

*Chip LEDs with Bi-Color(Multi-Color)*

**Features :**

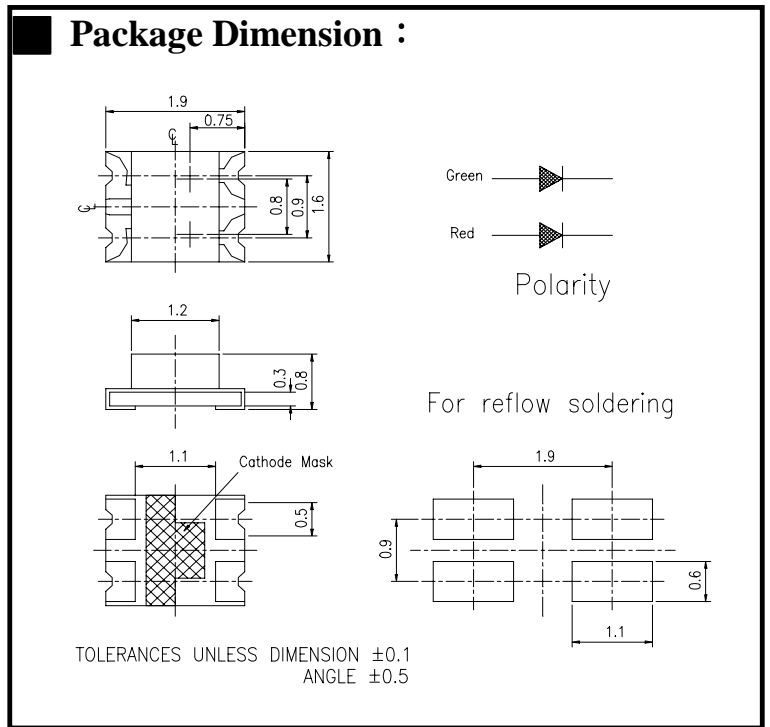
- Package in 8 mm tape on 7" diameter reel.
- Compatible with automatic equipment.
- Compatible with infrared and vapor phase reflow solder process.
- Multi-color type.

**Description :**

- The 19-22 SMD Taping is much smaller than leaded 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.

**Applications :**

- Automotive: backlighting in dashboard and switch.
- Telecommunication: indicator and backlighting in telephone and fax.
- Flat backlight for LCD, switch and symbol.
- General use.



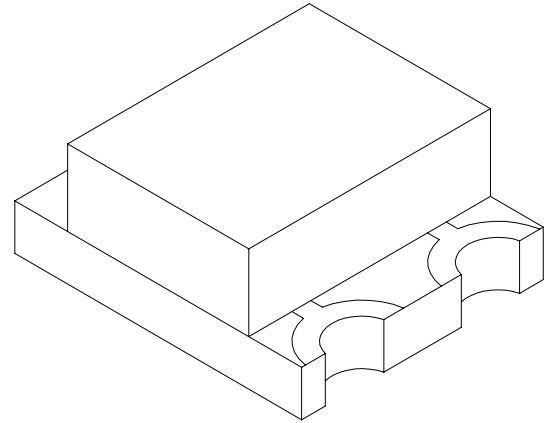
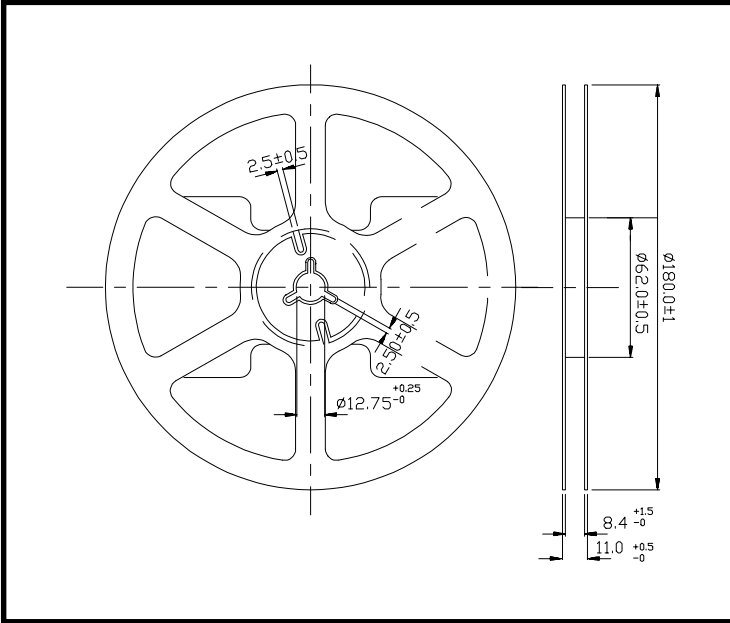
**Notes :**

