

# SPECIFICATION FOR APPROVAL

**Customer Name :**

**Customer Item :**

**Part No. :** PU-S216HYX-I40UVC

**Product Description :**

**Draw Date :**

**1.Accessory:**  **Samples**  **Samples Data**

**2.Customer's Proposal :**  **Agree**  **Disagree**

**Reason :**



Rev.	Draw by :	Checked by :	Approved by :
1.2.1	Steven Chen	Gray Huang	Caren
Customer Approve			

## Product Brief

### Description

- The product is UVC - LED.
- Package Size :2.0\*1.6\*0.7mm.
- Molding package .
- WP UVC: 265-280nm.
- The package design coupled with careful selection of component materials allow these products to perform with high reliability.

### Key Applications

- Air sterilization
- Surface sterilization
- Water sterilization
- Fresh-keeping

### Features and Benefits

- High optical output power
- Long life and low light attenuation
- Environmental protection, energy saving and high reliability
- Durable, shock-proof, easy to design, suitable for multi-field applications
- Built-in UVC wavelength chip, unique design and application more widely



## Performance Characteristics

Table 1. Product Selection Guide,  $I_F=30\text{mA}$ ,  $T_a= 25^\circ\text{C}$ ,  $\text{RH}30\%$

Part Number	Wavelength		RANK	Forward Voltage <sup>[1]</sup>		RANK	Radiant Flux	
	WP(nm)			VF(V)			$\Phi_e(\text{mW})$	
	Min	Max		Min	Max		Min	Max
UVC	265	270	V50	5.0	5.5	E1	2.0	5.0
			V55	5.5	6.0	E2		
			V60	6.0	6.5	E3		
UVC	270	280	V65	6.5	7.0	E1		
			V70	7.0	7.5	E2		
			V75	7.5	8.0	E3		

**Notes :**

- (1) maintains a tolerance of  $\pm 0.1\text{V}$  on Forward Voltage measurements.
- (2) VF, mW and WP can be classified according to customers' requirements.

## Performance Characteristics

**Table 2. Characteristics,  $I_F=30\text{mA}$ ,  $T_a= 25^\circ\text{C}$ , RH30%**

Parameter	Symbol	Value			Unit
		Min.	Typ.	Max.	
Forward Current	$I_F$	-	30	40	mA
Forward Voltage <sup>[1]</sup>	$V_F$	5.0	-	8.0	V
Radiant flux <sup>[1]</sup>	$\Phi_e$	2	-	5	mW
Peak Wavelength <sup>[1]</sup>	$\lambda_p$	265	-	280	nm
Viewing Angle <sup>[2]</sup>	$2\Theta_{1/2}$	-	140	-	Deg.
Thermal resistance (J to S) <sup>[3]</sup>	$R_{\theta_{J-S}}$	-	10	-	$^\circ\text{C/W}$
ESD Sensitivity(HBM)	-	Class 3A JESD22-A114-E			

**Table 3. Absolute Maximum Ratings**

Parameter	Symbol	Value	Unit
Forward Current	$I_F$	40	mA
Junction Temperature	$T_j$	100	$^\circ\text{C}$
Operating Temperature	$T_{opr}$	-30~ + 60	$^\circ\text{C}$
Storage Temperature	$T_{stg}$	-30 ~ + 100	$^\circ\text{C}$

**Notes :**

(1) Tolerance :  $V_F : \pm 0.1\text{V}$ ,  $\Phi_e : \pm 5\%$ ,  $\lambda_p : \pm 3\text{nm}$ .

(2)  $2\Theta_{1/2}$  is the off-axis where the luminous intensity is 1/2 of the peak intensity.

(3) Thermal resistance :  $R_{\theta_{J-S}}$  (Junction / solder).

- LED's properties might be different from suggested values like above and below tables if operation condition will be exceeded our parameter range. Care is to be taken that power dissipation does not exceed the absolute maximum rating of the product.
- Thermal resistance can be increased substantially depending on the heat sink design/operating condition, and the maximum possible driving current will decrease accordingly.

