PTP82406BT14

SMD Type Phototransistor with Daylight Filter

Features

- Small double-end package
- High photo sensitivity
- High reliability
- Spectral range of sensitivity: 760-1100nm
- Fast Response time
- RoHS compliance

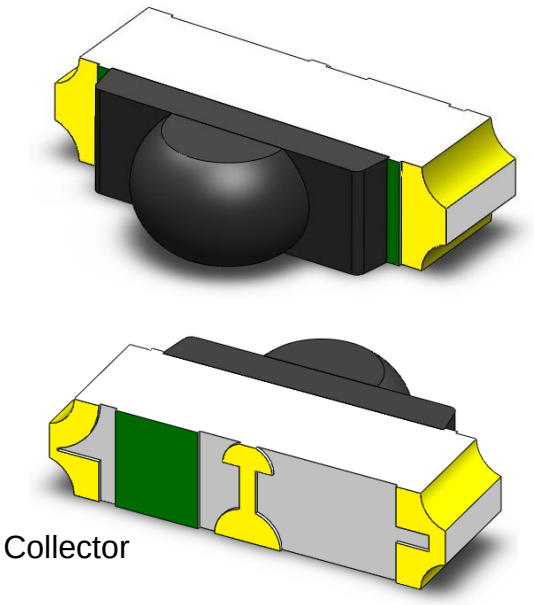
Description

The PTP82406BT14 is silicon NPN Phototransistor housed in a miniature SMD package. The device comes with a superior filtering for visible light by utilizing special black molding compound.

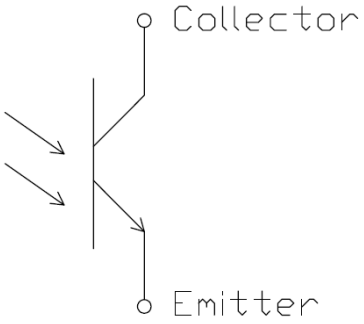
Applications

- Infrared sensor
- Infrared Touch Panel Solutions

Package Outline



Schematic



Absolute Maximum Rating at 25^{0}C

Symbol	*Parameters*	*Ratings*	*Units*	*Notes*
I_C	Collector Current	20	mA	
B_{VCEO}	Collector-Emitter Voltage	35	V	1
B_{VECO}	Emitter-Collector Voltage	5	V	2
T_{opr}	Operating Temperature	-40 ~ +85	^{0}C	
T_{stg}	Storage Temperature	-40 ~ +100	^{0}C	
T_{sol}	Soldering Temperature	260	^{0}C	3
P_{to}	Total Power Dissipation	150	mW	

Optical Characteristics

Symbol	*Parameters*	*Test Conditions*	*Min*	*Typ*	*Max*	*Units*	*Notes*
λ	Spectral Bandwidth	-	700	-	1100	nm	
λ_P	Peak Sensitivity	-	-	880	-	nm	
θ1/2	View Angle at X axis	V_{CE}=5V	-	±50	-	deg	4
	View Angle at Y axis		-	±35	-		

Electrical Characteristics

Symbol	*Parameters*	*Test Conditions*	*Min*	*Typ*	*Max*	*Units*	*Notes*
I_{CEO}	Dark Current	Ee=0mW /cm^2 V_{CE}=20V	-	-	100	nA	
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	Ee=1mW /cm^2 I_C=0.5mA	-	-	0.4	V	
I_C	Collector Light Current	Ee=1mW /cm^2 λ_P=940nm, V_{CE}=5V	0.5	1.0	-	mA	
C_T	Terminal Capacitance	Ee=0mW /cm^2 f=1MHz ,V_{CE}=5V	-	3.80	-	pF	

Switching Characteristics

Symbol	Parameters	Test Conditions	Min	Typ	Max	Units	Notes
t_r	Rise Time	V_{ce} = 5V, R_L = 100Ω I_C=1.0mA	-	6	-	μs	5
t_f	Fall Time		-	7	-		
t_{on}	Turn on Delay Time		-	11	-		
t_{off}	Turn off Delay Time		-	7.9	-		

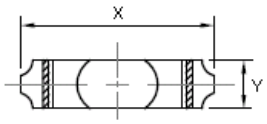
Notes:

1 : Test conditions : I_C=100μA, Ee=0mW/cm^2.

