

# 1W Z-POWER LED series Binning and Labeling(P4)



Z-Power series is designed for high current operation and high flux output applications. Z-Power LED's thermal management perform exceeds other power LED solutions.

#### Features

- Super high flux output and high luminance
- Designed for high current operation
- Low thermal resistance
- SMT solderability
- Lead free product
- RoHS compliant

It incorporates state of the art SMD design and Thermal emission material.

Z Power LED is ideal light sources for general illumination applications, custom designed solutions, automotive large LCD backlights

This application note provides binning and labeling information of Z-Power LED series.

It includes the Z-Power LED bins for luminous flux, wavelength (or x,y coordinates), correlated color temperature (CCT) for white and forward voltage.

#### Applications

- Mobile phone flash
- Automotive interior / Exterior lighting
- Automotive signal lighting
- Automotive forward lighting
- Torch
- Architectural lighting
- LCD TV / Monitor backlight
- Projector light source
- Traffic signals
- Task lighting
- Decorative / Pathway lighting
- Remote / Solar powered lighting
- Household appliances

## Full Code of Z-Power LED Series

Full code form :  $X_1 X_2 X_3 X_4 X_5 X_6 - X_7 X_8 - X_9 X_{10} X_{11} X_{12} X_{13}$

### 1. Part Number

- $X_1$  : Color
- $X_2$  : Z-Power LED series number
- $X_3$  : LENS type
- $X_4$  : Chip quantity (or Power Dissipation)
- $X_5$  : Package outline size
- $X_6$  : Type of PCB

### 2. Internal Number


- $X_7$
- $X_8$

### 3. Code Labeling

- $X_9$  : Luminous flux (or Radiant flux for royal blue)
- $X_{10} X_{11} X_{12}$  : Dominant wavelength (or x,y coordinates rank code)
- $X_{13}$  : Forward voltage

### 4. Sticker Diagram on Reel & Aluminum Vinyl Bag

PART NO. :  $X_1 X_2 X_3 X_4 X_5 X_6 - X_7 X_8$   
QUANTITY : ###  
LOT NUMBER : #####  
BIN CODE :  $X_9 X_{10} X_{11} X_{12} X_{13}$



For more information about binning and labeling, refer to the Application Note -1



## Part Number

Part numbers specify color, Z-Power series, Lens type, P<sub>d</sub>, size and PCB type of Z-Power LED.

- Example: X<sub>1</sub> X<sub>2</sub> X<sub>3</sub> X<sub>4</sub> X<sub>5</sub> X<sub>6</sub> - X<sub>7</sub> X<sub>8</sub> <sup>1)</sup>

X <sub>1</sub>	Color
W	Pure White
N	Warm White
S	Natural White
D	Royal Blue
B	Blue
C	Cyan
G	Green
A	Amber
R	Red
F	Full Color (7-color)

X <sub>2</sub>	Z-Power Series
1	P1
3	P3
5	P5

X <sub>3</sub>	LENS Type
0	PI Flat Type
1	PI Inner Lens Type <sup>2)</sup>
2	P3 Dome Type <sup>3)</sup>
3	P3 Side Type <sup>4)</sup>

Note:

- 1) X<sub>7</sub>, X<sub>8</sub> is a internal code number
- 2) View angle : white 70° , other colors 40°
- 3) Hemispherical dome type
- 4) View angle : -80° ~ 80°



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<b>X<sub>4</sub></b>	<b>Chip Quantity (or Power Dissipation)</b>
1	1 chip (1W)
2	2 chip (2.5W)
3	Full Color (7-color)
4	4 chip (5W)

<b>X<sub>5</sub></b>	<b>Package Outline Size</b>
9	9 X 9 mm
8	D 8 mm

<b>X<sub>6</sub></b>	<b>Metal PCB Type</b>
0	Emitter Only
1	Rectangular
2	Star



## Code Labeling

### 1. Luminous Flux Bins

- Luminous flux bin structure for pure white, warm white, blue, cyan, green, amber and red Z-Power.

Bin Code	Luminous Flux [lm]
J	6 ~ 8.5
K	8.5 ~ 11.0
L	11.0 ~ 14.5
M	14.5 ~ 19.0
O	19.0 ~ 24.5
P	24.5 ~ 32.0
Q	32.0 ~ 41.5
R	41.5 ~ 54.0
S	54.0 ~ 70.0
T	70.0 ~ 91.0
U	91.0 ~ 118.5
V	118.5 ~ 154.0
W	154.0 ~ 200.0
X	200.0 ~ 260.0
Y	260.0 ~ 340.0

The list explains the photometric luminous flux bins for Z-Power LED. Z-Power LED are tested and binned by photometric luminous flux. Not all bins are available in all colors.

