

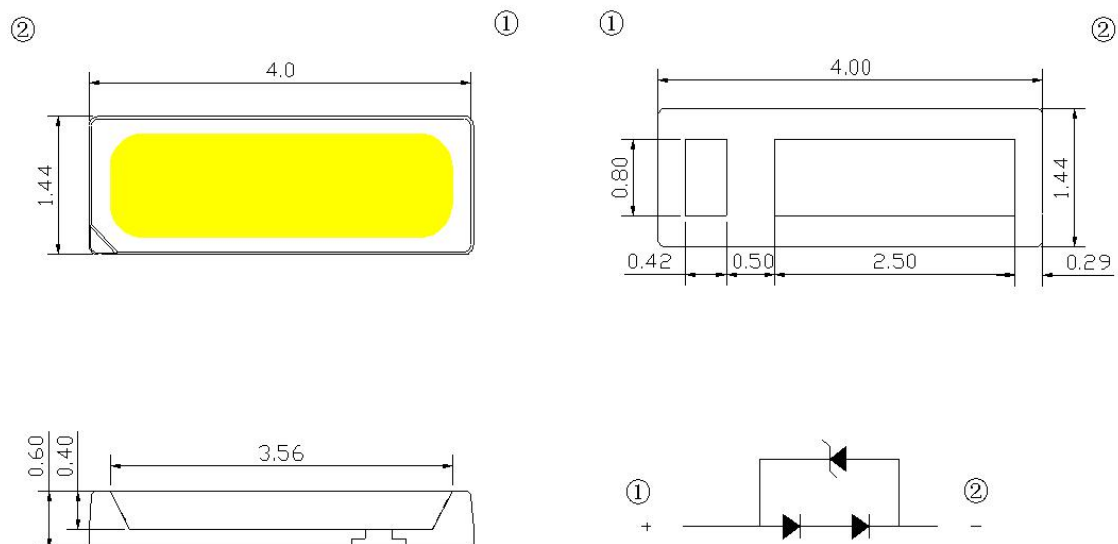
Features

- 2 blue chip
- High Brightness
- Lambertian Emitter (120°)
- IR reflow soldering
- Available on tape and reel (12mm Tape)
- RoHS compliant

Package Outline

Type Number:CL-SFC4014DBW-10K-02(2CHIP)

Unit: mm, Tolerance: ± 0.2 mm



Notes:

1. Drawings not to scale.
2. Tolerance is ± 0.2 mm unless otherwise noted.
3. Lead spacing is measured where the leads emerge from the package.
4. This data sheet only valid for six months.
5. Precautions for ESD: STATIC SHIELD Electricity and surge damages the LED. It is recommended to use a wrist band or anti-electrostatic glove when handling the LED. All devices, equipment and machinery must be properly grounded.
6. Specifications are subject to change without notice.

Absolute Maximum Ratings (Ta = 25°C)

Item	Symbol	Maximum Value	Unit
Forward Current (type)	I _F	120	mA
Forward Current Maximum	I _F	180	mA
Peak Pulse Forward Current; (1kHz,1/10 duty cycle)	I _{FP}	270	mA
Reverse Voltage	V _R	8	V
Operating Temperature	T _{opr}	-40 ~ +85	°C
Storage Temperature	T _{stg}	-40 ~ +85	°C
Junction Temperature ※1	T _j	125	°C
Thermal resistance ※2	R _{TH(J-S)}	15	°C/W
Power Dissipation	P _D	1080	mW
ESD	HBM	4	KV
View Angle	2θ1/2	120	degree
Soldering Temperature	T _{sld}	Reflow Soldering 260°C,10sec	

Note:

※1、 Do not exceed the maximum T_j temperature during use. In order to ensure the reliability of LED during its service life,

※2、 The value of R_{th} is the thermal resistance of light power contained in the PN junction of LED chip to the LED bottom surface. The customer shall measure the comprehensive thermal resistance on the plate according to the actual application environment and the substrate quality.

Luminance Characteristics (If=120mA,Ta = 25°C)

Color	Model	Min. (lm)	Typ. (lm)
White	CL-SFC4014DBW-10K-02(2CHIP)	60	68

Note:

1. I_v is measured with an optical detector and filter combination that approximates the CIE eye-response curve.
2. IV list above should have tolerance of $\pm 5\%$.
3. The Standard for Instrument Systems Spectrometers.

