

**Power Top View LED**
**Model No. : CL-SF681DBW**
**■ Features :**

- PLCC-2 package and high flux output
- Compatible reflow solder and wave solder process.
- Compatible with automatic placement equipment.
- Available on tape and reel(8mm tape)

**■ Applications :**

- Automotive: interior and exterior lighting
- Indicators
- Flat backlight for LCD's switches and symbols
- General use

Dice Material	Light Color	Lens Color
InGaN/GaN	Super White	Color Diffused

**Absolute Maximum Ratings**
**( Ta=25°C )**

Item	Symbol	Maximum	Unit
Power Dissipation	$P_D$	80	mW
Continuous Forward Current	$I_F$	25	mA
Peak Forward Current (1/10 Duty Cycle 0.1ms Pulse Width)	$I_{FP}$	100	mA
Reverse Voltage	$V_R$	5	V
Derating Linear From 25°C		0.4	mA/°C
Operating Temperature Range	Topr	-40 to +85	°C
Storage Temperature Range	Tstg	-40 to +100	°C
Lead Soldering Temp.(1.6mm from body) for 5seconds		260	°C
Electrostatic discharge (ESD)		300	V

**Electrical / Optical Characteristics**
**( Ta=25°C )**

Item	Symbol	Condition	Min.	Typ.	Max.	Unit
Forward Voltage	$V_F$	IF=20mA		3.2	4.0	V
Chromaticity coordinate	X	IF=20mA		0.30		
Chromaticity coordinate	Y	IF=20mA		0.30		
Viewing Angle	$2\theta_{1/2}$	IF=20mA		130		Deg
Luminous Intensity	$I_V$	IF=20mA	850			mcd

ISSUE	DIMENSION NO :	VERSION :	DATE :
		A	2009/07/13
	APPROVAL :	CHECK :	EDIT :

## ◆ The Luminous Intensity Grade of White Chip-LED Products

● Test Condition : @20mA

Range,mcd	Bin code
850/950	R1
950/1050	R2
1050/1150	S1
1150/1250	S2
1250/1350	S3
1350/1450	S4
1450/1550	S5
1550/1650	S6
1650/1750	T1
1750/1850	T2
1850/1950	T3
1950/2050	T4

## Forward Voltage Grade of White Chip-LED Products

● I type (20mA)

Vf (V)	symbol
2.90-3.00	2
3.00-3.10	3
3.10-3.20	4
3.20-3.30	5
3.30-3.40	6

## Chromaticity coordinate Grade of White Chip-LED Products

BIN	CIE	Top	Right	Botto	Left	BIN	CIE	Top	Right	Botto	Left
A1	X	0.28	0.264	0.273	0.288	A2	X	0.288	0.273	0.283	0.30
	Y	0.248	0.267	0.286	0.262		Y	0.262	0.286	0.305	0.27
B1	X	0.287	0.283	0.307	0.309	B2	X	0.309	0.307	0.330	0.330
	Y	0.295	0.305	0.331	0.317		Y	0.317	0.331	0.360	0.339
C1	X	0.296	0.287	0.309	0.313	C2	X	0.313	0.309	0.330	0.330
	Y	0.276	0.295	0.317	0.297		Y	0.297	0.317	0.339	0.318
D1	X	0.330	0.330	0.360	0.360	D2	X	0.330	0.330	0.360	0.360
	Y	0.339	0.360	0.390	0.370		Y	0.318	0.339	0.370	0.350
E1	X	0.360	0.360	0.390	0.390	E2	X	0.360	0.360	0.390	0.390
	Y	0.370	0.390	0.420	0.400		Y	0.350	0.370	0.400	0.380

◆ **Descriptions :**

- The Chip-LED Taping is much smaller than lead frame type components, thus enable smaller board size, higher packing density, reduced storage space and finally smaller equipment to be obtained.
- Besides, lightweight makes them ideal for miniature application, etc.

