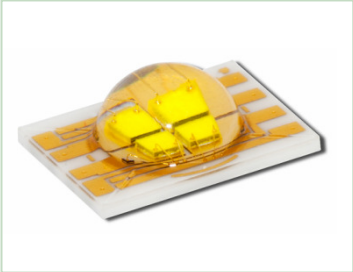
Technical Data Sheet

Acriche
semiconductor eco lighting

SEOUL SEMICONDUCTOR

Specification

SZW07A0A



Features

- Super high Flux output and high Luminance
- Designed for high current operation
- SMT solderable
- Lead Free product
- RoHS compliant

Description

The Z-Power series is designed for high current operation and high flux output applications.
It incorporates state of the art SMD design and low thermal resistant material.
The Z Power LED is ideal light sources for general illumination applications, custom designed solutions, automotive, large LCD backlights and high performance torches.

Applications

- General Torch
- Architectural lighting
- Task lighting
- Decorative / Pathway lighting
- Remote / Solar powered lighting

* The appearance and specifications of the product can be changed for improvement without notice.

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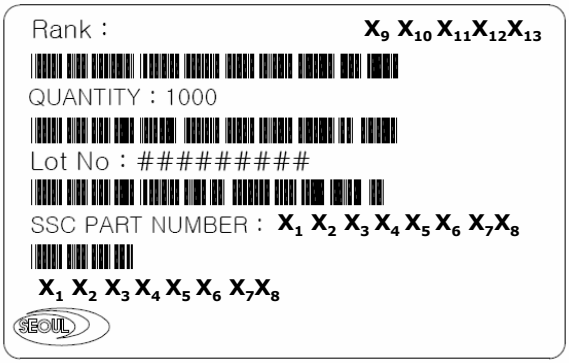
서식번호 : SSC- QP- 7- 07- 25 (Rev.00)

Part Number of Z7 (SZW07A0A)

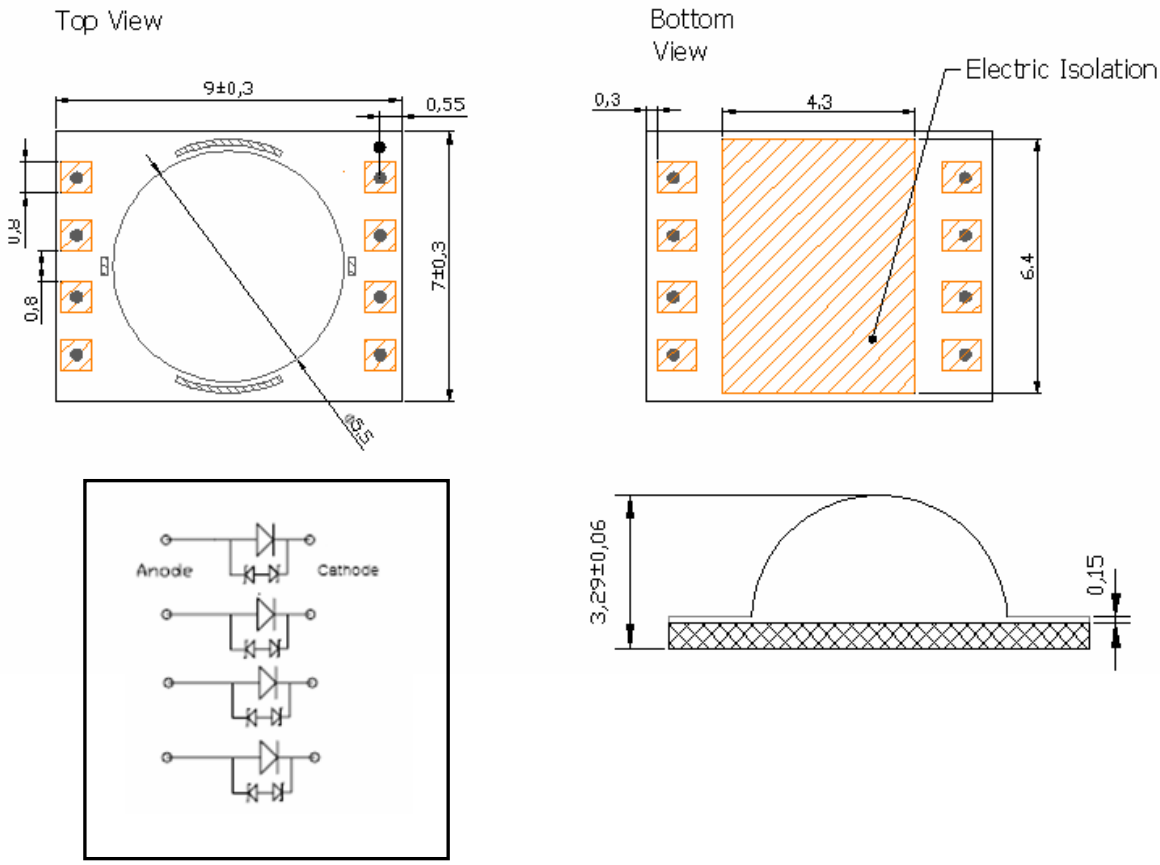
1. Part Number Form : $X_1X_2X_3X_4X_5X_6X_7X_8 – X_9X_{10}X_{11}X_{12}X_{13}$

