

Inolux Surface Mount High Power Ultraviolet LED IN-5053PUV

Official Product	Product: IN-5053PUV		Data Sheet No.
Tentative Product	*****		IN-5053PUV
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DISCLAIMER

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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, and (c) whose failure to perform when properly used in accordance with instructions for use provided in the labeling, can be reasonably expected to result in a significant injury of the user.

2. A critical component in 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.

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Label Specifications

INOLUX P/N:

I N - 5 0 5 3 P U V - X X X X

↓	↓	↓
Series Name	Substrate / Emitting Color	Customer Code
IN-5053 Inolux 5053 package	5050 3 chip PLCC UV@380-420nm	XXXX Customer Product Code

Lot No.:

1	2	3	4	5	6	7	8	9	10
E	1	A	1	A	2	2	L	1	2
Code 1 2		Code 3	Code 4	Code 5	Code 6	Code 7	Code 8	Code 9	Code 10
		Mfg. Year	Mfg. Month	Mfg. Date	Consecutive number		Special code		
Internal Tracing Code		2010-A 2011-B 2012-C 2013-D . .	1:Jan. 2:Feb. ... A:Oct. B:Nov. C:Dec.	1:A 2:B 3:C ... 26:Z 27:7 28:8 29:9 30:3 31:4	01~ZZ		000~ZZZ		

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Product Characteristics

Absolute Maximum Ratings

(Tj =25 °C)

Parameter	Rating
DC Forward Current (mA)	150mA
LED Junction Temperature	125°C
LED Operating Temperature	-40°C ~ 110°C
Storage Temperature	-40°C ~ 110°C
Soldering Temperature	Max. 260°C / Max. 10 sec. (JEDEC 020c)
Preconditioning	Acc. to JEDEC Level 3

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Electro-Optical Characteristics@150mA

(T_j 25 °C)

Part Number	Color	Group	Minimum Radiometric Power (mW)		Vf	
					Min	Max
IN-5053PUV	U40 (380~390nm)	PB3	85	100	3.0	4.0
		PC1	100	120	3.0	4.0
		PC2	120	140	3.0	4.0
	U50 (390~400nm)	PB3	85	100	3.0	4.0
		PC1	100	120	3.0	4.0
		PC2	120	140	3.0	4.0
	U60 (400~410nm)	PB3	85	100	3.0	4.0
		PC1	100	120	3.0	4.0
		PC2	120	140	3.0	4.0
	U40 (410~420nm)	PB3	85	100	3.0	4.0
		PC1	100	120	3.0	4.0
		PC2	120	140	3.0	4.0

Notes:

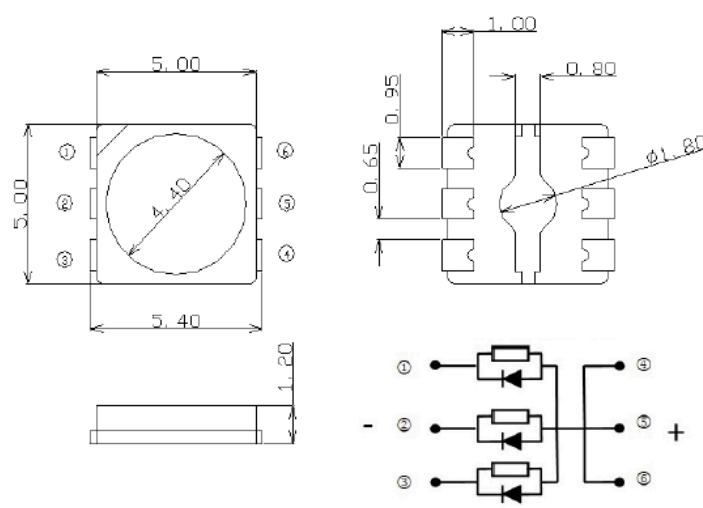
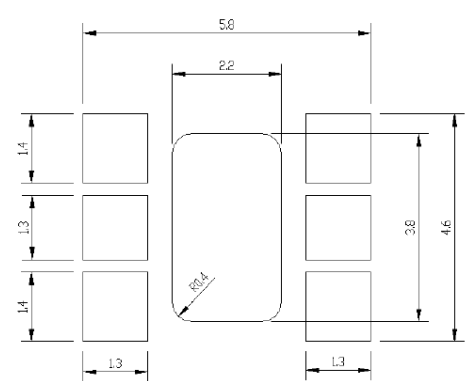
1. Radiometric power is measured with an accuracy of ±10%
2. The forward voltage is measured with an accuracy of ±0.2V

