CTMLPD15-22C

SMD Type Photo Diode

Features

- Small double-end package
- High reliability
- High Reverse Breakdown
- High Sensitivity
- Fast Response time
- RoHS compliance

Description

The CTMLPD15-22C is a silicon photo diode housed in a miniature SMD package. The device has wide spectral sensitivity range from 400 to 1100nm.

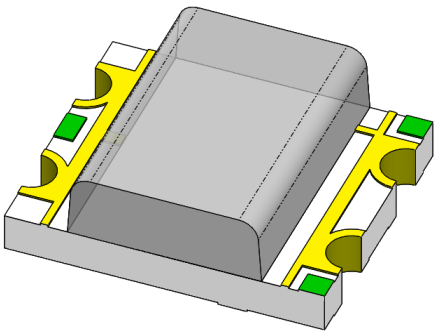
Applications

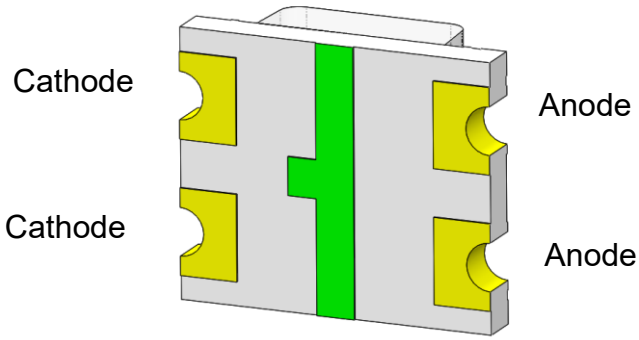
- Infrared sensor

Device Selection Guide

Device No.	Chip Material	Lens Color
CTMLPD15-22C	Silicon	Water

Package Outline





Schematic



Absolute Maximum Rating at 25^{0}C

Symbol	Parameters	Ratings	Units	Notes
V_R	Reverse Voltage	33	V	
T_{opr}	Operating Temperature	-40 ~ +85	^{0}C	
T_{stg}	Storage Temperature	-40 ~ +100	^{0}C	
T_{sol}	Soldering Temperature	260	^{0}C	1
P_{to}	Total Power Dissipation	150	mW	
HBM	ESD HBM Level	Min.2000	V	

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

Optical Characteristics

Symbol	Parameters	Test Conditions	Min	Typ	Max	Units	Notes
λ	Spectral Bandwidth	-	400	-	1100	nm	
λ_P	Peak Sensitivity	-	-	940	-	nm	
$2\theta_{1/2}$	View Angle	V_R=5V	-	130	-	deg	

Electrical Characteristics

Symbol	Parameters	Test Conditions	Min	Typ	Max	Units	Notes
I_D	Dark Current	Ee=0mW /cm^2 V_R=10V	-	-	10	nA	
V_{BR}	Reverse Breakdown Voltage	Ee=0mW /cm^2 I_R=100uA	33	-	-	V	
V_{OC}	Open-Circuit Voltage	Ee=1mW /cm^2 λ_P=940nm	-	0.32	-	V	
I_{SC}	Short-Circuit Current		-	8.5	-	μA	
I_R	Reverse Light Current	Ee=1mW /cm^2 λ_P=940nm, V_R=5V	5.0	9.6	-	μA	
C_T	Transition Capacitance	Ee=0mW /cm^2 f=1MHz ,V_R=5V	-	5	-	pF	