2 : Test conditions : I_E=100μA, Ee=0mW/cm^2.

3 : Soldering time≦5 seconds.

4 : Test condition :



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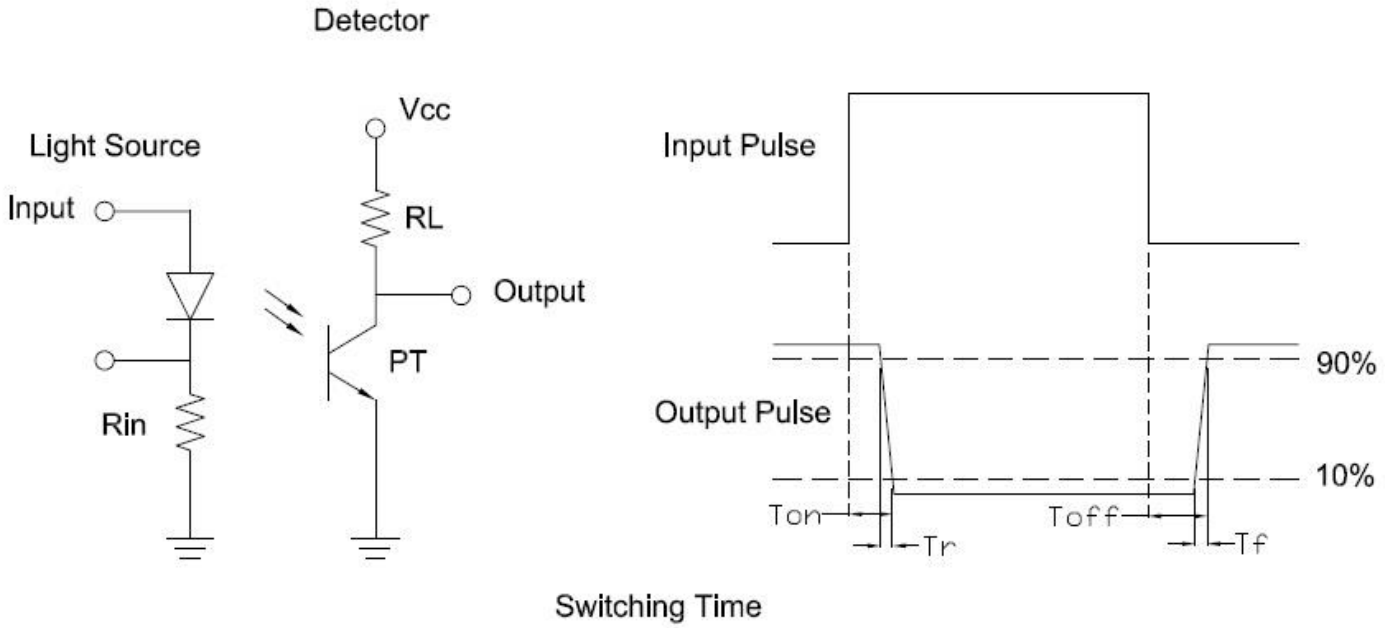
5 : Test circuit :