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Package Outline Dimension

Recommended Soldering Pattern for Reflow Soldering

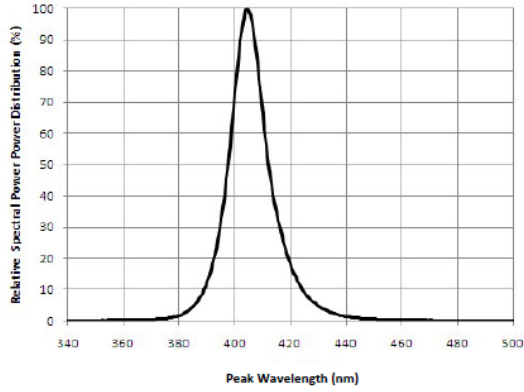
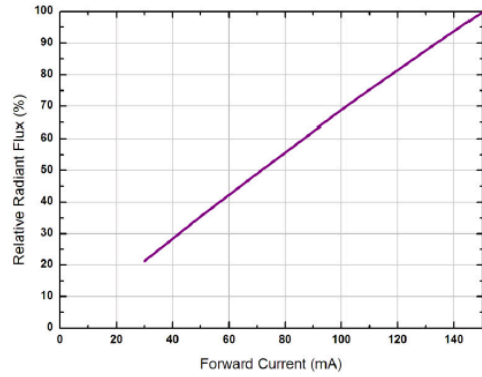
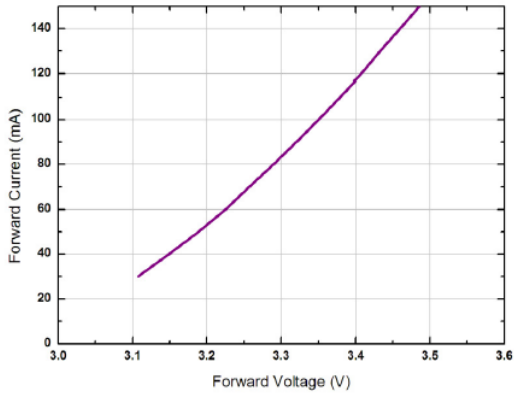
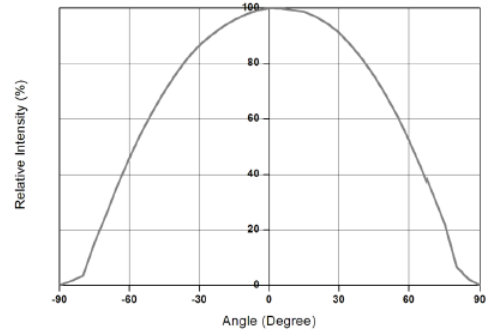
Unit: mm Tolerance: +/-0.2

Outline Dimension	Solder Pattern
	
Soldering terminals may shift in the x, y direction.	Unit: mm

Notes:

1. Drawings are not to scale
2. All dimensions are in millimeter
3. The polarity of die heat sink at bottom is Anode

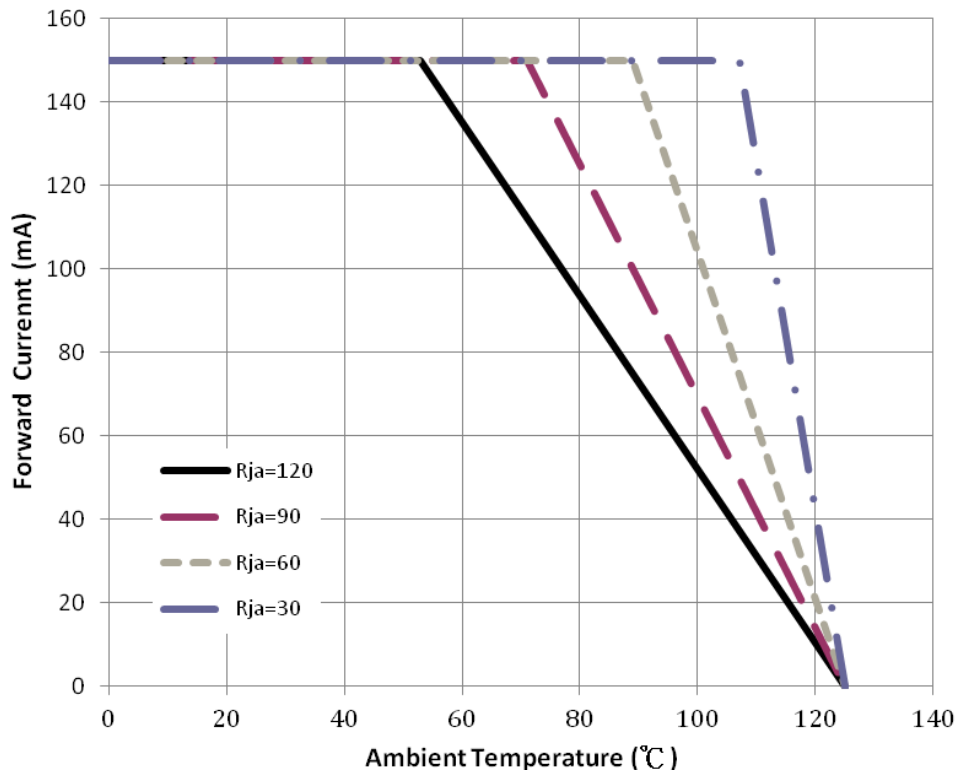
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Characteristic Curves
Relative Spectral Power Distribution, $T_c=25^\circ\text{C}$

