



PDP93010BP20

SMD Type Photo Diode

Features

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

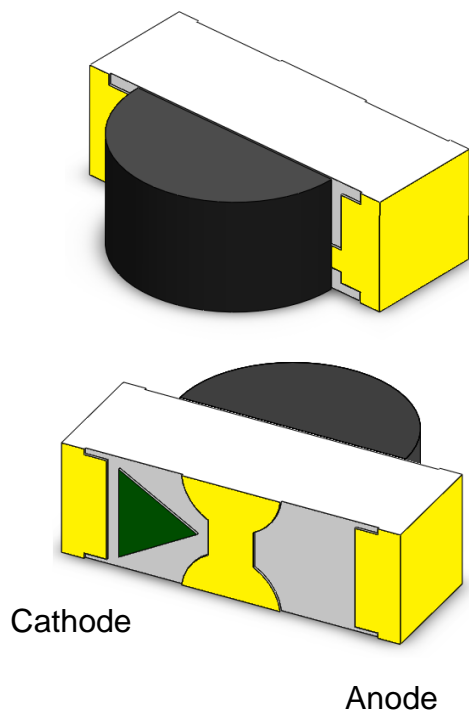
Applications

- Infrared sensor
- Light barrier
- Infrared Touch Panel Solutions

Description

The PDP93010BP20 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



Schematic





PDP93010BP20

SMD Type Photo Diode

Absolute Maximum Rating at 25°C

Symbol	Parameters	Ratings	Units	Notes
V _R	Reverse Voltage	33	V	
T _{opr}	Operating Temperature	-40 ~ +85	°C	
T _{stg}	Storage Temperature	-40 ~ +100	°C	
T _{sol}	Soldering Temperature	260	°C	1
P _D	Power Dissipation at(or below) 25°C Free Air Temperature	140	mW	
R _{THJA}	Junction to Ambient Thermal Resistance	530	°C/W	



PDP93010BP20

SMD Type Photo Diode

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_P	Peak Sensitivity	-	-	900	-	nm	
$\theta_{1/2}$	View Angle at X axis	$V_R=5V$	-	± 72.5	-	deg	2
	View Angle at Y axis		-	± 67.5	-		

Electrical Characteristics

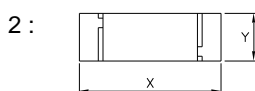
Symbol	Parameters	Test Conditions	Min	Typ	Max	Units	Notes
I_D	Dark Current	$E_e=0mW/cm^2$ $V_R=10V$	-	-	10	nA	
V_{BR}	Reverse Breakdown Voltage	$E_e=0mW/cm^2$ $I_R=100\mu A$	33	200	-	V	
V_{OC}	Open-Circuit Voltage	$E_e=1mW/cm^2$ $\lambda_P=940nm$	-	0.42	-	V	
I_{SC}	Short-Circuit Current		-	1.72	-	μA	
I_R	Reverse Light Current	$E_e=1mW/cm^2$ $\lambda_P=940nm, V_R=5V$	1.3	1.90	-	μA	
C_T	Total Capacitance	$E_e=0mW/cm^2$ $f=1MHz, V_R=5V$	-	7.89	-	pF	

Switching Characteristics

Symbol	Parameters	Test Conditions	Min	Typ	Max	Units	Notes
t_r	Rise Time	$V_R = 5V, R_L = 10k\Omega$	-	500	-	ns	
t_f	Fall Time		-	500	-		