X_1	**Company**	**S**	SSC
X_2	**Package series**	**Z**	Z-Power
X_3	**Color**	**W**	White
X_4		**0**	
X_5	**Z-Power series number**	**7**	Z7 series
X_6	**Lens type**	**A**	Dome-Wide
X_7	**PCB type**	**0**	Emitter
X_8	**Revision No.**	**A**	Rev0
X_9X_{10}	**Luminous flux**	**-**	-
$X_{11}X_{12}$	**Color bin**	**-**	-
X_{13}	**Forward Voltage**	**-**	-

2. Sticker Diagram on Reel & Aluminum Vinyl Bag



Outline dimensions



Notes :

[1] All dimensions are in millimeters.
[2] Scale : none
[3] Undefined tolerance is ± 0.2mm

Characteristics of Z7 (SZW07A0A)

1. Pure white

1-1 Electro-Optical characteristics at 1400mA

Parameter	Symbol	Value			Unit
		Min	Typ	Max	
Luminous Flux [1]	Φ_V [2]		400		lm
Correlated Color Temperature [3]	CCT	-	6000	-	K
CRI	R_a		70	-	-
Forward Voltage [4]	V_F		3.3	4	V
Thermal resistance (J to S) [6]	$R\theta_{J-S}$		2.5		K/W
View Angle	2Θ ½		130		deg.

1-2 Absolute Maximum Ratings

Parameter	Symbol	Value	Unit
Forward Current	I_F	2800(each chip 700mA)	mA
Reverse Voltage	V	5	V
Power Dissipation	P_d	11	W
Junction Temperature	T_j	135	℃
Operating Temperature	T_{opr}	-40 ~ +85	℃
Storage Temperature	T_{stg}	-40 ~ +100	℃
ESD Sensitivity [5]	-	± 10,000V HBM	-

*Notes :

[1] SSC maintains a tolerance of ±10% on flux and power measurements.

[2] Φ_V is the total luminous flux output as measured with an integrating sphere.

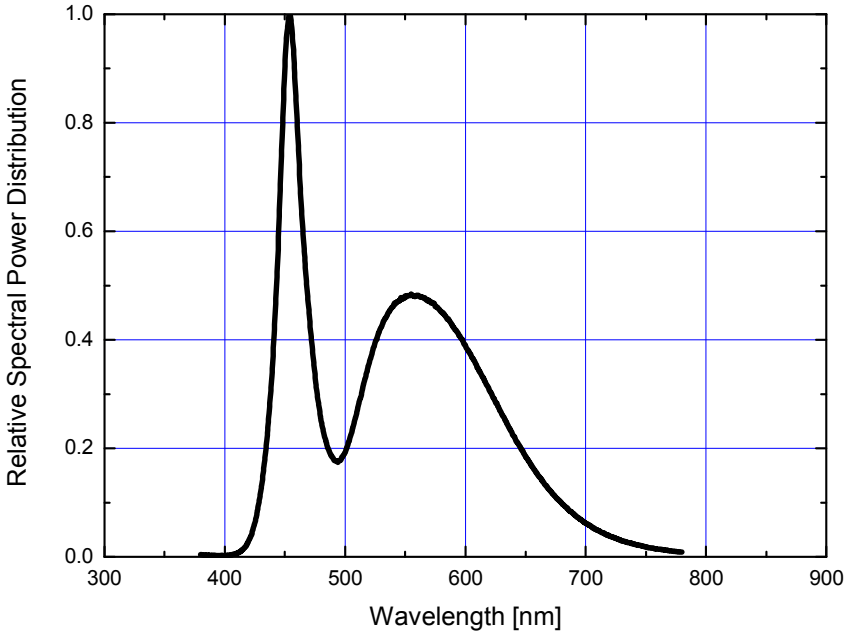
[3] Correlated Color Temperature is derived from the CIE 1931 Chromaticity diagram. CCT ±5% tolerance.

[4] Tolerance is ±0.06V on forward voltage measurements

[5] A zener diode is included to protect the product from ESD.

