



## SMD Type Photodiode with Daylight Filter

### Features

- Small double-end package
- High reliability
- High Reverse Breakdown
- High Sensitivity
- Spectral range of sensitivity: 700-1100nm
- Fast Response time
- RoHS compliance

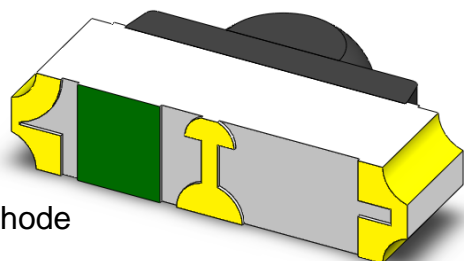
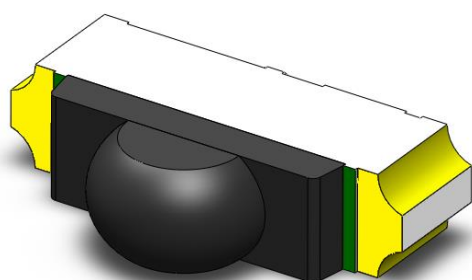
### Applications

- Infrared sensor
- Light barrier
- Infrared Touch Panel Solutions

### Description

The PDP92406BT14 is a silicon photo diode housed in a miniature SMD package. The device comes with a superior filtering for visible light by utilizing special black molding compound.

### Package Outline



Cathode

Anode

### Schematic





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### Absolute Maximum Rating at 25°C

Symbol	Parameters	Ratings	Units	Notes
V <sub>R</sub>	Reverse Voltage	33	V	
T <sub>opr</sub>	Operating Temperature	-40 ~ +85	°C	
T <sub>stg</sub>	Storage Temperature	-40 ~ +100	°C	
T <sub>sol</sub>	Soldering Temperature	260	°C	1
P <sub>D</sub>	Power Dissipation at(or below) 25°C Free Air Temperature	138	mW	
R <sub>THJA</sub>	Junction to Ambient Thermal Resistance	540	°C/W	

### Electro-Optical Characteristics *TA = 25°C (unless otherwise specified)*

#### Optical Characteristics

Symbol	Parameters	Test Conditions	Min	Typ	Max	Units	Notes
λ	Spectral Bandwidth	-	700	-	1100	nm	
λ <sub>P</sub>	Peak Sensitivity	-	-	900	-	nm	
θ <sub>1/2</sub>	View Angle at X axis	V <sub>R</sub> =5V	-	±52.5	-	deg	2
	View Angle at Y axis		-	±32.5	-		

#### Electrical Characteristics

Symbol	Parameters	Test Conditions	Min	Typ	Max	Units	Notes
I <sub>D</sub>	Dark Current	Ee=0mW /cm <sup>2</sup> V <sub>R</sub> =10V	-	-	10	nA	
V <sub>BR</sub>	Reverse Breakdown Voltage	Ee=0mW /cm <sup>2</sup> I <sub>R</sub> =100uA	33	210	-	V	
V <sub>OC</sub>	Open-Circuit Voltage	Ee=1mW /cm <sup>2</sup> λ <sub>P</sub> =940nm	-	0.3	-	V	
I <sub>SC</sub>	Short-Circuit Current		-	1.0	-	μA	
I <sub>RL</sub>	Reverse Light Current	Ee=1mW /cm <sup>2</sup> λ <sub>P</sub> =940nm, V <sub>R</sub> =5V	1.0	1.47	-	μA	
C <sub>T</sub>	Transition Capacitance	Ee=0mW /cm <sup>2</sup> f=1MHz, V <sub>R</sub> =5V	-	1.53	-	pF	



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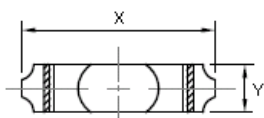
## Switching Characteristics

Symbol	Parameters	Test Conditions	Min	Typ	Max	Units	Notes
$t_r$	Rise Time	$V_R = 10V, R_L = 10k\Omega$	-	230	-	ns	3
$t_f$	Fall Time		-	200	-		

