

**Surface Mounted Chip LED**
**Model No. : CL-SP172USO**
**■ Features :**

- Compatible with automatic placement equipment
- Compatible with reflow solder process

**■ Applications :**

- Automotive\_Telecommunication
- Indicators
- LCD Back-lights
- Illuminations

Dice Material	Light Color	Lens Color
AlGaInP	Ultra High Amber	Water Clear

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

Item	Symbol	Maximum	Unit
Power Dissipation	P <sub>D</sub>	78	mW
Continuous Forward Current	I <sub>F</sub>	30	mA
Peak Forward Current (1/10 Duty Cycle 0.1ms Pulse Width)	I <sub>FP</sub>	100	mA
Reverse Voltage	V <sub>R</sub>	5	V
Derating Linear From 25°C		0.4	mA/°C
Operating Temperature Range	Topr	-30 to +80	°C
Storage Temperature Range	Tstg	-40 to +85	°C

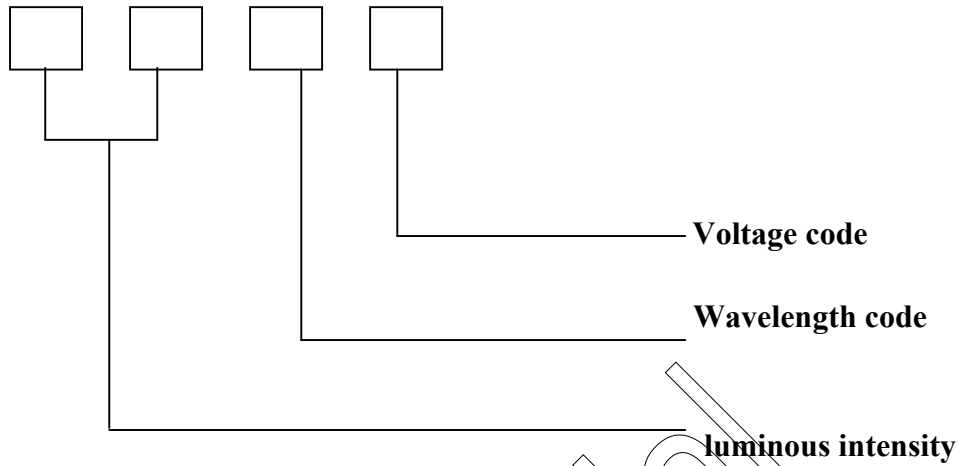
**Electrical / Optical Characteristics**
**( Ta=25°C )**

Item	Symbol	Condition	Min.	Typ.	Max.	Unit
Forward Voltage	V <sub>F</sub>	IF=20mA		2.1	2.6	V
Reverse Current	I <sub>R</sub>	VR=5V			10	uA
Peak Emission Wavelength	λ <sub>P</sub>	IF=20mA		610		nm
Dominant Wavelength	λ <sub>D</sub>	IF=20mA		605		nm
Viewing Angle	2θ <sub>1/2</sub>	IF=20mA		130		Deg
Luminous Intensity	I <sub>V</sub>	IF=20mA	72	115		mcd

ISSUE	DIMENSION NO :	VERSION :	DATE :
		A	2009/05/22
	APPROVAL :	CHECK : 000	EDIT :

◆ Packing coding principle

Notice: Bin code: luminous intensity / wavelength / voltage.



◆ The Luminous Intensity Grade of Ultra High Amber Chip-LED Products

● Test Condition : @ 20mA

Range, mcd	Bin code
72/90	K1
90/115	K2
115/145	L1
145/180	L2

Dominant Wavelength Grade of Ultra High Amber Chip-LED Products

● I type @ 20mA

BIN	Range
0	598/600
1	600/602
2	602/604
3	604/606
4	606/608

◆ Forward Voltage Grade of Ultra High Amber Chip-LED Products

● I type @ 20mA

BIN	Range
1	1.9/2.0
2	2.0/2.1
3	2.1/2.2

◆ **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.