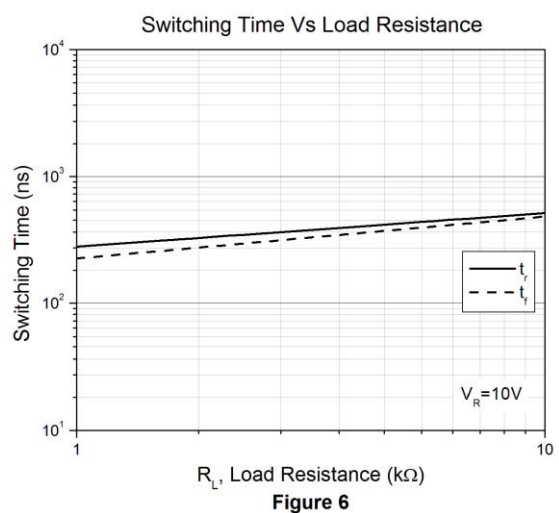
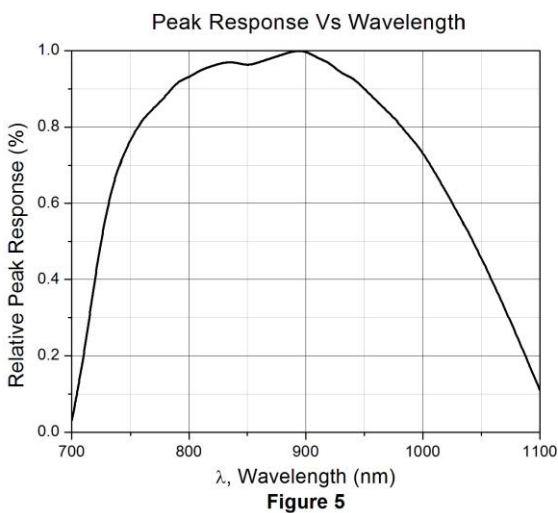
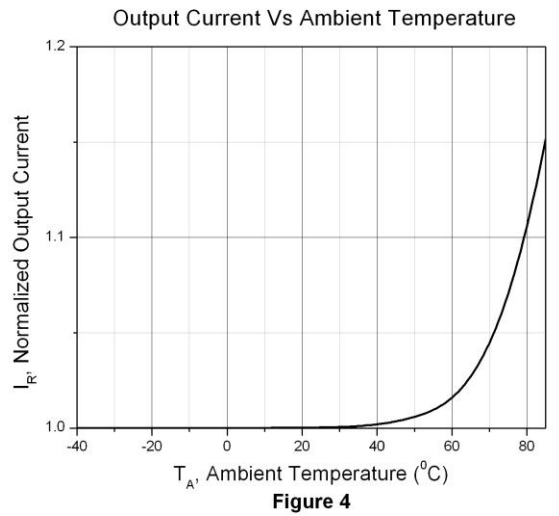
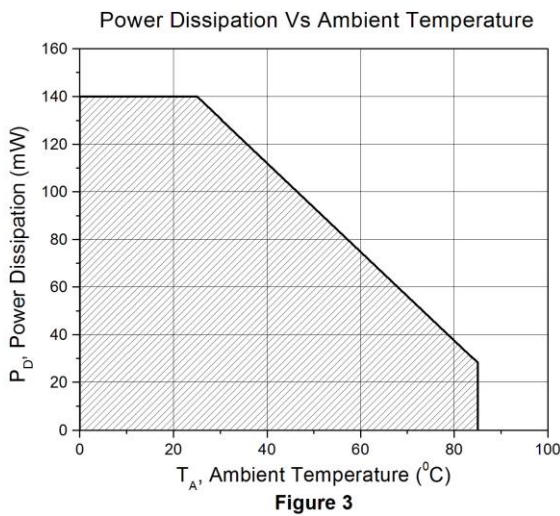
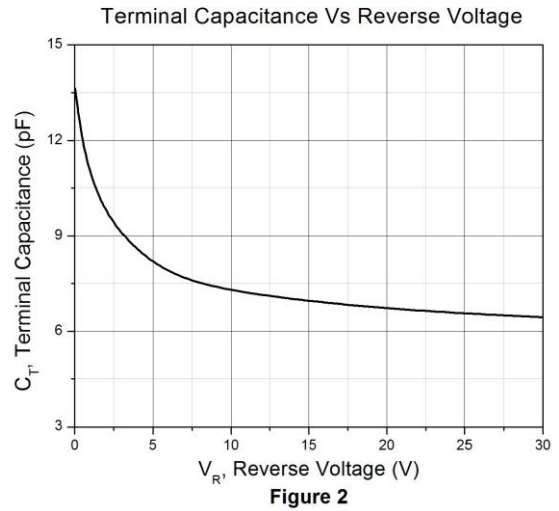
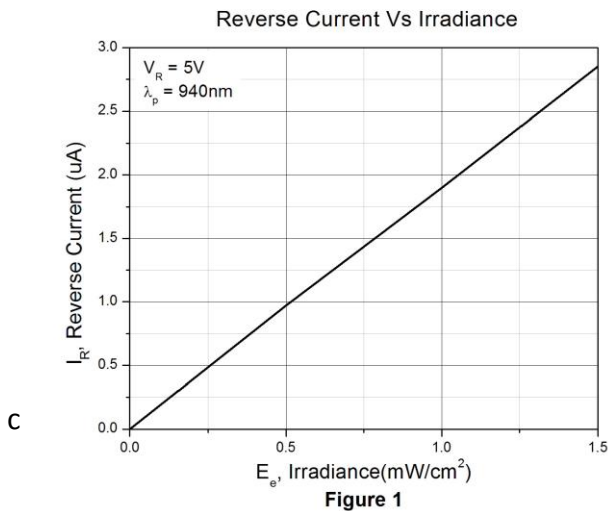
Notes:

1 : Soldering time ≤ 5 seconds.





Typical Characteristic Curves





Typical Characteristic Curves

Angular Displacement at X axis

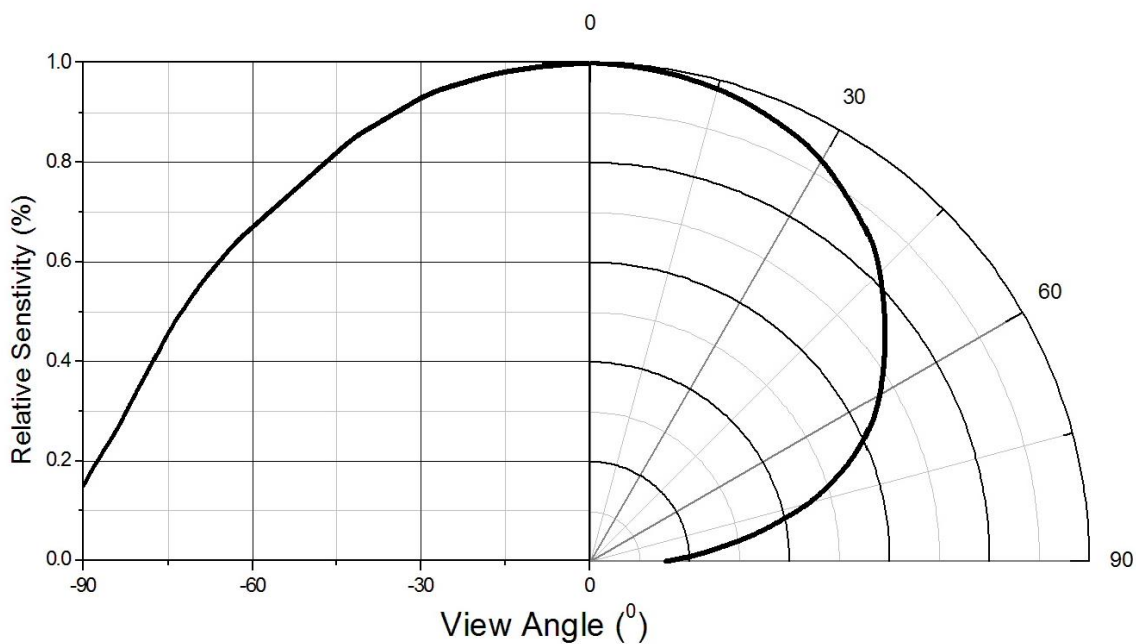


Figure 7

Angular Displacement at Y axis

