



EVERLIGHT ELECTRONICS CO., LTD.

MODEL NO: 11-22 SURSYGC/S530-A2/TR8

Device Number : DSE-112-019 REV. 1.0

Chip LEDs with Bi-Color(Multi-Color)

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### Features :

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

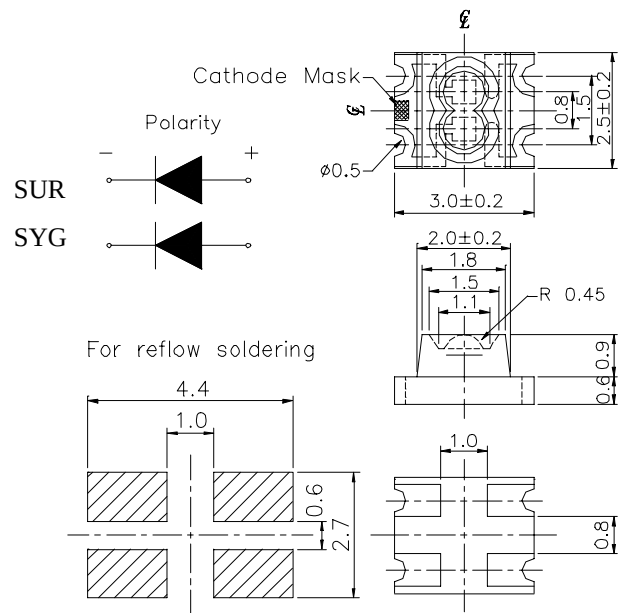
### Description :

- The 11-22 SMD Taping is much smaller than le-aded components, thus enable smaller board size, higher packing density, reduced storage space and finally smaller equipment to be obtained.
- Besides, light Weight makes them ideal for minia- ture 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.

### Package Dimension :



### Notes :

Tolerances Unless Dimension  $\pm$  0.1mm

| PART NO                  | CHIP         |               | Lens Color  |
|--------------------------|--------------|---------------|-------------|
|                          | Material     | Emitted Color |             |
| 11-22SURSYGC/S530-A2/TR8 | SUR: AlGaInP | Hyper Red     | Water Clear |
|                          | SYG: AlGaInP | Super Green   |             |