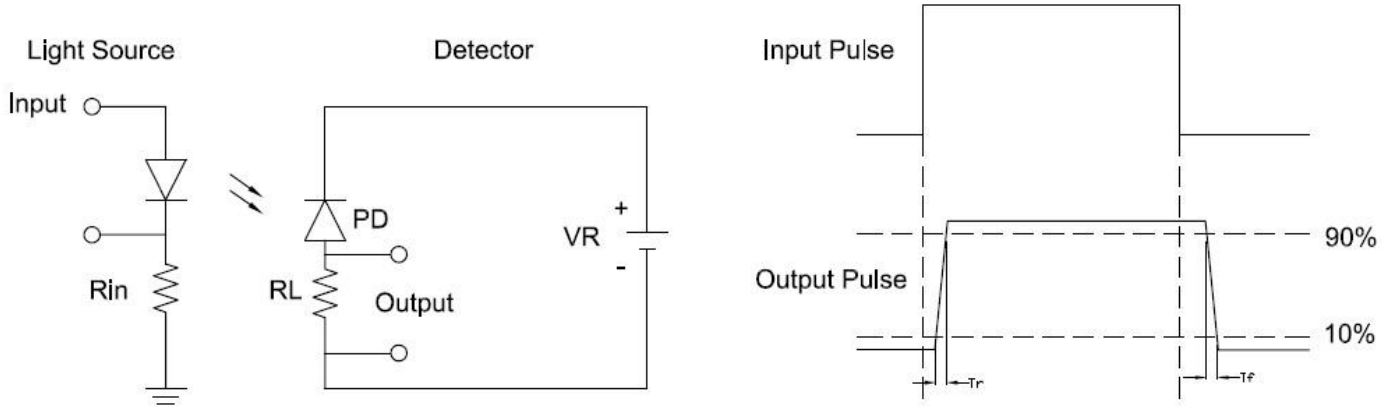
Switching Characteristics

Symbol	*Parameters*	*Test Conditions*	*Min*	*Typ*	*Max*	*Units*	*Notes*
t_r	Rise Time	V_R = 10V, R_L = 10kΩ	-	770	-	ns	2
t_f	Fall Time		-	720	-		

Notes:

1 : Soldering time≦5 seconds.

2 : Test circuit :