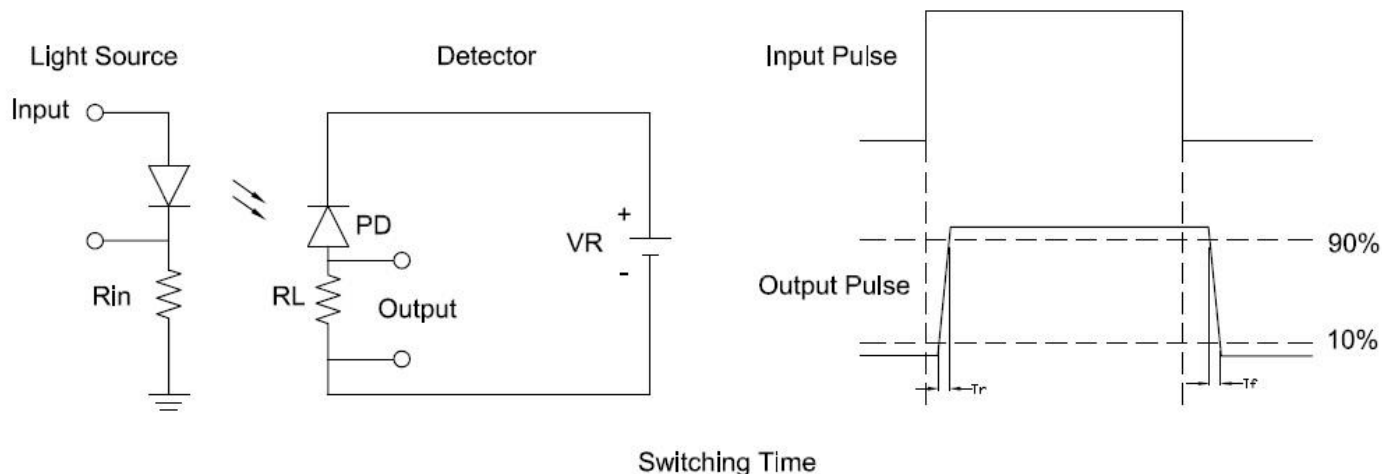
**Notes:**

1 : Soldering time  $\leq 5$  seconds.

2 : Test conditions :



3 : Test circuit :