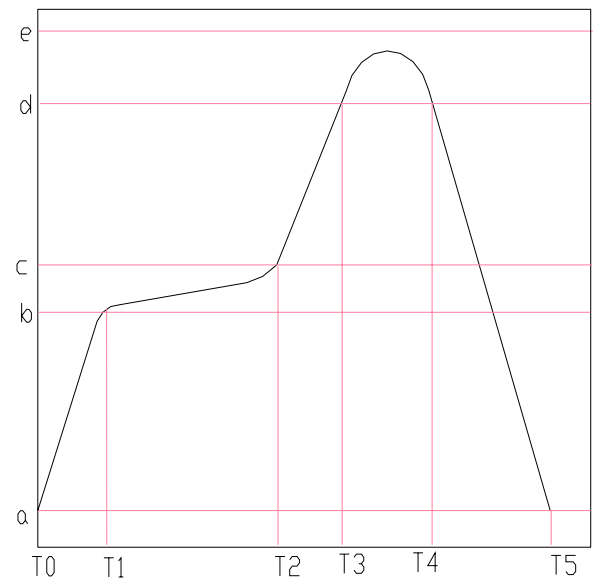
◆ **Reliability Test Items And Conditions :**

NO.	Item	Test Conditions	Test Hours / Cycle	Sample Q'ty	Ac / Re
1	Solder Heat	TEMP : 260°C±5°C	5 sec	36 pcs	0 / 1
2	Temperature Cycle	H : +100°C 30min. ∫ 5min. L : -40°C 30min.	50 cycle	36 pcs	0 / 1
3	Thermal Shock	H : +100°C 5min. ∫ 10sec L : -40°C 5min.	50 cycle	36 pcs	0 / 1
4	High Temperature Storage	TEMP : 100°C	1000 hrs	36 pcs	0 / 1
5	Low Temperature Storage	TEMP : -40°C	1000 hrs	36 pcs	0 / 1
6	DC Operating Life	I <sub>f</sub> = 20mA	1000 hrs	36 pcs	0 / 1
7	High Temperature / High Humidity	85°C / 90~95%R.H.	1000 hrs	36 pcs	0 / 1

◆ **Reflow Temp. / Time :**

Please refer to the following figure :

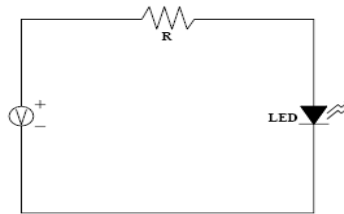
Temp.(°C)		Time(Sec)	
a	25	T0~T1	Max. 3°C/sec
b	150	T1~T2	90~130 sec
c	200	T2~T3	Max. 3°C/sec
d	220	T3~T4	Max. 30~50 sec
e	250		
		T4~T5	Max. -3°C/sec
Blet Speed		70~90 cm/min	



◆ **Precautions For Use :**

- Over - current - proof

Customer must apply resistors for protection, otherwise slight voltage shift will cause big current change ( Burn out will happen )



- Storage

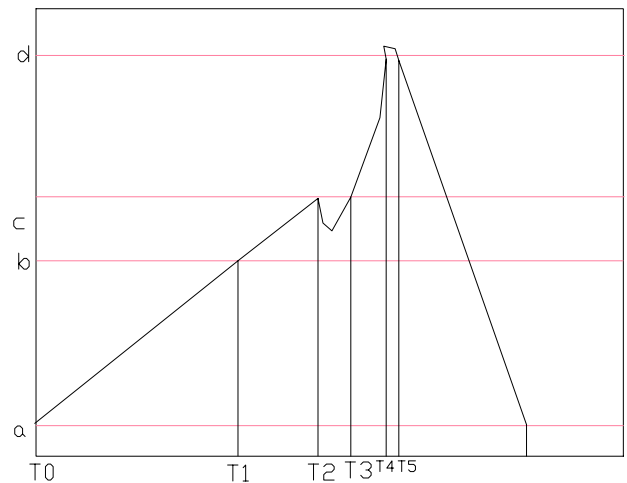
1. The operation of temperature and R.H. are :  $5^{\circ}\text{C} \sim 30^{\circ}\text{C}$  , R.H.60% Max..
2. Once the package is opened, the products should be used within 72 hrs. Otherwise, they should be kept in a dampproof box with desiccating regent. Considering the tape life, we suggest our customers to use our products within 1 year ( from production date ) .
3. It's recommended to bake before soldering when the package is unsealed after 72 hrs. The condition is :  $80^{\circ}\text{C} \pm 5^{\circ}\text{C}$  for 24hrs.