Switching Time

Typical Characteristic Curves

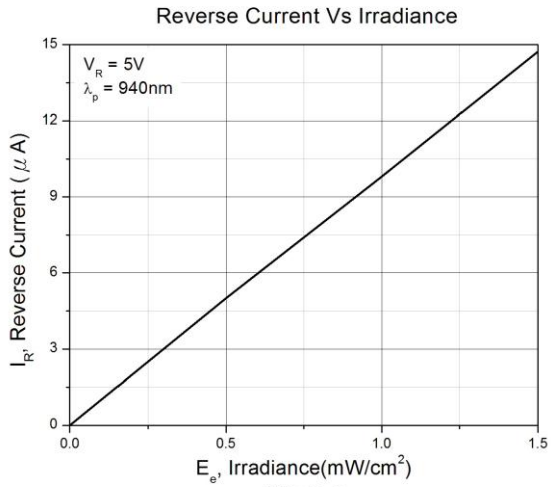


Figure 1

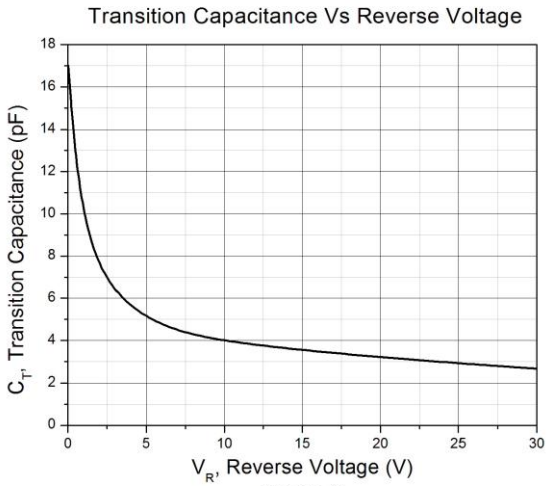


Figure 2

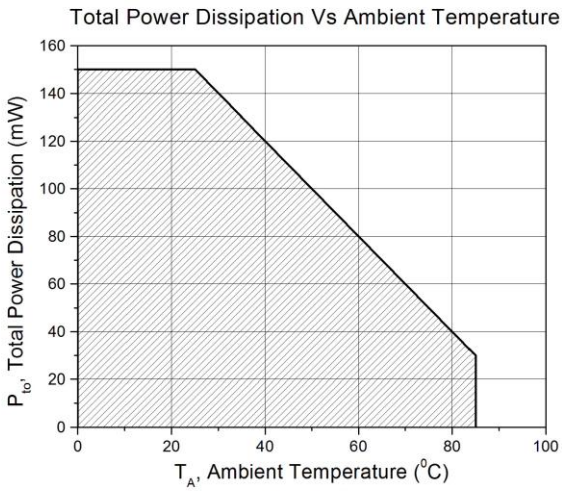


Figure 3

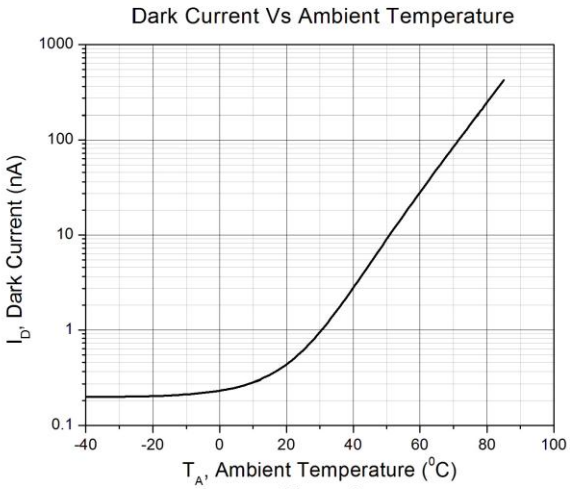


Figure 4