## Characteristics Graph

Fig 1. Relative Spectrum Power Distribution, Ta = 25°C

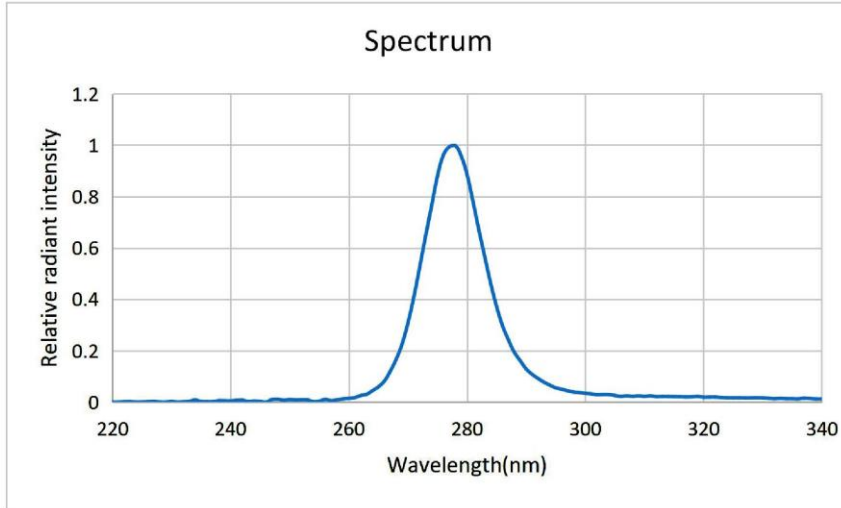
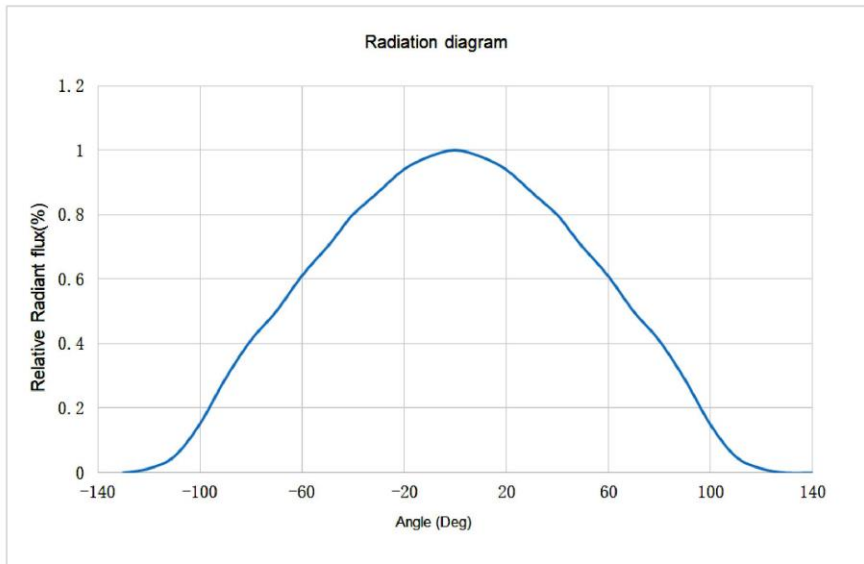