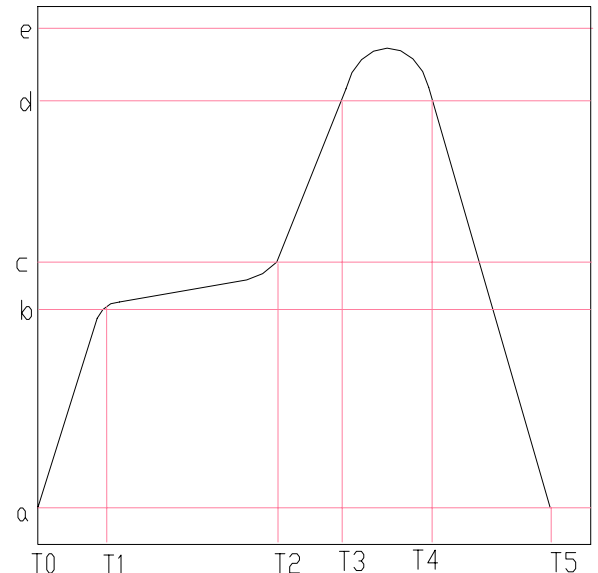
◆ **Reliability Test Items And Conditions :**

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 :

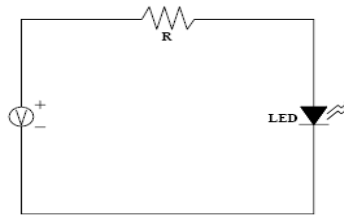
Temp.(°C)		Time(Sec)	
a	25	T0~T1	Max. 3°C/sec
b	150	T1~T2	90~130 sec
c	200	T2~T3	Max. 3°C/sec
d	220	T3~T4	Max. 30~50 sec
e	250		
		T4~T5	Max. -3°C/sec
Blet Speed		70~90 cm/min	



◆ **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

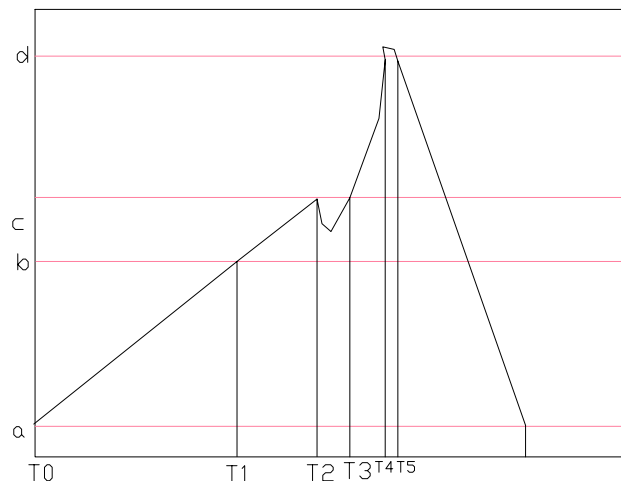
1. The operation of temperature and R.H. are :  $5^{\circ}\text{C} \sim 30^{\circ}\text{C}$  , R.H.60% Max..
2. Once the package is opened, the products should be used within 72 hrs. Otherwise, they should be kept in a dampproof box with desiccating regent. Considering the tape life, we suggest our customers 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 :**

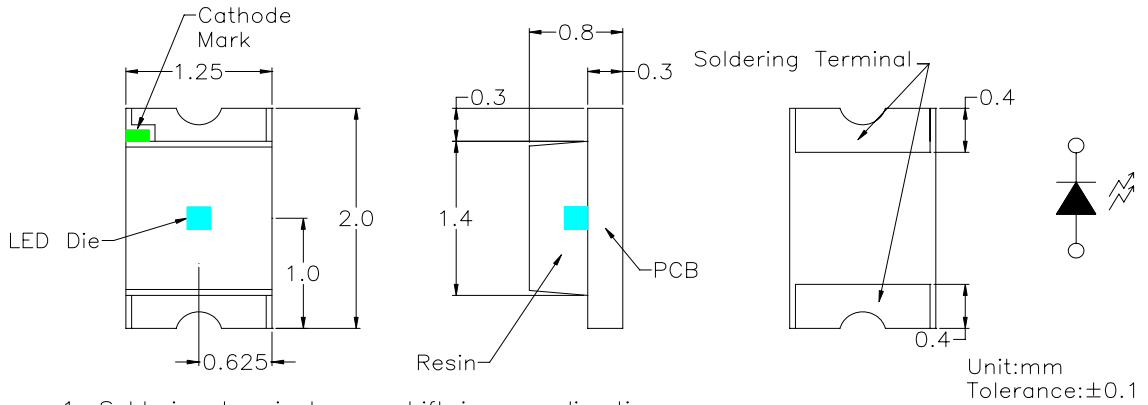
- Temperature at tip of iron :  $300^{\circ}\text{C}$  Max. (25W Max.)
- Soldering time :  $5 \pm 1\text{sec}$ .

