

PRODUCT SPECIFICATION

Series Part Number
PLH39CAx-WCU01

Details

- 3939 UV-C Surface Mount LED
- Optional Optical Quartz Lens
- Max 500 Piece Reels

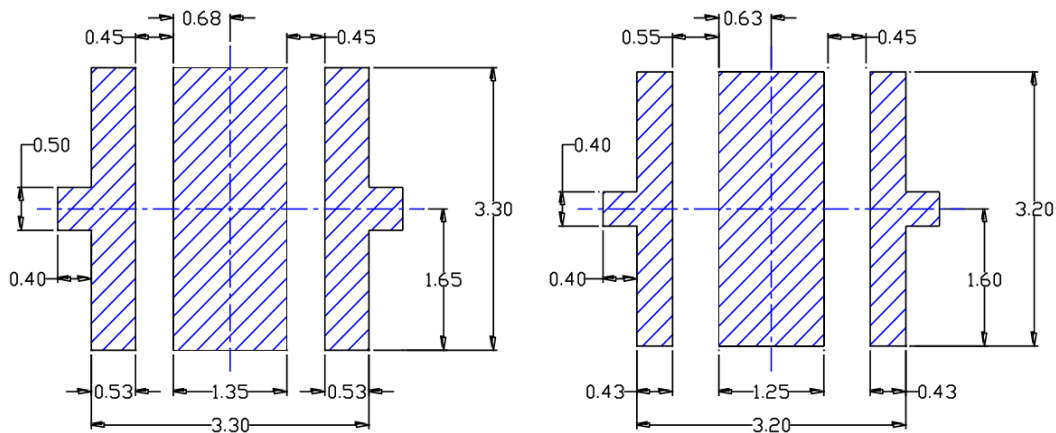
Features

- RoHS & REACH Compliant
- MSL 4 qualified according to J-STD 020
- ESD 2KV

Outline Dimensions

PLH39CA-WCU01	PLH39CB-WCU01	PLH39CC-WCU01
30D	60D	120D
3.9 x 3.9 x 3.2mm	3.9 x 3.9 x 2.6mm	3.9 x 3.9 x 1.6mm

Recommended Soldering Pad Dimensions



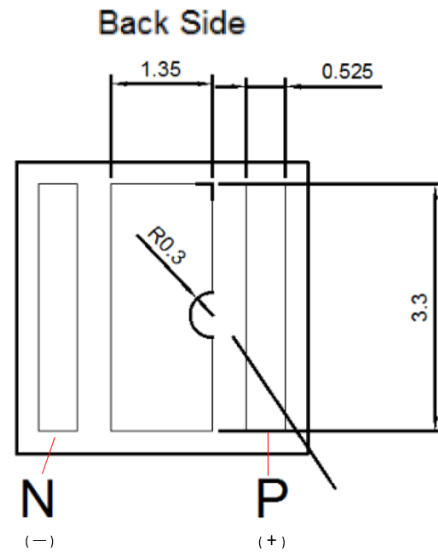
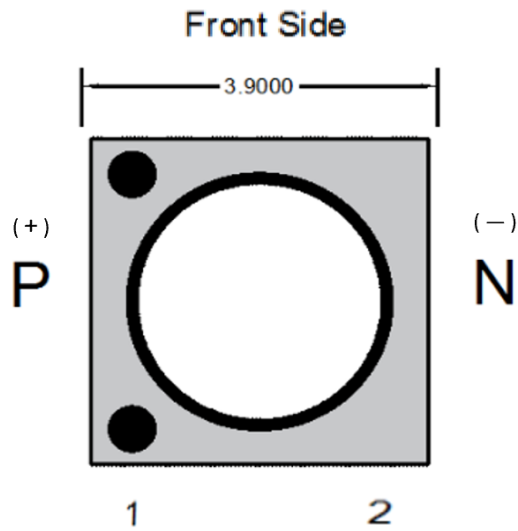
Notes:

1. Dimensions in millimeters unless otherwise noted
2. Specifications subject to change without notice

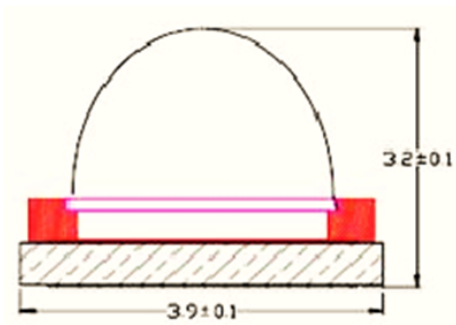


Package Dimensions

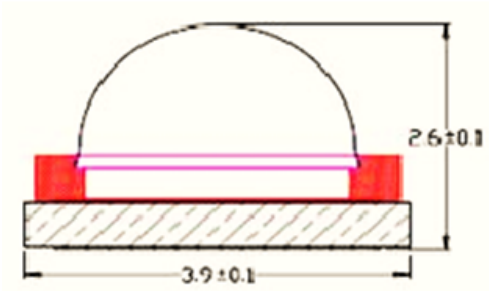
(All dimensions are in mm, tolerance is $\pm 0.13\text{mm}$)



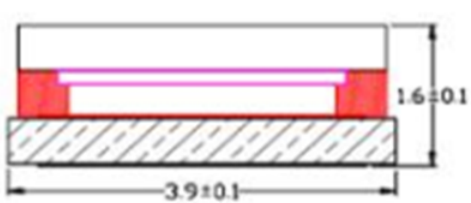
30D



60D



120D



Absolute Maximum Ratings at Ta=25 °C

Characteristics	Symbol	Min.	Typ.	Max.	Unit
DC Forward Current	IF	--	--	150	mA
Pulse Current (@1/10 duty)	IP	--	--	TBD	mA
Forward Voltage	VF	5.0	--	9.0	V
Junction Temperature	Tj	--	--	65	°C
Storage Temperature Range	Tstg	-40	--	80	°C
Soldering Temperature	Tsol	--	--	245	°C/W
Viewing Angle	2θ1/2	--	30/60/120	--	Deg

Notes:

1. When operating at other than ambient temperature, maximum allowable current depends on derating curves.
2. Pulse width = 0.01s & duty factor = 1/10.
3. When operating at maximum allowable current, Tj must be below 85 °C.
4. Viewing angle tolerance is ± 10°.

Electrical and Optical Characteristics at Ta=25 °C

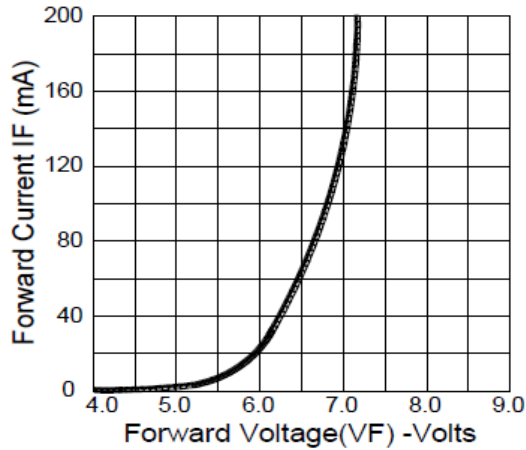
Product	VF(V)@150mA			Viewing Angle
PLH39CA-WCU01	Min.	Typ.	Max.	2θ1/2
PLH39CB-WCU01	5.0	--	9.0	30/60/120
PLH39CC-WCU01				

Notes:

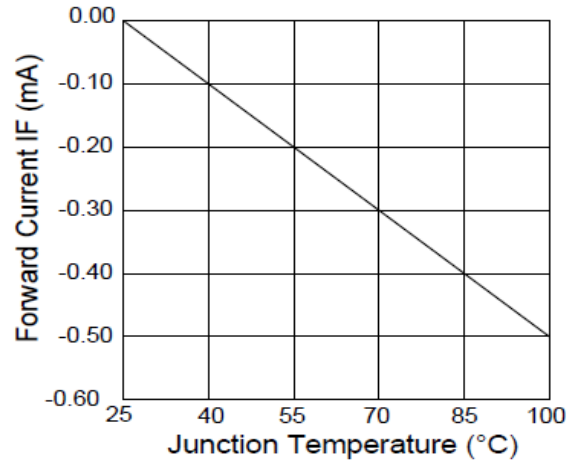
1. Performance guaranteed only under conditions listed in above tables.