### Typical Characteristic Curves

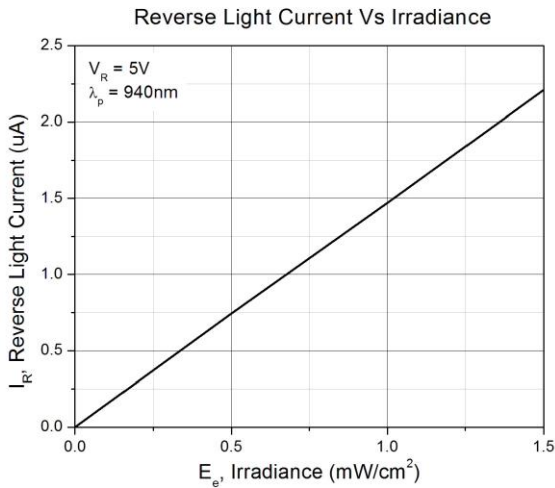


Figure 1

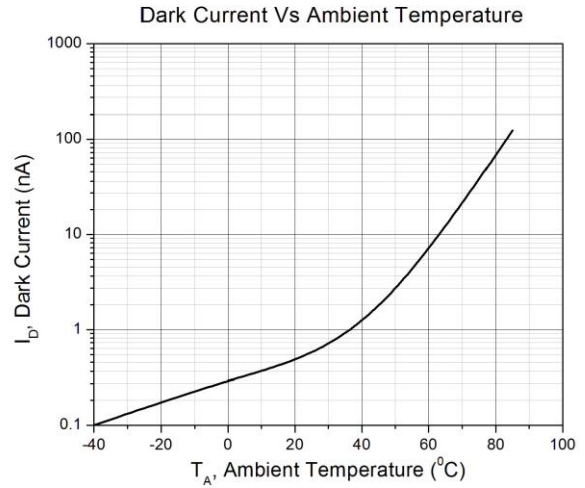


Figure 2

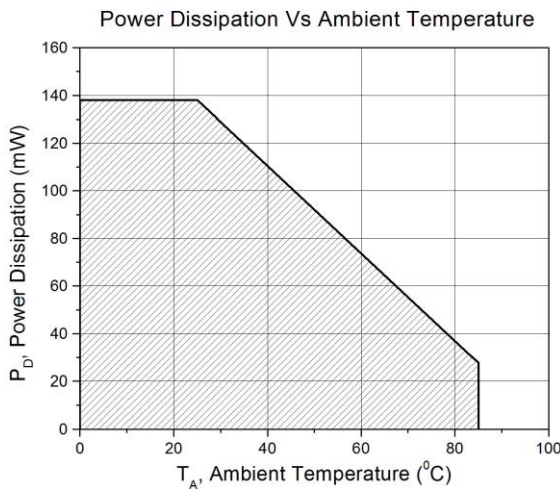


Figure 3

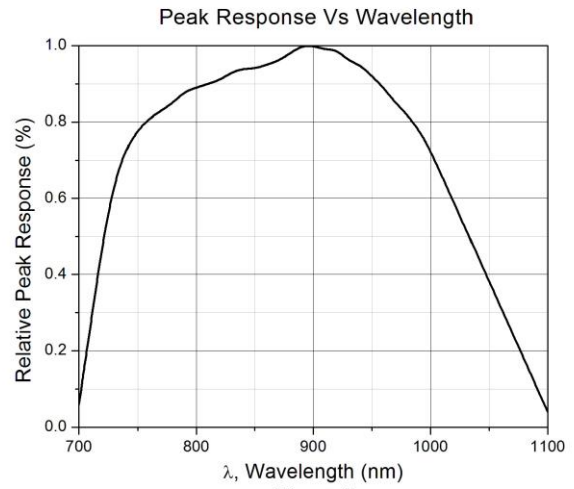


Figure 4