Fig 2. Radiation diagram, Ta = 25°C



## Characteristics Graph

Fig 3. UVC Forward Voltage vs. Forward Current, Ta = 25°C

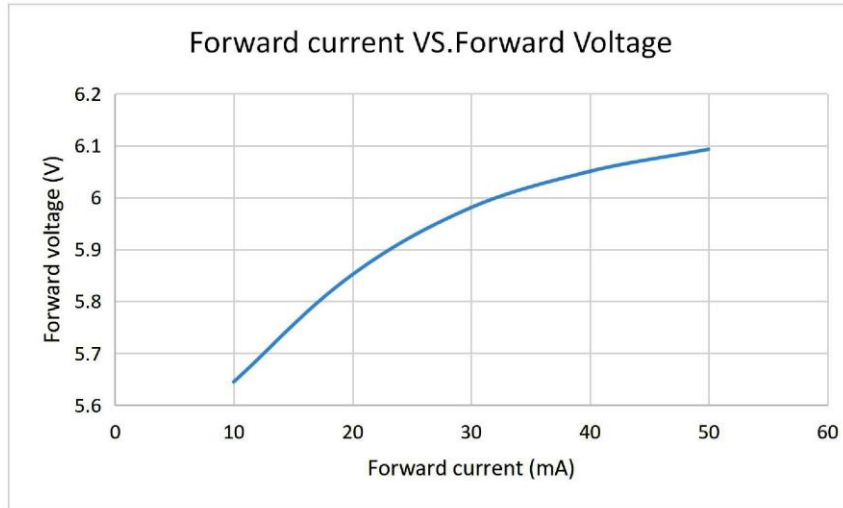
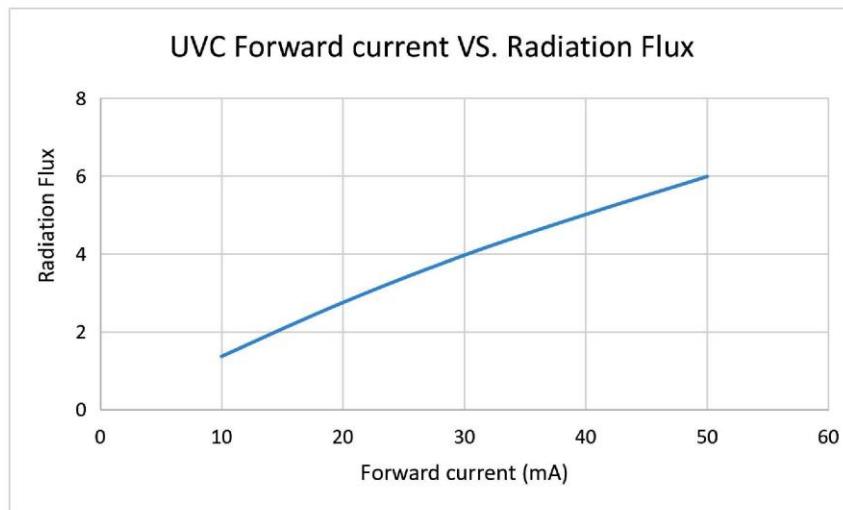
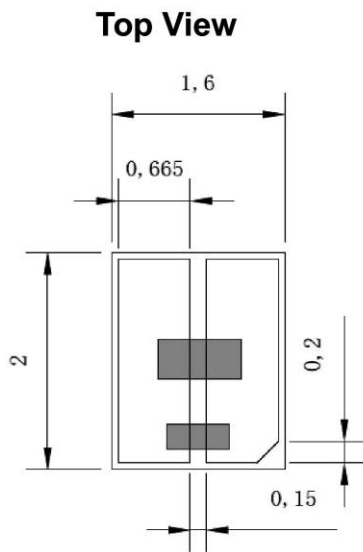


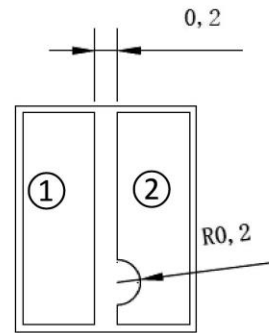
Fig 4. Forward Current vs. Radiation Flux, Ta = 25°C



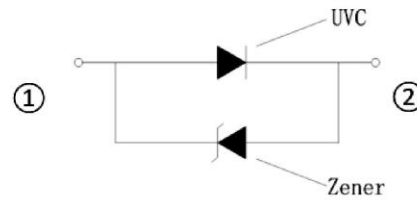
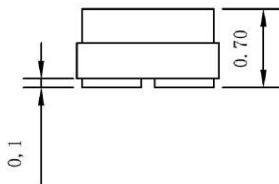
## Mechanical Dimensions



