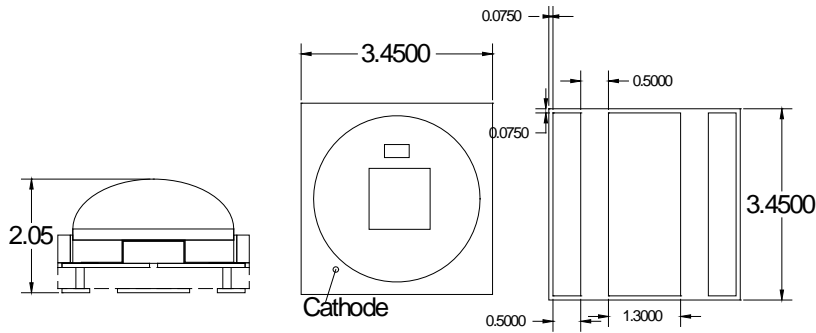
Note:

1. Radiometric power is measured with an accuracy of  $\pm 10\%$
2. The forward voltage is measured with an accuracy of  $\pm 0.2\text{V}$

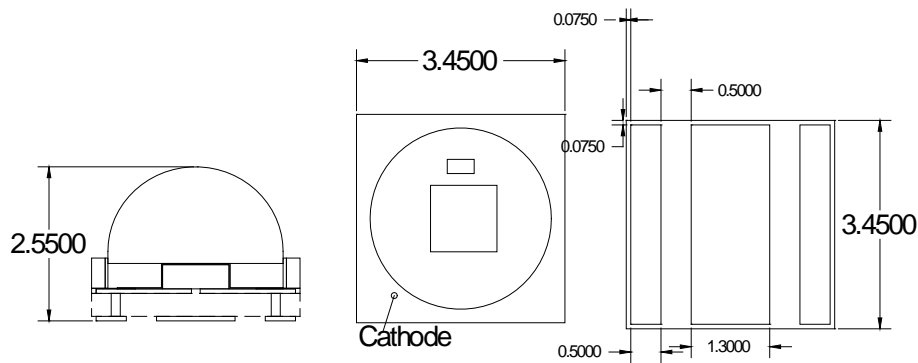
## Mechanical Dimensions

View angle 110-130 ° UVB N3535U-WNM5/UVC N3535U-XNM5

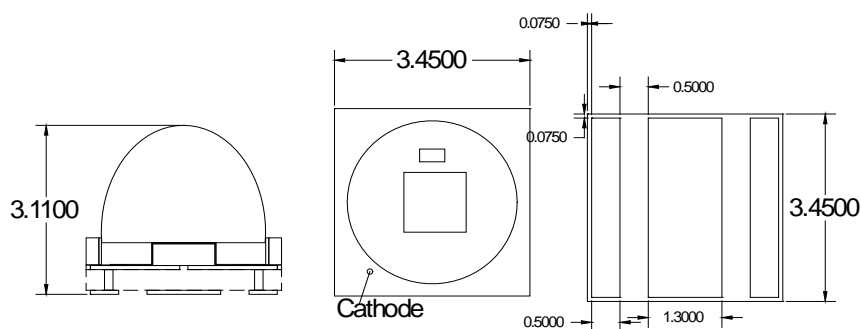
A.



B. View angle 70-90 ° UVB N3535U-WNI5/UVC N3535U-XNI5



C. View angle 40-60 ° UVB N3535U-WNE5/UVC N3535U-XNE5

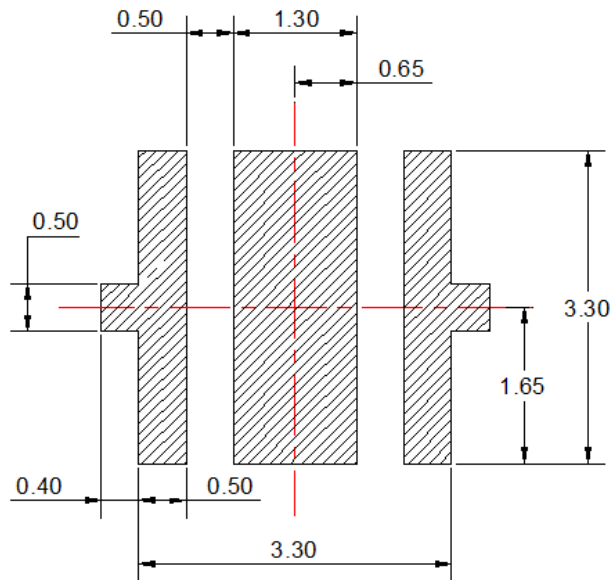


Notes:

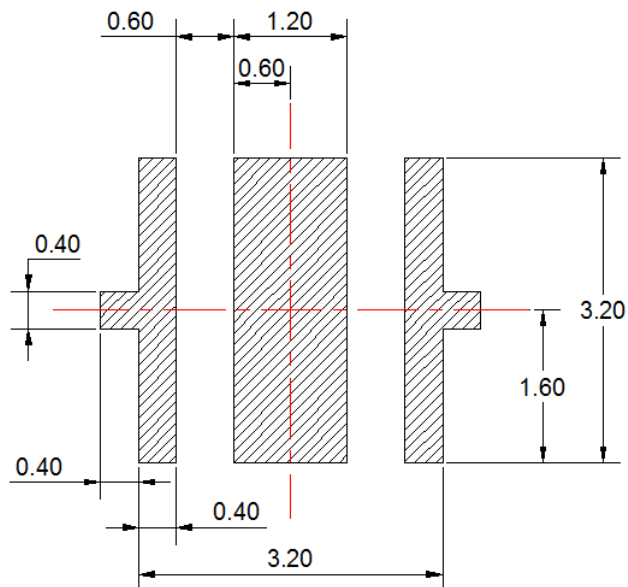
1. Drawing is not to scale
2. All dimensions are in millimeter
3. Dimensions are  $\pm 0.13\text{mm}$  unless otherwise indicated