Electrical Characteristics (If=120mA,Ta = 25°C)

Model	Forward Voltage			Forward Current		
	Min. (V)	Typ. (V)	Max. (V)	Min.(mA)	Typ.(mA)	Max(mA)
CL-SFC4014DBW-10K-02(2CHIP)	5.8	6.2	6.4	--	120	180

Note:

Measurement Uncertainty of Voltage: $\pm 0.1V$.

Luminous Flux Bins(If=120mA,Ta = 25°C)

BIN CODE	Intensity Min.	Intensity Max.	BIN CODE	Intensity Min.	Intensity Max.
L68	68	70	L78	78	80
L70	70	72	L80	80	82
L72	72	74	L82	82	84
L74	74	76	L84	84	86
L76	76	78	L86	86	88

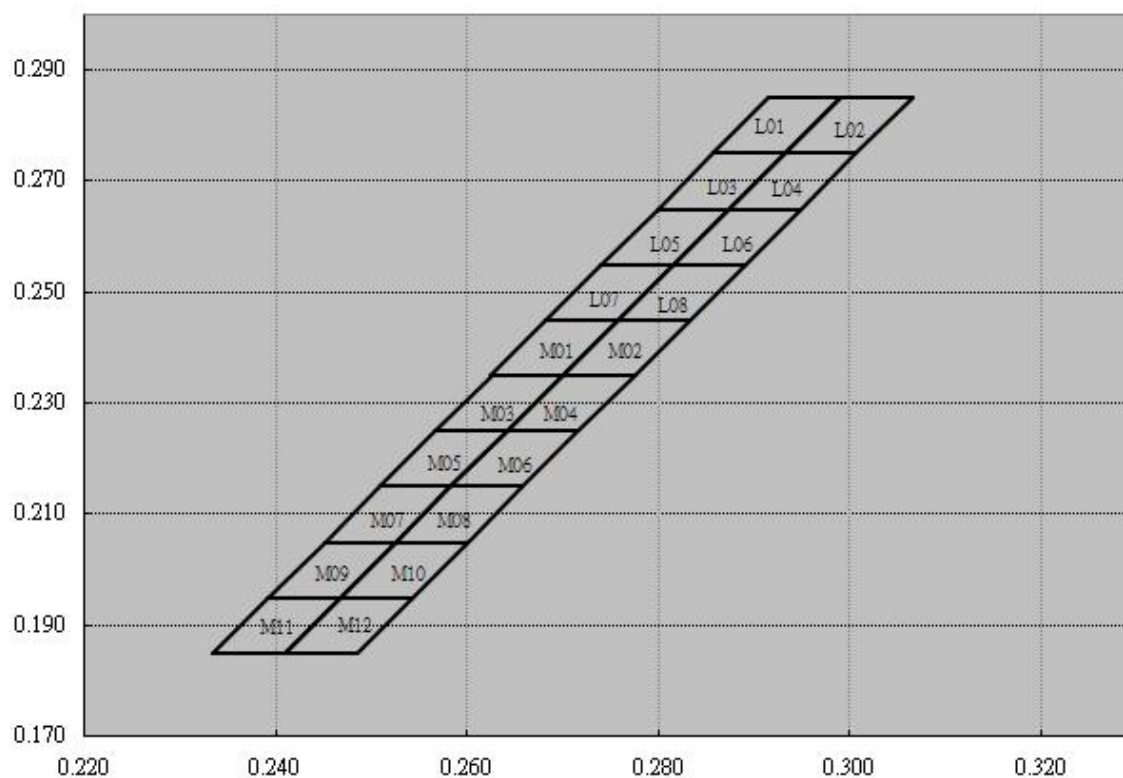
Forward Voltage Bins(If=120mA,Ta = 25°C)

BIN CODE	Voltage Min.	Voltage Max.	BIN CODE	Voltage Min.	Voltage Max.
B	5.8	6.0	D	6.2	6.4
C	6.0	6.2			

Wavelength Ranks (If=120mA,Ta = 25°C)

Rank	4	2	5	7
Dominant Wavelength (nm)	447.5-450	450-452.5	452.5-455	455-457.5

Color Temperature Bin code(If=120mA,Ta = 25°C)



