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## TDS-P001L4 Series Datasheet



### Features :

- Various colors
- More energy efficient than incandescent and most halogen lamps
- Low voltage operation
- Instant light
- Long operating life



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## Absolute Maximum Ratings

Parameter	Symbol	Value	Units
DC Forward Current	$I_F$	350	mA
Peak Pulsed Current; ( $t_p \leq 100\mu s$ , Duty cycle=0.25)	$I_{pulse}$	500	mA
Reverse Voltage	$V_R$	5	V
Drive Voltage	$V_D$	5	V
LED Junction Temperature	$T_J$	125	°C
Operating Temperature	-	-30 ~ +110	°C
Storage Temperature	-	-40 ~ +120	°C
ESD Sensitivity (HBM)	-	2,000	V
Manual Soldering Time at 260°C(Max.)	-	5	Sec.

### Notes:

1. Proper current derating must be observed to maintain junction temperature below the maximum at all time.
2. LEDs are not designed to be driven in reverse bias.
3.  $t_p$ : Pulse width time

## Characteristics

Parameter	Symbol	Value	Units
Viewing Angle	(Typ.) $2\theta_{1/2}$	120 / 140	Degree
Forward voltage	(Typ.) $V_F$	3.4	V
Thermal resistance	-	11	°C/W
$\Delta V_F / \Delta T$	$\Delta V_F / \Delta T$	-2	mV/°C
CCT	$\lambda_d$	CW : 7000-15000 NW : 5000-6500 WW : 2900-3800	K
CRI	-	CW : 70 NW : 78 WW : 85	-
JEDEC Moisture Sensitivity	-	Level 2a <b>Floor Life</b> Conditions: $\leq 30^\circ C$ / 60% RH <b>Soak Requirements(Standard)</b> Time (hours): 120+1/-0 Conditions: $60^\circ C$ / 60% RH	-

### Notes:

1. CIE\_x/y tolerance:  $\pm 0.005$
2. Viewing angle is measured with an accuracy of  $\pm 5\%$ .
3. Color Rendering index CRI tolerance:  $\pm 2$ .



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## Luminous Flux Characteristic

Luminous Flux Characteristics at  $I_f=350\text{mA}$ ,  $T_j=25^\circ\text{C}$

Color	Wattage (W)	Group	Min. Luminous Flux(lm)	Max. Luminous Flux(lm)	Other Color available
Cool White	1	Z11	90	100	RED
		U15	100	110	GREEN
		U19	140	150	BLUE
Neutral White	1	U14	100	110	YELLOW
		U17	120	130	VIOLET PURPLE
		U19	140	150	UV 365-950NM
Warm White	1	U11	100	110	AMBER
		U16	120	130	PINK
		U19	140	150	

### Notes:

- Flux is measured with an accuracy of  $\pm 10\%$ .
- All Cool White, Neutral White, Warm White emitters are built with InGaN.
- Please select the model from our product list

## Voltage Bin Structure

Group	Min. Voltage (V)	Max. Voltage (V)
01	2.8	3.1
02	3.1	3.4
03	3.4	3.7
04	3.7	4.0
05	3.4	3.7