## Recommended Solder Pad Design

### Recommended Soldering Pad Design



### Recommended Stencil Pattern Design (Marked Area is Opening)

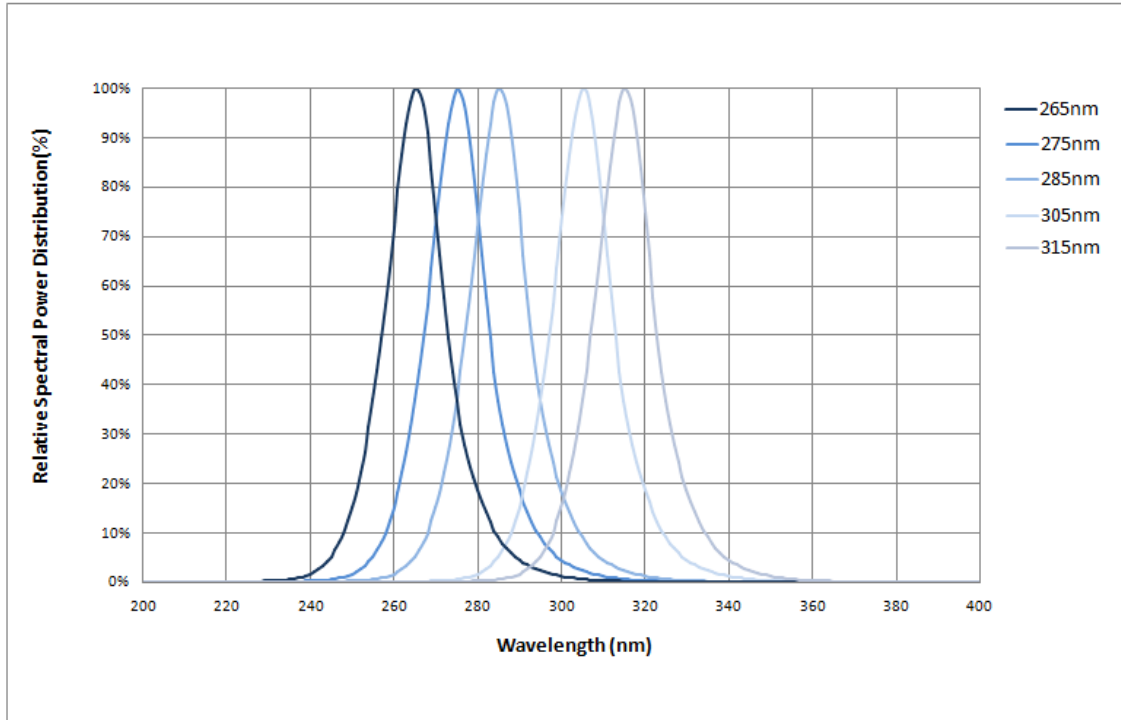


#### Notes:

1. Drawing is not to scale
2. All dimensions are in millimeter

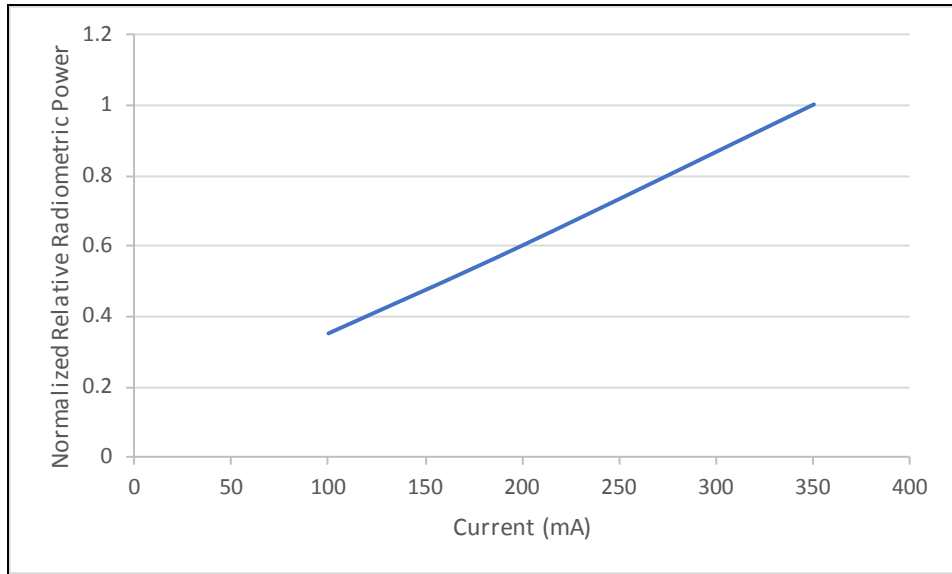
## Relative Spectral Power Distribution, $T_j=25^\circ\text{C}$

N3535U-WNx5 / N3535U-XNx5 Series



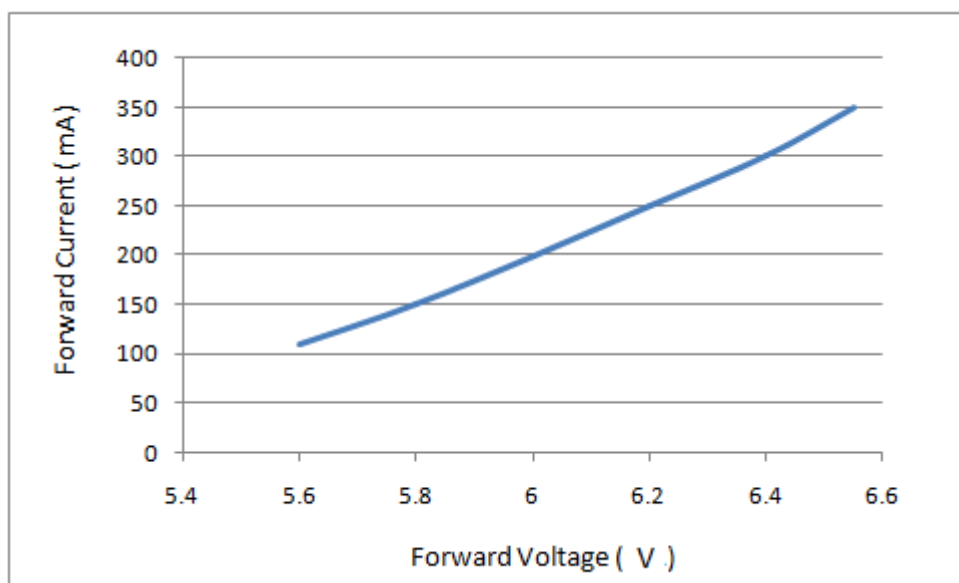
## Typical Forward L-I Characteristics, $T_j=25^\circ\text{C}$

