



SMD Type Phototransistor with Daylight Filter

Features

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

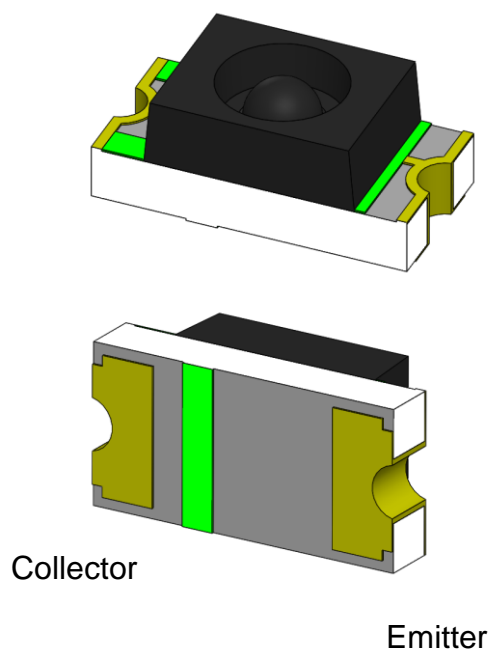
Applications

- Infrared sensor
- Infrared Touch Panel Solutions

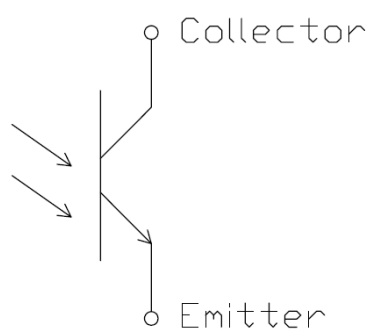
Description

The PTP83015BT12 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.

Package Outline



Schematic





SMD Type Phototransistor with Daylight Filter

Absolute Maximum Rating at 25°C

Symbol	Parameters	Ratings	Units	Notes
I _C	Collector Current	20	mA	
B _V CEO	Collector-Emitter Voltage	35	V	1
B _V ECO	Emitter-Collector Voltage	5	V	2
T _{opr}	Operating Temperature	-40 ~ +85	°C	
T _{stg}	Storage Temperature	-40 ~ +100	°C	
T _{sol}	Soldering Temperature	260	°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	V _{CE} =5V	-	±52.5	-	deg	

Electrical Characteristics

Symbol	Parameters	Test Conditions	Min	Typ	Max	Units	Notes
I _{CEO}	Dark Current	E _e =0mW /cm ² V _{CE} =20V	-	-	100	nA	
V _{CE(sat)}	Collector-Emitter Saturation Voltage	E _e =1mW /cm ² I _C =0.5mA	-	-	0.4	V	
I _C	Collector Light Current	E _e =1mW /cm ² λ _P =940nm, V _{CE} =5V	0.5	1.12	-	mA	
C _T	Terminal Capacitance	E _e =0mW /cm ² f=1MHz, V _{CE} =5V	-	2.5	-	pF	