Normal White Bin Coordinates

M01		M02		L01		L02	
0.2625	0.2350	0.2700	0.2350	0.2857	0.2750	0.2932	0.2750
0.2683	0.2450	0.2758	0.2450	0.2932	0.2750	0.3007	0.2750
0.2758	0.2450	0.2833	0.2450	0.2990	0.2850	0.3065	0.2850
0.2700	0.2350	0.2775	0.2350	0.2915	0.2850	0.2990	0.2850
M03		M04		L03		L04	
0.2567	0.2250	0.2642	0.2250	0.2799	0.2650	0.2874	0.2650
0.2626	0.2350	0.2700	0.2350	0.2874	0.2650	0.2949	0.2650
0.2700	0.2350	0.2775	0.2350	0.2932	0.2750	0.3007	0.2750
0.2642	0.2250	0.2717	0.2250	0.2857	0.2750	0.2932	0.2750
M05		M06		L05		L06	
0.2509	0.2150	0.2584	0.2150	0.2741	0.2550	0.2816	0.2550
0.2567	0.2250	0.2642	0.2250	0.2816	0.2550	0.2891	0.2550
0.2642	0.2250	0.2717	0.2250	0.2874	0.2650	0.2949	0.2650
0.2584	0.2150	0.2659	0.2150	0.2799	0.2650	0.2874	0.2650
M07		M08		L07		L08	
0.2451	0.2050	0.2526	0.2050	0.2683	0.2450	0.2758	0.2450
0.2509	0.2150	0.2584	0.2150	0.2758	0.2450	0.2833	0.2450
0.2584	0.2150	0.2659	0.2150	0.2816	0.2550	0.2891	0.2550
0.2526	0.2050	0.2601	0.2050	0.2741	0.2550	0.2816	0.2550
M09		M10		M11		M12	
0.2393	0.1950	0.2468	0.1950	0.2335	0.1850	0.2410	0.1850
0.2451	0.2050	0.2526	0.2050	0.2393	0.1950	0.2468	0.1950
0.2526	0.2050	0.2601	0.2050	0.2468	0.1950	0.2543	0.1950
0.2468	0.1950	0.2543	0.1950	0.2410	0.1850	0.2485	0.1850

Notes:

1. Dominant wavelength should have tolerance of ± 1 nm.
2. $\theta_{1/2}$ is the off-axis angle at which the luminous intensity is half the axial luminous intensity.
3. Chromaticity coordinate groups are measured with an accuracy of ± 0.01

Reliability Test Items and Conditions

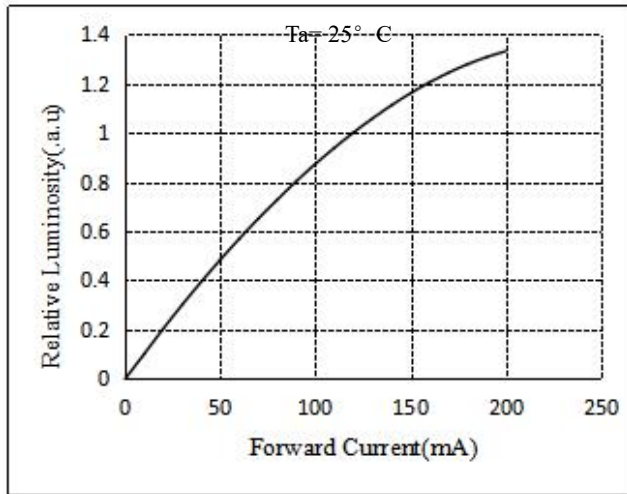
No.	Item	Test Conditions		Test time	Ac/Re
1	Solder Heat	260±5 °C		5 sec	0/1
2	Thermal Shock	-40 °C	125 °C	100 cycle	0/1
		10 min	10 min		
3	High Temperature Storage	60 °C		1000 hrs	0/1
4	Low Temperature Storage	-40 °C		1000 hrs	0/1
5	DC Operating Life@25°C	I _F = 180 mA		1000 hrs	0/1
6	DC Operating Life@45°C	I _F = 180 mA		1000 hrs	0/1
7	High Temperature / High Humidity@ 180 mA	Ta 85°C、85%RH		1000 hrs	0/1
Judgment Criteria		Forward Voltage V _F		V _F max Increase <1.2x	
		Reverse Current I _R		I _R max Increase <2x	
		Luminous Intensity		I _v Decay < 30%	