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Http://www.everlight.com



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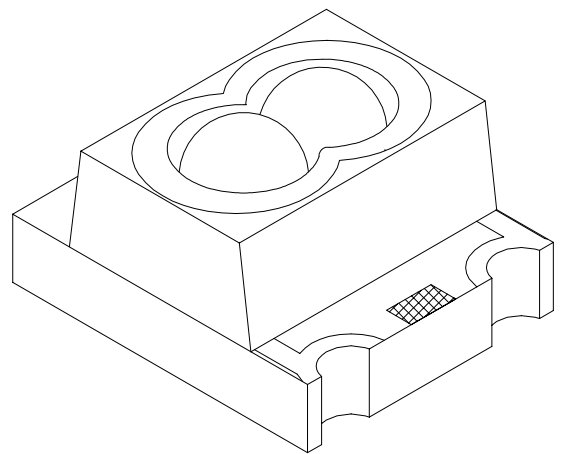
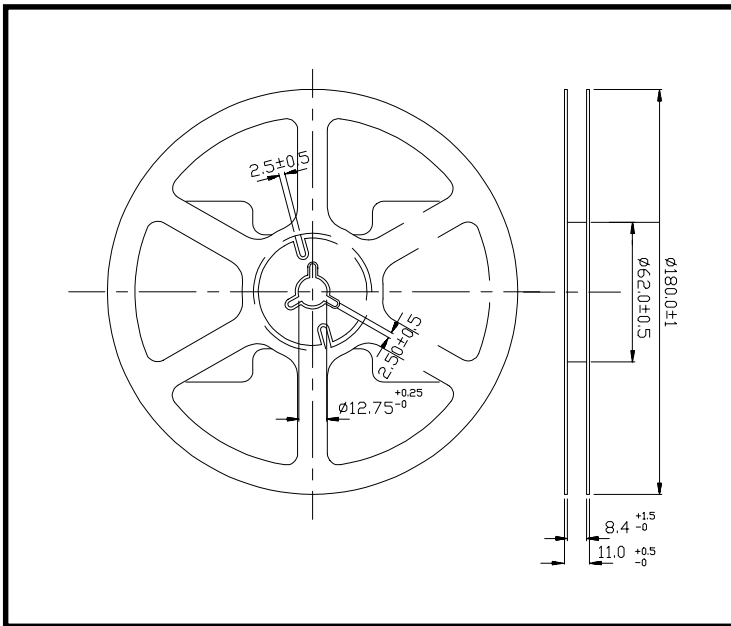
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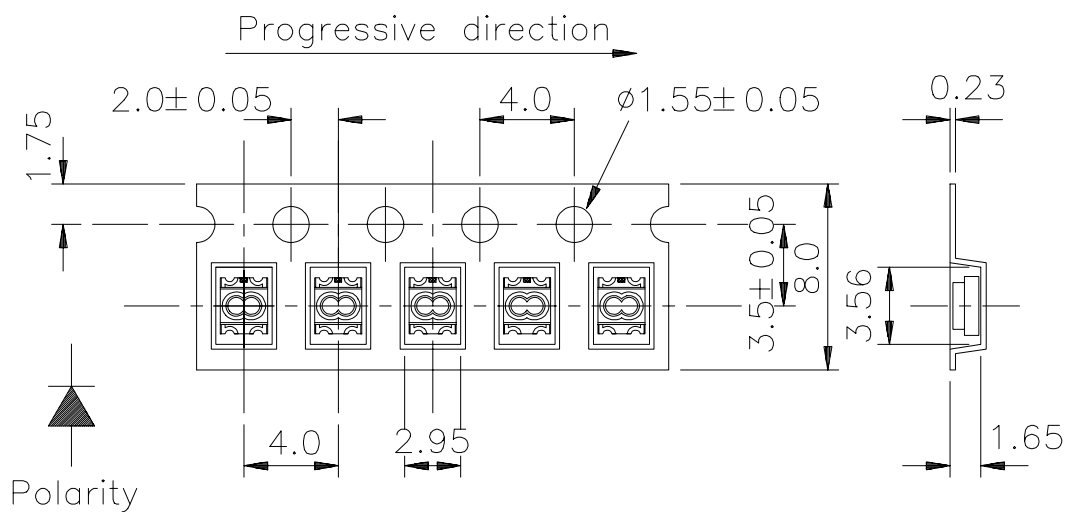
**Chip LEDs with Bi-Color(Multi-Color)**

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■ **Package Dimension :**



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



TOLERANCES UNLESS DIMENSION±0.1  
ANGLE±0.5  
UNIT:mm



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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<br>SYG: 25   | mA   |
| Operating Temperature                  | Topr     | -40 ~ +85            | °C   |
| Storage Temperature                    | Tstg     | -40 ~ +90            | °C   |
| Soldering Temperature                  | Tsol     | 260 (for 5 second)   | °C   |
| Power Dissipation                      | Pd       | SUR: 60<br>SYG: 60   | mW   |
| Peak Forward Current(Duty 1/10 @ 1KHZ) | If(Peak) | SUR: 160<br>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<br>∫ 5 min<br>L : -55°C 30min | 50 CYCLE         | 76 Pcs      | 0/1   |
| 3  | Thermal Shock                    | H : +100°C 5min<br>∫ 10 sec<br>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 m A                                   | 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:<br>SYG:   | 21<br>14 | 51<br>21   | -----      | mcd     | If=20mA            |
| Viewing Angle                | 2 $\theta$ 1/2                | -----    | 60         | -----      | deg     | If=20mA            |
| Peak Wavelength              | $\lambda$ p SUR:<br>SYG:      | -----    | 632<br>575 | -----      | nm      | If=20mA            |
| Dominant Wavelength          | $\lambda$ d SUR:<br>SYG:      | -----    | 624<br>573 | -----      | nm      | If=20mA            |
| Spectrum Radiation Bandwidth | $\Delta \lambda$ SUR:<br>SYG: | -----    | 20<br>20   | -----      | nm      | If=20mA            |
| Forward Voltage              | V <sub>f</sub> SUR:<br>SYG:   | -----    | 2.0<br>2.0 | 2.4<br>2.4 | V       | If=20mA            |
| Reverse Current              | I <sub>r</sub>                | -----    | -----      | 10         | $\mu$ A | V <sub>r</sub> =5V |