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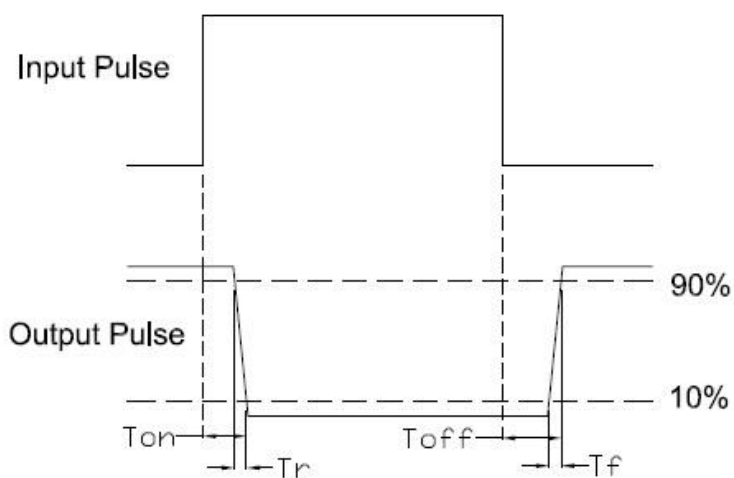
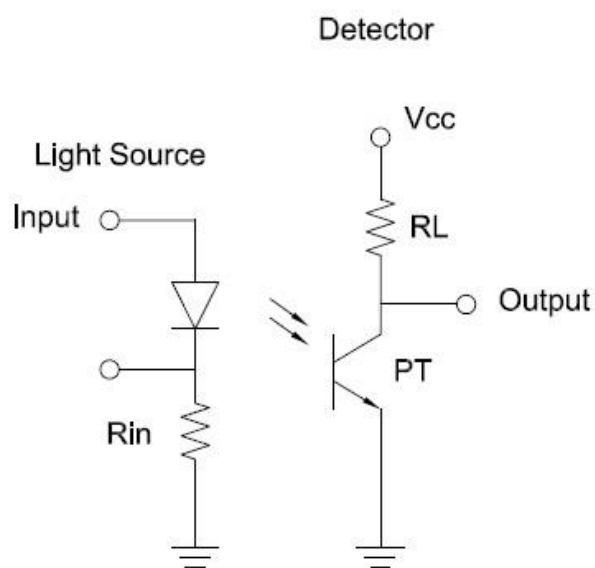
Switching Characteristics

Symbol	Parameters	Test Conditions	Min	Typ	Max	Units	Notes
t_r	Rise Time	$V_{ce} = 5V, R_L = 100\Omega$ $I_C = 1.0mA$	-	8	-	μs	4
t_f	Fall Time		-	9	-		
t_{on}	Turn on Delay Time		-	11	-		
t_{off}	Turn off Delay Time		-	7.9	-		

Notes:

1 : Test conditions : $I_C = 100\mu A$, $E_e = 0mW/cm^2$.2 : Test conditions : $I_E = 100\mu A$, $E_e = 0mW/cm^2$.3 : Soldering time ≤ 5 seconds.

4 : Test circuit:



Switching Time



Typical Characteristic Curves

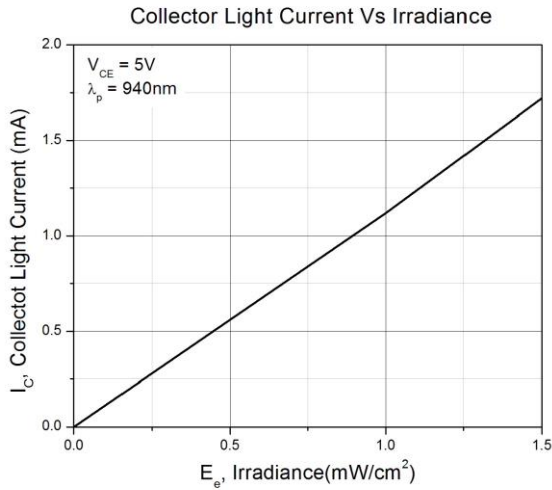


Figure 1

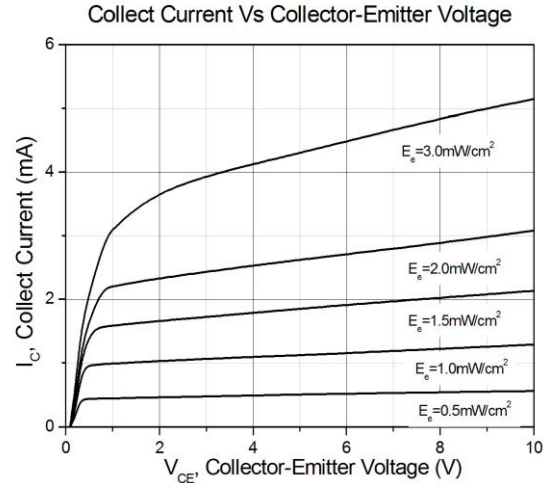


Figure 2

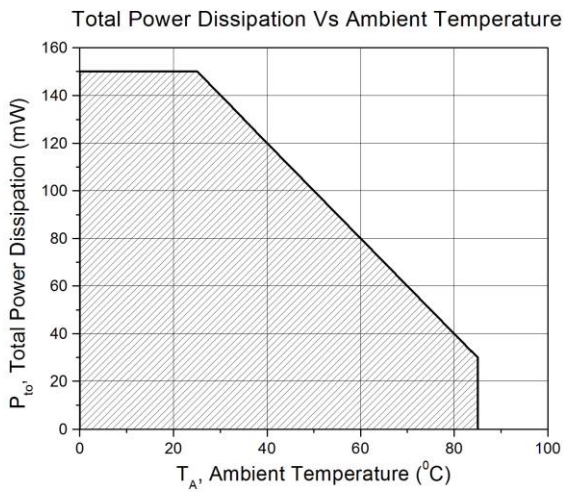