Switching Time

Typical Characteristic Curves

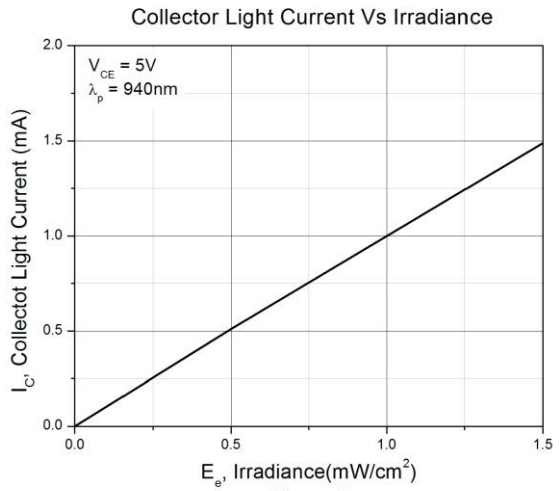


Figure 1

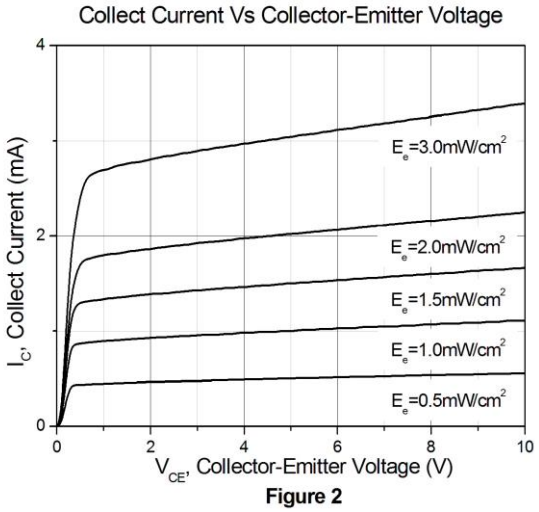


Figure 2

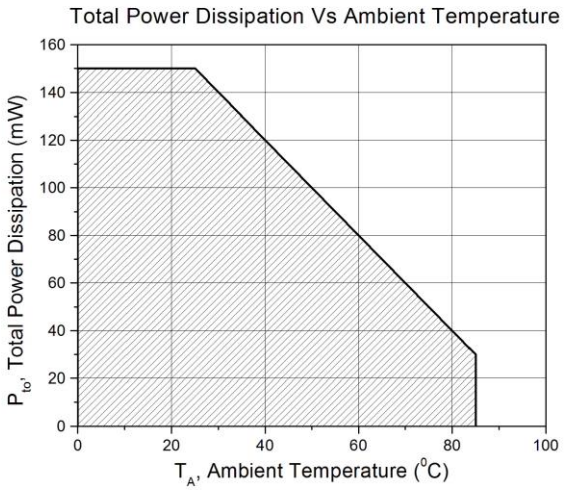


Figure 3