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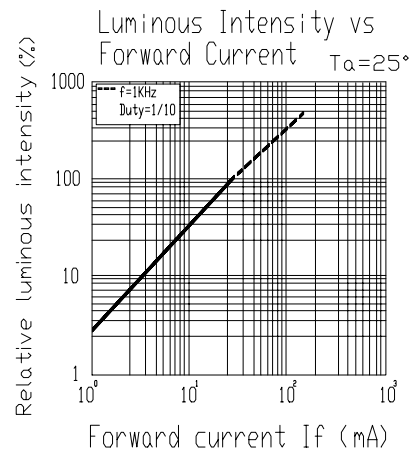
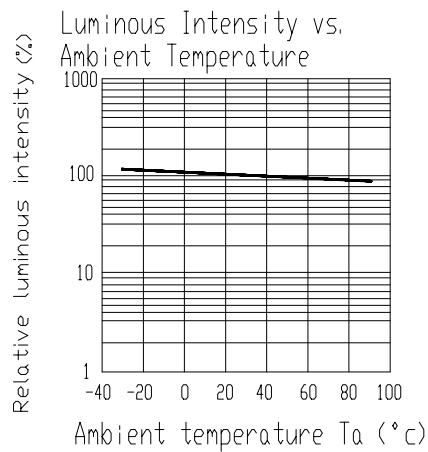
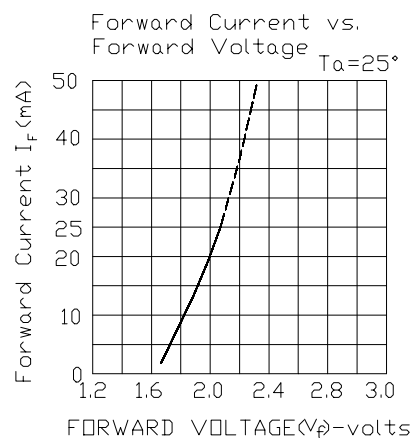
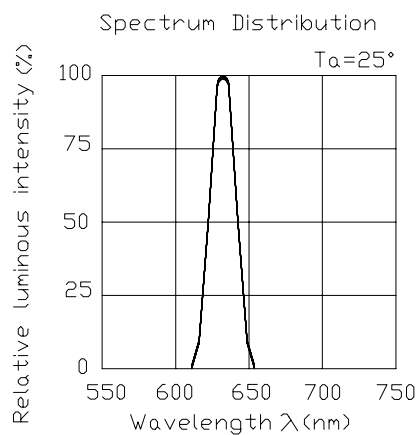
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**Chip LEDs with Bi-Color(Multi-Color)**