◆ **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	$3 \pm 2$

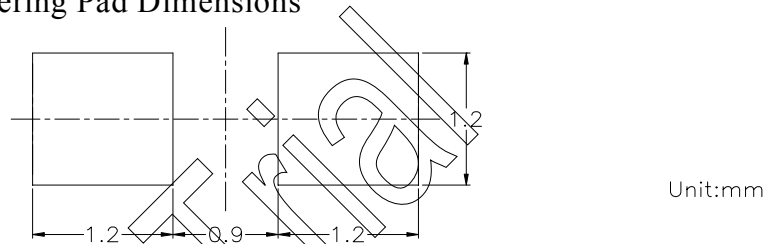


◆ Package Dimensions of Device



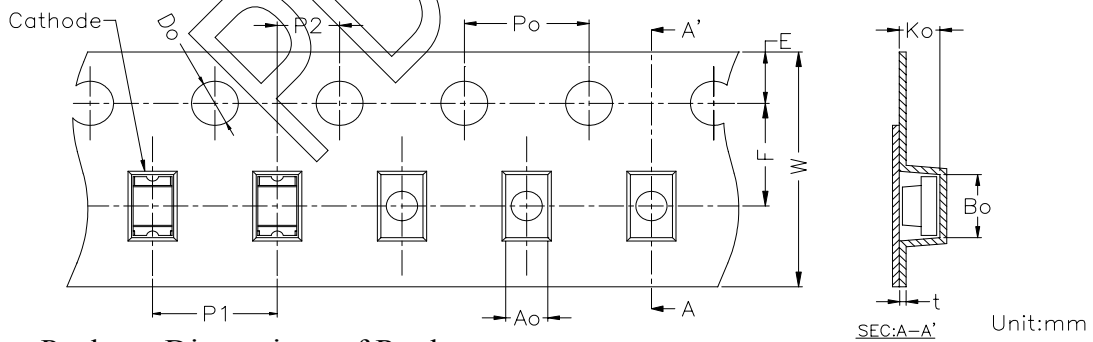
1. Soldering terminal may shift in x, y direction.
2. Polarity referring onto the cathode mark is reversed on the HR/UR/SR

◆ Recommended Soldering Pad Dimensions

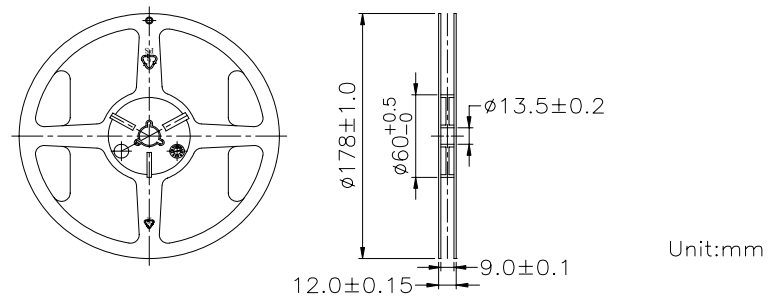


◆ Tape Specification : 4000pcs Per Reel

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	1.50	1.00	4.00	40.00	2.00	1.45	2.25	1.10	0.23
Tolerance	±0.20	±0.10	±0.10	±0.05	$\begin{matrix} \pm 0.10 \\ \pm 0.00 \end{matrix}$	±0.05	±0.05	±0.20	±0.05	±0.10	±0.10	±0.10	±0.05