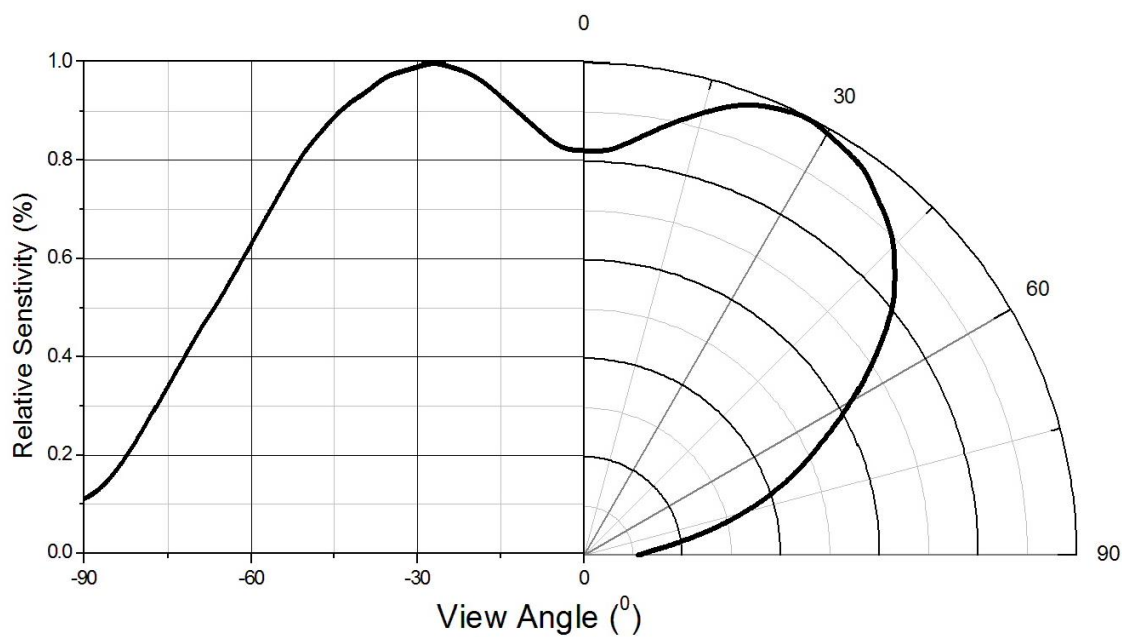


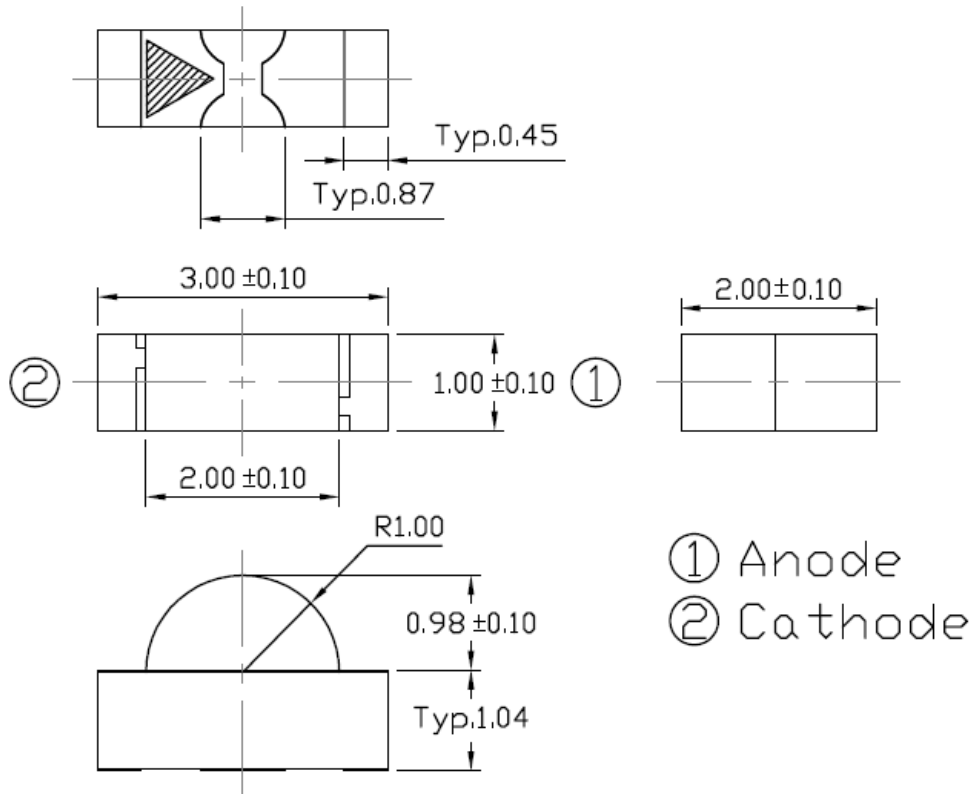
Figure 8



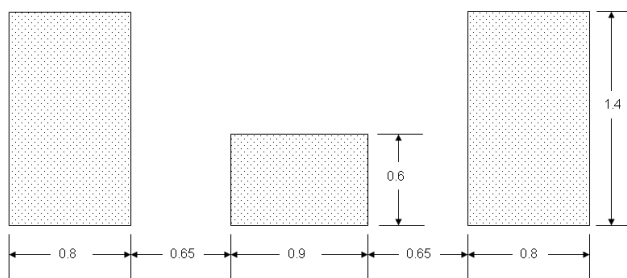
PDP93010BP20

SMD Type Photo Diode

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
PDP93010BP20	Tape & Reel	3000 pcs