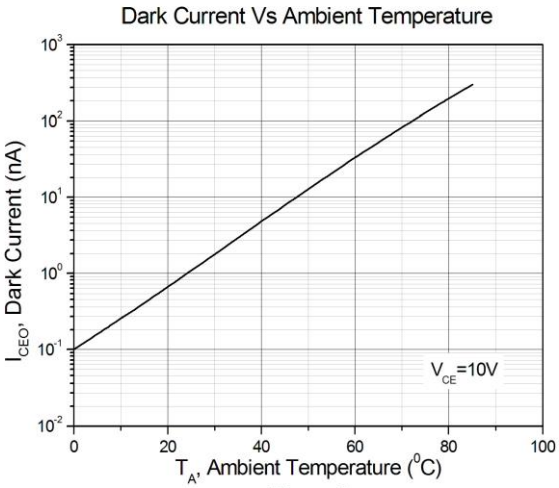


Figure 4

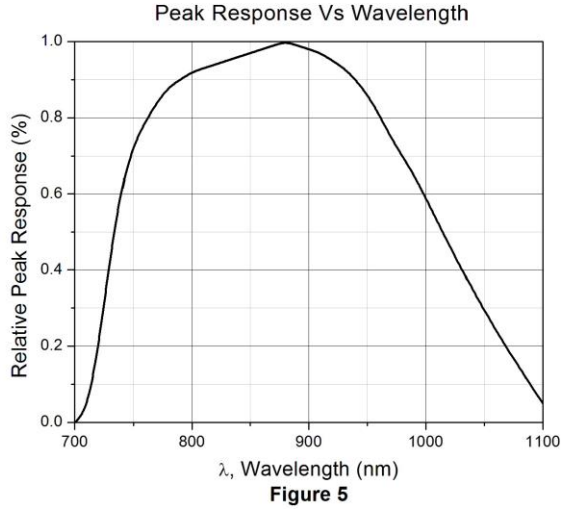


Figure 5

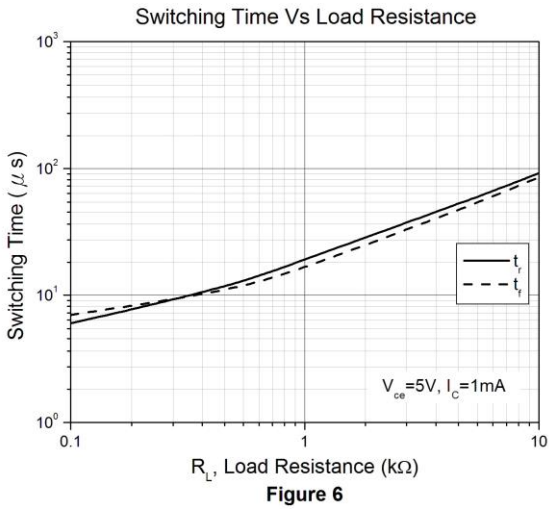


Figure 6

Typical Characteristic Curves

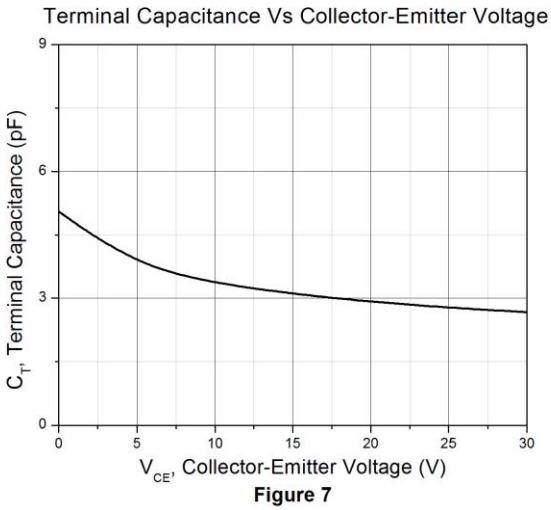