◆ **Soldering Iron :**

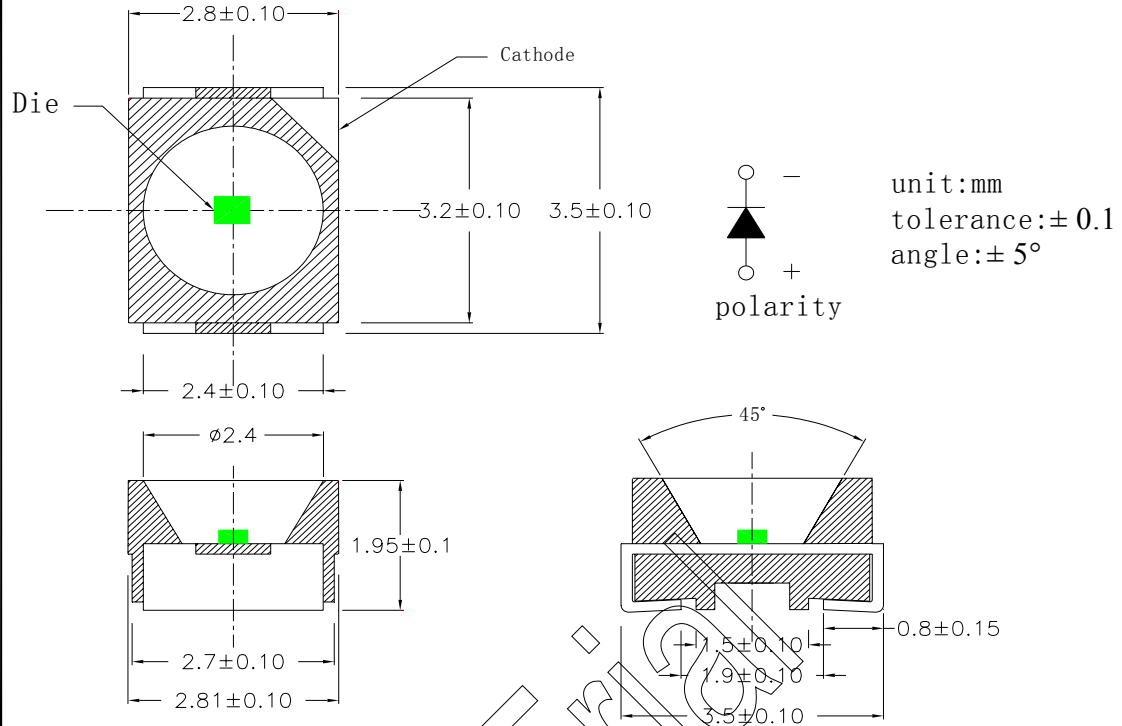
- Temperature at tip of iron ;  $300^{\circ}\text{C}$  Max. (25W Max.)
- Soldering time :  $5 \pm 1\text{sec}$ .

◆ **Wave Soldering Temp. / Time :**

Temp.( $^{\circ}\text{C}$ )		Time(Sec)	
a	25	T1~T2	$60 \pm 20$
b	$130 \pm 10$	T2~T3	
c	185	T3~T6	
d	$250 \pm 3$	T4~T5	$3 \pm 2$

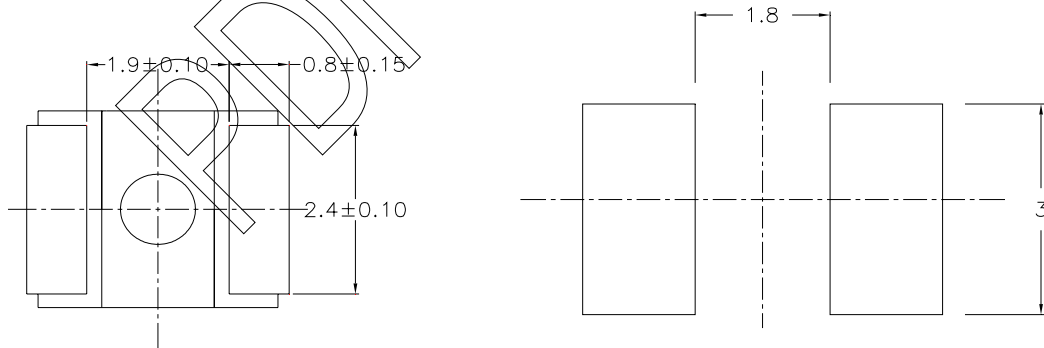


◆ Package Dimensions of Device



1. Soldering terminal may shift in x, y direction.
2. Polarity referring onto the Cathode mark is reversed on the UR/HR/SR