N3535U-WNx5 / N3535U-XNx5 Series



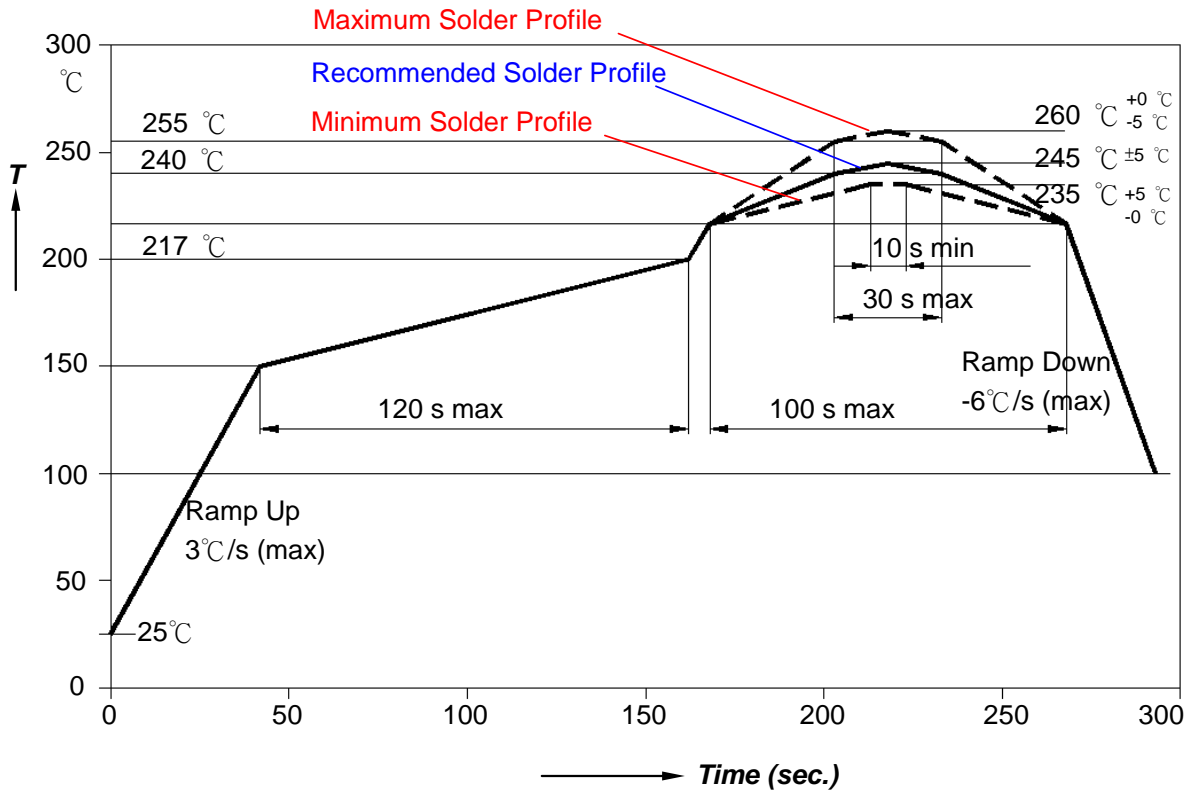
## Typical Forward I-V Characteristics, $T_j=25^\circ\text{C}$

N3535U-WNx5 / N3535U-XNx5 Series



## Recommended Soldering Profile

The LEDs can be soldered using the parameters listed below. As a general guideline, the users are suggested to follow the recommended soldering profile provided by the manufacturer of the solder paste. Although the recommended soldering conditions are specified in the list, reflow soldering at the lowest possible temperature is advised for the LEDs.



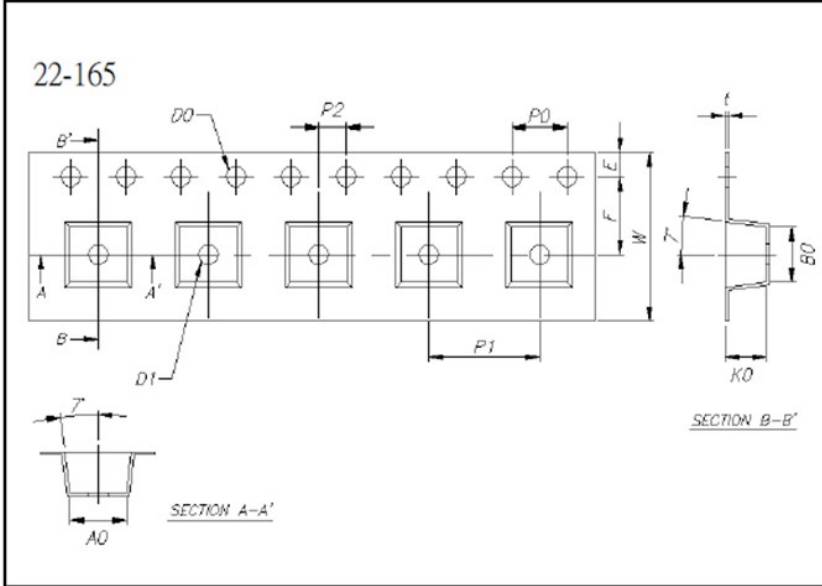
Profile Feature	Sn-Pb Eutectic Assembly	Pb-Free Assembly
Average Ramp-up Rate (Ts <sub>max</sub> to Tp)	3°C/second max.	3°C/second max.
Preheat		
- Temperature Min(Ts <sub>min</sub> )	100°C	150°C
- Temperature Max(Ts <sub>max</sub> )	150°C	200°C
- Time(ts <sub>min</sub> to ts <sub>max</sub> )	60-120 seconds	60-180 seconds
Time maintained above:		
- Temperature(T <sub>L</sub> )	183°C	217°C
- Time(t <sub>L</sub> )	60-150 seconds	60-150 seconds
Peak/classification Temperature(Tp)	215°C	260°C
Time within 5°C of actual Peak Temperature(tp)	10-30 seconds	20-40 seconds
Ramp-Down Rate	6°C/second max.	6°C/second max.
Time 25°C to Peak Temperature	6 minutes max.	8 minutes max.