Typical Forward L-I Characteristics, $T_j=25^\circ\text{C}$

Typical Forward I-V Characteristics, $T_j=25^\circ\text{C}$

Typical Spatial Radiation Pattern


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Thermal Design

Thermal design of the end product is important. The thermal resistance between the junction and the solder point (R_{ΘJ-S}) and the end product should be designed to minimize the thermal resistance from the solder point to ambient in order to optimize the emitter life and optical characteristics. The maximum operation current is determined by the plot of Allowable Forward Current vs. Ambient Temperature.



The junction temperature can be correlated to the thermal resistance between the junction and ambient (R_{ja}) by the following equation.

$$T_j = T_a + R_{ja} * W$$

T_j: LED junction temperature

T_a: Ambient temperature

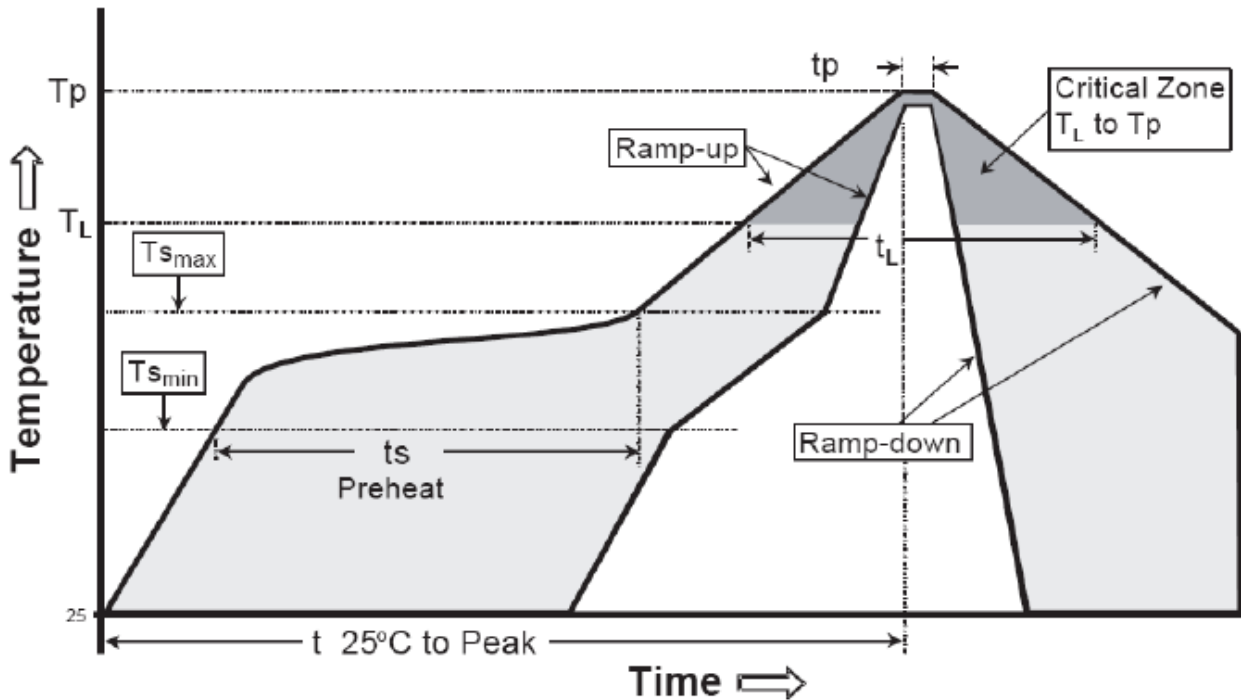
R_{ja}: Thermal resistance between the junction and ambient

W: Input power (I_F*V_F)

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Reflow Soldering

The LEDs can be soldered using the parameter listed below. As a general guideline, the users are suggested to follow the recommended soldering profile provided by the manufacturer of the solder paste. Although the recommended soldering conditions are specified in the list, reflow soldering at the lowest possible temperature is preferred for the LEDs.