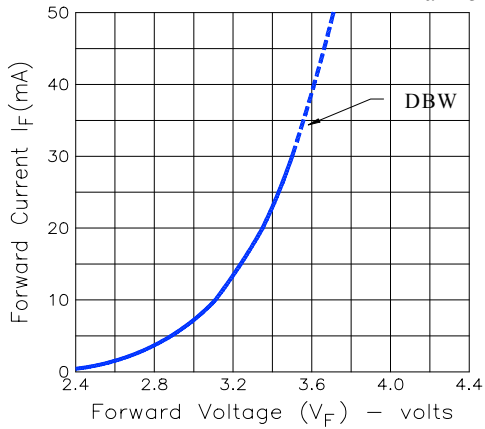
◆ Recommended Soldering Pad Dimensions



◆ Typical Electro-Optical Characteristic Curves:

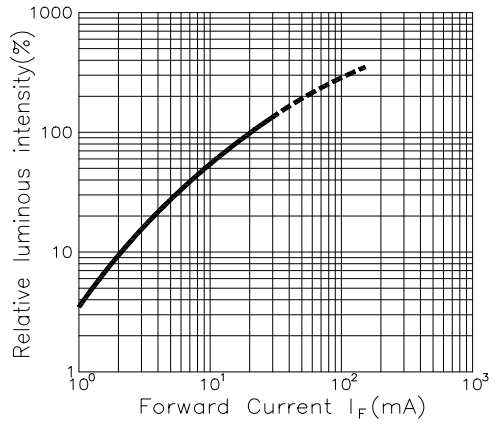
Forward Current Vs. Forward Voltage

Ta=25°C

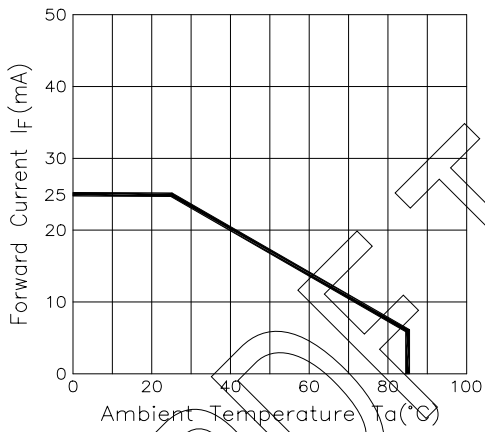


Luminous Intensity Vs. Forward Current

Ta=25°C

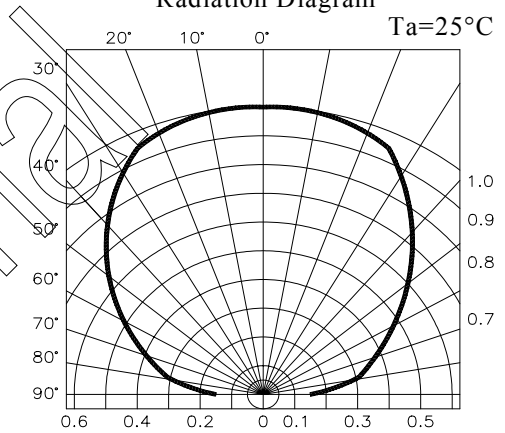


Forward Current Derating Curve

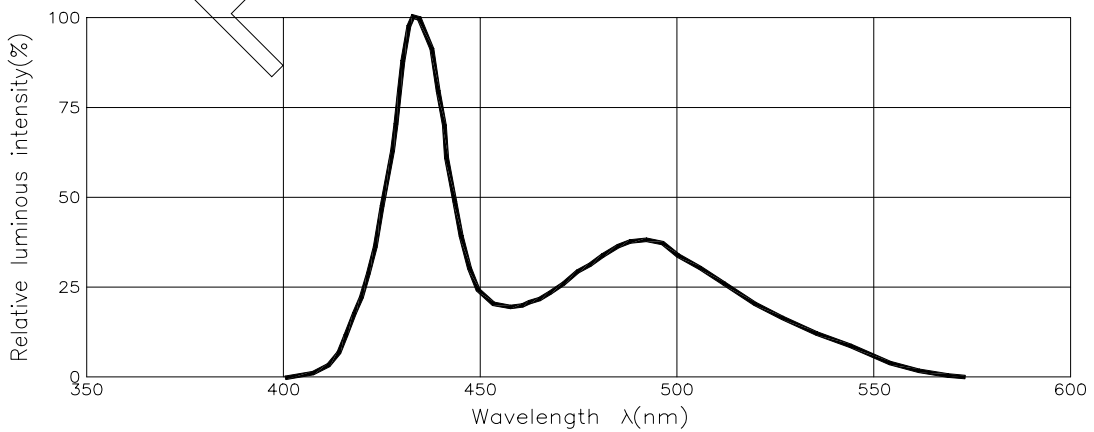


Radiation Diagram

Ta=25°C

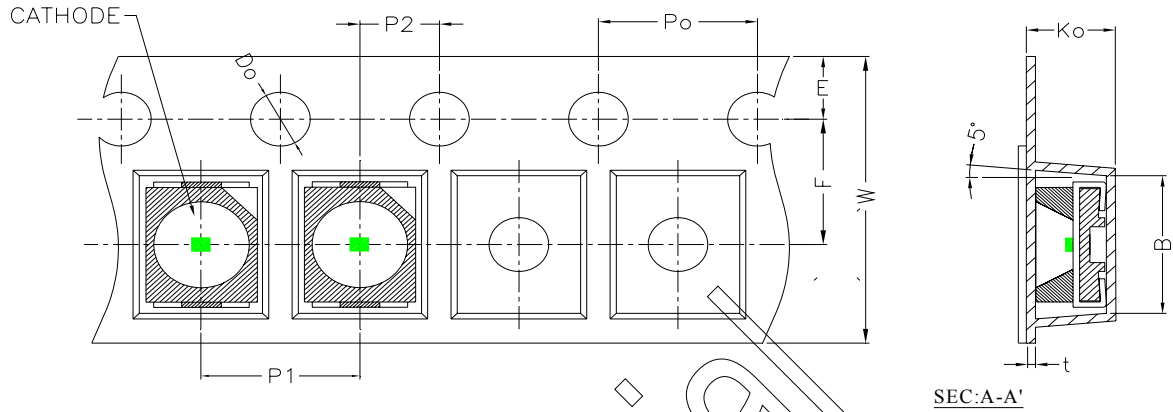


Spectrum Distribution