## Packing Information

A. N3535U- UVB/C High power series (beam angle 110-130), Max QTY: 1000ea / roll

Dimensions. (Unit: mm)

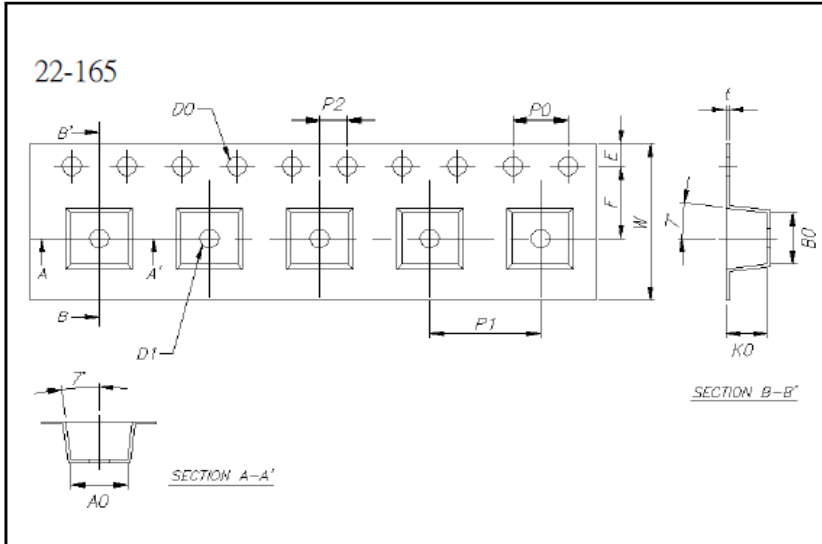


Item	Specification	Tol. (+/-)
W	12.00	± 0.30
E	1.75	± 0.10
F	5.50	± 0.10
D0	1.50	+0.10,-0
D1	1.50	± 0.10
P0	4.00	± 0.10
P1	8.00	± 0.10
P2	2.00	± 0.10
P0 x 10	40.00	± 0.20

t	0.23	± 0.05
A0	4.09	± 0.10
B0	3.93	± 0.10
K0	2.95	± 0.10

B. N3535U- UVB/C High power series (beam angle 60-80), Max QTY: 500ea / roll

Dimensions. (Unit: mm)