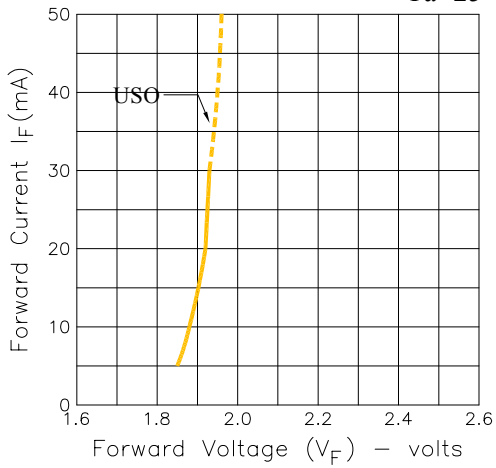


◆ Package Dimensions of Reel



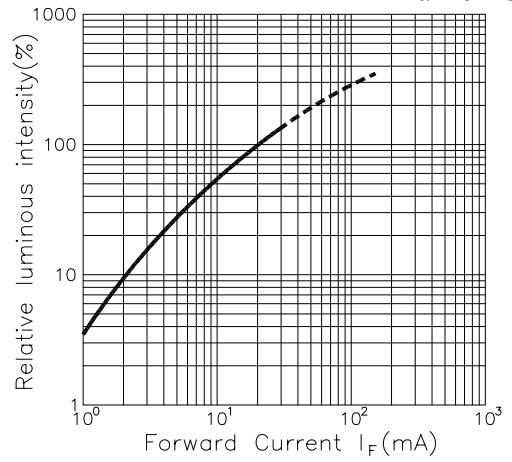
Forward Current Vs. Forward Voltage

Ta=25° C

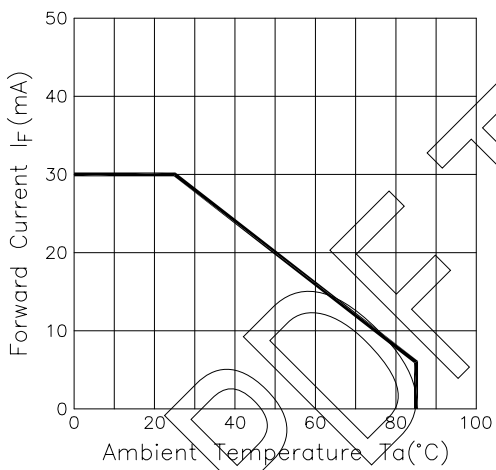


Luminous Intensity Vs. Forward Current

Ta=25° C

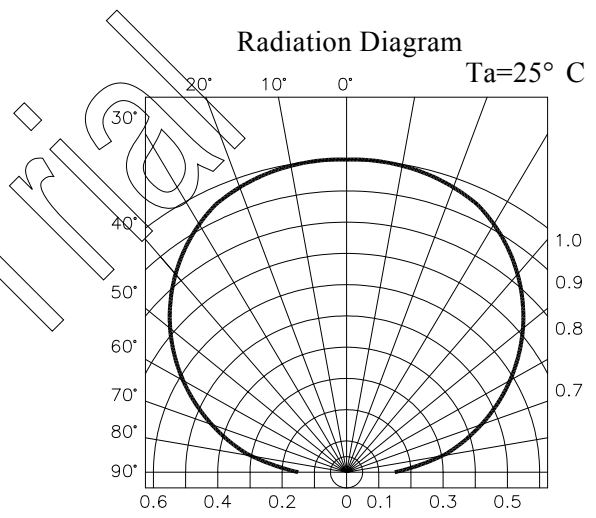


Forward Current Derating Curve

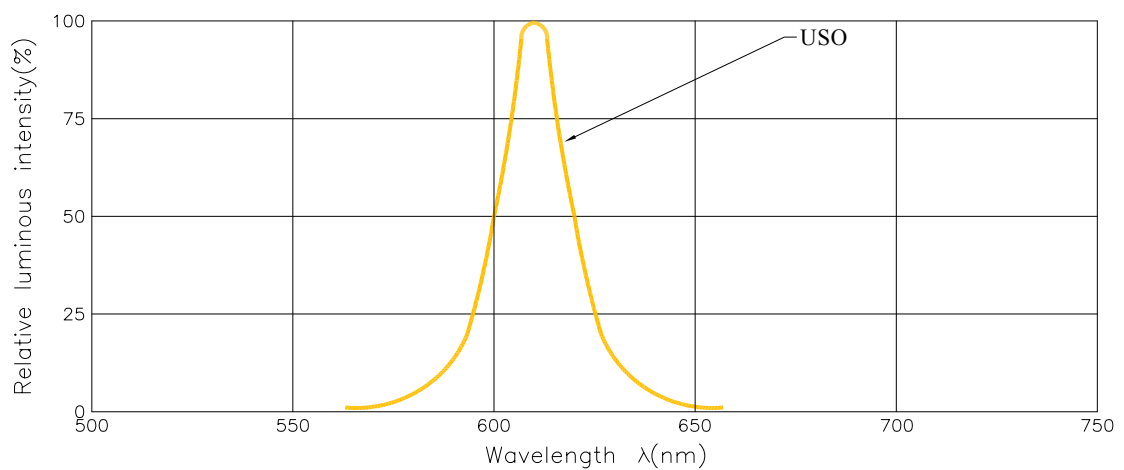


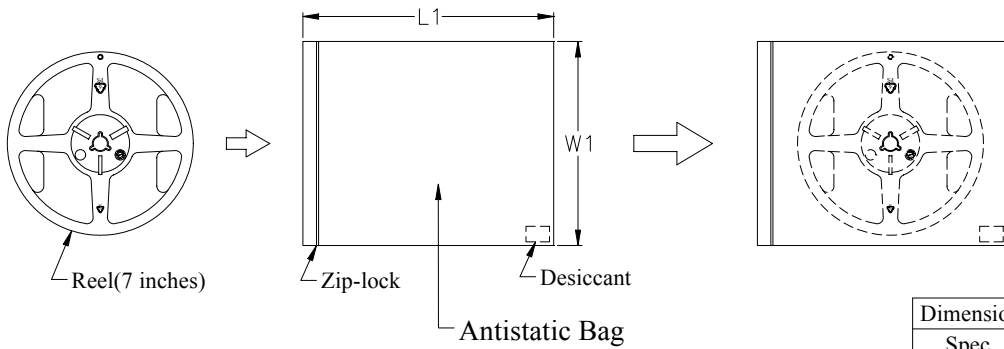