Figure 7

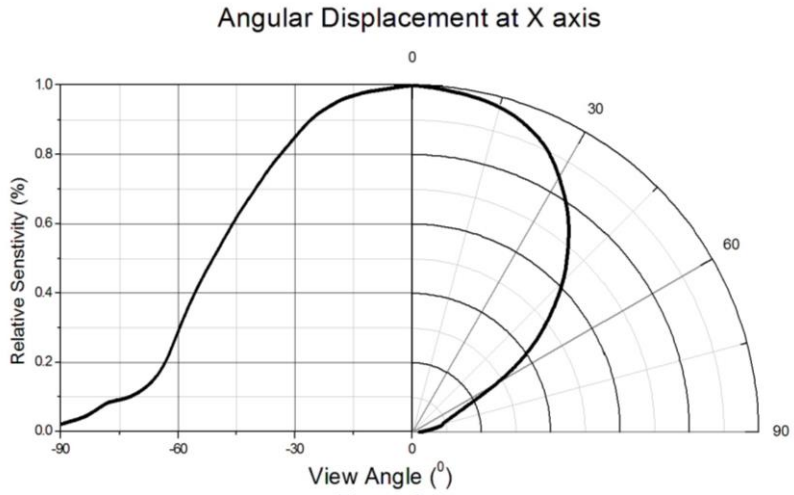


Figure 8

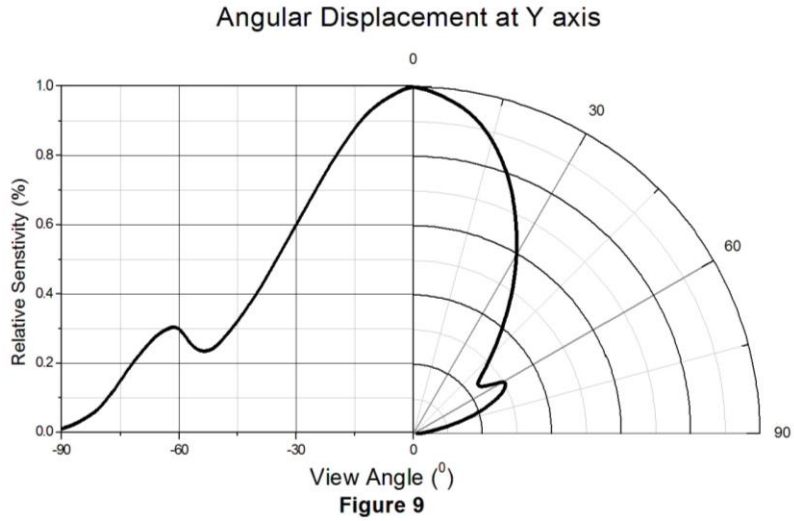
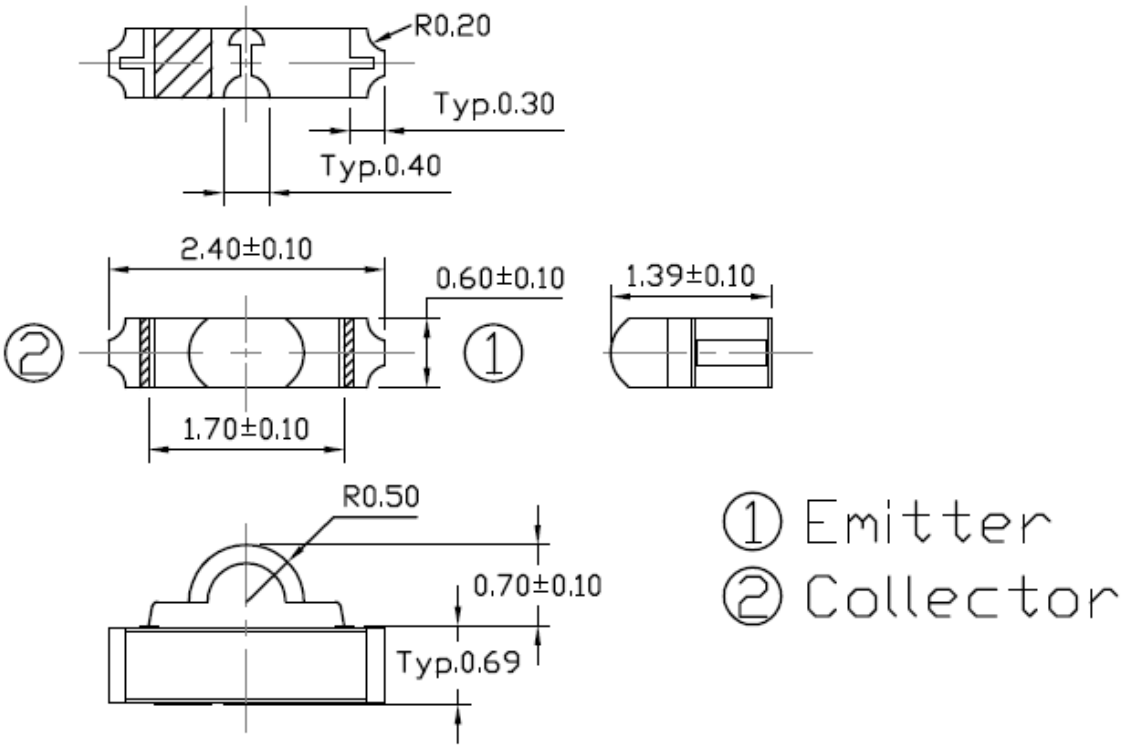
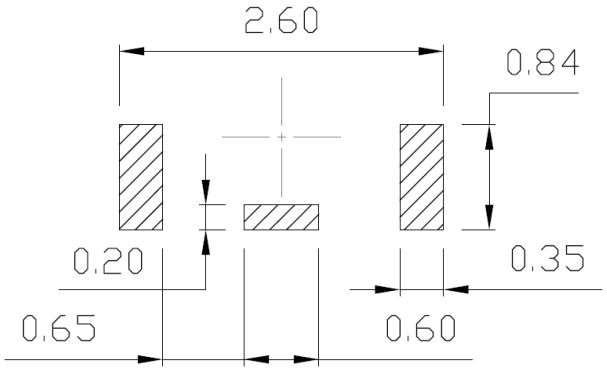