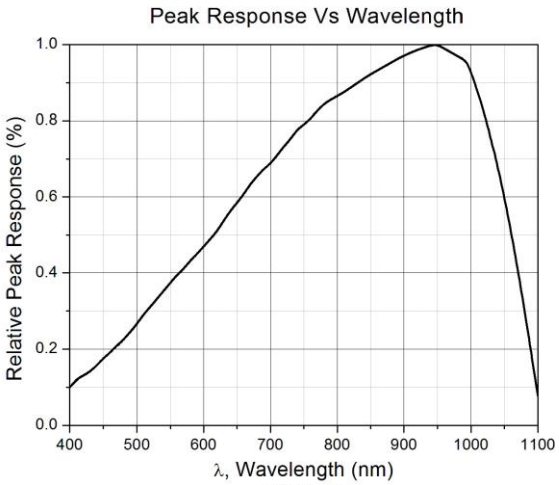


Figure 5

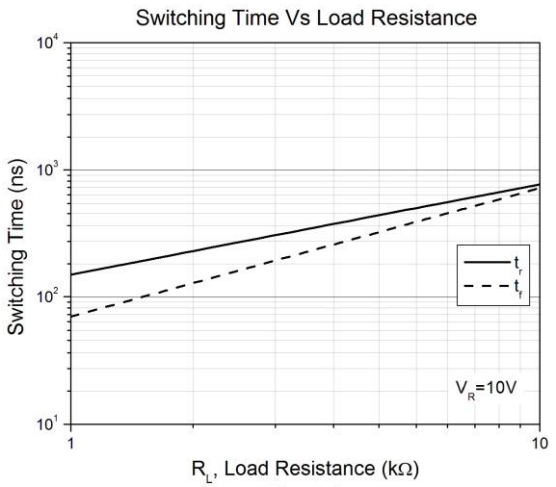


Figure 6

Typical Characteristic Curves

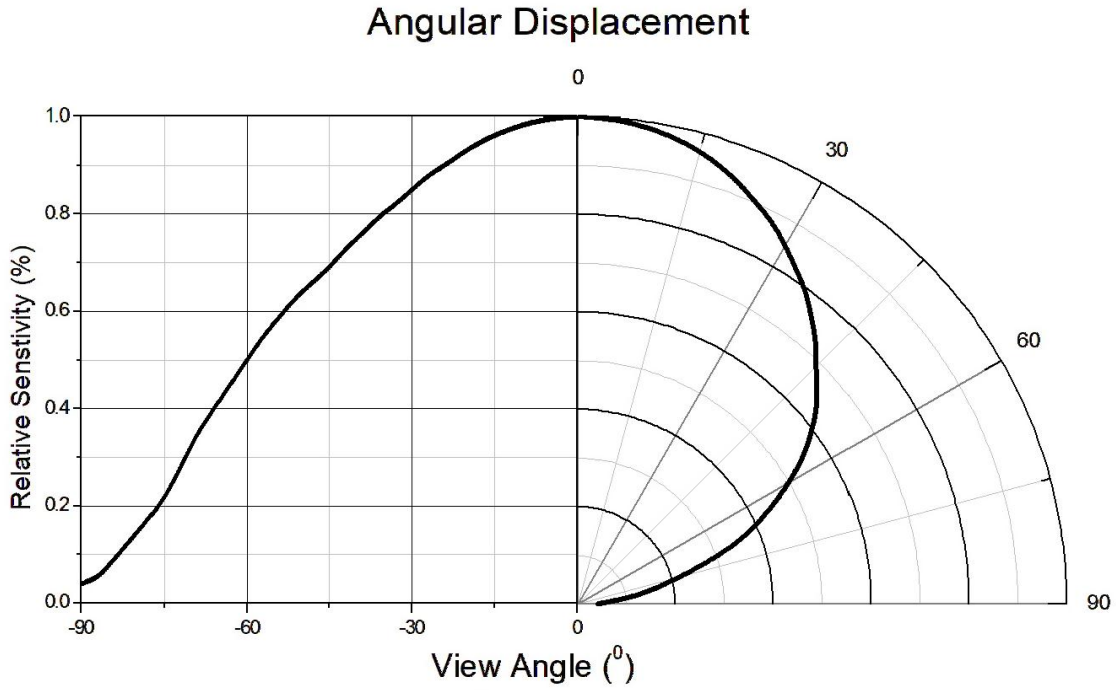
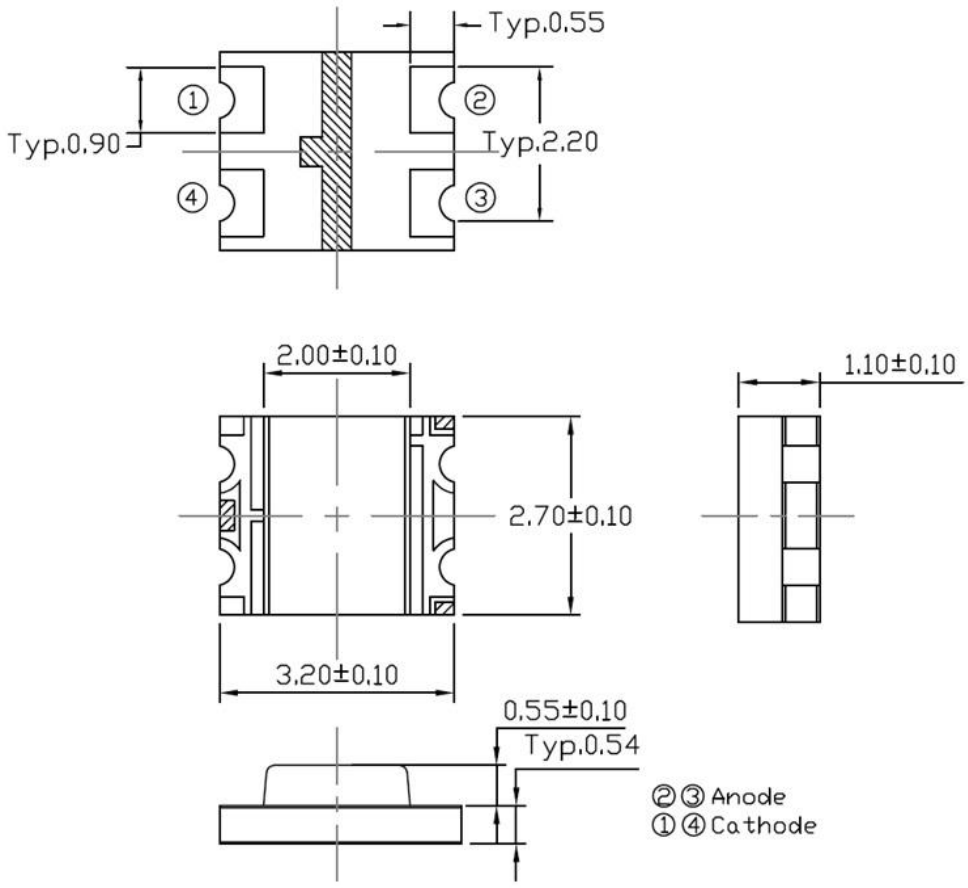
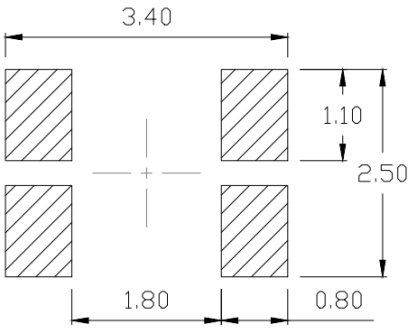