Tolerances Unless Dimension  $\pm$   
0.1mm  
Angle  $\pm 0.5^\circ$

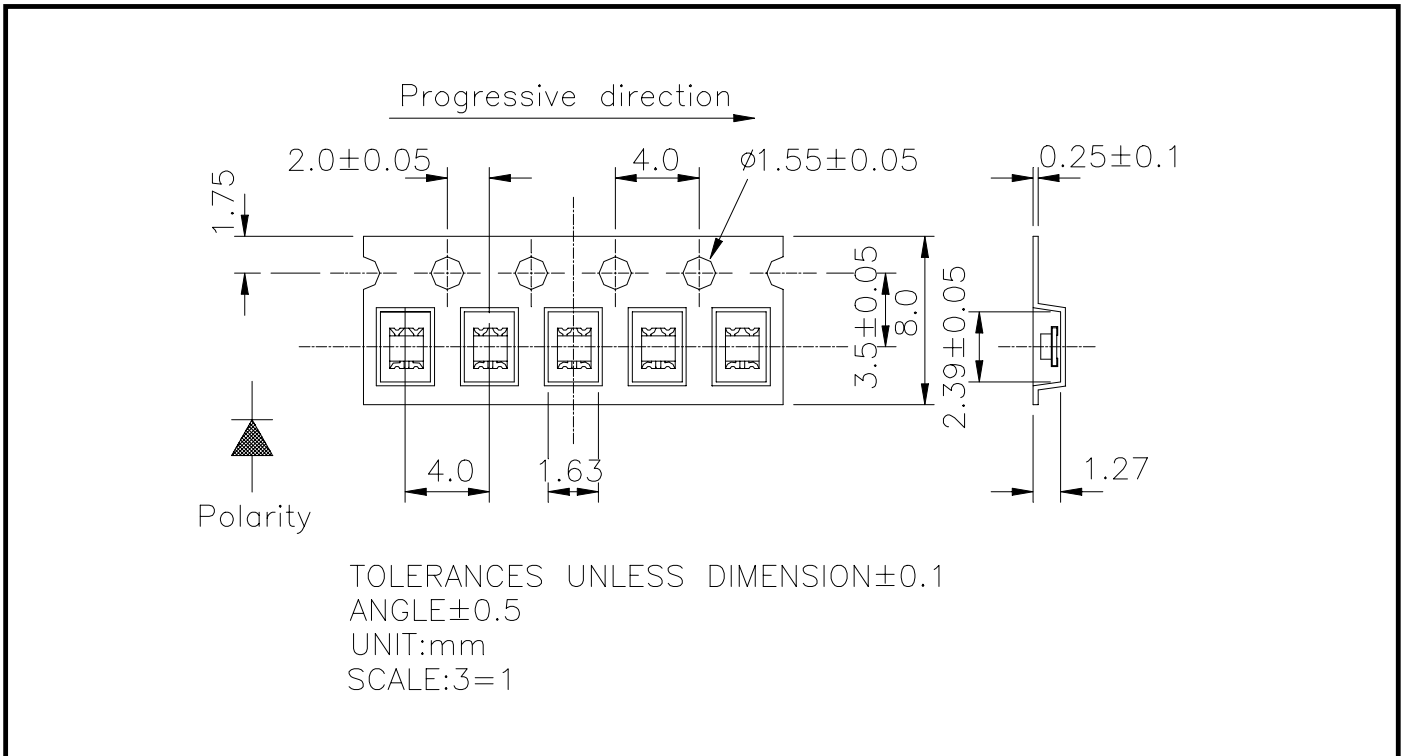
PART NO	CHIP		Lens Color
	Material	Emitted Color	
19-22SURSYGC/S530-A2/TR8	AlGaInP	Hyper Red	Water Clear
	AlGaInP	Super Yellow Green	