Figure 9

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



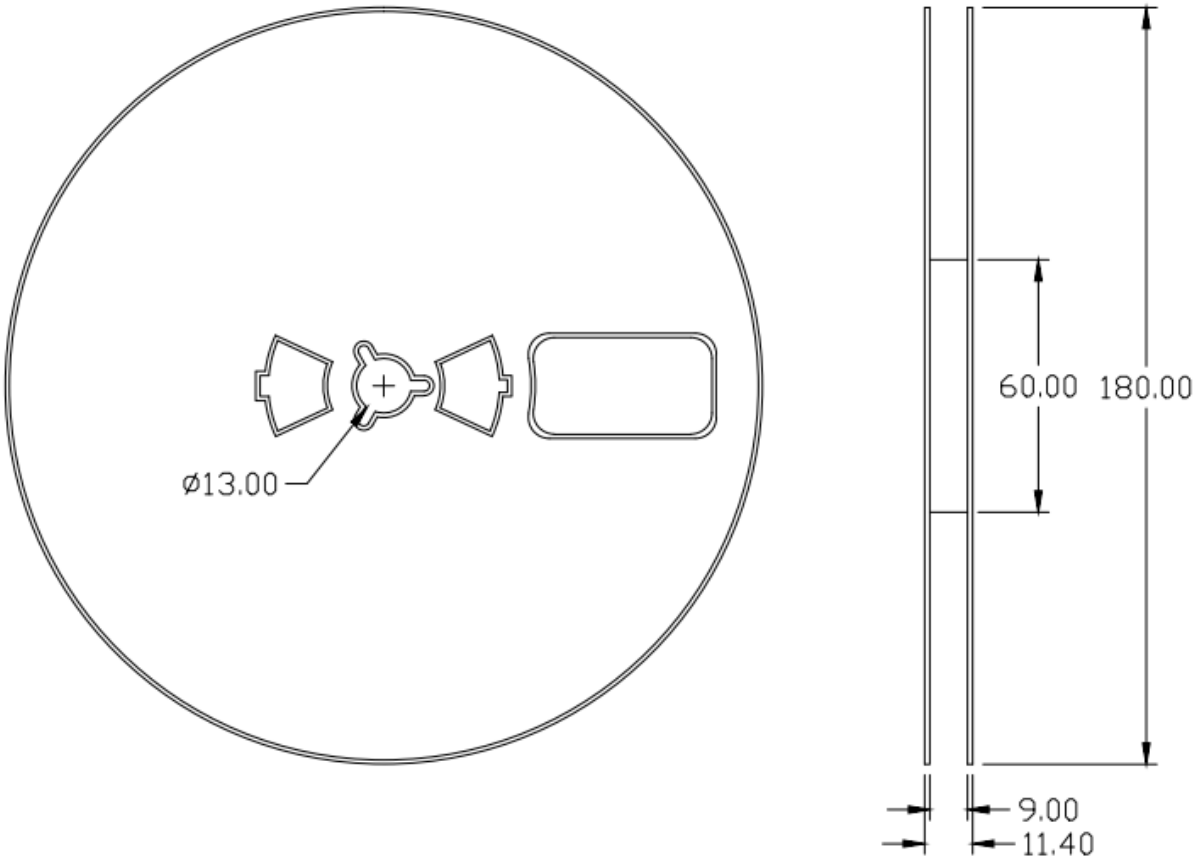
Recommended Soldering Mask *All dimensions are in mm, unless otherwise stated*