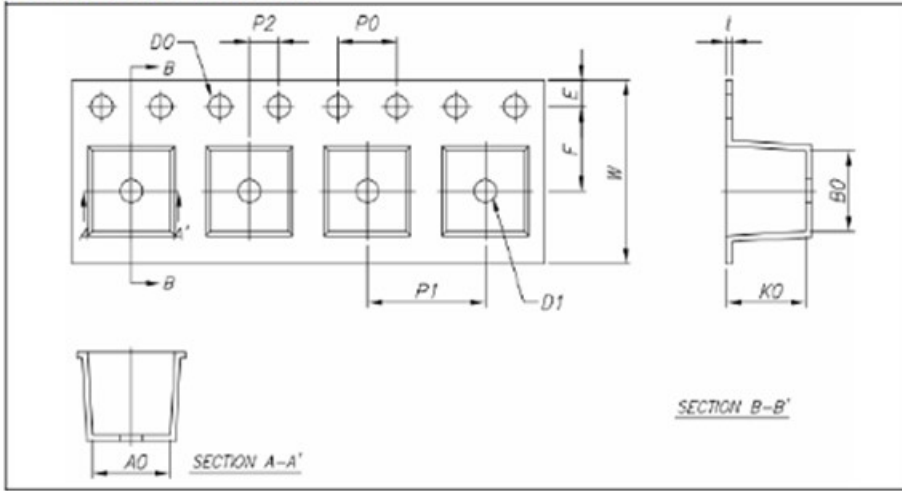


Item	Specification	Tol. (+/-)
W	12.00	± 0.30
E	1.75	± 0.10
F	5.50	± 0.10
D0	1.50	+0.10,-0
D1	1.50	± 0.10
P0	4.00	± 0.10
P1	8.00	± 0.10
P2	2.00	± 0.10
P0 x 10	40.00	± 0.20

t	0.23	± 0.05
A0	4.09	± 0.10
B0	3.93	± 0.10
K0	2.95	± 0.10

C. N3535U- UVB/C High power series (beam angle 40-60), Max QTY: 500ea / roll

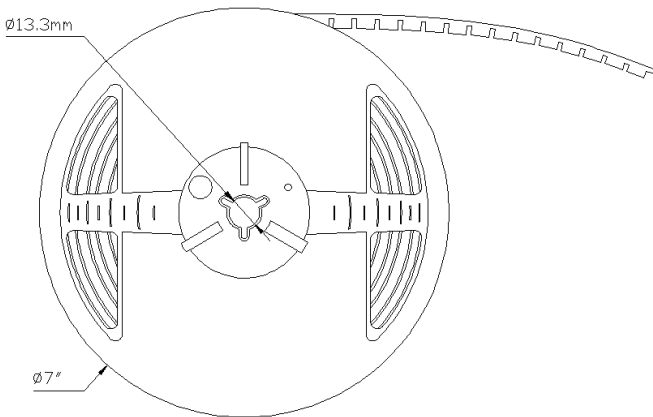
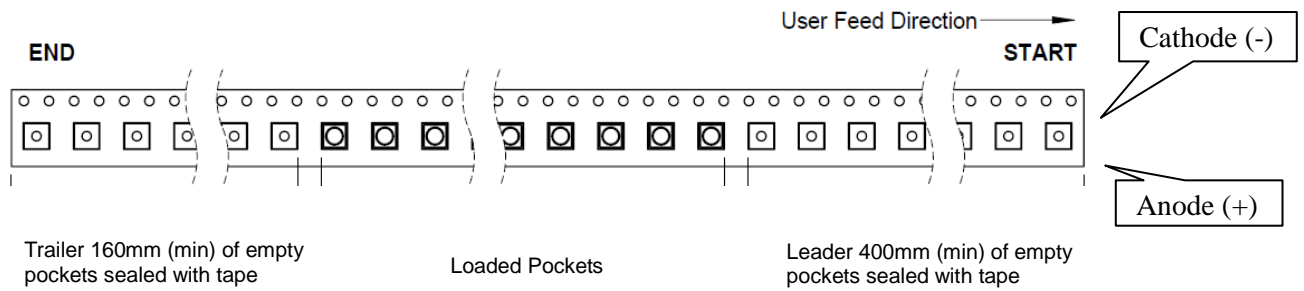
Dimensions. (Unit: mm)



Common dimensions

Item	Specification	Tol. (+/-)
W	12.00	±0.20
E	1.75	±0.10
F	5.50	±0.10
D0	1.50	±0.10
D1	1.50	±0.10
P0	4.00	±0.10
P1	8.00	±0.10
P2	2.00	±0.10
P0x10	40.00	±0.20

Item	Specification	Tol. (+/-)
t	0.28	±0.05
A0	5.35	±0.10
B0	5.35	±0.10
K0	3.40	±0.10



Note:

All dimensions are in millimeter.

## About Us

**TSLC Corporation** is devoted to developing high-density, and multi-size emitters with powerful output to satisfy the needs of every customer.

**TSLC Corporation** is the leader in LED solutions. Unlimited design flexibility for interior and exterior spaces with high-end lighting effect; energy-efficient for UV curing to improve the quality of medical care; horticulture solutions create a better environment for everyone; high-intensity rotatable lightings for the entertainment industry, TSLC is always there for your lighting needs.

For further company or product information, please visit us at [www.tslc.com.tw](http://www.tslc.com.tw) or please contact [sales@tslc.com.tw](mailto:sales@tslc.com.tw).



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