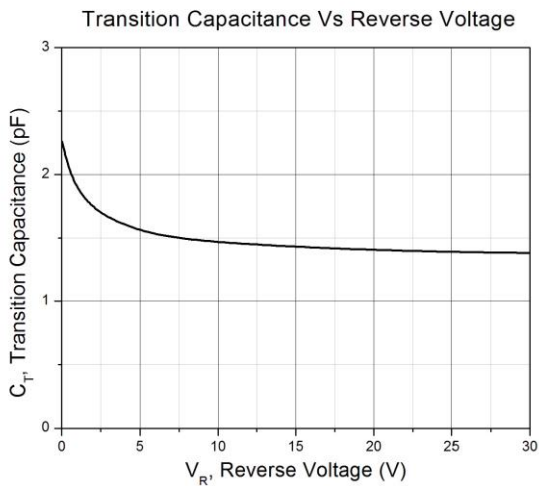


Figure 5

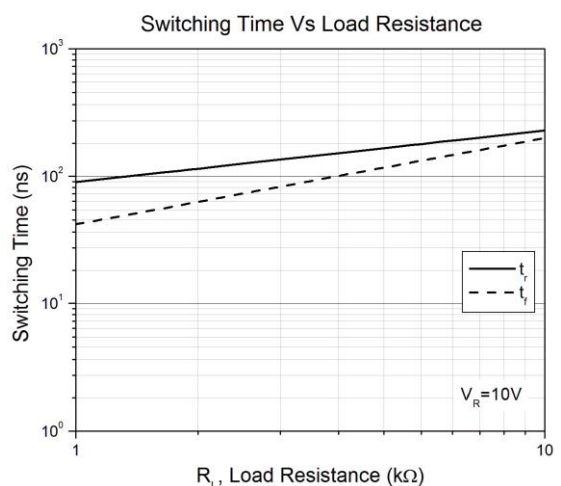


Figure 6



Typical Characteristic Curves

Angular Displacement at X axis

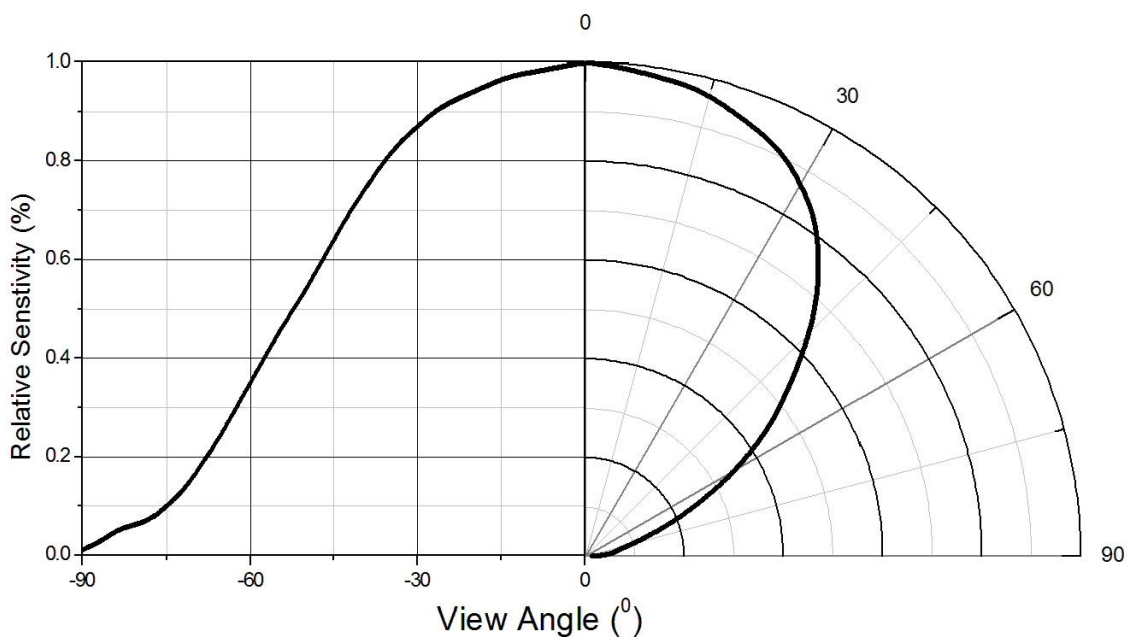


Figure 7

Angular Displacement at Y axis