Notes:

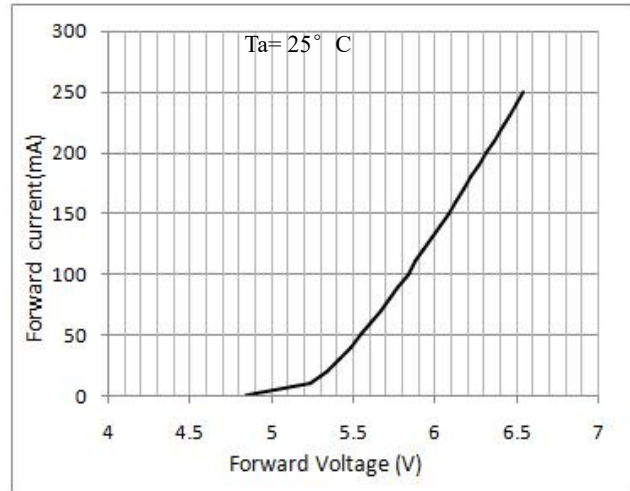
- Measurements were taken after the tested samples were returned to normal ambient conditions (generally after two hours).
- Max sample quantity is 20 pcs.

Typical Electrical / Optical Characteristics Curves

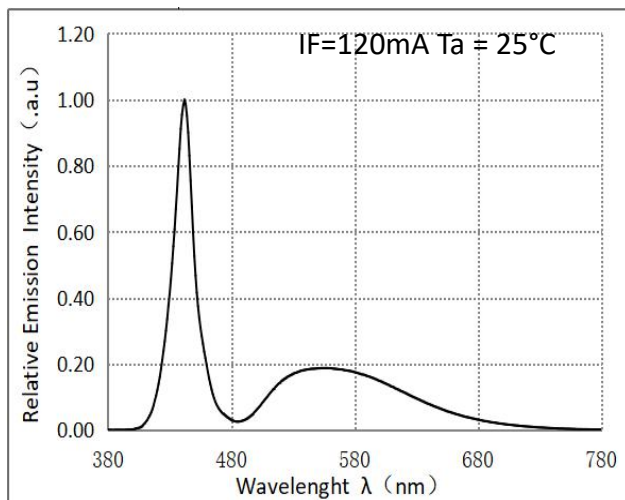
(1) Forward Current vs. Relative Luminosity