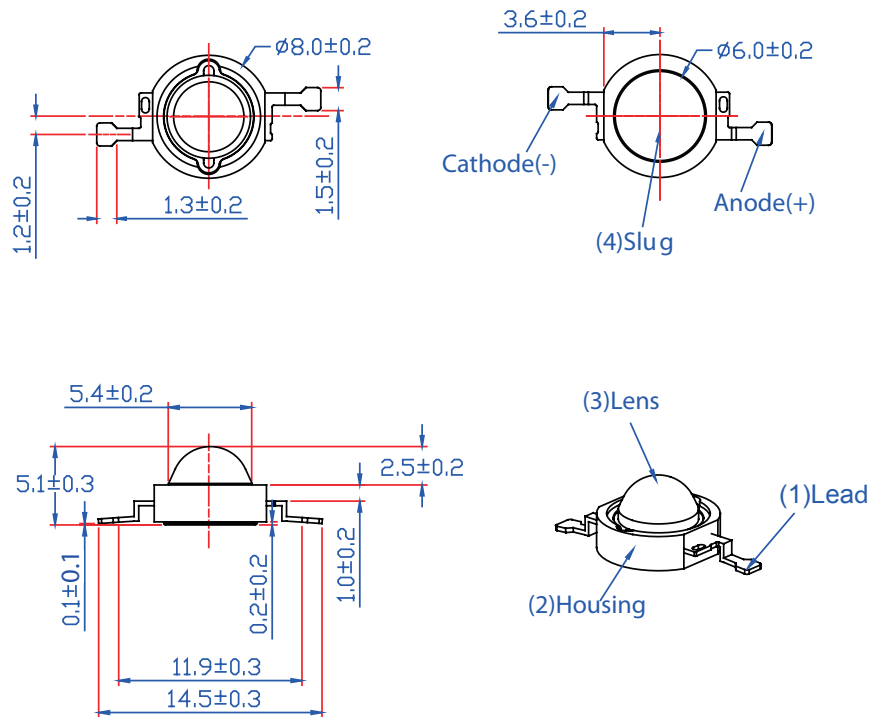
### Note:

Forward voltage measurement allowance is  $\pm 0.06\text{V}$ .



## Mechanical Dimensions

### Emitter Type Dimension



Emitter Color	Slug at the bottom of the electrode	Circuit
W/H/X	No electrode	

Edixeon A1 series dimensions and circuits

#### Notes:

1. All dimensions are in mm.
2. It is strongly recommended that the temperature of lead doesn't exceed 55°C.
3. Lambertian and side emitting series slug has polarity as anode.
4. It is important that the slug can't contact aluminum surface, It is strongly recommended that there should coat a uniform electrically isolated heat dissipation film on the aluminum surface.