Figure 7

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



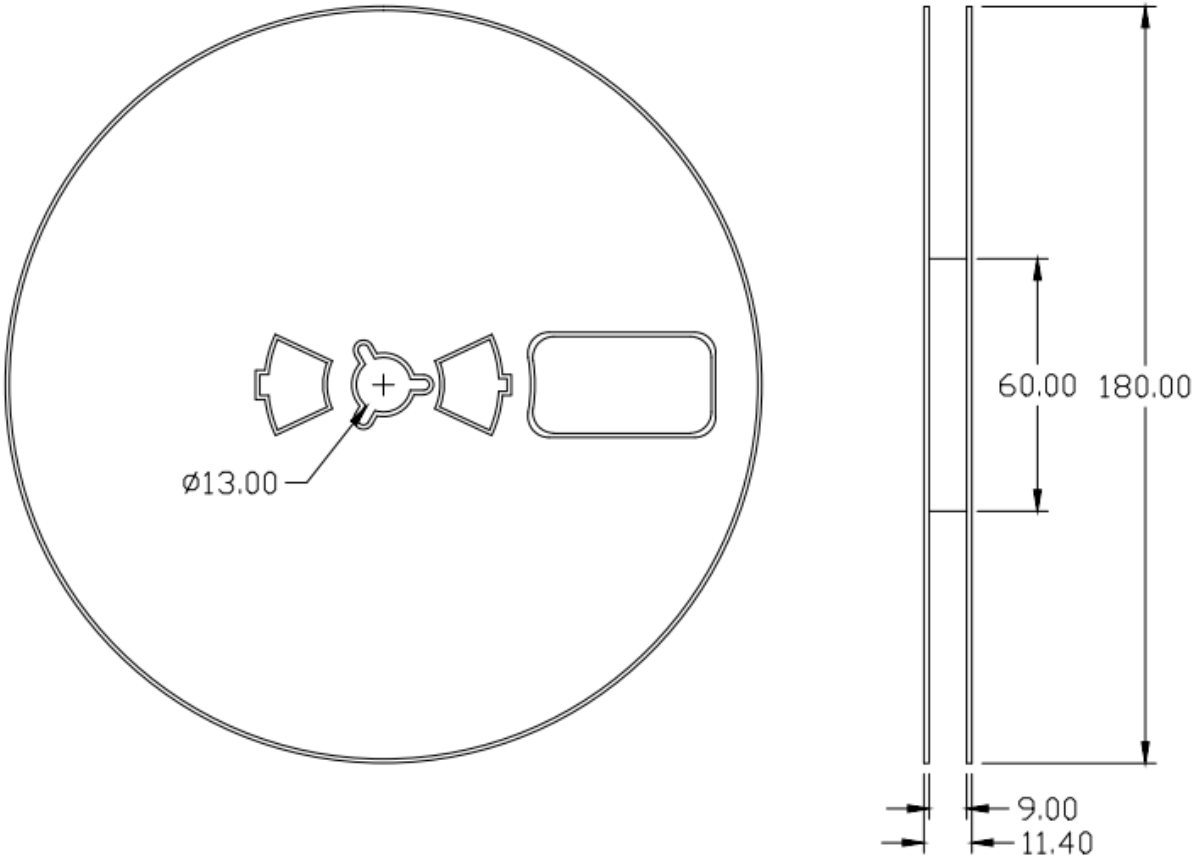
Recommended Soldering Mask *All dimensions are in mm, unless otherwise stated*