Tolerance :  $\pm 10\%$  of Luminous flux value

## 2. Pure White CIE

Pure white product tested and binned by x,y coordinates and CCT

- Pure white bin structure

Bin	CHR_X	CHR_Y	CCT(K)	Bin	CHR_X	CHR_Y	CCT(K)
SYP	0.293	0.305	9000	SWP	0.329	0.331	6050
	0.283	0.284			0.317	0.320	
	0.290	0.270			0.318	0.310	
	0.300	0.285			0.329	0.320	
SYN	0.304	0.327	7500	SVM	0.329	0.325	5350
	0.293	0.305			0.348	0.385	
	0.300	0.285			0.329	0.369	
	0.310	0.300			0.329	0.362	
	0.308	0.311			0.329	0.357	
	0.305	0.322			0.347	0.372	
SXN	0.315	0.344	6700	SVN	0.347	0.372	5350
	0.304	0.327			0.329	0.357	
	0.305	0.322			0.329	0.345	
	0.316	0.333			0.346	0.359	
SX0	0.316	0.333	6700	SV0	0.346	0.359	5350
	0.305	0.322			0.329	0.345	
	0.308	0.311			0.329	0.331	
	0.317	0.32			0.329	0.325	
SXP	0.317	0.320	6700	SUM	0.344	0.344	4800
	0.308	0.311			0.345	0.351	
	0.310	0.300			0.367	0.400	
	0.318	0.310			0.348	0.385	
SWN	0.329	0.362	6050	SUN	0.347	0.372	4800
	0.315	0.344			0.364	0.383	
	0.316	0.333			0.364	0.383	
	0.329	0.345			0.347	0.372	
	0.329	0.357			0.346	0.359	
SW0	0.329	0.345	6050		0.345	0.351	
	0.316	0.333			0.362	0.372	
	0.317	0.320					
	0.329	0.331					