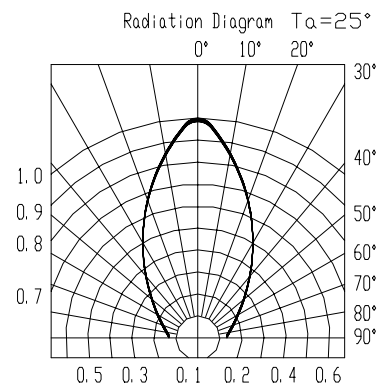
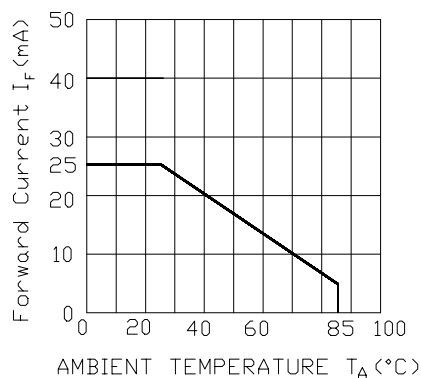
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## Typical Electro-Optical Characteristic Curves

SUR



Forward Current Derating Curve





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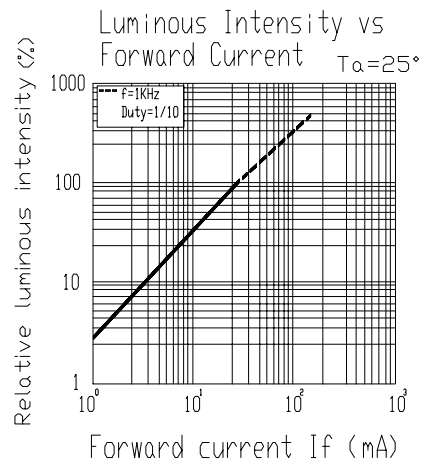
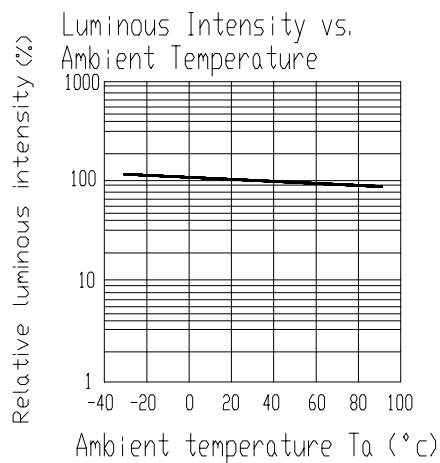
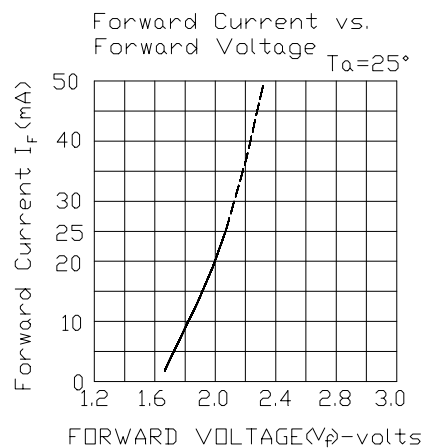
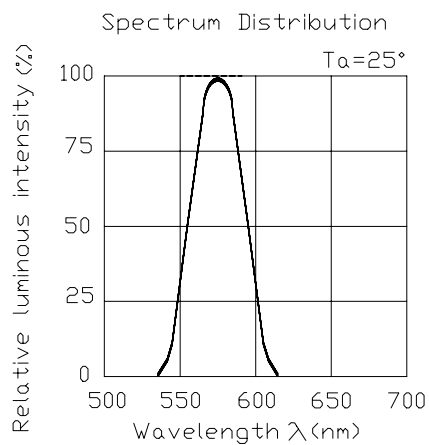
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**Chip LEDs with Bi-Color(Multi-Color)**