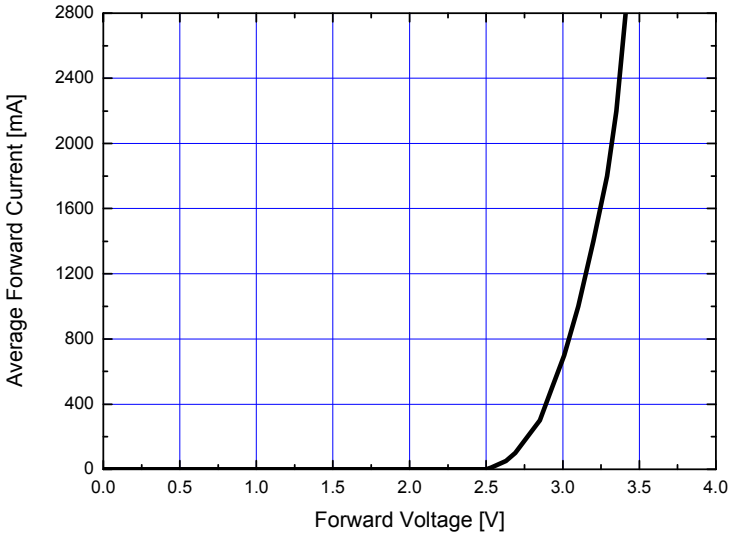
[6] At thermal Resistance, J to S means junction to solder point on metal PCB.