Figure 3

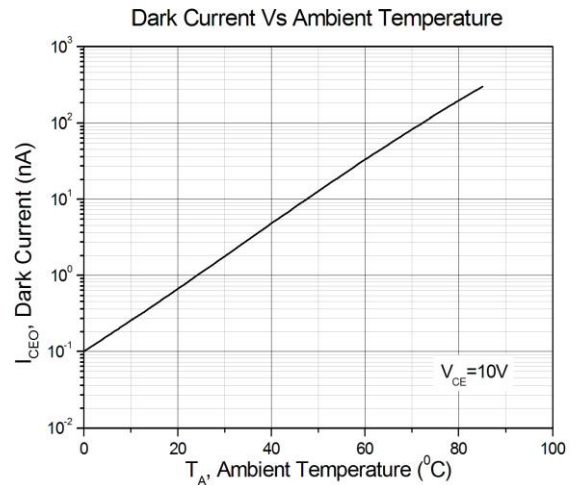


Figure 4

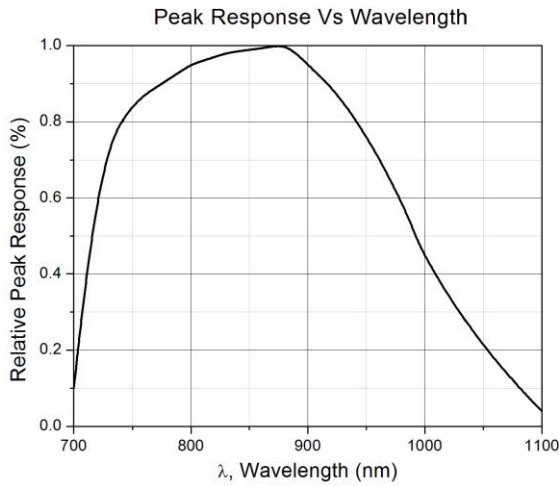


Figure 5

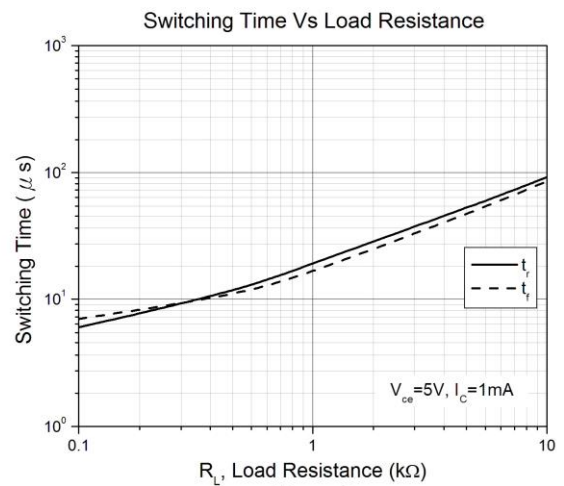