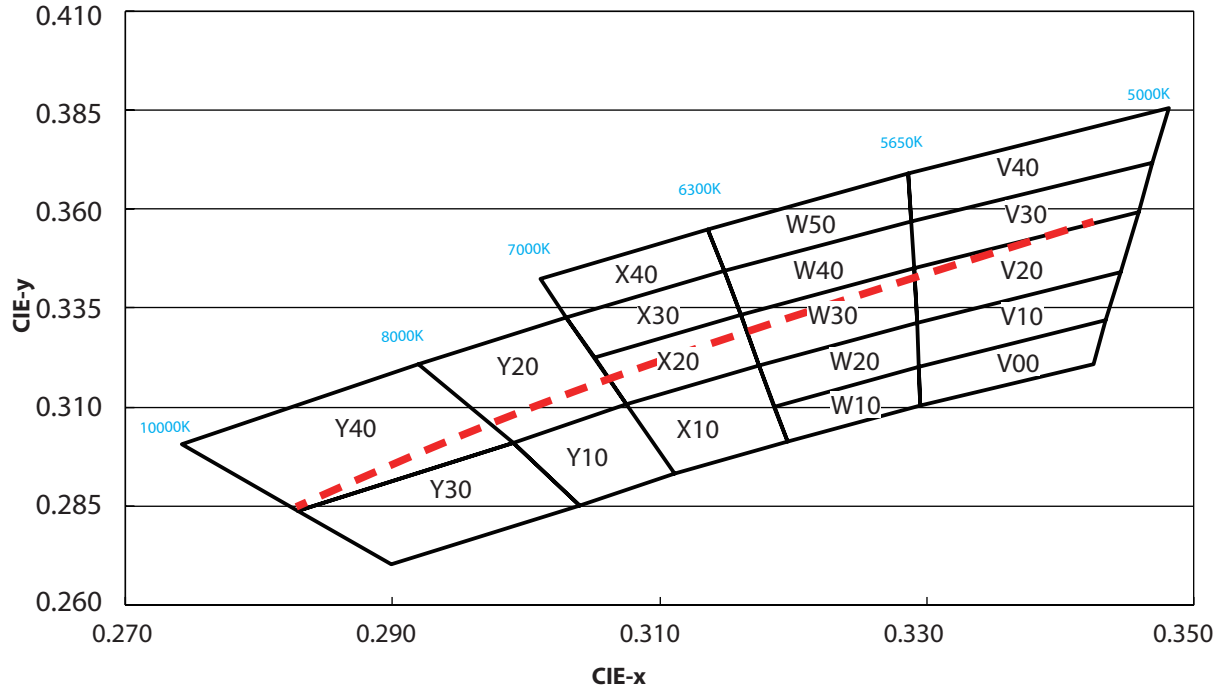


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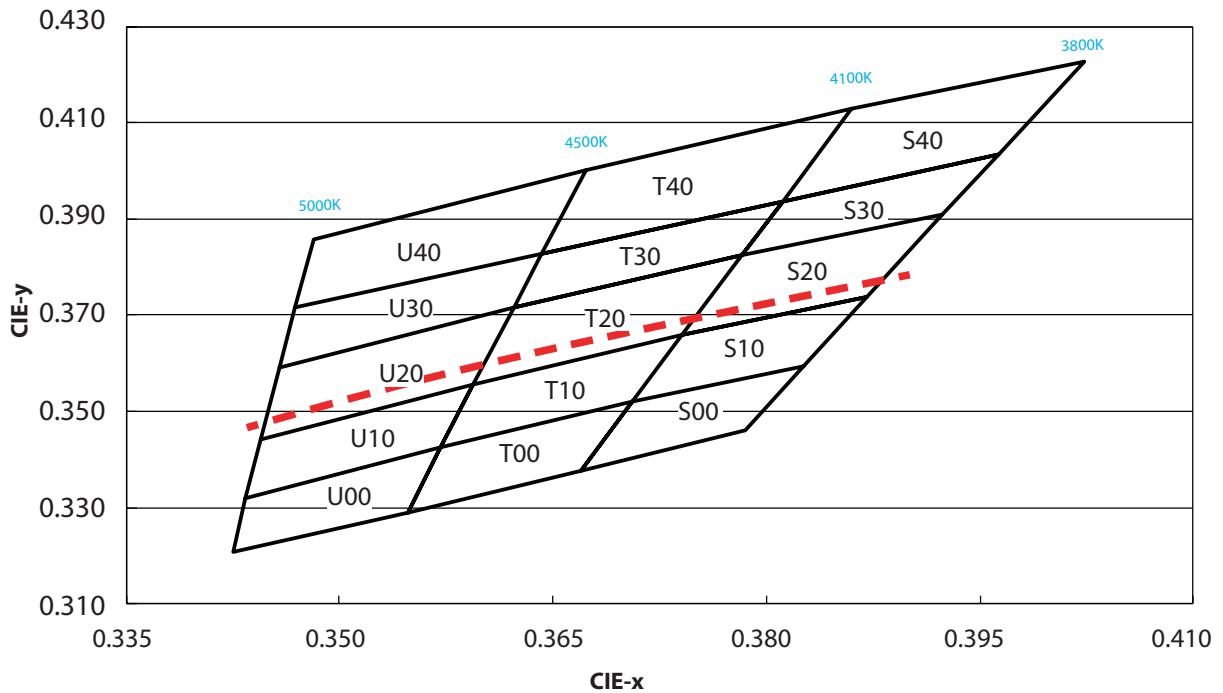
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## Color BIN code