Color Spectrum, Ta=25℃

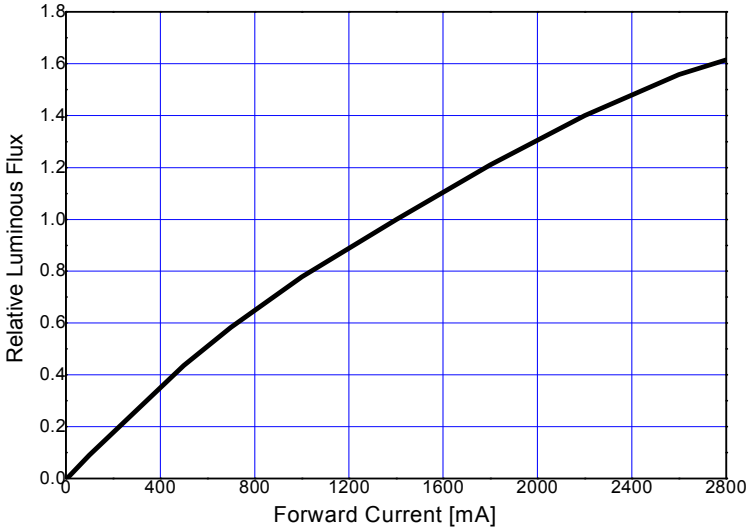


Forward Current Characteristics

Forward Voltage vs. Forward Current, Ta=25℃

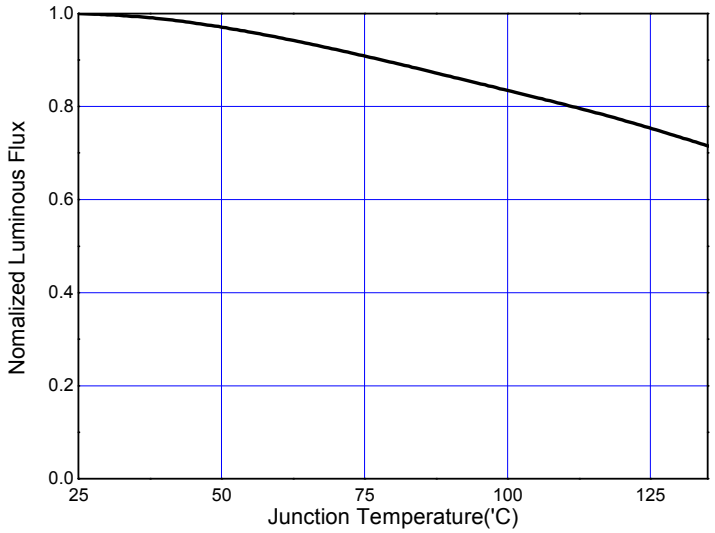


Forward Current vs. Normalized Relative Luminous Flux, Ta=25℃

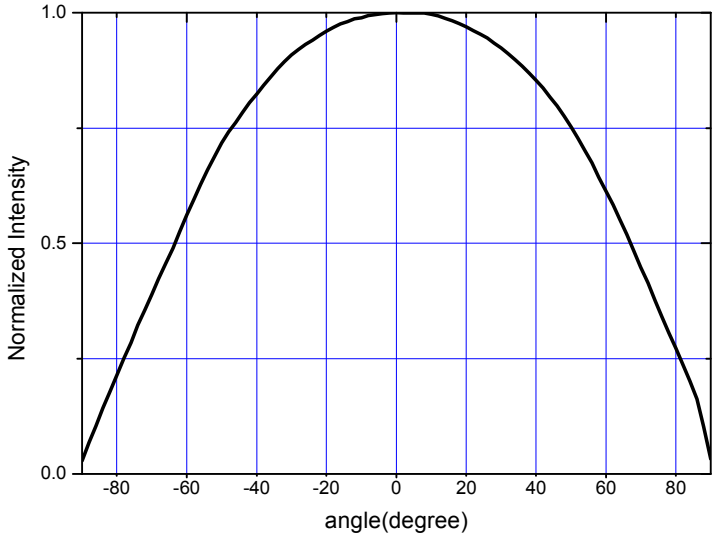


Junction Temperature Characteristics

Relative Light Output vs. Junction Temperature at IF=1400mA

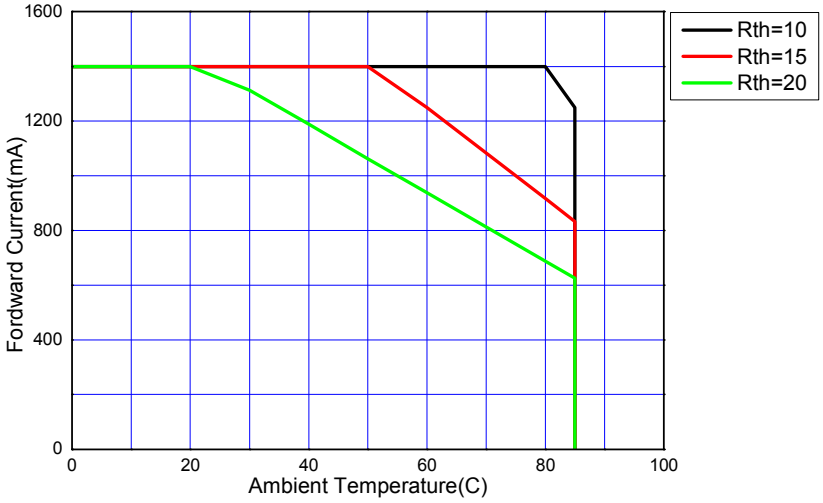


Radiation pattern

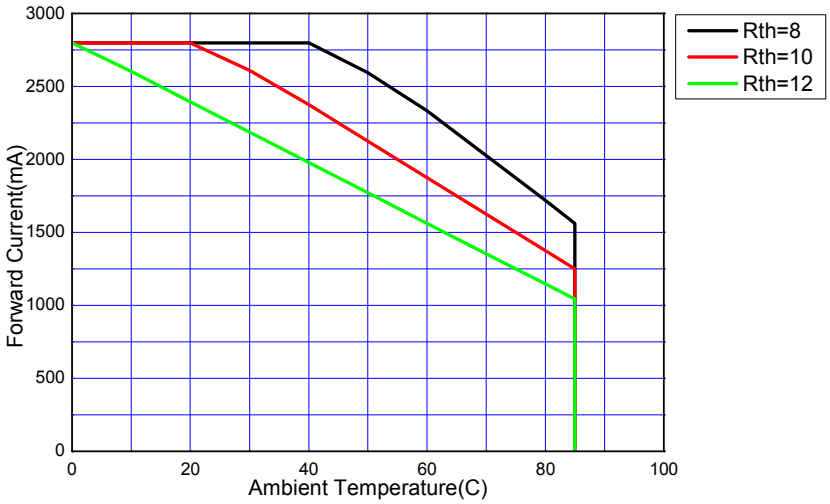


Maximum Forward Current vs. Ambient Temperature

Max Current = 1400mA

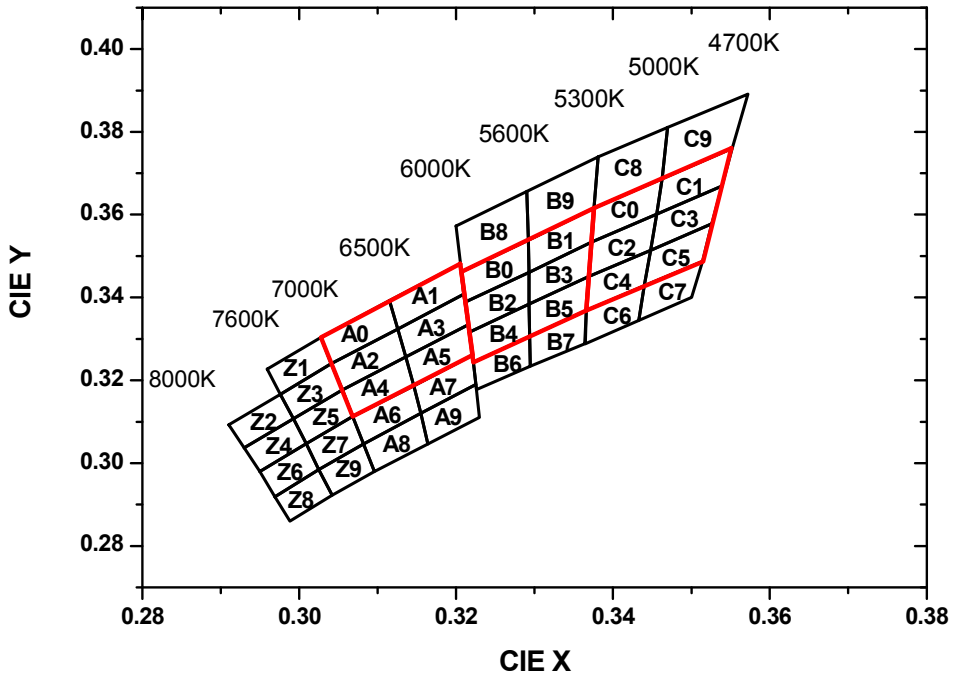


Max Current = 2800mA



Binning Structure

IF=1400mA, Ta=25℃



*** Note**

Red area is ANSI chromaticity.

Color & Binning

● COLOR RANK <IF=1400mA, Ta=25℃>

	CIE X	CIE Y		CIE X	CIE Y
Z8	0.2969	0.2919	Z9	0.3025	0.2985
	0.2988	0.2860		0.3042	0.2922
	0.3042	0.2922		0.3096	0.2980
	0.3025	0.2985		0.3082	0.3046
	0.2969	0.2919		0.3025	0.2985
Z6	0.2950	0.2980	Z7	0.3009	0.3047
	0.2969	0.2919		0.3025	0.2985
	0.3025	0.2985		0.3082	0.3046
	0.3009	0.3047		0.3068	0.3113
	0.2950	0.2980		0.3009	0.3047
Z4	0.2930	0.3037	Z5	0.2993	0.3107
	0.2950	0.2980		0.3009	0.3047
	0.3009	0.3047		0.3068	0.3113