Radiation Diagram

Ta=25° C



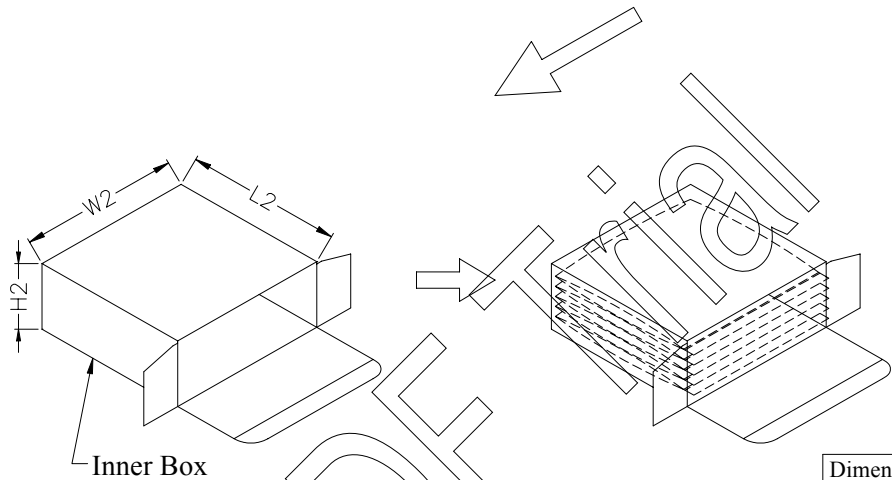
Spectrum Distribution





Dimension	L1	W1
Spec.	203.0	198.0

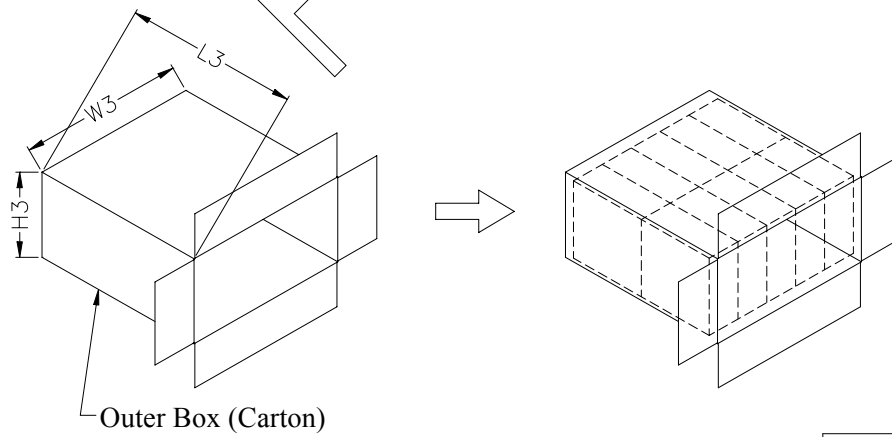
Unit : mm



5 Reels per Box

Dimension	L2	W2	H2
Outside	200.0	205.0	85.0
Inside	193.7	198.7	78.7

Unit : mm



10 Boxes per Carton

Dimension	L3	W3	H3
Outside	448.0	424.0	220.0
Inside	433.4	409.4	205.4

Unit : mm