Figure 6



Typical Characteristic Curves

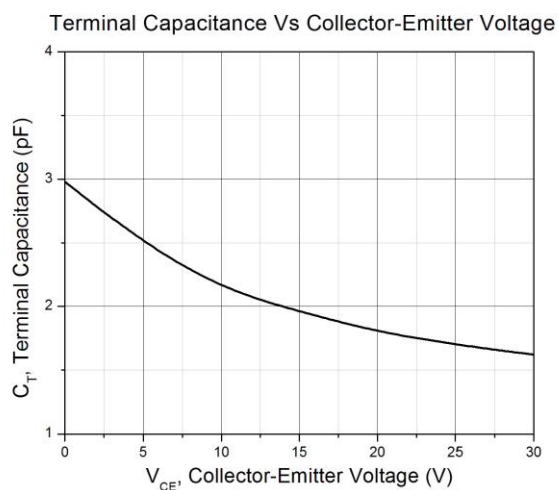


Figure 7

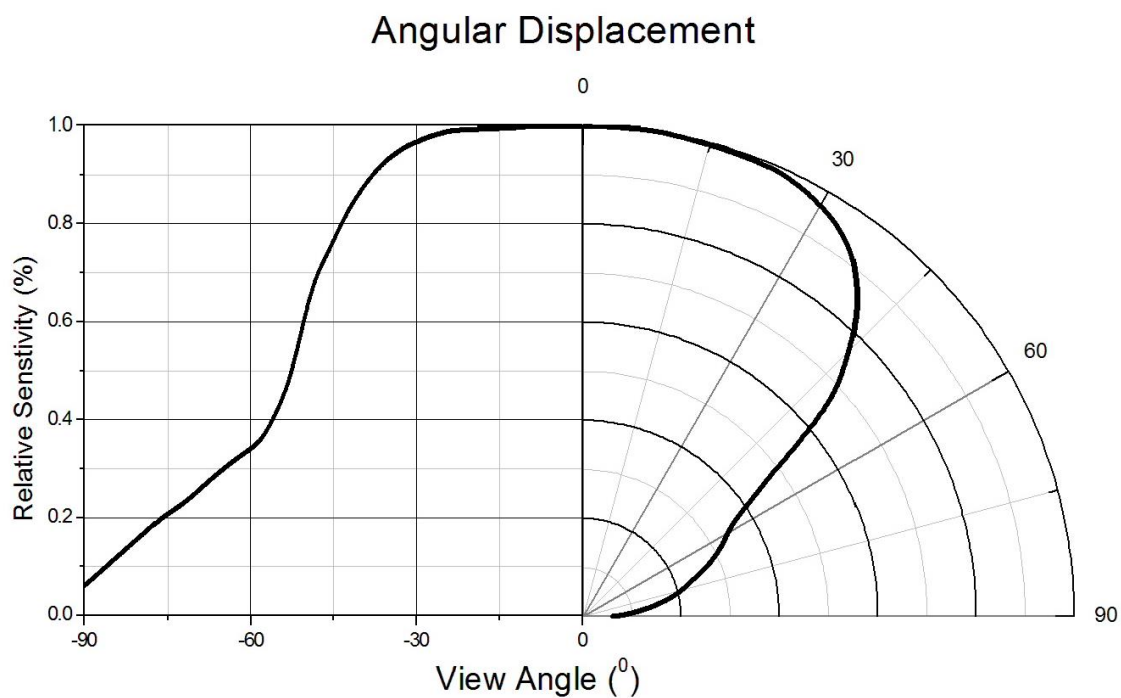
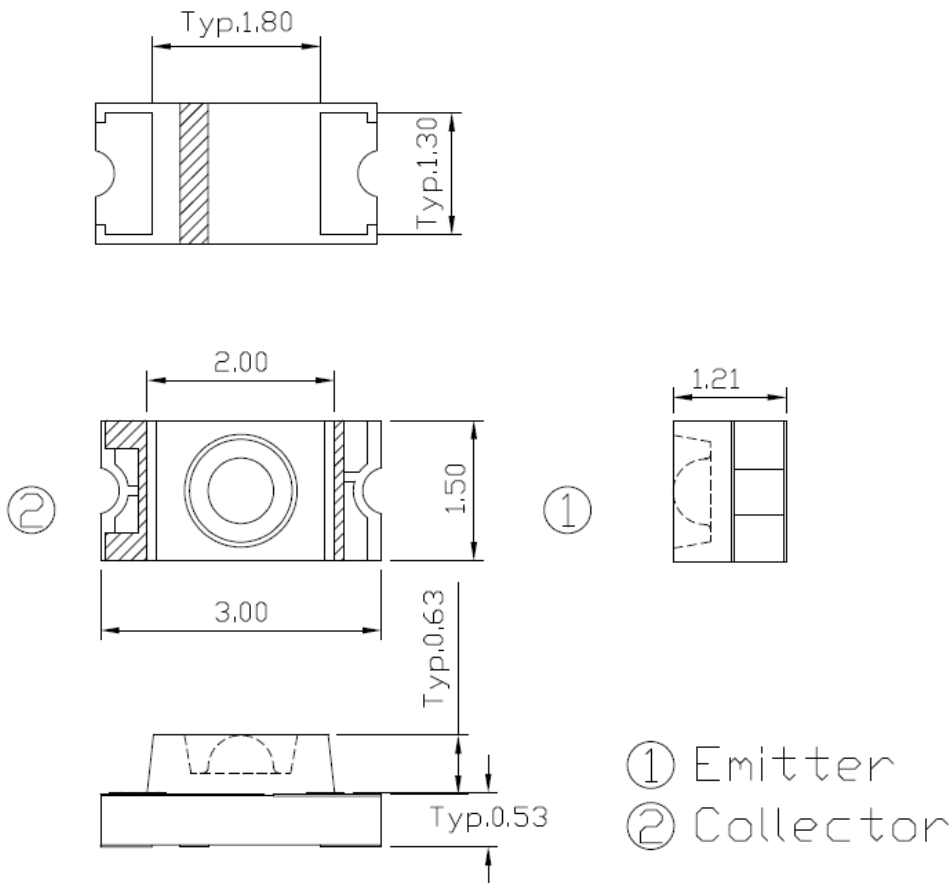