Typical Electrical / Optical Characteristic Curves

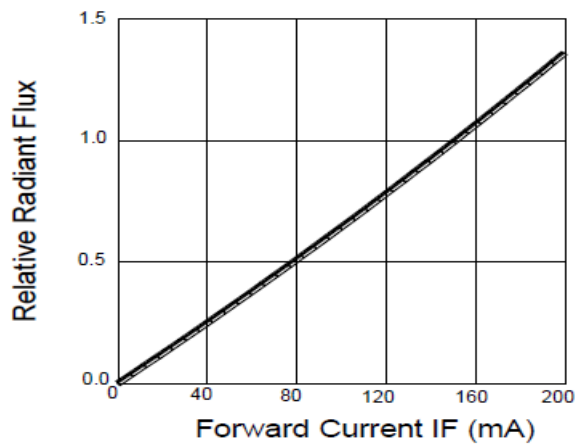
Forward Current VS. Forward Voltage



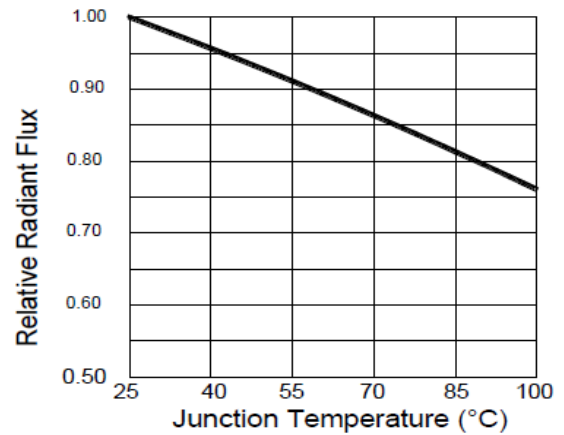
Forward Voltage Shift VS. T_J



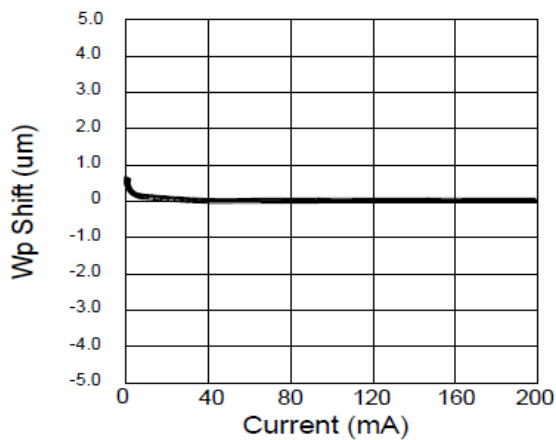
Relative Radiant Flux VS. Current



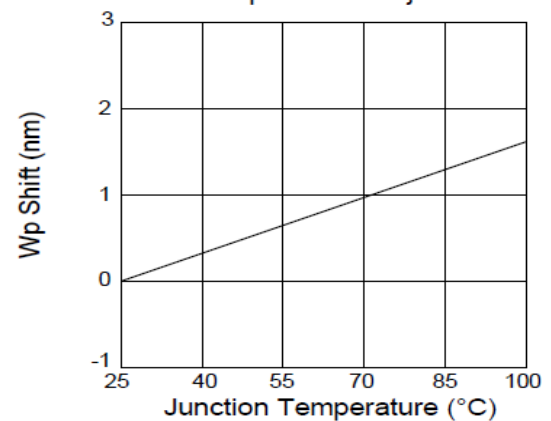
Relative Radiant Flux VS. T_J



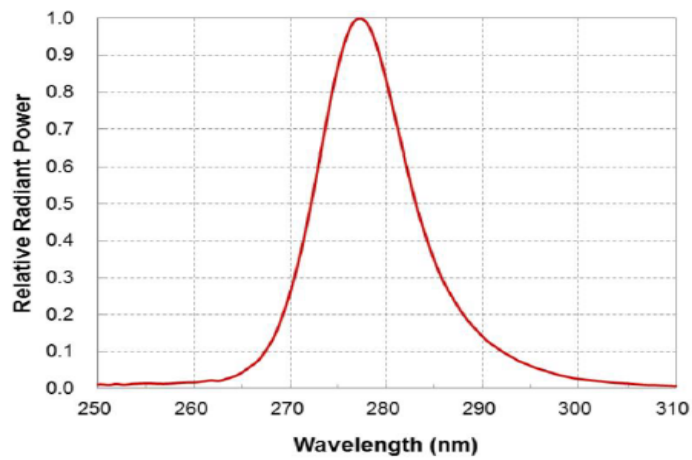
Wp Shift VS. Current



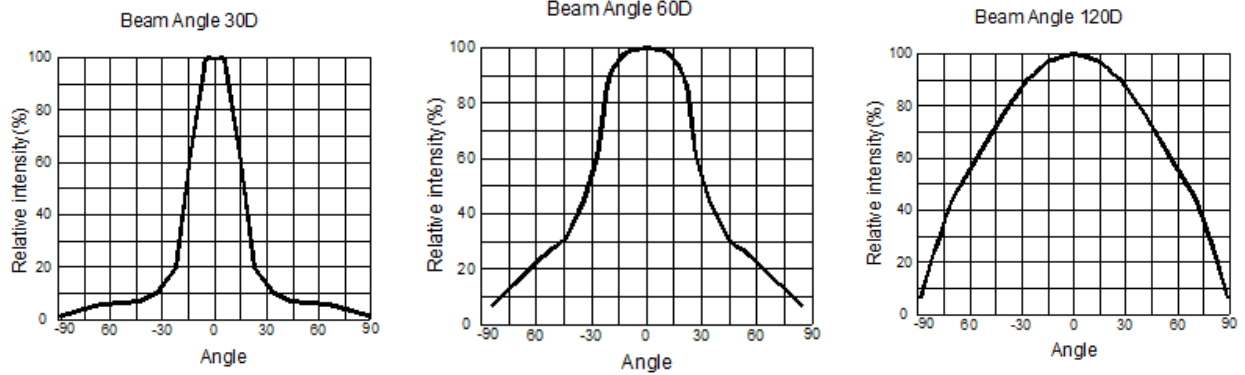
Wp Shift VS. T_J



Relative Spectral Power Distribution



Beam Angle (201/2)



Ordering Information

Product	Emission Color	Viewing Angle	Orderable Part Number
PLH39Cx-WCU01	U1:270~285nm	30°	PLH39CAWCU01
		60°	PLH39CB-WCU01
		120°	PLH39CC-WCU01

Peak Wavelength Binning

Peak Wavelength unit: nm@150mA		
Bin Code	Min	Max
U1	270	285

Notes:

1. Binning current is 150mA
2. Wavelength tolerance $\pm 2\text{nm}$

Voltage Binning

Voltage unit: V@150mA			
Peak Wavelength	Bin Code	Min	Max
U1: 270~285nm	V1	5.0	7.0
	V2	7.0	9.0

Notes:

1. Binning current is 150mA

Radiant Flux (Power) Binning

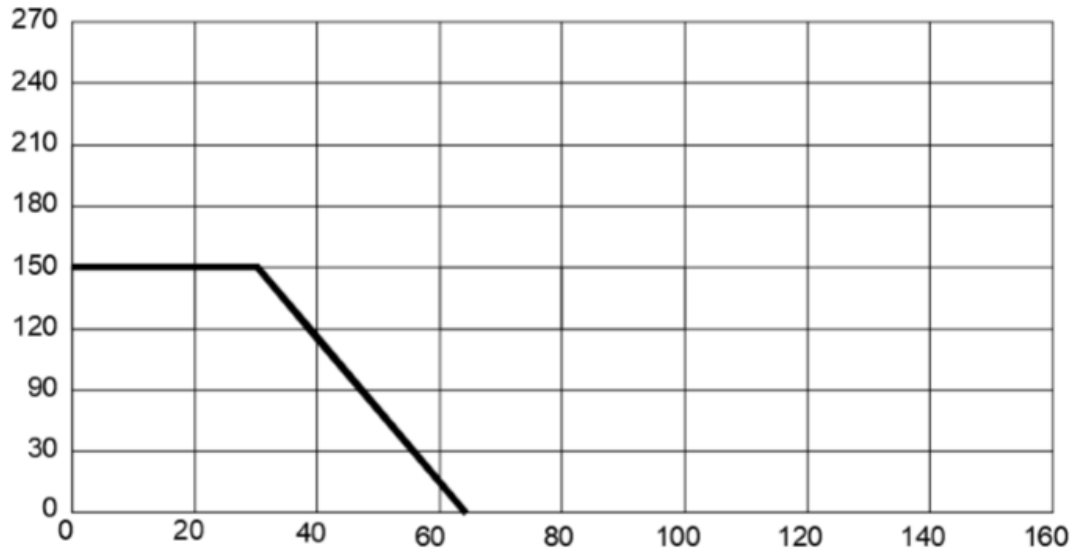
Radiant flux (Power) unit: mw@150mA			
Peak Wavelength	Bin Code	Min	Max
U1: 270~285nm	H1	8	16

Notes:

1. Binning current is 150mA
2. Power tolerance $\pm 10\%$

Thermal Design

Thermal design of the end product is important. The thermal resistance between the junction and the solder point (R_{ΘJ-S}) and the end product should be designed to minimize the thermal resistance from the solder point to ambient in order to optimize the emitter life and optical characteristics. The maximum operation current is determined by the plot of Allowable Forward Current vs. Ambient Temperature.



The junction temperature can be correlated to the thermal resistance between the junction and ambient (R_{ja}) by the following equation.