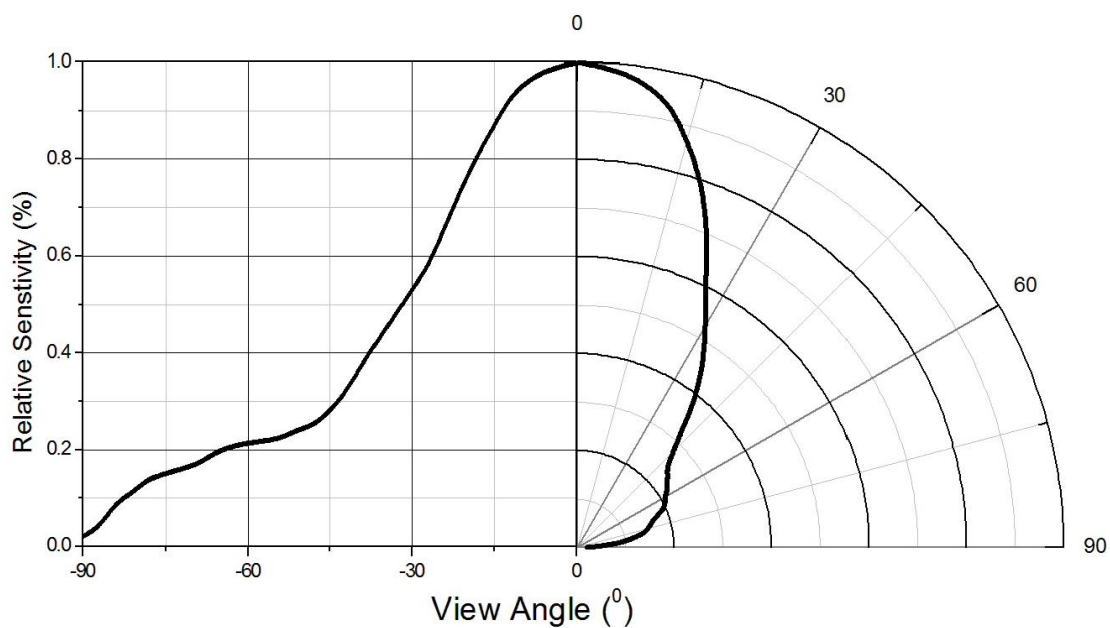
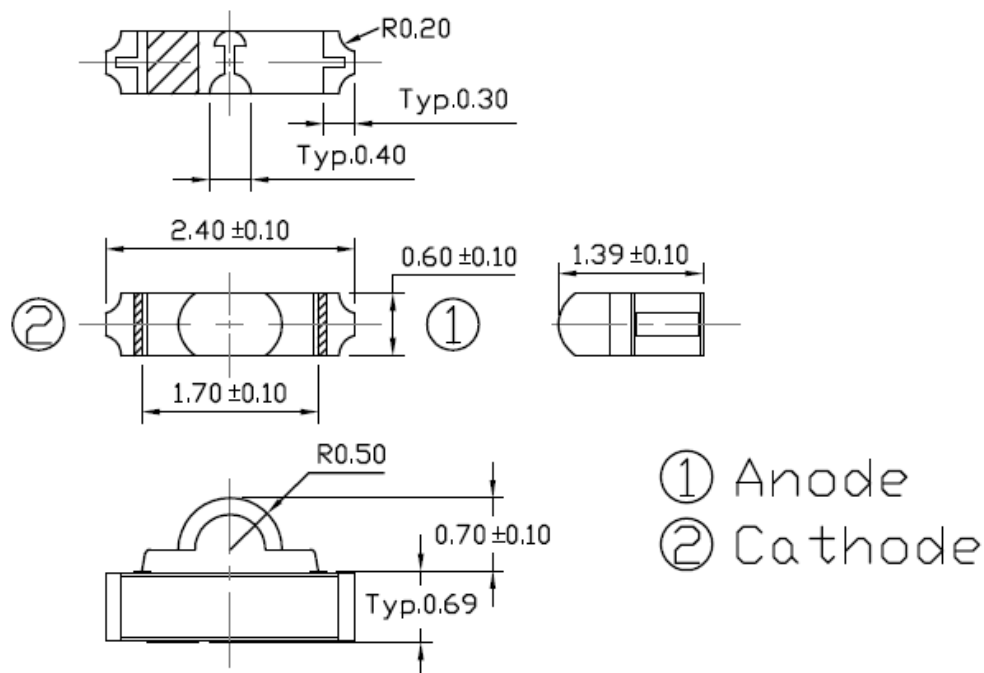


Figure 8

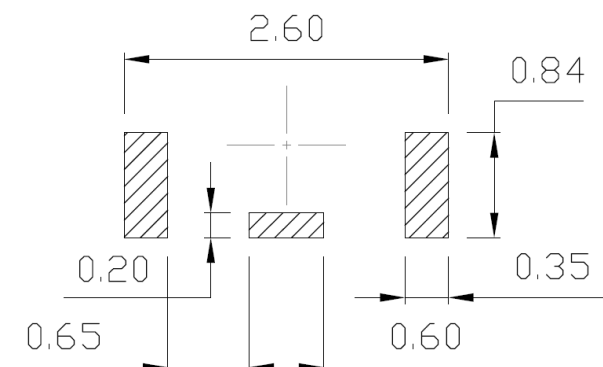


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### Package Dimension *All dimensions are in mm, unless otherwise stated*