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■ **Package Dimension :**



■ **Loaded quantity per reel 2000 pcs/reel :**



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■ **Absolute Maximum Ratings at Ta = 25°C**

Parameter	Symbol	Rating	Unit
Reverse Voltage	Vr	5	V
Forward Current	If	SUR: 25 SYG: 25	mA
Operating Temperature	Topr	-40 ~ +85	°C
Storage Temperature	Tstg	-40 ~ +90	°C
Soldering Temperature	Tsol	260 (for 5 second)	°C
Electrostatic Discharge	ESD	2000	V
Power Dissipation	Pd	SUR: 60 SYG: 60	MW
Peak Forward Current(Duty 1/10 @ 1KHZ)	If(Peak)	SUR: 160 SYG: 160	MA

■ **Reliability Test Item And Condition**

NO	Item	Test Conditions	Test Hours/Cycle	Sample Size	Ac/Re
1	Solder Heat	TEMP : 260°C ± 5 °C	5 SEC	76 Pcs	0/1
2	Temperature Cycle	H : +85°C 30min ∩ 5 min L : -55°C 30min	50 CYCLE	76 Pcs	0/1
3	Thermal Shock	H : +100°C 5min ∩ 10 sec L : -10°C 5min	50 CYCLE	76 Pcs	0/1
4	High Temperature Storage	TEMP : 100°C	1000 HRS	76 Pcs	0/1
5	Low Temperature Storage	TEMP : -55°C	1000 HRS	76 Pcs	0/1
6	DC Operating Life	If = 20 mA	1000 HRS	76 Pcs	0/1
7	High Temperature / High Humidity	85°C/85% RH	1000 HRS	76 Pcs	0/1