	0.2993	0.3107		0.3055	0.3177
	0.2930	0.3037		0.2993	0.3107
Z2	0.2910	0.3093	Z3	0.2976	0.3166
	0.2930	0.3037		0.2993	0.3107
	0.2993	0.3107		0.3055	0.3177
	0.2976	0.3166		0.3041	0.3240
	0.2910	0.3093		0.2976	0.3166
			Z1	0.2959	0.3227
				0.2976	0.3166
				0.3041	0.3240
				0.3028	0.3304
				0.2959	0.3227

* Measurement Uncertainty of the Color Coordinates : ± 0.01

● COLOR RANK

<IF=1400mA, Ta=25℃>

	CIE X	CIE Y		CIE X	CIE Y
A8	0.3082	0.3046	A9	0.3155	0.3120
	0.3096	0.2980		0.3164	0.3046
	0.3164	0.3046		0.3230	0.3110
	0.3155	0.3120		0.3225	0.3190
	0.3082	0.3046		0.3155	0.3120
A6	0.3068	0.3113	A7	0.3146	0.3187
	0.3082	0.3046		0.3155	0.3120
	0.3155	0.3120		0.3225	0.3190
	0.3146	0.3187		0.3221	0.3261
	0.3068	0.3113		0.3146	0.3187
A4	0.3055	0.3177	A5	0.3136	0.3256
	0.3068	0.3113		0.3146	0.3187
	0.3146	0.3187		0.3221	0.3261
	0.3136	0.3256		0.3216	0.3334
	0.3055	0.3177		0.3136	0.3256
A2	0.3041	0.3240	A3	0.3126	0.3324
	0.3055	0.3177		0.3136	0.3256
	0.3136	0.3256		0.3216	0.3334
	0.3126	0.3324		0.3210	0.3408
	0.3041	0.3240		0.3126	0.3324
A0	0.3028	0.3304	A1	0.3115	0.3393
	0.3041	0.3240		0.3126	0.3324
	0.3126	0.3324		0.3210	0.3408
	0.3115	0.3393		0.3205	0.3481
	0.3028	0.3304		0.3115	0.3393