### Recommended Soldering Mask *All dimensions are in mm, unless otherwise stated*



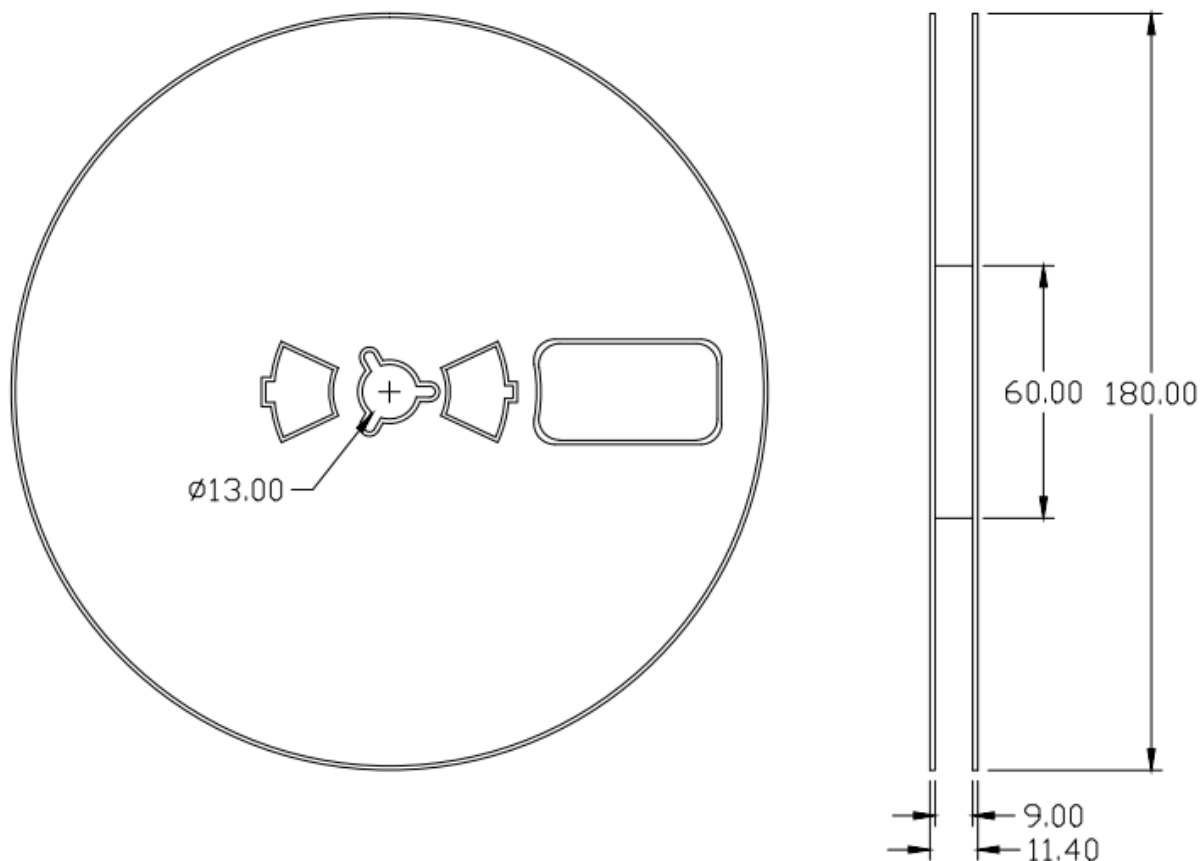
### Ordering Information

Part Number	Description	Quantity
PDP92406BT14	Tape & Reel	5000 pcs

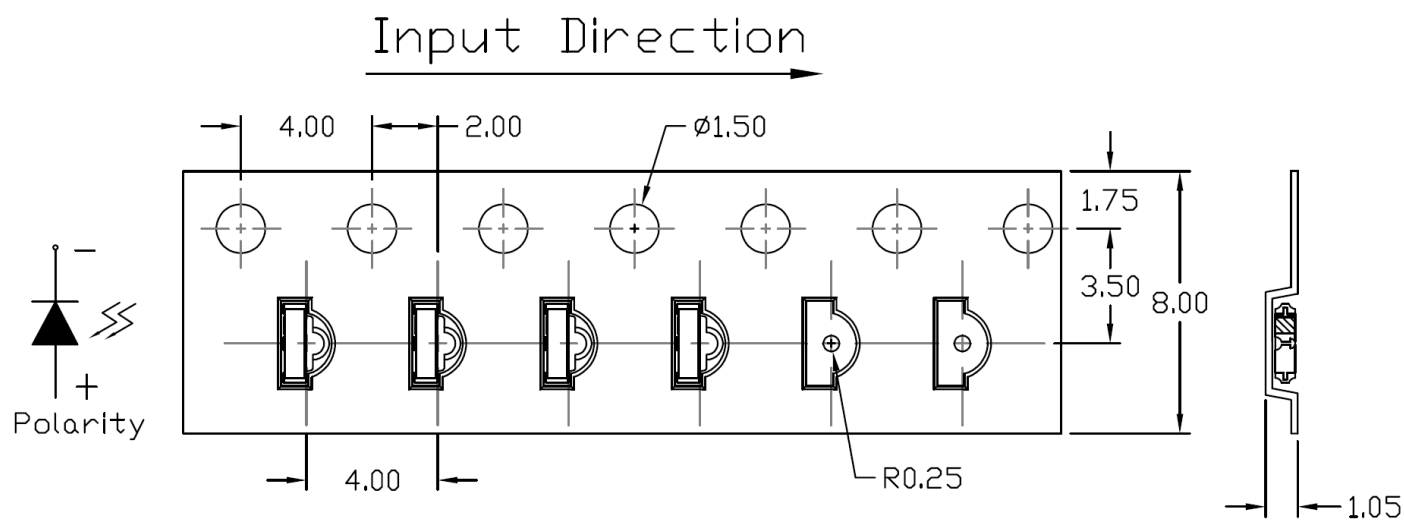


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## Reel Dimension *All dimensions are in mm, unless otherwise stated*