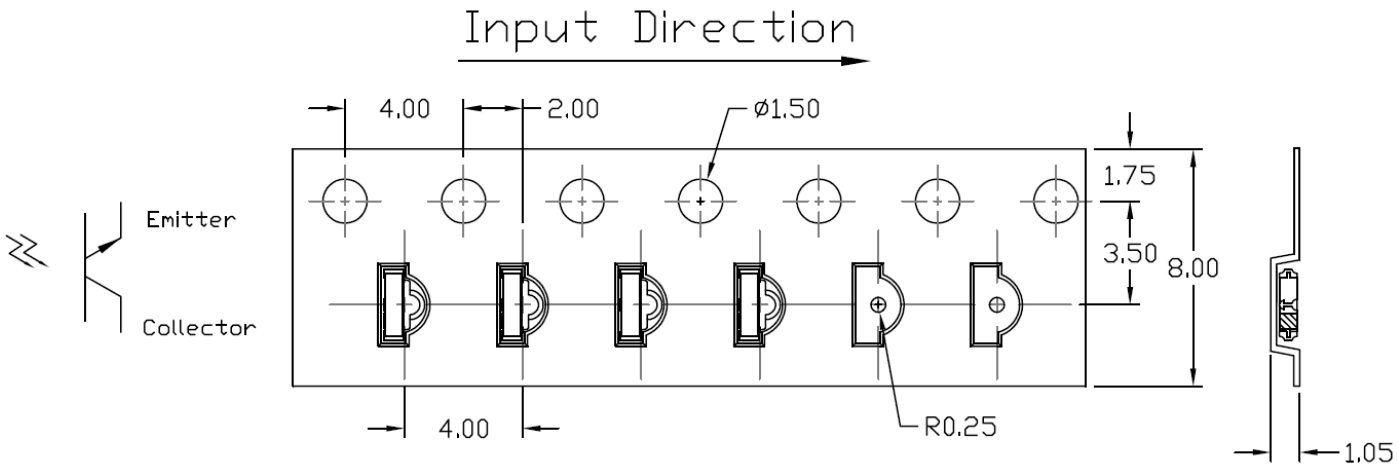
Ordering Information

Part Number	*Description*	*Quantity*
PTP82406BT14	Tape & Reel	5000 pcs

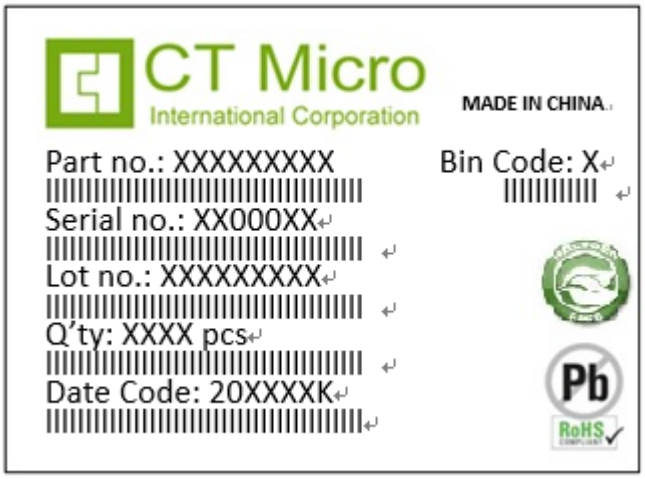
Reel Dimension *All dimensions are in mm, unless otherwise stated*