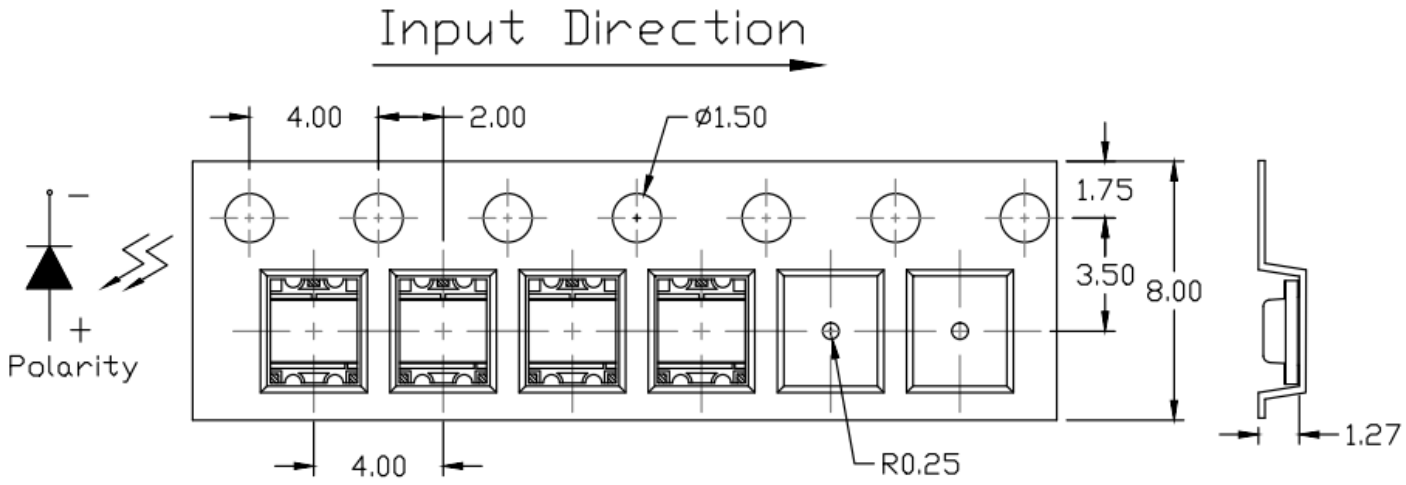
Ordering Information

Part Number	*Description*	*Quantity*
CTMLPD15-22C	Tape & Reel	3000 pcs

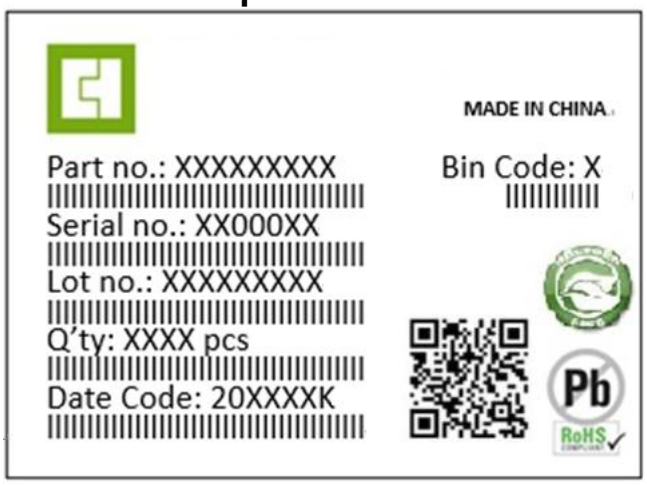
Reel Dimension *All dimensions are in mm, unless otherwise stated*