**Perspective view**



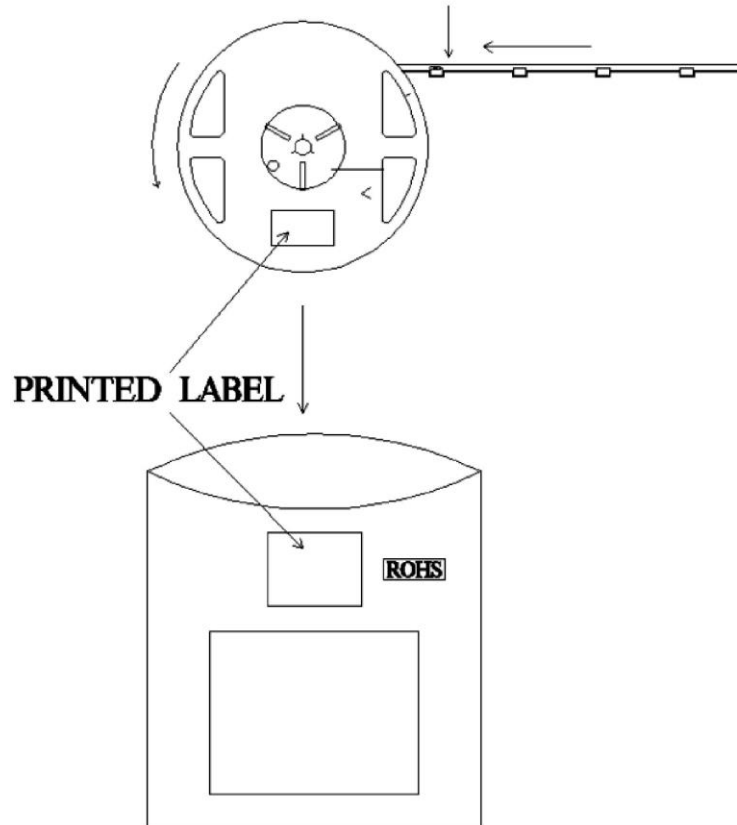
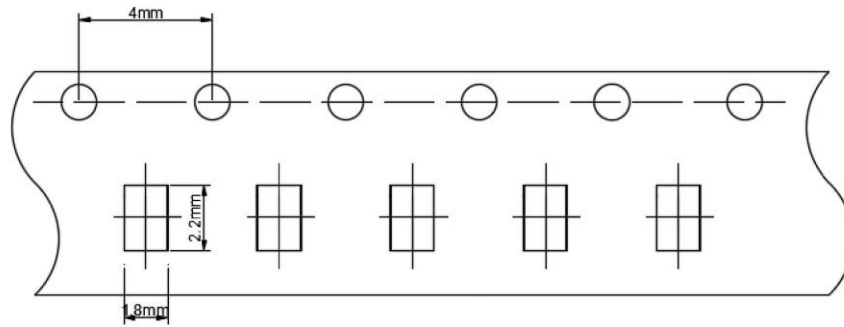
**Side View**



**\*Notes :**

- (1) All dimensions are in millimeters.
- (2) Undefined tolerance is  $\pm 0.2\text{mm}$ .
- (3) Pad 1 is the positive pole of UVC, Pad 2 is the negative pole of UVC.
- (4) It is recommended that metal mask is designed to be under 80% of dimension of solder pad.
- (5) It is suggested that the size of PCB pad and LED pad should be 1:1:1.

## Emitter Tape & Reel Packaging



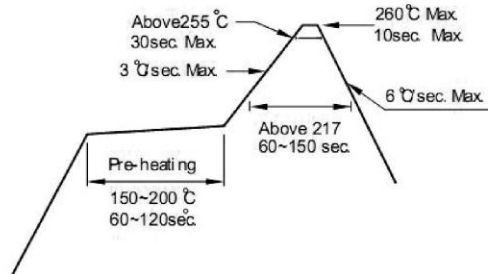
### Notes :

- (1) Loaded Quantity 4000pcs per reel
- (2) Empty component pockets are sealed with top cover tape
- (3) The cathode is oriented towards the tape sprocket hole in accordance with ANSI/EIA RS-481 specifications



## Soldering Conditions

### Reflow Soldering Conditions (Pb Free)



Profile Feature	Pb-Free Assembly
Average ramp-up rate (T <sub>smax</sub> to T <sub>p</sub> )	3°C/second max.
- Temperature Min (T <sub>smin</sub> )	120°C
- Temperature Max (T <sub>smax</sub> )	180°C
- Time (T <sub>smin</sub> to T <sub>smax</sub> ) (ts)	60-80 seconds
Time maintained above:	
- Temperature (TL)	217°C
- Time (tL)	60-80 seconds
Peak Temperature (T <sub>p</sub> )	260°C
Time within 5°C of actual Peak Temperature (tp)2	30 seconds max
Ramp-down Rate	6°C/second max.
Time 25°C to Peak Temperature	8 minutes max.

Notes:

- (1) Reflow soldering should not be done more than two times.
- (2) When soldering, do not put stress on the LEDs during heating.
- (3) When hand soldering, the temperature of the iron must less than 260°C for 3 seconds.
- (4) The hand solder should be done only one times.
- (5) Repairs should not be done after the LEDs have been soldered. When repair is unavoidable, suitable tools must be used.
- (6) After soldering, do not warp the circuit board.