* Measurement Uncertainty of the Color Coordinates : ± 0.01

● COLOR RANK <IF=1400mA, Ta=25℃>

	CIE X	CIE Y		CIE X	CIE Y
B6	0.3222	0.3243	B7	0.3294	0.3306
	0.3226	0.3178		0.3295	0.3234
	0.3295	0.3234		0.3364	0.3288
	0.3294	0.3306		0.3366	0.3369
	0.3222	0.3243		0.3294	0.3306
B4	0.3217	0.3316	B5	0.3293	0.3384
	0.3222	0.3243		0.3294	0.3306
	0.3294	0.3306		0.3366	0.3369
	0.3293	0.3384		0.3369	0.3451
	0.3217	0.3316		0.3293	0.3384
B2	0.3212	0.3389	B3	0.3293	0.3461
	0.3217	0.3316		0.3293	0.3384
	0.3293	0.3384		0.3369	0.3451
	0.3293	0.3461		0.3373	0.3534
	0.3212	0.3389		0.3293	0.3461
B0	0.3207	0.3462	B1	0.3292	0.3539
	0.3212	0.3389		0.3293	0.3461
	0.3293	0.3461		0.3373	0.3534
	0.3292	0.3539		0.3376	0.3616
	0.3207	0.3462		0.3292	0.3539
B8	0.3200	0.3572	B9	0.3290	0.3656
	0.3207	0.3462		0.3292	0.3539
	0.3292	0.3539		0.3376	0.3616
	0.3290	0.3656		0.3381	0.3740
	0.3200	0.3572		0.3290	0.3656

● COLOR RANK <IF=1400mA, Ta=25℃>

	CIE X	CIE Y		CIE X	CIE Y
C6	0.3366	0.3369	C7	0.3440	0.3428
	0.3364	0.3288		0.3433	0.3345
	0.3433	0.3345		0.3500	0.3400
	0.3440	0.3428		0.3514	0.3487
	0.3366	0.3369		0.3440	0.3428
C4	0.3369	0.3451	C5	0.3448	0.3514
	0.3366	0.3369		0.3440	0.3428
	0.3440	0.3428		0.3514	0.3487
	0.3448	0.3514		0.3526	0.3578
	0.3369	0.3451		0.3448	0.3514
C2	0.3373	0.3534	C3	0.3456	0.3601
	0.3369	0.3451		0.3448	0.3514
	0.3448	0.3514		0.3526	0.3578
	0.3456	0.3601		0.3539	0.3669
	0.3373	0.3534		0.3456	0.3601
C0	0.3376	0.3616	C1	0.3463	0.3687
	0.3373	0.3534		0.3456	0.3601
	0.3456	0.3601		0.3539	0.3669
	0.3463	0.3687		0.3552	0.3760
	0.3376	0.3616		0.3463	0.3687
C8	0.3381	0.3740	C9	0.3470	0.3810
	0.3470	0.3810		0.3572	0.3891
	0.3463	0.3687		0.3552	0.3760
	0.3376	0.3616		0.3463	0.3687
	0.3381	0.3740		0.3470	0.3810

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Luminous Flux & Forward Voltage

RANK	LF (lm)	Condition
Z1	340~ 390	1400mA
Z2	390~ 440	
A1	440~ 490	

Rank	V_F [V]	Condition
G	2.75~ 3.0	1400mA
H	3.0~ 3.25	
I	3.25~ 3.50	
J	3.50~ 3.75	
K	3.75~ 4.0	