Figure 8

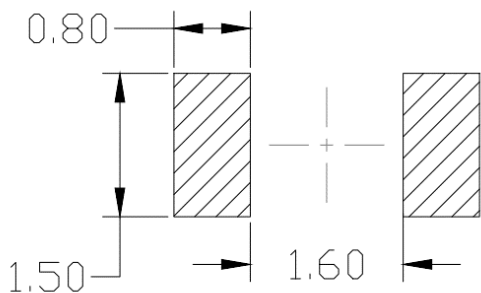


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Package Dimension *All dimensions are in mm, unless otherwise stated*



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



Ordering Information

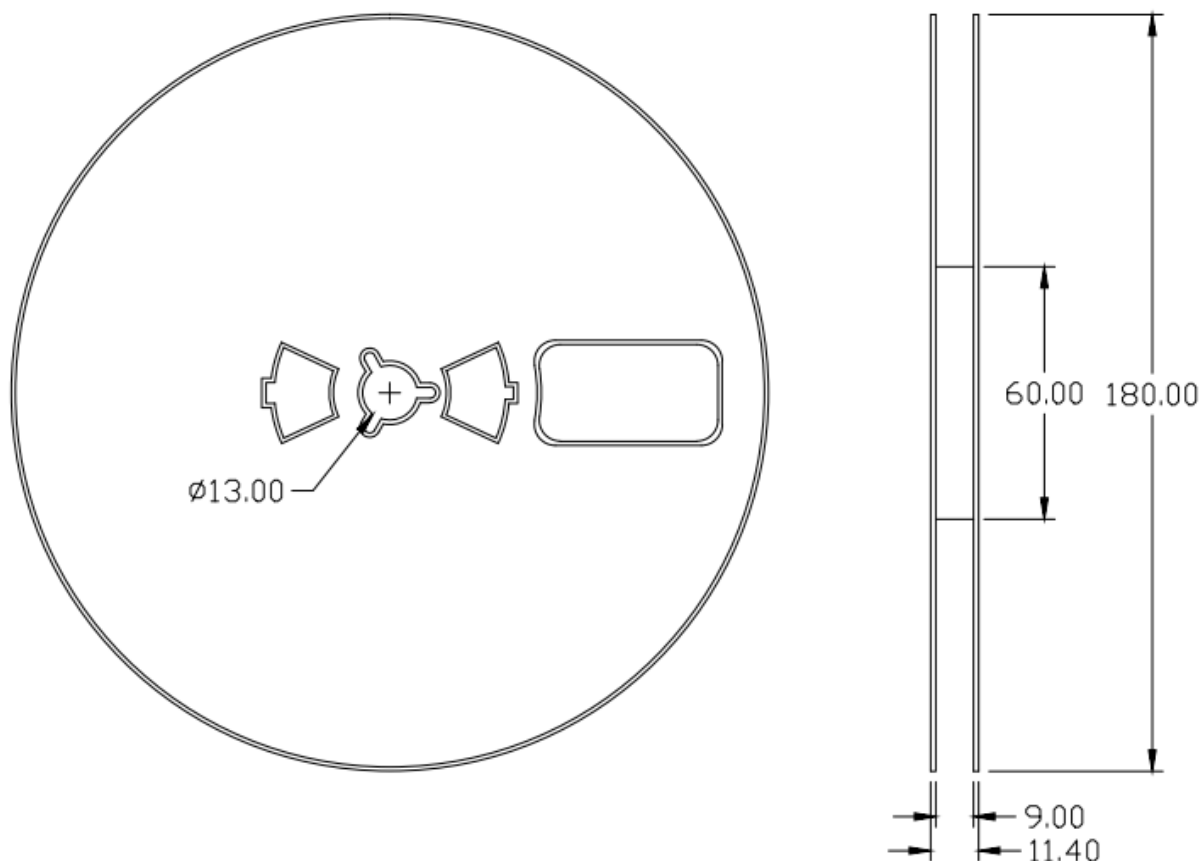
Part Number	Description	Quantity
PTP83015BT12	Tape & Reel	3000 pcs



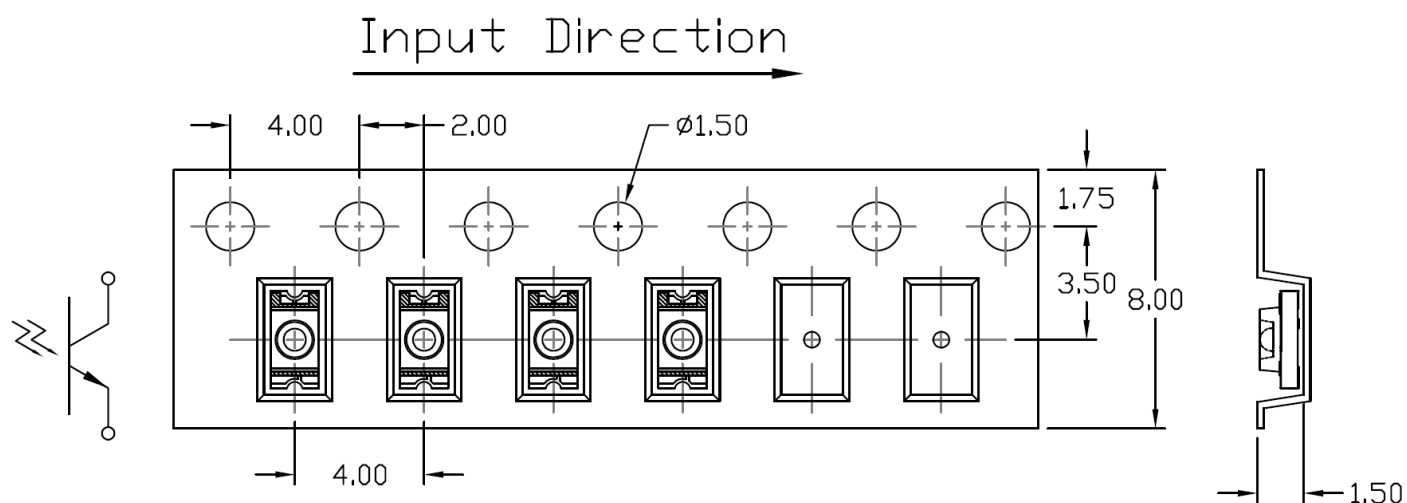
PTP83015BT12

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



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





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Label Form Specification

CT Micro
International Corporation

MADE IN CHINA

Part no.: XXXXXXXXX
Serial no.: XX000XX
Lot no.: XXXXXXXXX
Q'ty: XXXX pcs
Date Code: 20XXXXX