### Cool White



### Neutral White

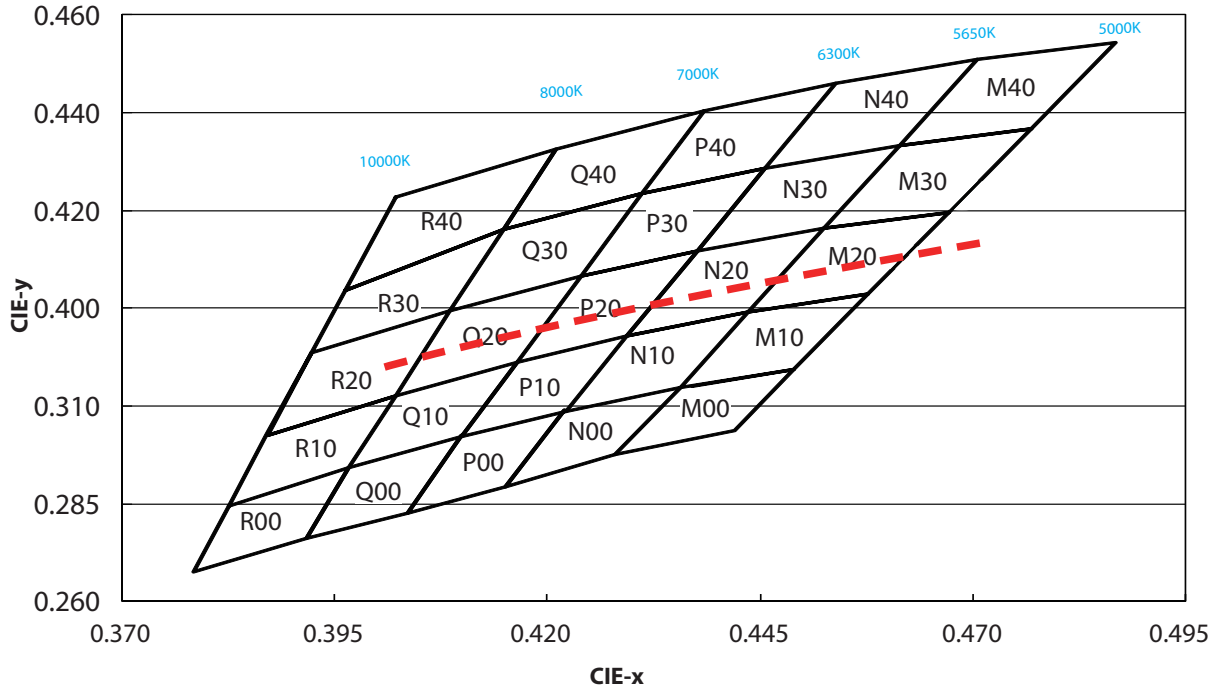




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## Warm White



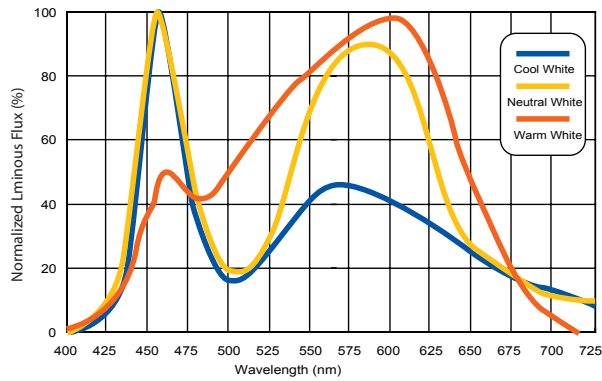


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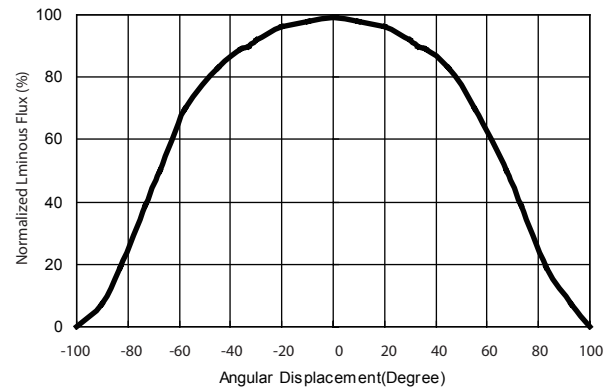
## Characteristic Curve

**Spectrum**



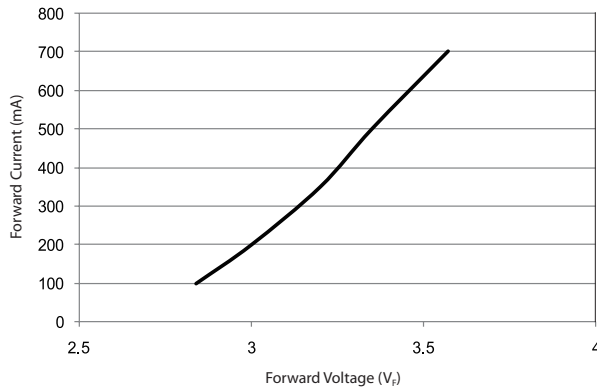
Cool White, Neutral White and Warm White color spectrum at  $T_j = 25^\circ\text{C}$  for Edixeon A1 series