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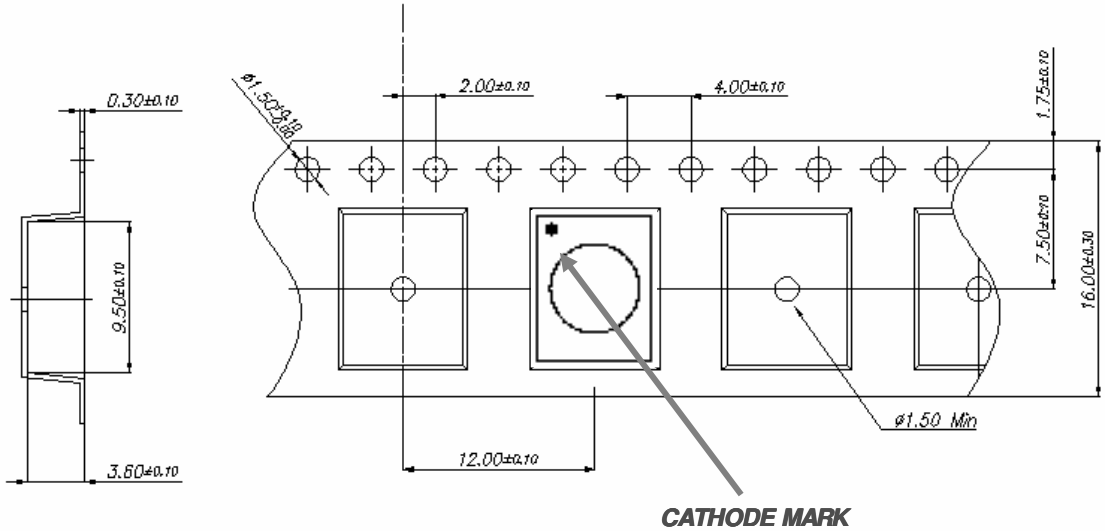
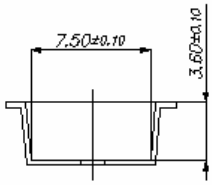
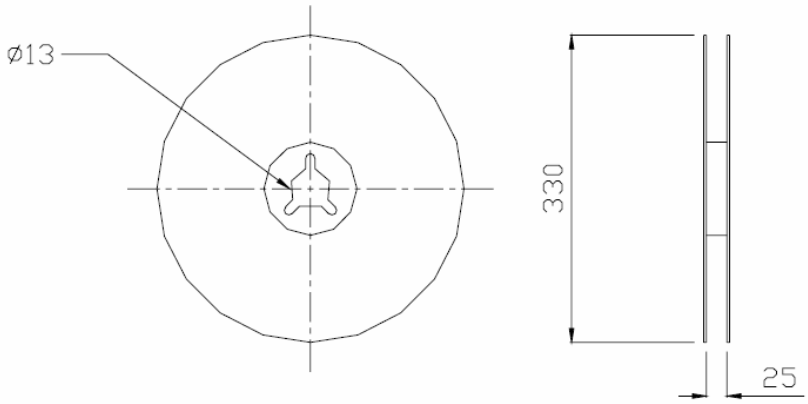
Emitter Carrier & Reel Packaging







REEL DIMENSION

* Notes :

[1] The number of loaded products in the reel is 500ea
[2] All dimensions are in millimeters (tolerance : ± 0.2)
[3] Scale none

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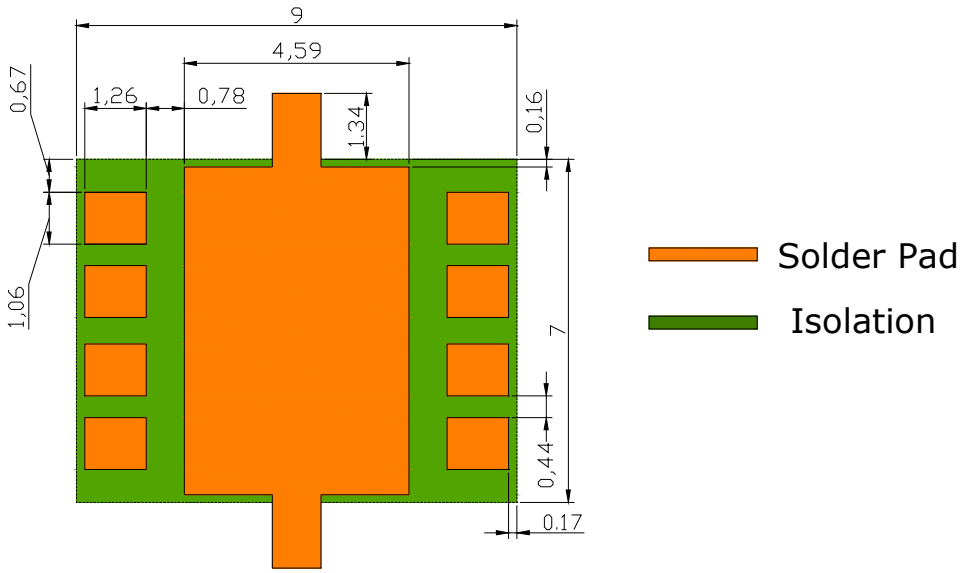
Recommended solder pad



Notes :

[1] All dimensions are in millimeters.
[2] Scale : none
[3] This drawing without tolerances are for reference only
[4] Recommended solder paste height : ≥ 30um