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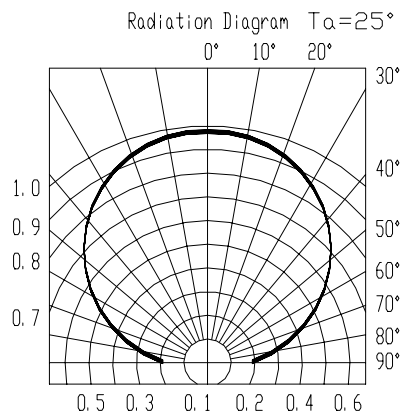
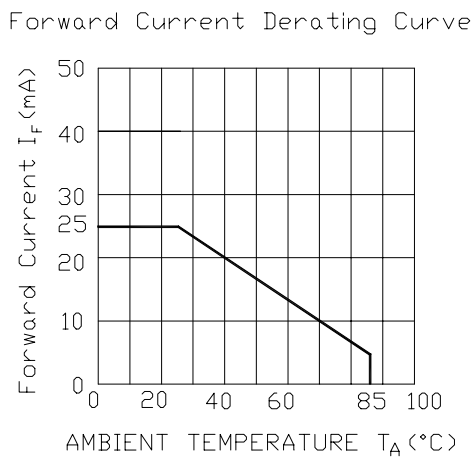
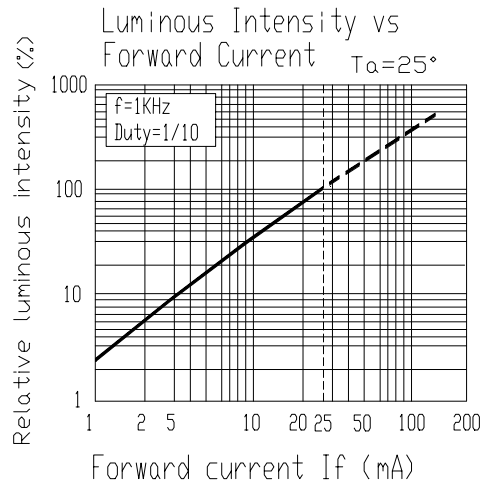
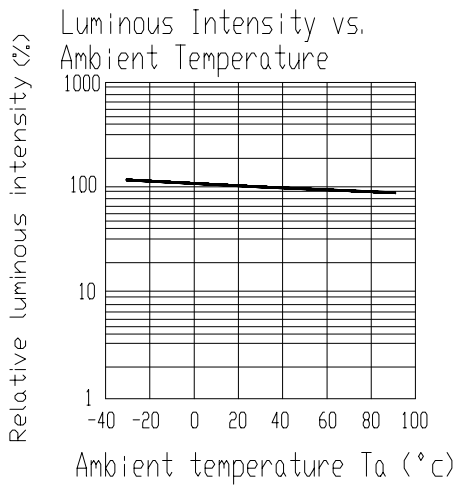
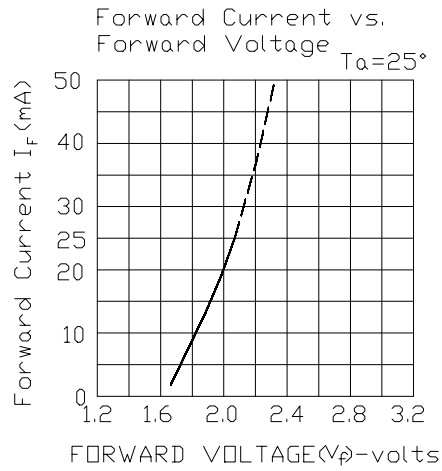
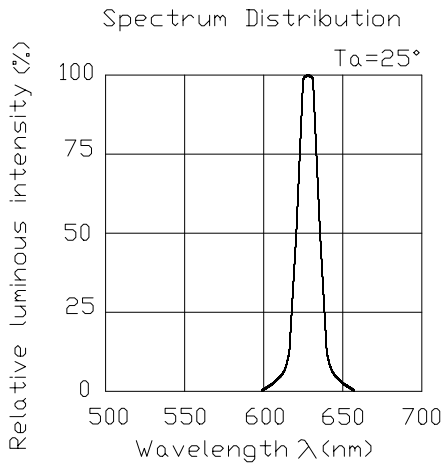
■ **Electronic Optical Characteristics :**

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Luminous intensity	I <sub>v</sub> SUR: SYG:	-----	2 1	-----	mcd	If=2mA
		13 9	36 14	-----	mcd	If=20mA
Viewing Angle	2θ 1/2	-----	130	-----	deg	If=20mA
Peak Wavelength	λ <sub>p</sub> SUR: SYG:	-----	632 575	-----	nm	If=20mA
Dominant Wavelength	λ <sub>d</sub> SUR: SYG:	-----	624 573	-----	nm	If=20mA
Spectrum Radiation Bandwidth	Δλ SUR: SYG:	-----	20 20	-----	nm	If=20mA
Forward Voltage	V <sub>f</sub> SUR: SYG:	-----	2.0 2.0	2.4 2.4	V	If=20mA
Reverse Current	I <sub>r</sub>	-----	-----	10	μA	V <sub>r</sub> =5V

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**Typical Electro-Optical Characteristic Curves**