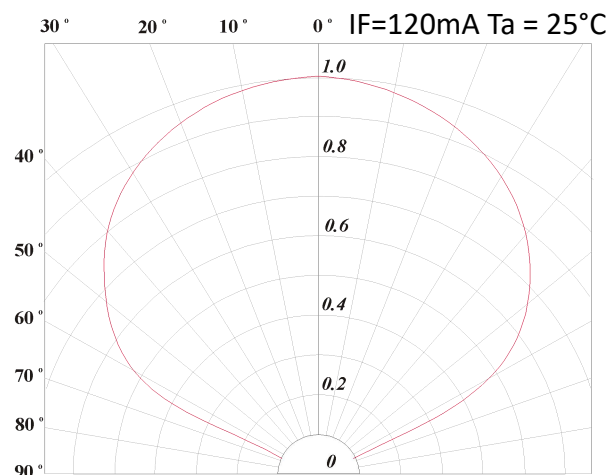
(2) Forward Current vs. Forward Voltage



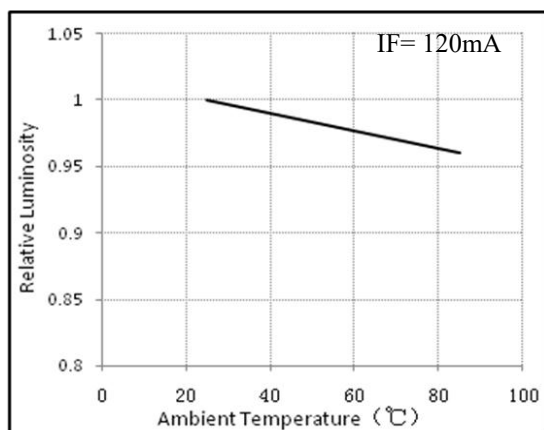
(3) Spectrum



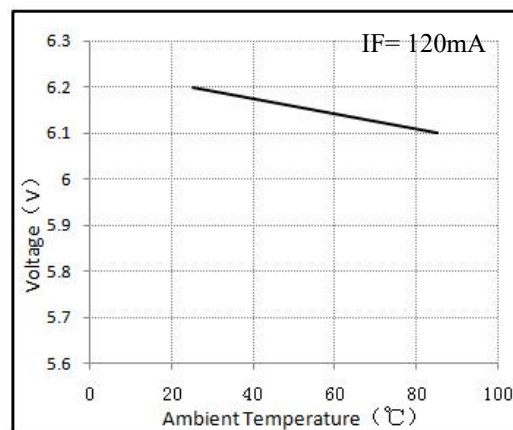
(4) Radiation Pattern



(5) Relative Luminosity vs Ambient Temperature

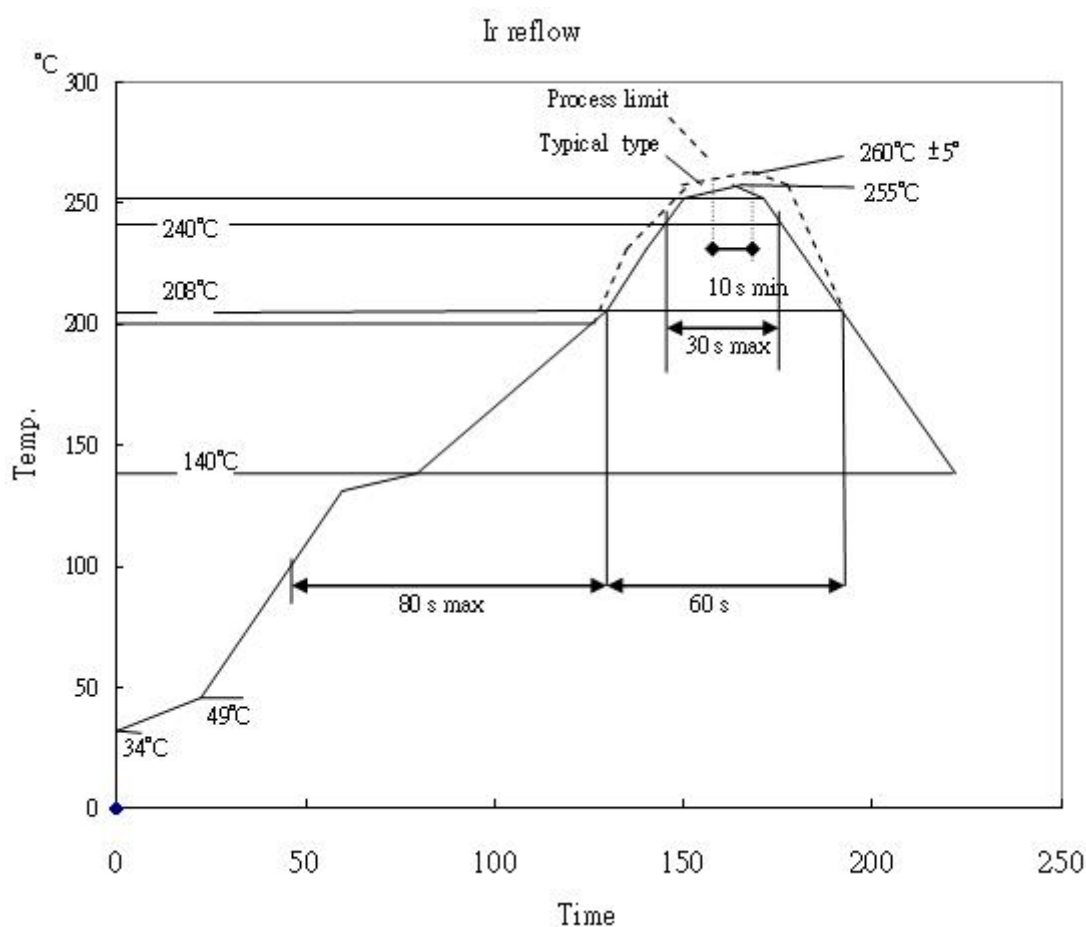


(6) Forward Voltage vs. Ambient Temperature



Soldering Conditions

Reflow Soldering			Hand Soldering	
	Lead Solder	Lead – Free Solder	Soldering Temp. Soldering Time.	260 °C Max. 3 sec. Max.
Pre-Heat	120~150 °C	100~208 °C		
Pre-Heat time	120 sec. Max.	80 sec. Max.		
Peak Temperature	240 °C. Max.	255 °C. Max.		
Soldering Time	10 sec. Max.	10 sec. Max.		