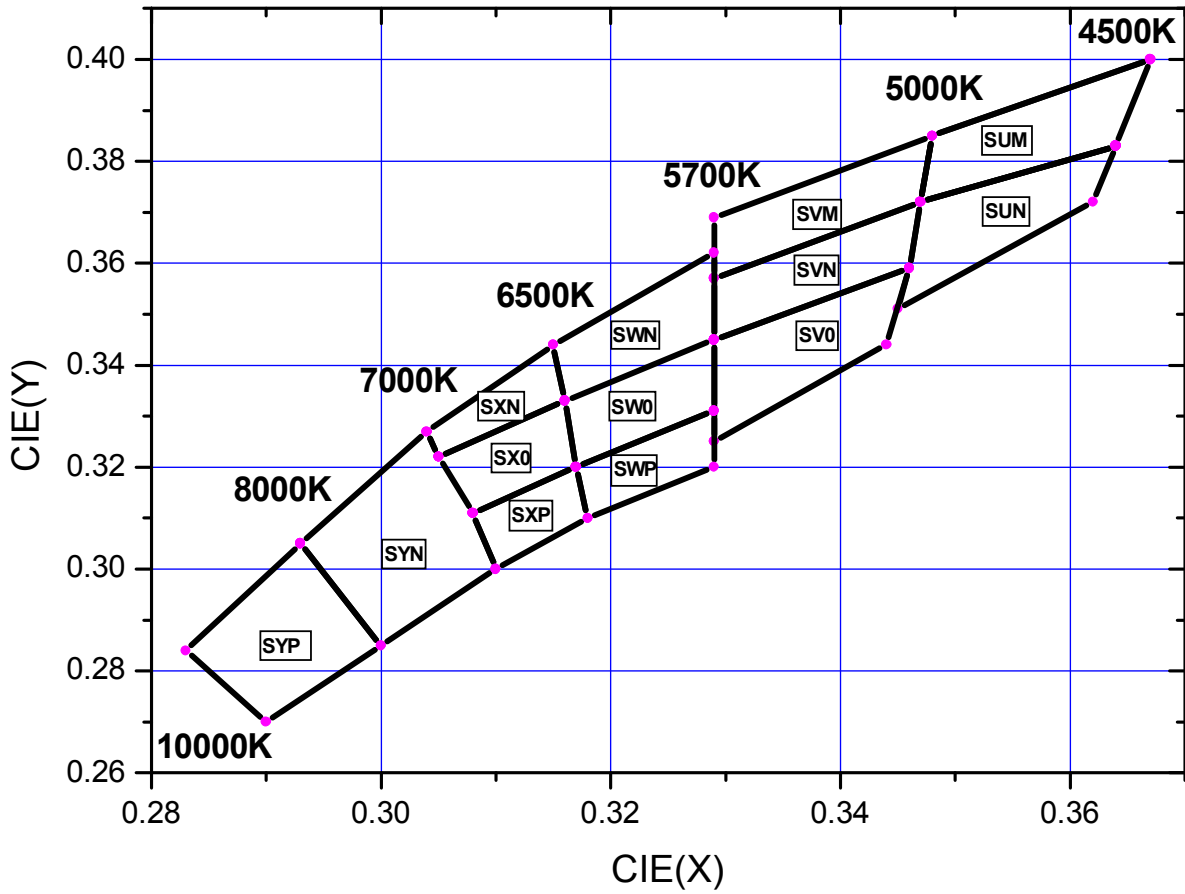
Tolerance

Color coordinate :  $\pm 0.005$

CCT :  $\pm 5\%$  of value



- Pure white binning structure graphical representation



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### 3. Forward Voltage Bins

Bin Code	Forward Voltage [V]
D	2.00 ~ 2.25
E	2.25 ~ 2.50
F	2.50 ~ 2.75
G	2.75 ~ 3.00
H	3.00 ~ 3.25
I	3.25 ~ 3.50
J	3.50 ~ 3.75
K	3.75 ~ 4.00
L	4.00 ~ 4.25
M	4.25 ~ 4.50

Tolerance :  $\pm 0.06V$

## 1W Order Code (P4)

Z Power LED has an order code, use it as follows to purchase.

- Example: W10190 – 1A
  - W10190 : Part Number
  - 1A : Order code

You can select PCB type, Lens type and Z-Power LED series number as part number.

### 1. Pure White (1A,1B)

Standard Order Codes for pure white				
Order Code	LF	CC	V <sub>F</sub>	Bin Codes
Part No. – 1A	S	SXN	H I J K	SSXNH~SSXNK
		SWN		SSWNH~SSWNK
		SX0		SSX0H~SSX0K
		SW0		SSW0H~SSW0K
	T	SXN		TSXNH~TSXNK
		SWN		TSWNH~TSWNK
		SX0		TSX0H~TSX0K
		SW0		TSW0H~TSW0K
Part No. – 1B	U	SXN	H I J K	USXNH~USXNK
		SWN		USWNH~USWNK
		SX0		USX0H~USX0K
		SW0		USW0H~USW0K
	V*	SXN		VSXNH~VSXNK
		SWN		VSWNH~VSWNK
		SX0		VSX0H~VSX0K
		SW0		VSW0H~VSW0K

\* : Not yet available



## 1W Order Code (P4)

### 1. Pure White (1C,1D,1E,1F)

Standard Order Codes for pure white				
Order Code	LF	CC	V <sub>F</sub>	Bin Codes
Part No. - 1C	S	SX0	H I J K	SSX0H~SSX0K
		SW0		SSW0H~SSW0K
		SXP		SSXPH~SSXPK
		SWP		SSWPH~SSWPK
	T	SX0		TSX0H~TSX0K
		SW0		TSW0H~TSW0K
		SXP		TSXPH~TSXPK
		SWP		TSWPH~TSWPK
Part No. - 1D	U	SX0	H I J K	USX0H~USX0K
		SW0		USW0H~USW0K
		SXP		USXPH~USXPK
		SWP		USWPH~USWPK
	V*	SX0		VSX0H~VSX0K
		SW0		VSW0H~VSW0K
		SXP		VSXPH~VSXPK
		SWP		VSWPH~VSWPK
Part No. - 1E	S	SYP	H I J K	SSYPH~SSYPK
		SYN		SSYNH~SSYNK
	T	SYP		TSYPH~TSYPK
		SYN		TSYNH~TSYNK
Part No. - 1F	U	SYP	H I J K	USYPH~USYPK
		SYN		USYNH~USYNK
	V*	SYP		VSYPH~VSYPK
		SYN		VSYNH~VSYNK

\* : Not yet available



## 1W Order Code (P4)

### 1. Pure White (1G,1H,1I,1J)

Standard Order Codes for pure white				
Order Code	LF	CC	V <sub>F</sub>	Bin Codes
Part No. - 1G	S	SVM	H I J K	SSVMH~SSVMK
		SVN		SSVNH~SSVNK
		SV0		SSV0H~SSV0K
	T	SVM		TSVMH~TSVMK
		SVN		TSVNH~TSVNK
		SV0		TSV0H~TSV0K
Part No. - 1H	U	SVM	H I J K	USVMH~USVMK
		SVN		USVNH~USVNK
		SV0		USV0H~USV0K
	V*	SVM		VSVMH~VSVMK
		SVN		VSVNH~VSVNK
		SV0		VSV0H~VSV0K
Part No. - 1I	S	SUM	H I J K	SSUMH~SSUMK
		SUN		SSUNH~SSUNK
		SVN		SSVNH~SSVNK
	T	SUM		TSUMH~TSUMK
		SUN		TSUNH~TSUNK
		SVN		TSVNH~TSVNK
Part No. - 1J	U	SUM	H I J K	USUMH~USUMK
		SUN		USUNH~USUNK
		SVN		USVNH~USVNK
	V*	SUM		VSUMH~VSUMK
		SUN		VSUNH~VSUNK
		SVN		VSVNH~VSVNK

\* : Not yet available



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