Bin Code: X

RoHS
Pb-free

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

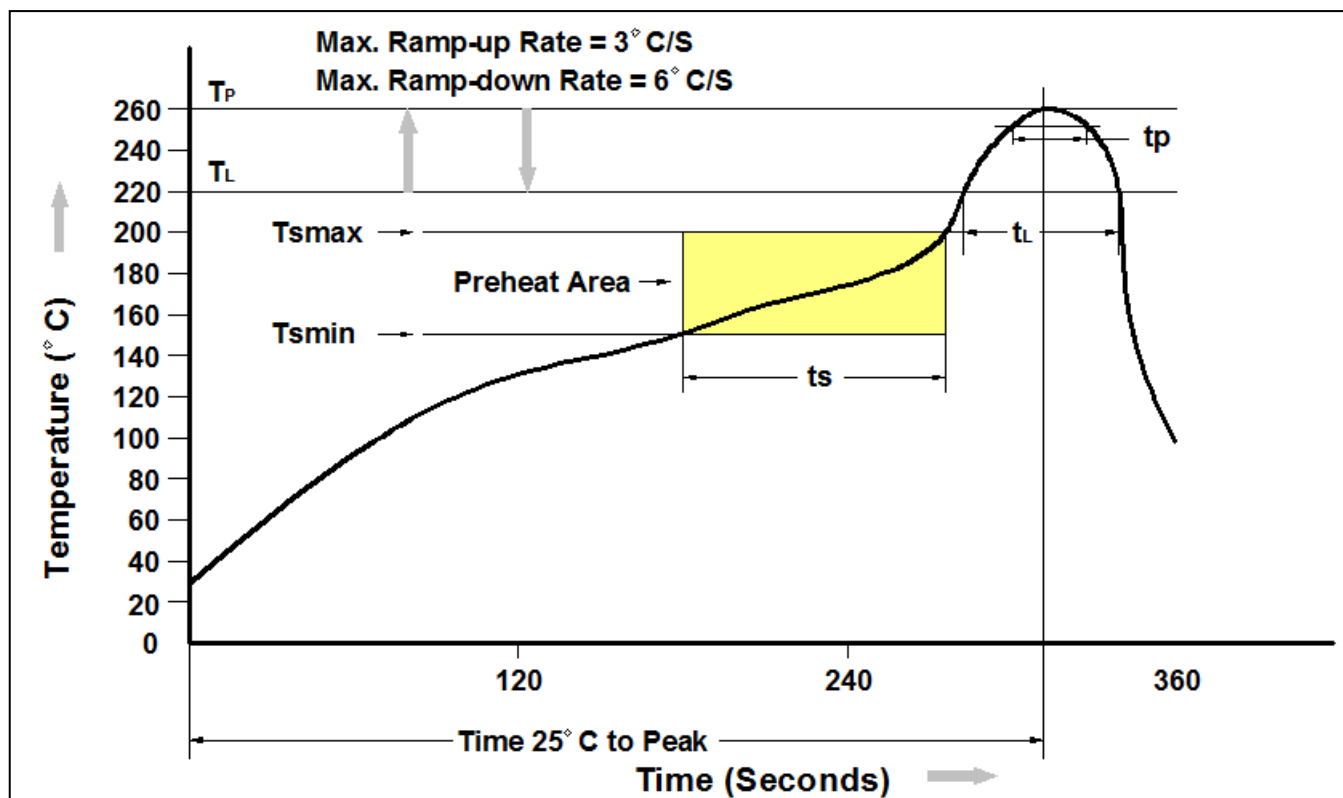
Storage Condition

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.



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Reflow Profile



Profile Feature	Pb-Free Assembly Profile
Temperature Min. (T_{smin})	150°C
Temperature Max. (T_{smax})	200°C
Time (t_s) from (T_{smin} to T_{smax})	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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