**Radiation Diagram**



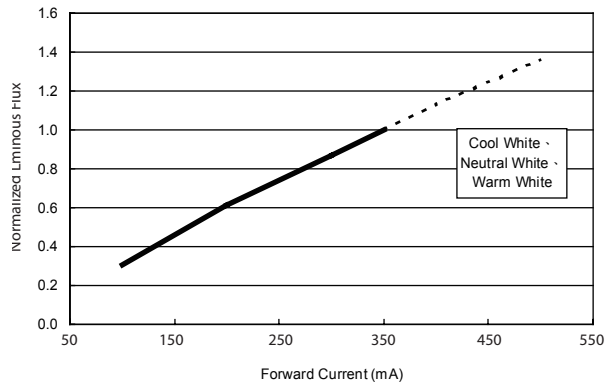
Lambertian at  $T_j = 25^\circ\text{C}$  for Cool White, Neutral White, and Warm White

**Forward Current vs. Forward Voltage**



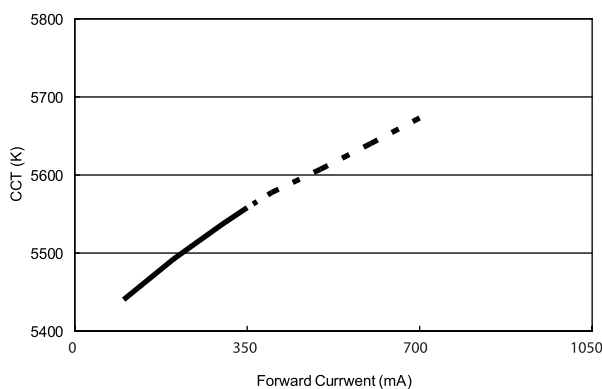
Forward current vs. forward voltage for 1W Edixeon A1 series

**Luminous Flux vs. Forward Current**

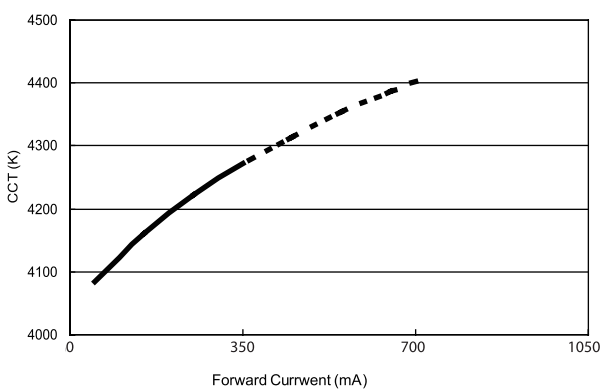


Forward current vs. luminous flux at  $T_j = 25^\circ\text{C}$  for 1W Edixeon A1 series

**CCT vs. Forward Current**



Forward current vs. CCT at  $T_j = 25^\circ\text{C}$  for P001L4 series Cool White



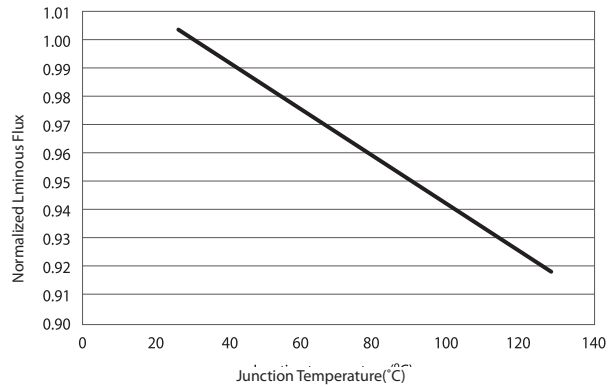
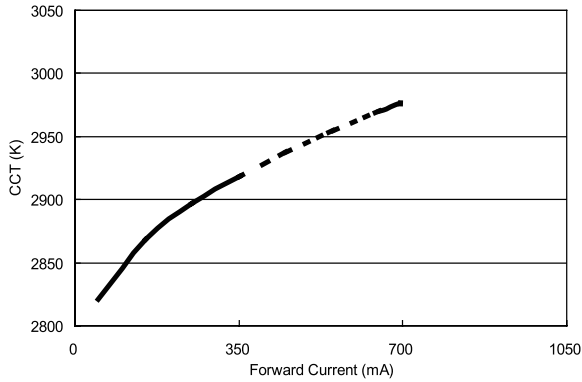
Forward current vs. CCT at  $T_j = 25^\circ\text{C}$  for P001L4 series Neutral White