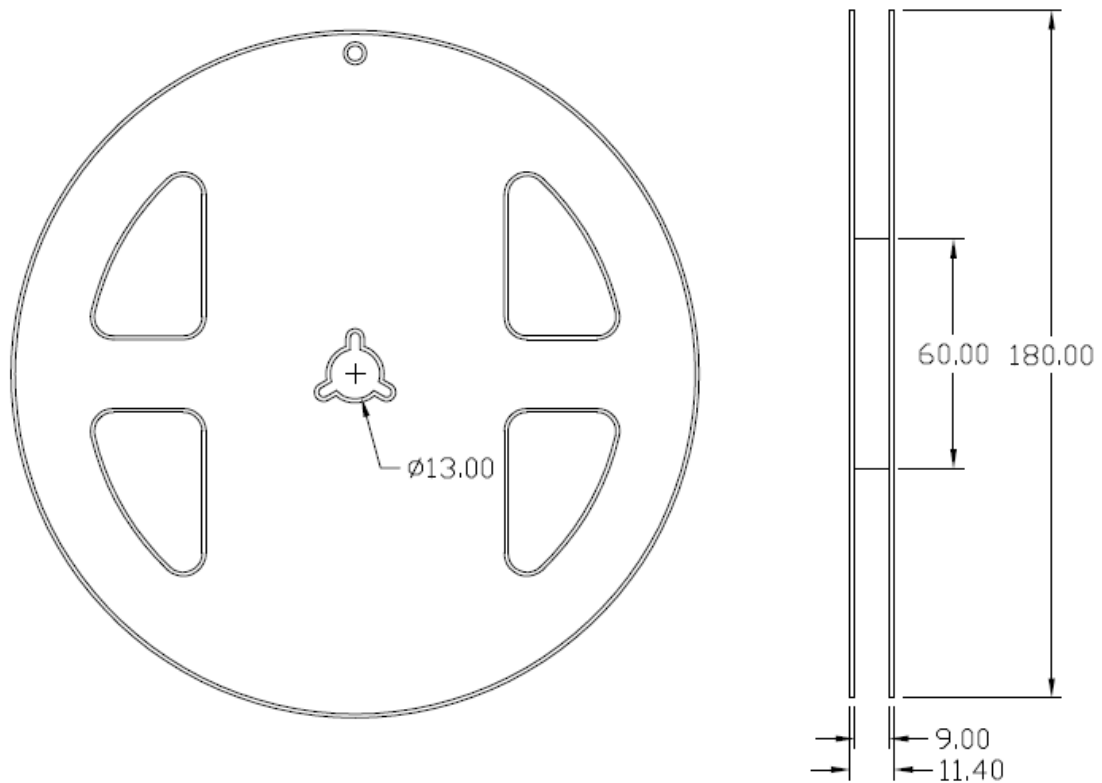


PDP93010BP20

SMD Type Photo Diode

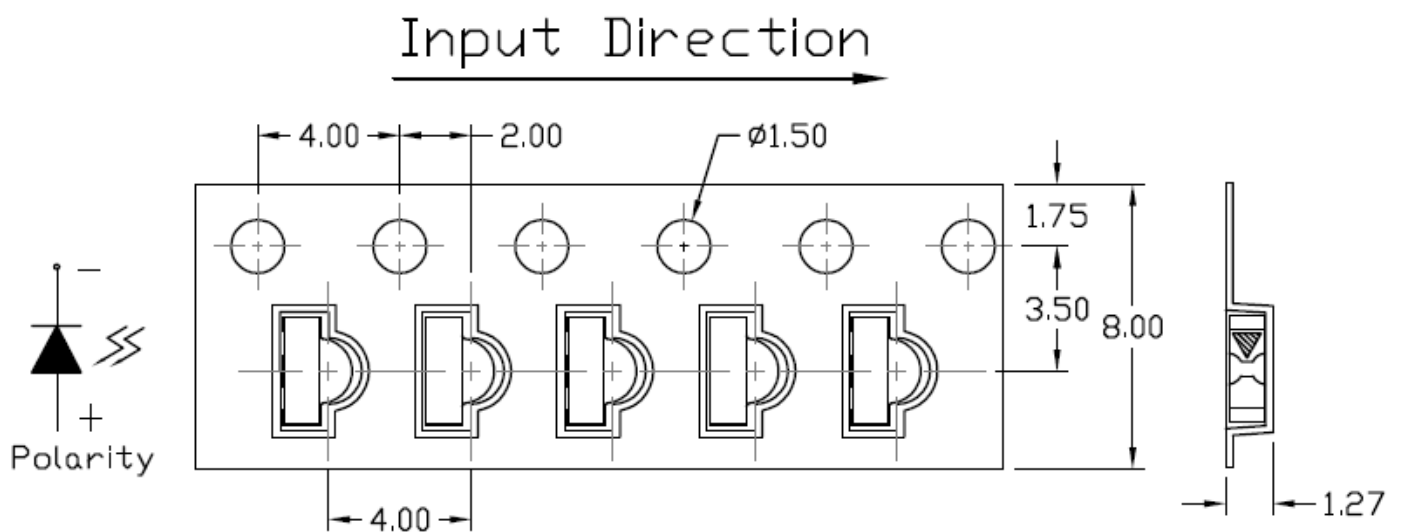
Reel Dimension

All dimensions are in mm, unless otherwise stated



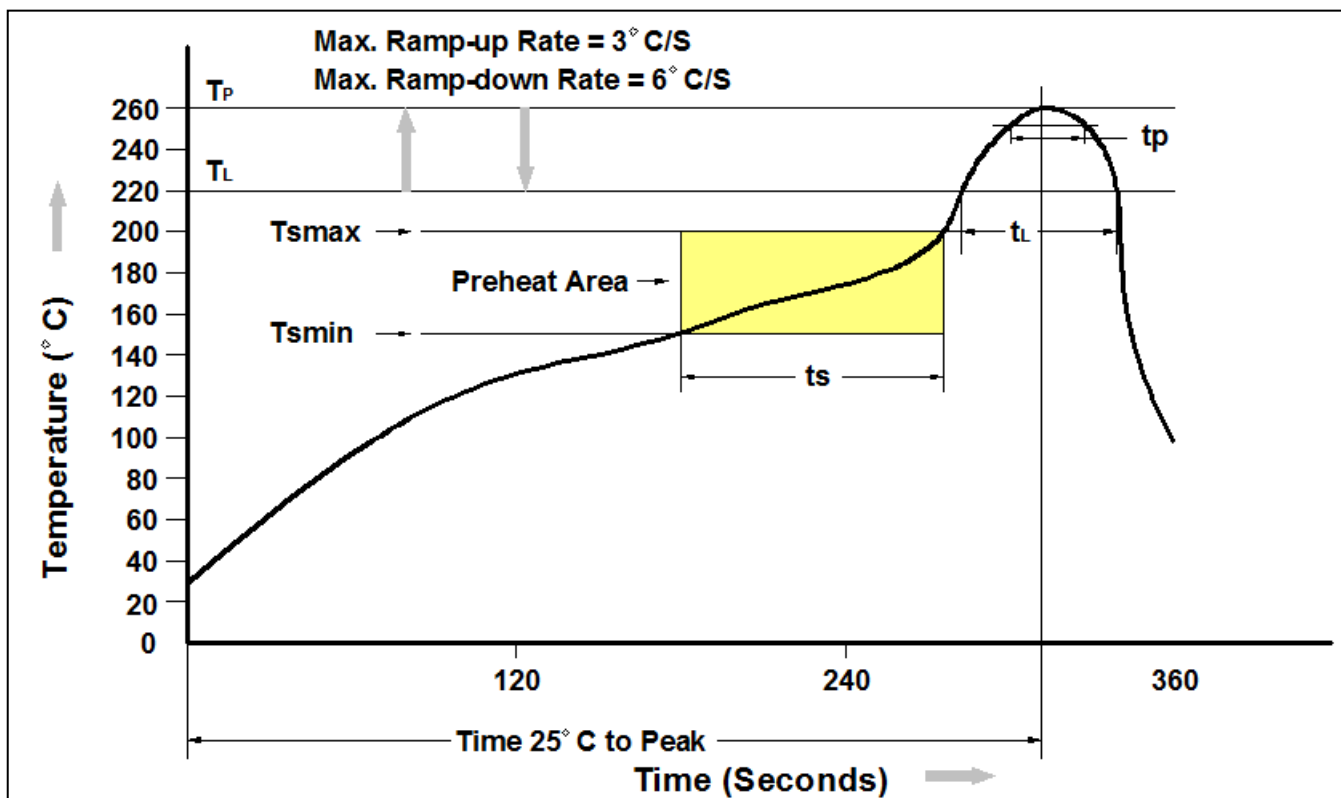
Tape Dimension

All dimensions are in mm, unless otherwise stated





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.



DISCLAIMER

CT MICRO RESERVES THE RIGHT TO MAKE CHANGES WITHOUT FURTHER NOTICE TO ANY PRODUCTS HEREIN TO IMPROVE RELIABILITY, FUNCTION OR DESIGN. CT MICRO DOES NOT ASSUME ANY LIABILITY ARISING OUT OF THE APPLICATION OR USE OF ANY PRODUCT OR CIRCUIT DESCRIBED HEREIN; NEITHER DOES IT CONVEY ANY LICENSE UNDER ITS PATENT RIGHTS, NOR THE RIGHTS OF OTHERS.

CT MICRO ARE NOT AUTHORIZED FOR USE AS CRITICAL COMPONENTS IN LIFE SUPPORT DEVICES OR SYSTEMS WITHOUT EXPRESS WRITTEN APPROVAL OF CT MICRO INTERNATIONAL CORPORATION.

- 1. Life support devices or systems are devices or systems which, (a) are intended for surgical implant into the body, or (b) support or sustain life, or (c) whose failure to perform when properly used in accordance with instruction for use provided in the labelling, can be reasonably expected to result in significant injury to the user.*
- 2. A critical component is any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.*