$$T_j = T_a + R_{ja} \cdot W$$

T_j = LED junction temperature

T_a = Ambient temperature

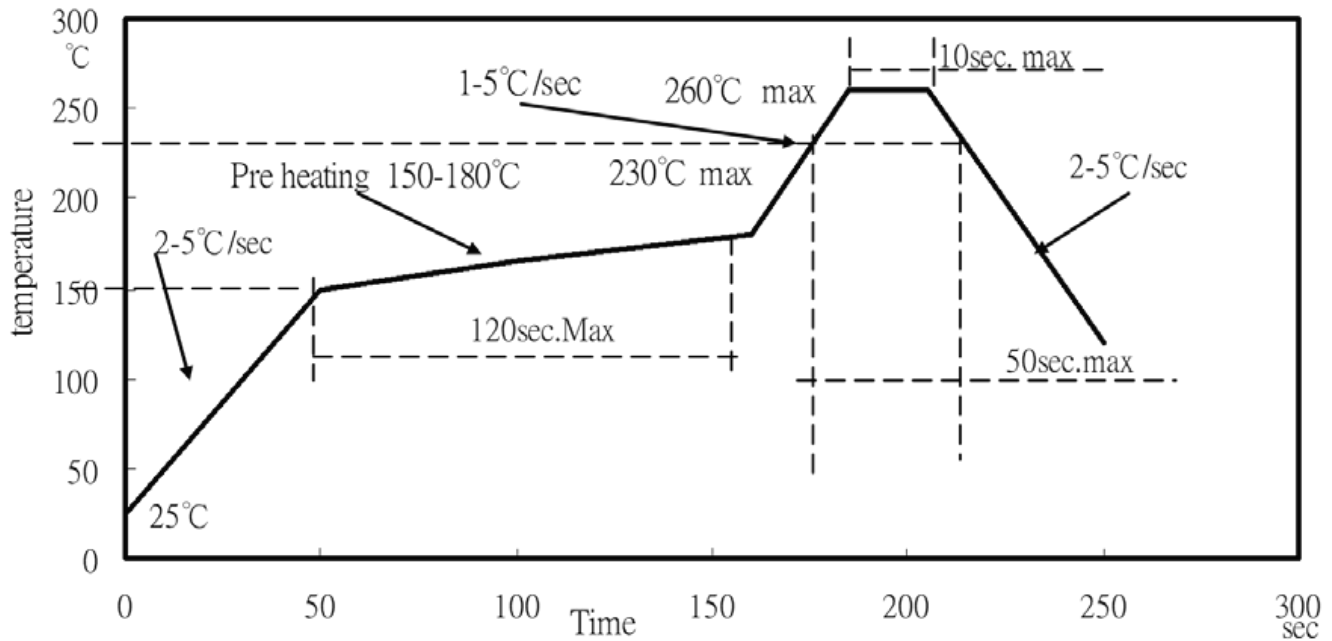
R_{ja} = Thermal resistance between the junction and ambient

W = Input power (I_F · V_F)

Reflow Soldering

The LEDs can be soldered using the parameter 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 preferred for the LEDs.

Suggested lead-free soldering profile:



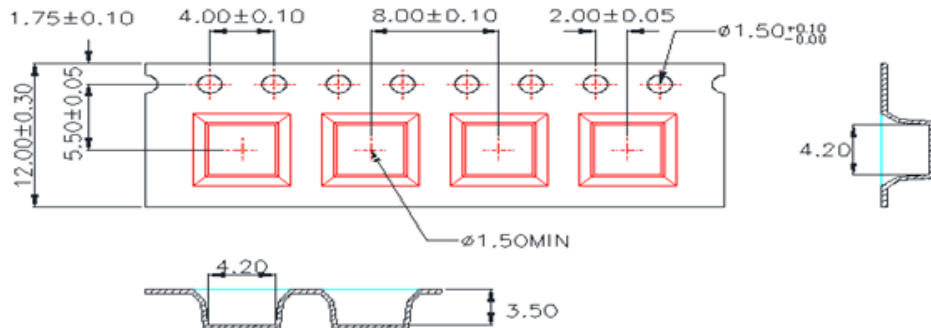
Notes:

1. The recommended reflow temperature is 240°C ($\pm 5^\circ\text{C}$). The maximum soldering temperature should be limited to 260°C.
2. Do not stress the silicone resin while it is exposed to high temperature.
3. The number of reflow process should not exceed 3 times.

Packing

Carrier tape conforms to EIA-481D.