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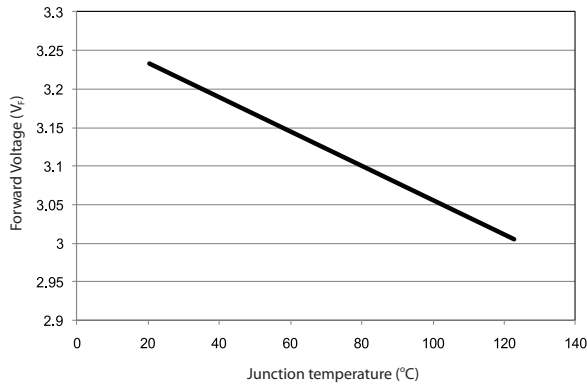
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## Luminous Flux vs. Junction temperature

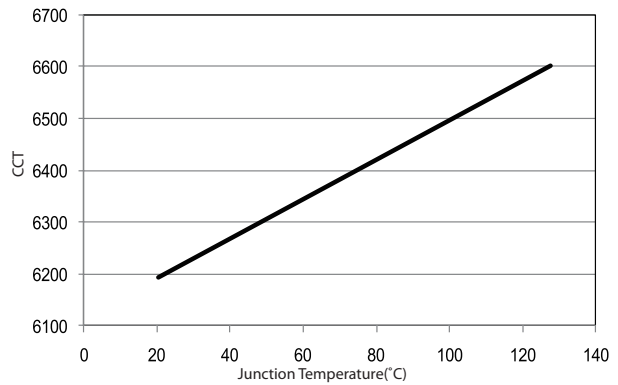


Forward current vs. CCT at T<sub>J</sub>=25°C for Edixeon A1 series Warm White Luminous flux vs. Junction temperature for White series.

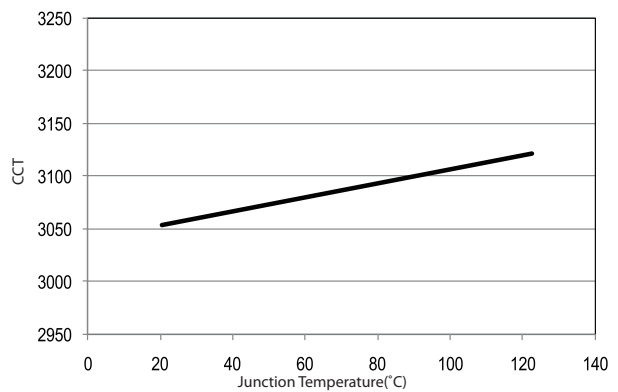
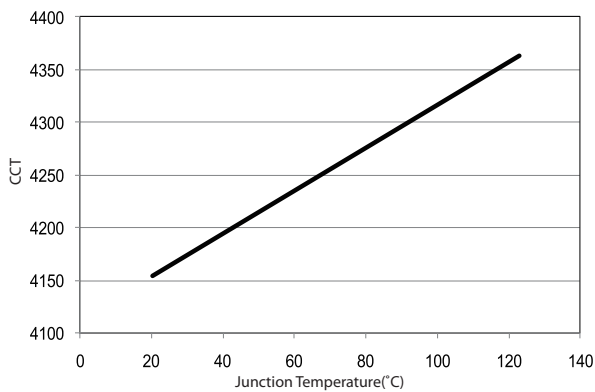
## Forward Voltage vs. Junction temperature



## CCT vs. Junction Temperature



Forward voltage vs. Junction temperature for 1W Edixeon A1 series CCT vs. Junction temperature for 1W Edixeon A1 series Cool white