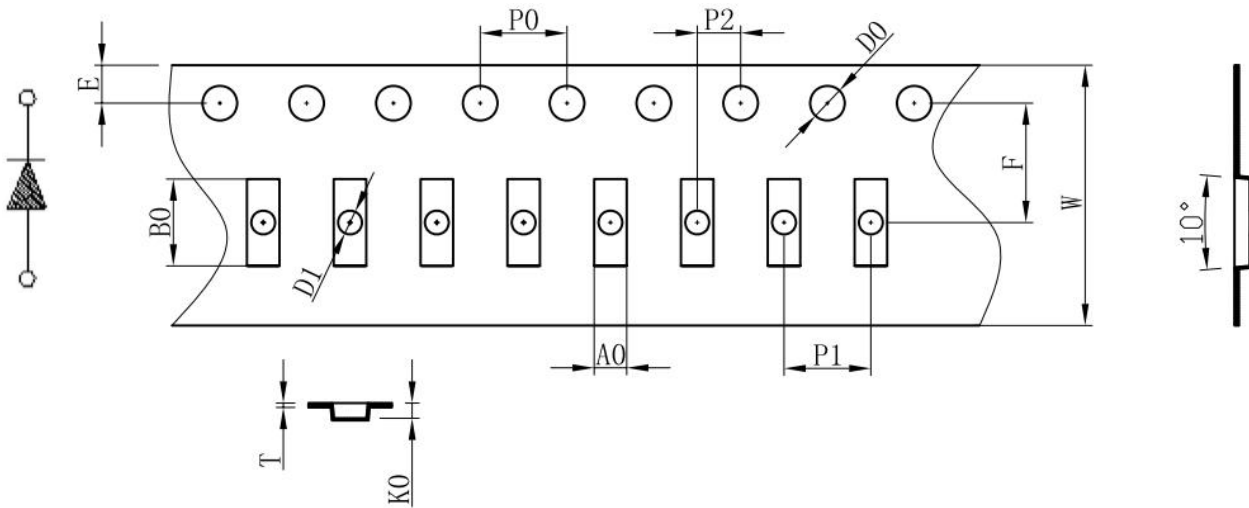
Notes:

- Occasionally there is a brightness decrease caused by the influence of heat or ambient atmosphere during air reflow. It is recommended that the User use the nitrogen reflow method.
- Repairing should not be done after the LEDs have been soldered. When repairing is unavoidable, a double-head soldering iron should be used. It should be confirmed beforehand whether the characteristics of the LEDs will or will not be damaged by repairing.
- Reflow soldering should not be done more than two times.
- When soldering, do not put stress on LEDs during heating.
- After soldering, do not warp the circuit board.