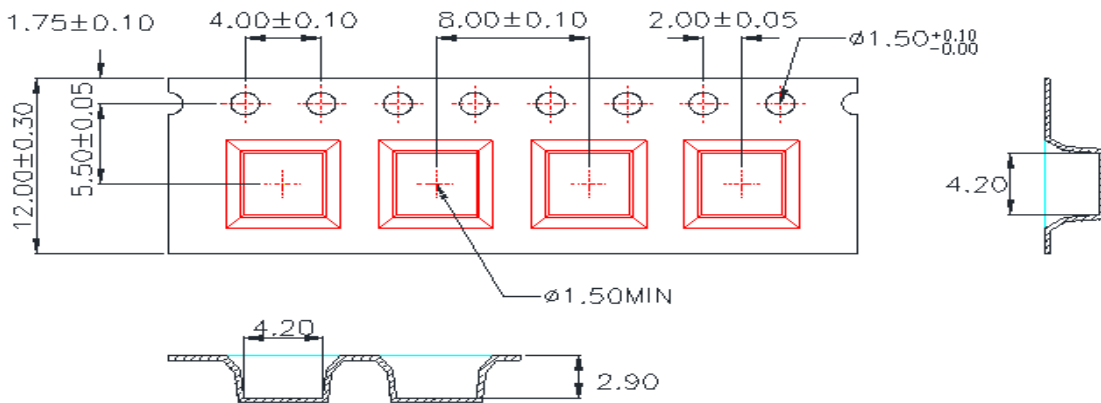
3939-30°



W	A0	B0	K0
12.00±0.30	4.20±0.10	4.20±0.10	3.50±0.10

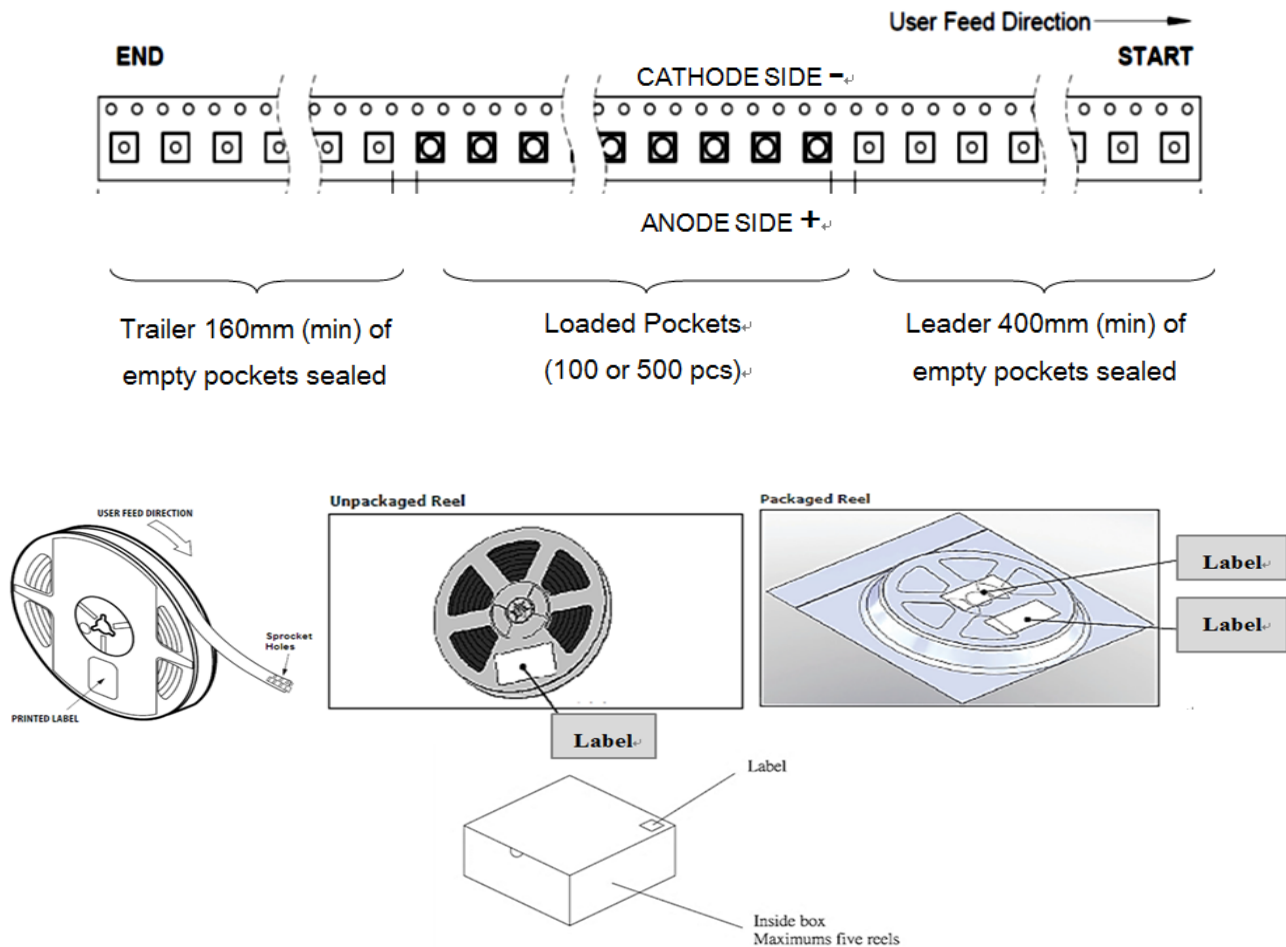
1. 10 sprocket hole pitch cumulative tolerance ± 0.20 .
2. Carrier camber is within 1 mm in 250 mm.
3. Material: Black Conductive Polystyrene Alloy.
4. All dimensions meet EIA-481-D requirements.
5. Thickness: 0.30 ± 0.05 mm
6. Packing length per 22" reel: 62.5 Meters (1:3).
7. Component load per 13" reel: 2500 pcs.