CCT vs. Junction temperature for 1W P001L4 series Neutral white

CCT vs. Junction temperature for 1WP001L4 series Warm white

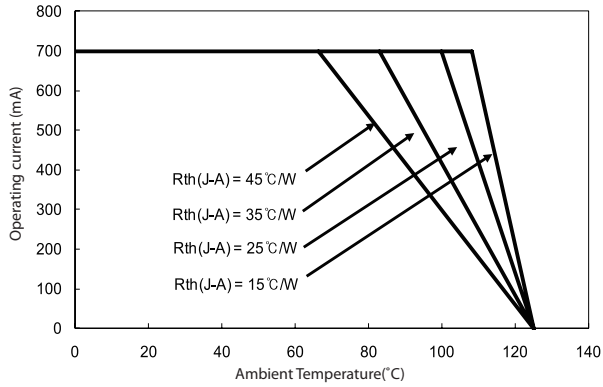




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## CCT vs. Junction Temperature



CCT vs. Junction temperature for 1W Edixeon A1 series Cool white

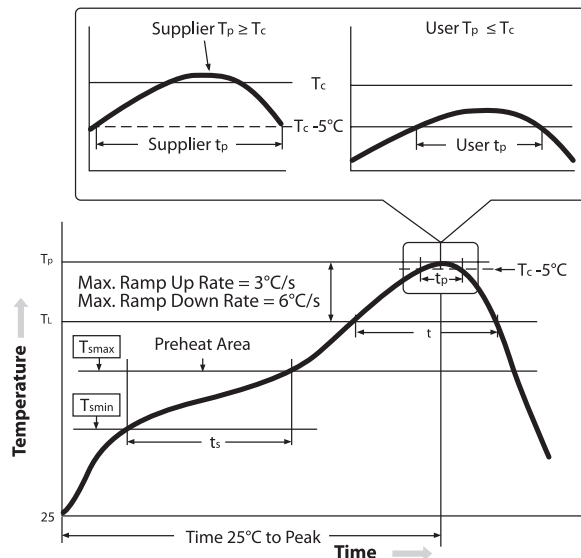


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## Reflow Profile

The following reflow profile is from IPC/JEDEC J-STD-020D which provided here for reference.



## Classification Reflow Profiles

Profile Feature	Low-Temp, Pb-Free Assembl
Preheat/Soak	
Temperature Min ( $T_{smin}$ )	$80^\circ\text{C}$
Temperature Max ( $T_{smax}$ )	$110^\circ\text{C}$
Time ( $t_s$ ) from ( $T_{smin}$ to $T_{smax}$ )	60-120 seconds
Ramp-up rate ( $T_L$ to $T_p$ )	$2^\circ\text{C/seconds max.}$
Liquidous temperature ( $T_L$ )	$138^\circ\text{C}$
Time ( $t_L$ ) maintained above $T_L$	20-50 seconds
Peak package body temperature ( $T_p$ ) <sup>(1)</sup>	$155^\circ\text{C} \sim 160^\circ\text{C}$
Classification temperature ( $T_c$ )	$160^\circ\text{C}$
Time ( $t_p$ ) within $5^\circ\text{C}$ of the specified classification temperature ( $T_c$ ) <sup>(2)</sup>	30 seconds
Average ramp-down rate ( $T_p$ to $T_{smax}$ )	$3^\circ\text{C/second max.}$
Time $25^\circ\text{C}$ to peak temperature	6minutes max

Notes:

1. Tolerance for peak profile temperature ( $T_p$ ) is defined as a supplier minimum and a user maximum.
2. Tolerance for time at peak profile temperature ( $t_p$ ) is defined as a supplier minimum and a user maximum.



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## About TDS Lighting

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TDS Lighting is a leading manufacturer of high power LED and a solution provider experienced in LDMS. LDMS is an integrated program derived from the four essential technologies in LED lighting applications- Thermal Management, Electrical Scheme, Mechanical Refinement, Optical Optimization, to provide customer with various LED components and modules. More Information about the company and our products can be found at [www.highpowerleddiode.com](http://www.highpowerleddiode.com)

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