Product Packaging Information

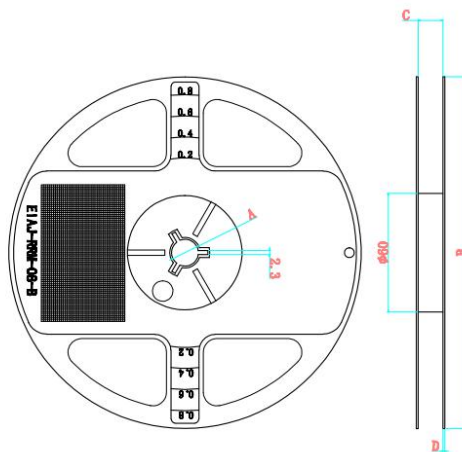
Unit: mm

Quantity: 4000 pcs/reel



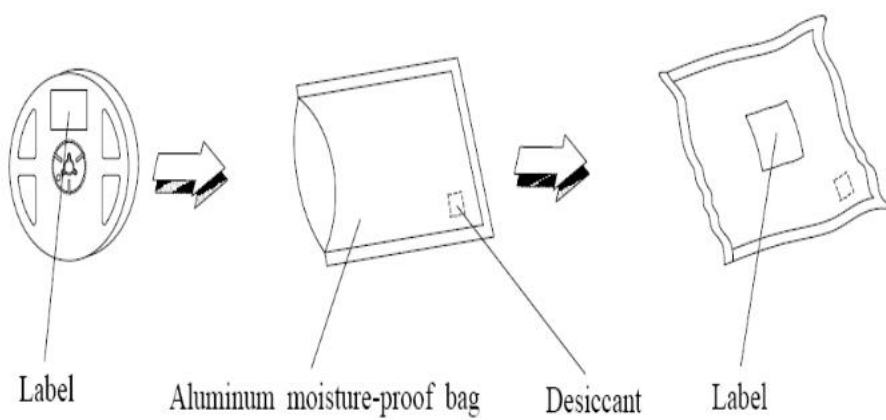
ITEM	W	A0	B0	K0	E	F	D0	D1	P0	P1	P2	T
DIM	12.00	1.65	4.35	1.15	1.75	5.50	1.60	1.10	4.00	4.00	2.00	0.22
TOLE	+0.10 -0.10	+0.10 -0.10	+0.10 -0.10	+0.10 -0.10	+0.10 -0.10	+0.10 -0.10	+0.10 -0.10	+0.10 -0.10	+0.10 -0.10	+0.10 -0.10	+0.10 -0.10	+0.03 -0.03

Refer to drawing the quantity is 4.0K / reel



ITEM	A	B	C	D
DIM	13.6	178	12.5	1
TOLE	+0.5 -0.5	+0.5 -0.5	+0.5 -0.5	+0.5 -0.5

Moisture Resistant Packaging



Package Unit

Item	box size (L*W*H mm)	Reel/box	Quantity /box(pcs)
Moisture proof foil bag	350*240*230	30	120000 Max

Precautions For Use

Precautions for use Over-current-proof:

- 1.Customer must apply resistors for protection, otherwise slight voltage shift will cause a large current change which can result in a burn out.

Storage:

1. Do not open moisture proof bag before the products are ready to use
2. Storage conditions prior to uncapping : 5 - 30 °C , maximum relative humidity of 60 %
3. After opening the package, The LEDs should be soldered within 4 hours after opening the package

Handling Precautions:

- 1.Compare to epoxy encapsulant that is hard and brittle, silicone is softer and flexible. Although its characteristic significantly reduces thermal stress, it is more prone to damage by external mechanical force . As a result, Special handling precautions must be observed during assembling using silicone encapsulated LED products, Failure to comply might leads to damage and premature failure of the LED.
- 2.Handle the component along the side surface by using forceps or appropriate tools; do not directly touch or Handle the silicone lens surface, it may damage the internal circuitry.
- 3.The outer diameter of the SMD pickup nozzle should not exceed the size of the LED to prevent air leaks. The inner diameter of the nozzle should be as large as possible. A pliable material is suggested for the nozzle tip to avoid scratching or damaging the LED surface during pickup. The dimensions of the component must be accurately programmed in the pick-and-place machine to insure precise pickup and avoid damage during production.
- 4.Do not stack together assembled PCBs containing LEDs. Impact may scratch the silicone lens or damage the internal circuitry.
- 5.Not suitable to operate in acidic environment, PH<7.
- 6.LED operating environment and sulfur element composition cannot be over 100PPM in the LED mating usage material.
- 7.When we need to use external glue for LED application products, please make sure that the external glue matches the LED packaging glue. Additionally ,as most of LED packaging glue is silica gel, and it has strong Oxygen permeability as well as strong moisture permeability; in order to prevent external material from getting into the inside of LED, which may cause the malfunction of LED, the single content of Bromine element is required to be less than 900PPM,the single content of Chlorine element is required to be less than 900PPM,the total content of Bromine element and Chlorine element in the external glue of the application products is required to be less than 1500PPM.

Cautions :

1. Please check if there is air leak before opening the package, if so, please return the goods back to take dryingprocess for later using.

2. Products can be used within 6 months after packaging, after that, they must be;
 - a. Soldered within 4 hrs.
 - b. Used in the condition: 30 °C within and 60%RH below.
3. The vacuum packaging material is not used for more than 6 months after being packaged unless opening the package and take drying our process in 70 °C/12H.