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



Label Form Specification



Part no: CTM Production Number

Serial no: Production Number

Lot no: Lot number

Q'ty: Packing Quantity

Date Code: Manufacture Date

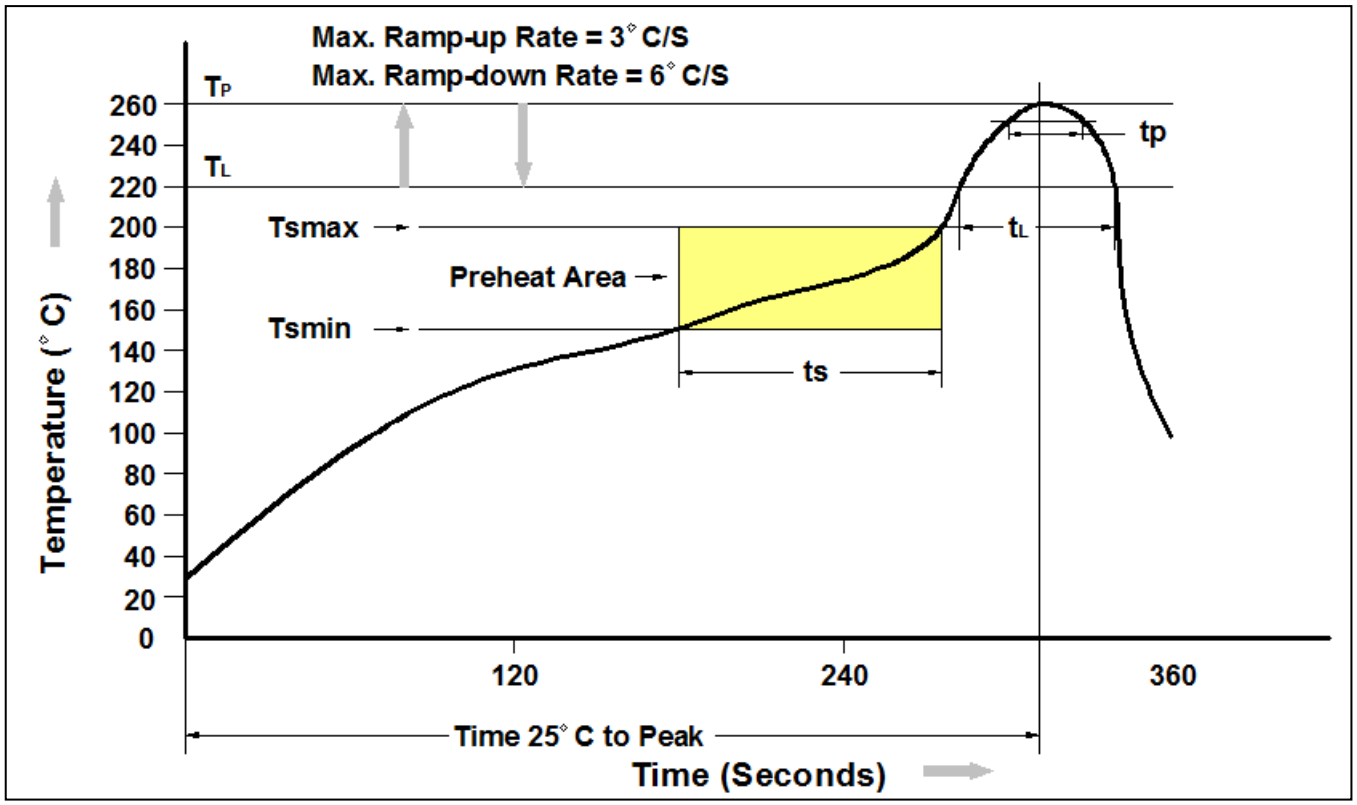
Bin Code: Ic Ranks

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.

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_L to t_P)	3°C/second max.
Liquidous Temperature (T_L)	217°C
Time (t_L) Maintained Above (T_L)	60 – 150 seconds
Peak Body Package Temperature	260°C +0°C / -5°C
Time (t_P) within 5°C of 260°C	30 seconds
Ramp-down Rate (T_P to T_L)	6°C/second max
Time 25°C to Peak Temperature	8 minutes max.

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