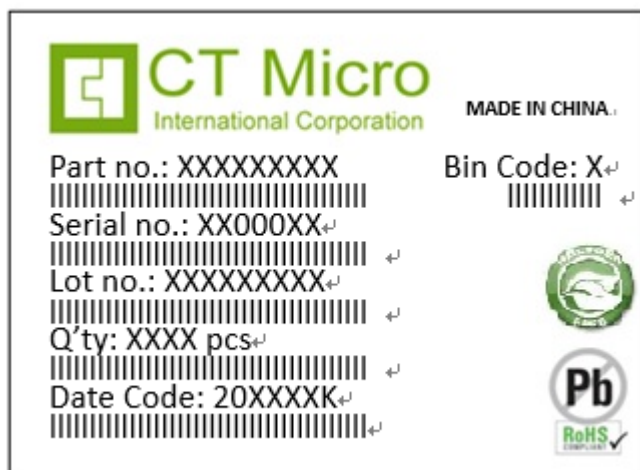
## Tape Dimension *All dimensions are in mm, unless otherwise stated*





## SMD Type Photodiode with Daylight Filter

### Label Form Specification



Part no: CTM Production Number  
Serial no: Production Number  
Lot no: Lot number  
Q'ty: Packing Quantity  
Date Code: Manufacture Date  
Bin Code: I<sub>RL</sub> Ranks  
MADE IN CHINA: Production Place