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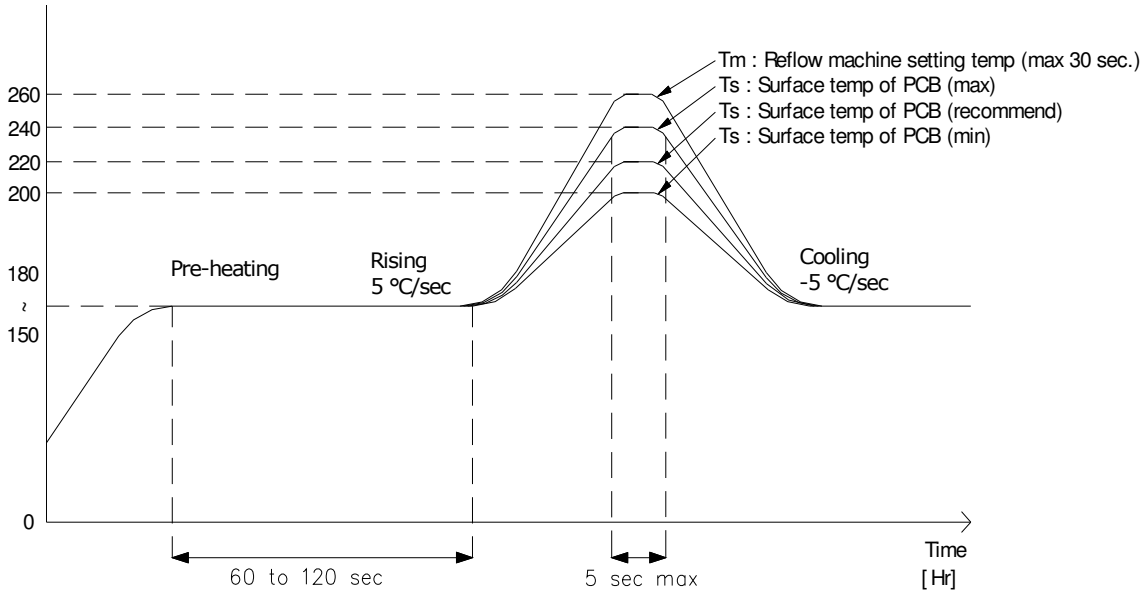
Reflow Soldering Conditions / Profile



*** Caution**

1. **Reflow soldering should not be done more than one time.**
2. **Repairs should not be done after the LEDs have been soldered. When repair is unavoidable, suitable tools must be used.**
3. **Die slug is to be soldered.**
4. **When soldering, do not put stress on the LEDs during heating.**
5. **After soldering, do not warp the circuit board.**
6. **Recommend to use a convection type reflow machine with 7 ~ 8 zones.**

Precaution for use

- Storage

  To avoid the moisture penetration, we recommend storing Z Power LEDs in a dry box with a desiccant . The recommended storage temperature range is 5C to 30C and a maximum humidity of 50%.

- Use Precaution after Opening the Packaging

  Use proper SMD techniques when the LED is to be soldered dipped as separation of the lens may affect the light output efficiency.

  Pay attention to the following:

  a. Soldering should be done immediately after opening the package (within 24Hrs).

  b. Required conditions after opening the package

  - Sealing
  - Temperature : 5 ~ 40℃ Humidity : less than 30%

  c. If the package has been opened more than 1 week or the color of the desiccant changes, components should be dried for 10-12hr at 60±5℃

- Do not apply mechanical force or excess vibration during the cooling process to normal temperature after soldering.
- Do not rapidly cool device after soldering.
- Components should not be mounted on warped (non coplanar) portion of PCB.
- Radioactive exposure is not considered for the products listed here in.
- Gallium arsenide is used in some of the products listed in this publication. These products are dangerous if they are burned or shredded in the process of disposal. It is also dangerous to drink the liquid or inhale the gas generated by such products when chemically disposed of.
- This device should not be used in any type of fluid such as water, oil, organic solvent and etc. When washing is required, IPA (Isopropyl Alcohol) should be used.
- When the LEDs are in operation the maximum current should be decided after measuring the package temperature.
- LEDs must be stored properly to maintain the device. If the LEDs are stored for 3 months or more after being shipped from SSC, a sealed container with a nitrogen atmosphere should be used for storage.
- The appearance and specifications of the product may be modified for improvement without notice.
- Long time exposure of sunlight or occasional UV exposure will cause lens discoloration.
- The slug is isolated from anode electrically.

  Therefore, we recommend that you don't isolate the heat sink.
- Attaching LEDs, do not use adhesives that outgas organic vapor.

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Handling of Silicone resin LEDs

The Z-Power LED is encapsulated with a silicone resin for the highest flux efficiency.
Notes for handling:

- Avoid touching silicone resin parts especially with sharp tools such as Pincette (Tweezers)
- Avoid leaving fingerprints on silicone resin parts.
- Silicone resin will attract dust so use covered containers for storage.
- When populating boards in SMT production, there are basically no restrictions regarding the form of the pick and place nozzle, except that excessive mechanical pressure on the surface of the resin must be prevented.
- It is not recommend to cover the silicone resin of the LEDs with other resin (epoxy, urethane, etc)