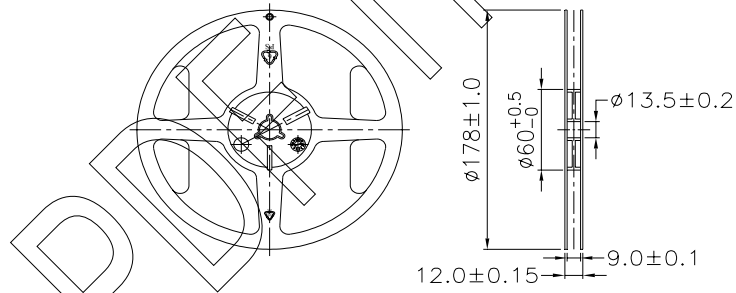
◆ Tape Specification : 2000pcs Per Reel

Packing Size													
Item	W	P1	E	F	Do	D1	Po	10Po	P2	Ao	Bo	Ko	t
Spec.	8.00	4.00	1.75	3.50	2.0	0.5	4.00	40.00	2.00	3.10	3.80	2.20	0.23
Tolerance	±0.20	±0.10	±0.10	±0.05	$\begin{matrix} +0.10 \\ -0.00 \end{matrix}$	±0.05	±0.05	±0.20	±0.05	±0.10	±0.10	±0.10	±0.05



Unit:mm

◆ Package Dimensions of Reel



◆ Label explanation

Product No: CL-XXXXXXXXXX	
Lot No: XXXXXXXXX	
Q'ty: XXXX	PCS
Q.C: XXXXXX	BIN
Date: XXXX.XX.XX	