### Storage Condition

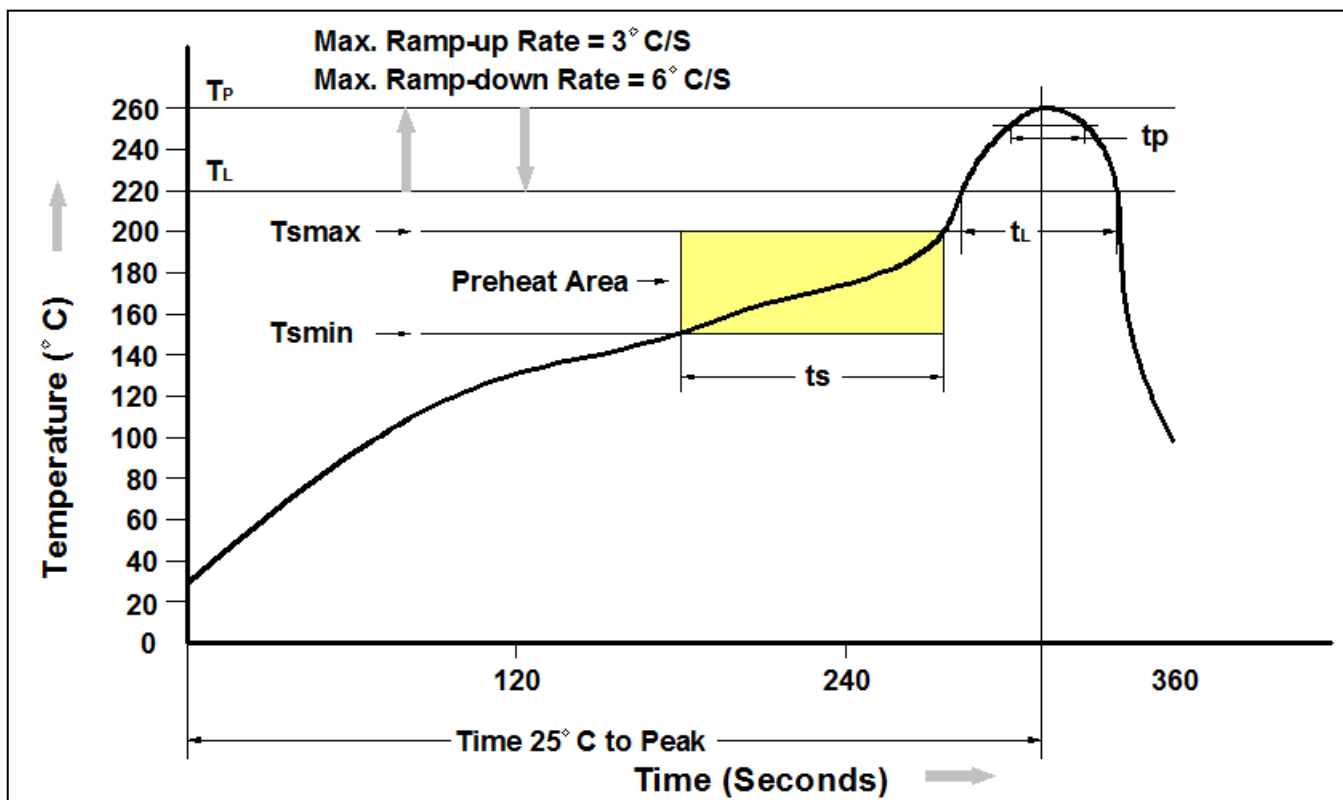
1. Do not open moisture proof bag before the products are ready to use.
2. The moisture barrier bag should be stored at 30°C and 90%R.H. max. before opening.  
Shelf life of non-opened bag is 12 months after the bag sealing date.
3. After opening the moisture barrier bag floor life is 168h at 30°C/60%RH. max. Unused LEDs should be resealed into moisture barrier bag. (Refer to J-STD-020 Standard)
4. If the moisture absorbent material has faded away or the LEDs have exceeded the storage time, baking treatment should be performed using the J-STD-033 Standard conditions.





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### Reflow Profile



Profile Feature	Pb-Free Assembly Profile
Temperature Min. (Tsmin)	150°C
Temperature Max. (Tsmax)	200°C
Time (ts) from (Tsmin to Tsmax)	60-120 seconds
Ramp-up Rate (t <sub>L</sub> to t <sub>P</sub> )	3°C/second max.
Liquidous Temperature (T <sub>L</sub> )	217°C
Time (t <sub>L</sub> ) Maintained Above (T <sub>L</sub> )	60 – 150 seconds
Peak Body Package Temperature	260°C +0°C / -5°C
Time (t <sub>P</sub> ) within 5°C of 260°C	30 seconds
Ramp-down Rate (T <sub>P</sub> to T <sub>L</sub> )	6°C/second max
Time 25°C to Peak Temperature	8 minutes max.



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