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

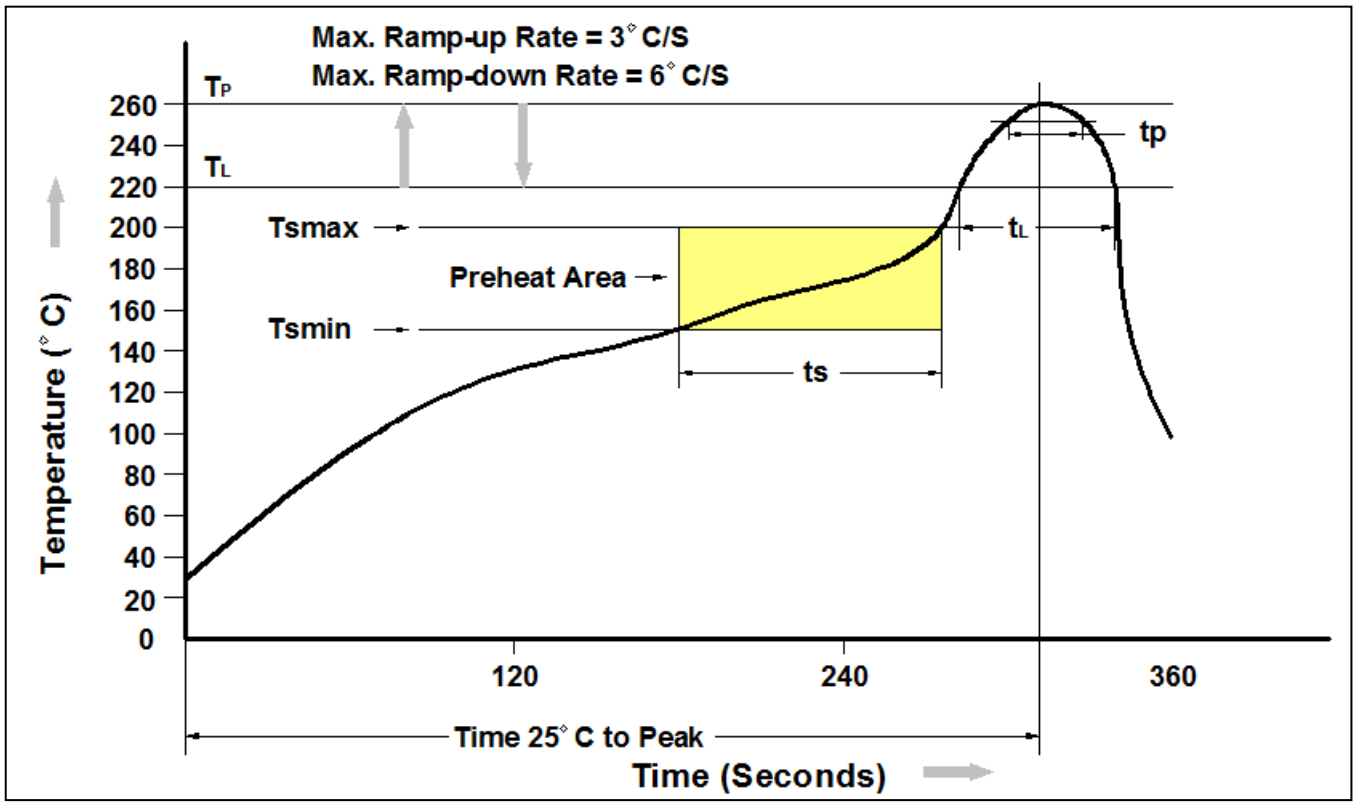
Bin Code: I_{RL} Ranks

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 72h 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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