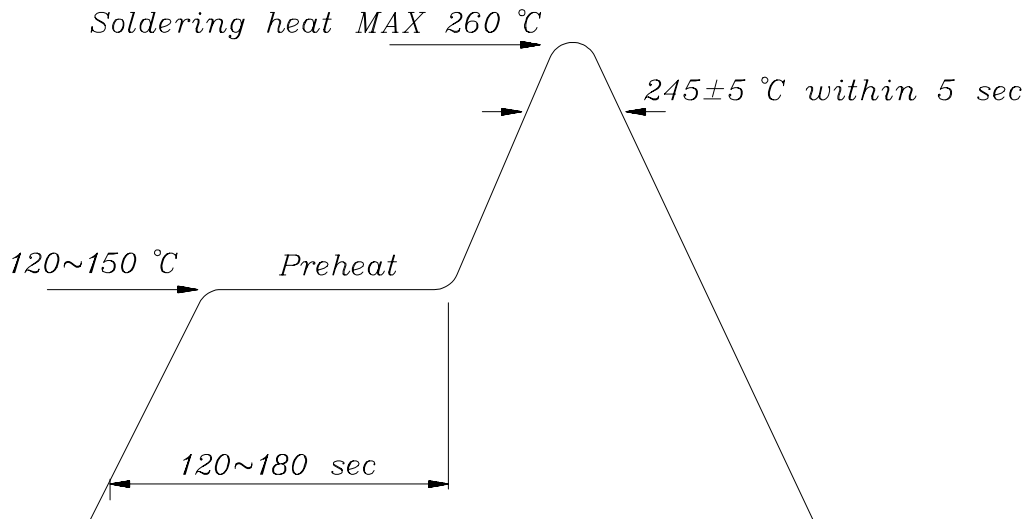
SUR



## Chip LEDs with Bi-Color(Multi-Color)

### ■ Soldering heat reliability ( DIP )

Please refer to the following figure :

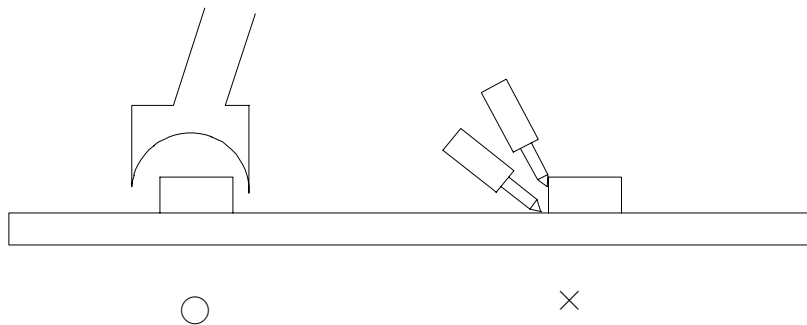


### ■ Soldering Iron

Basic spec is  $\leq 5$  sec when 260°C. If temperature is higher, time should be shorter (+10°C → -1sec). Power dissipation of iron should be smaller than 15 W , and temperature should be controllable. Surface temperature of the device should be under 230 °C .

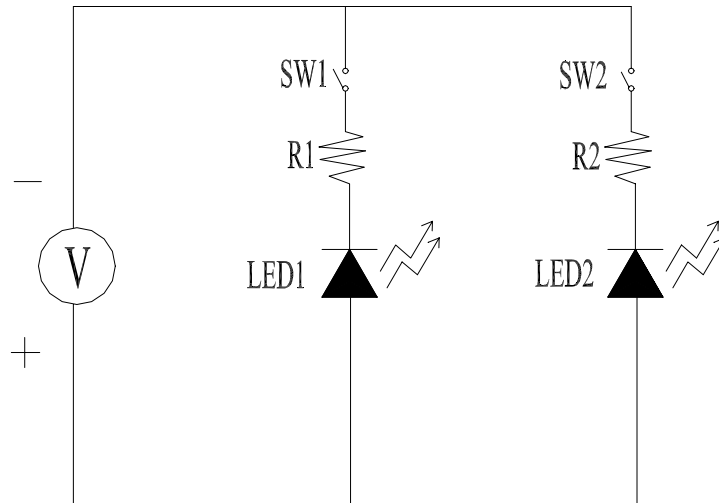
### ■ Rework

1. Customer must finish rework within 5 sec under 260°C .
2. The head of iron can not touch copper foil.
3. Twin-head type is preferred.