3939 120° / 60°



W	A0	B0	K0
12.00±0.30	4.20±0.10	4.20±0.10	2.90±0.10

1. 10 sprocket hole pitch cumulative tolerance ± 0.20 .
2. Carrier camber is within 1 mm in 250 mm.
3. Material: Black Conductive Polystyrene Alloy.
4. All dimensions meet EIA-481-D requirements.
5. Thickness: 0.30 ± 0.05 mm
6. Packing length per 22" reel: 62.5 Meters (1:3).
7. Component load per 13" reel: 2500 pcs.



Notes:

1. Each Reel (minimum number of pieces is 100 and maximum is 500(30D/60D/120D) packed in a moisture-proof bag along with 2 packs of desiccant and a humidity indicator card.
2. A maximum of 5 moisture-proof bags are packed in an inner box (size: 240mm x 200mm x 105mm ± 5mm).
3. A maximum of 4 inner boxes are put in an outer box (size: 410mm x 255mm x 230mm ± 5mm).
4. Part No., Lot No., quantity should be indicated on the label of the moisture-proof bag and the cardboard box.

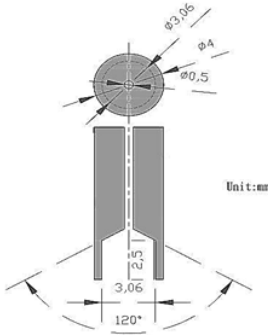
Precautions

1. Recommendation for using LEDs

- 1.1 The lens of LEDs should not be exposed to dust or debris. Excessive dust and debris may cause a drastic decrease in the luminosity.
- 1.2 Avoid mechanical stress on LED lens.
- 1.3 Do not touch the LED lens surface. It would affect the optical performance of the LED due to the LED lens' damage.
- 1.4 Pick & place tools are recommended for the remove of LEDs from the factory tape & reel packaging.

2. Pick & place nozzle

The pickup tool was recommended and shown as below:



3. Lens handling

Please follow the guideline to pick LEDs:

- 3.1 Use tweezers to pick LEDs.
- 3.2 Do not touch the lens by using tweezers.
- 3.3 Do not touch lens with fingers.
- 3.4 Do not apply more than 4N of force (400g) directly onto the lens.

4. Lens cleaning

In the case which a small amount of dirt and dust particles remain on the lens surface, a suitable cleaning solution can be applied.

- 4.1 Try gently wiping with a dust-free cloth.
- 4.2 If needed, use a dust-free cloth and isopropyl alcohol to gently remove the dirt from the lens surface.
- 4.3 Do not use other solvents as they may react with the LED assembly.
- 4.4 Do not use ultrasonic cleaning which will damage the LEDs.



P-TEC

PLH39Cx-WCU01 Customer Approval Signatures	Approved By	Checked By	Prepared By

[illegible]