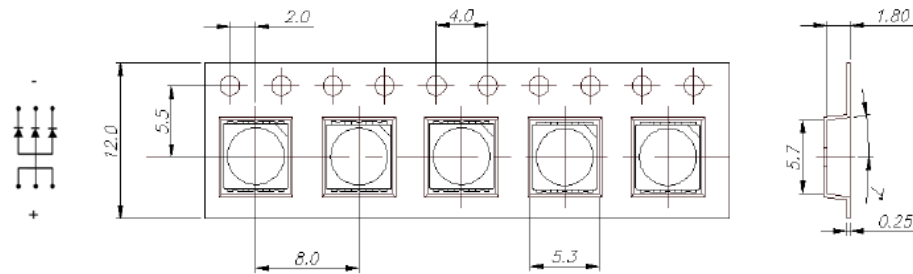


Profile Feature	Sn-Pb Eutectic Assembly	Pb-Free Assembly
Average Ramp-up Rate (Ts_max to Tp)	3°C/second max.	3°C/second max.
Preheat		
- Temperature Min(Ts_min)	100°C	150°C
- Temperature Max(Ts_max)	150°C	200°C
- Time(ts_min to ts_max)	60-120 seconds	60-180 seconds
Time maintained above:		
- Temperature(T_L)	183°C	217°C
- Time(t_L)	60-150 seconds	60-150 seconds
Peak/classification Temperature(Tp)	215°C	260°C
Time within 5°C of actual Peak Temperature(tp)	10-30 seconds	20-40 seconds
Ramp-Down Rate	6°C/second max.	6°C/second max.
Time 25°C to Peak Temperature	6 minutes max.	8 minutes max.

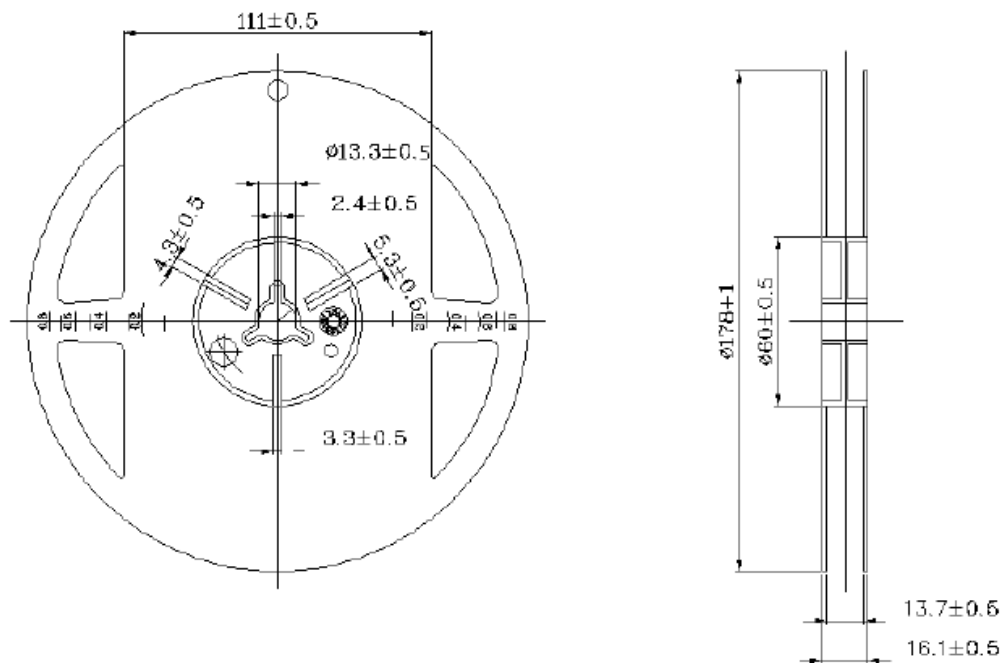
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Packing Information

Carrier Tape



Reel Dimension



Note : All Dimensions are in millimeter

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Revision History

Changes since last revision	Page	Version No.	Revision Date
Initial release		1.0	04-21-2014
Format Update		2.0	09-09-2015

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