## Chip LEDs with Bi-Color(Multi-Color)

### ■ Test Circuit



### ■ Precautions For Use

#### 1. Over-current-proof

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

#### 2. Storage time

2.1 The operation of temperature and R.H. are :  $5^{\circ}\text{C} \sim 35^{\circ}\text{C}$  , R.H.60%.

2.2 Once the package is opened, the products should be used within a week.

Otherwise, they should be keeping in a dampproof box with desiccants.

Considering the tape life , we suggest our customers to use our products within a year (from production date).

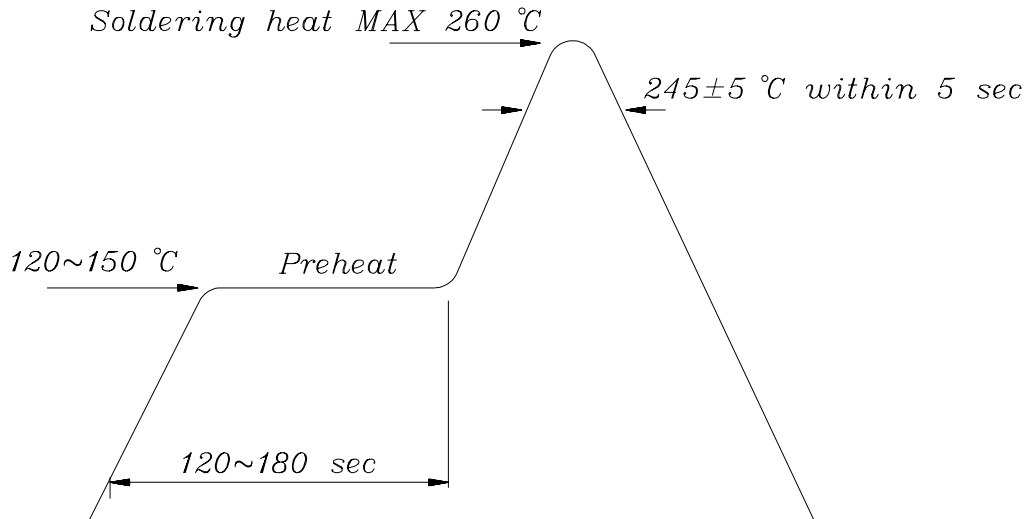
2.3 If opened more than one week in an atmosphere  $5^{\circ}\text{C} \sim 35^{\circ}\text{C}$  , R.H.60% , they should be treated at  $60^{\circ}\text{C} \pm 5^{\circ}\text{C}$  for 15hrs.

2.4 When you discover that the desiccant in the package has a pink color (normal = blue) , you should treat them in the same conditions as 2.3.

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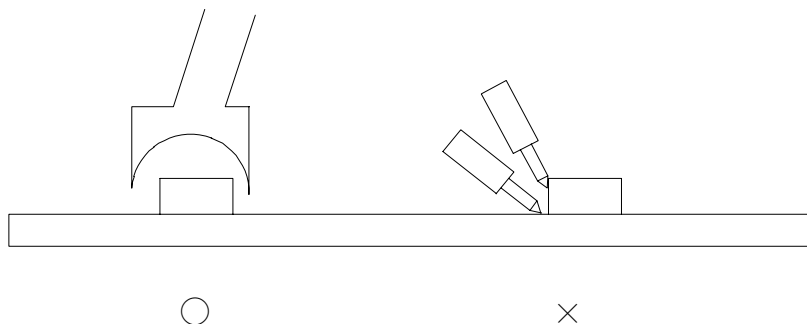


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■ Reflow Temp / Time :