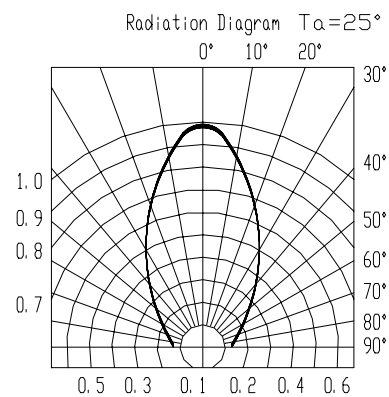
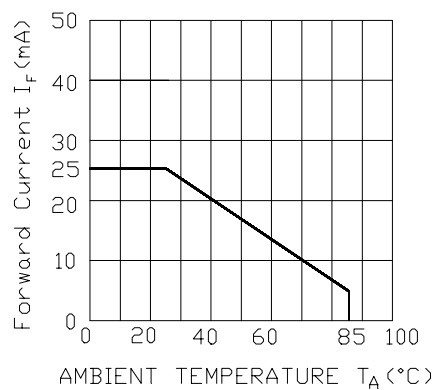
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## Typical Electro-Optical Characteristic Curves

SYG



Forward Current Derating Curve





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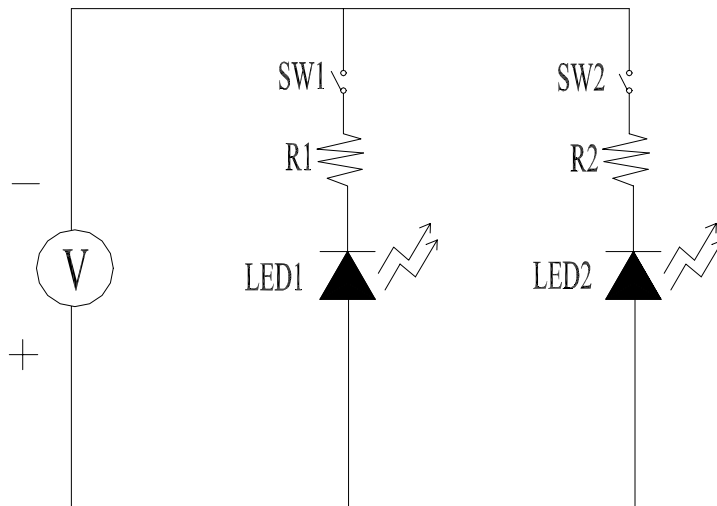
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### ■ Test Circuit



### ■ 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 keep 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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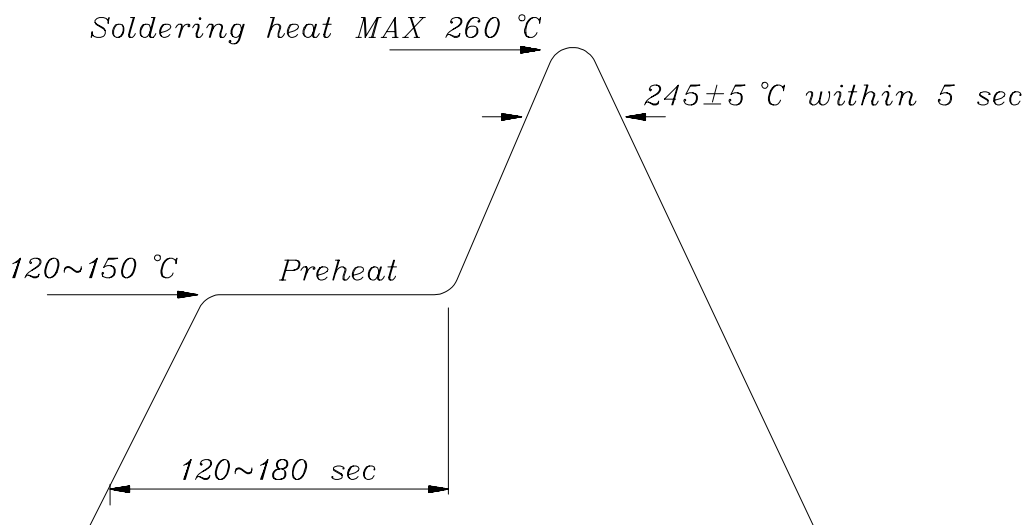
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### ■ Soldering heat reliability ( DIP )

Please refer to the following figure :

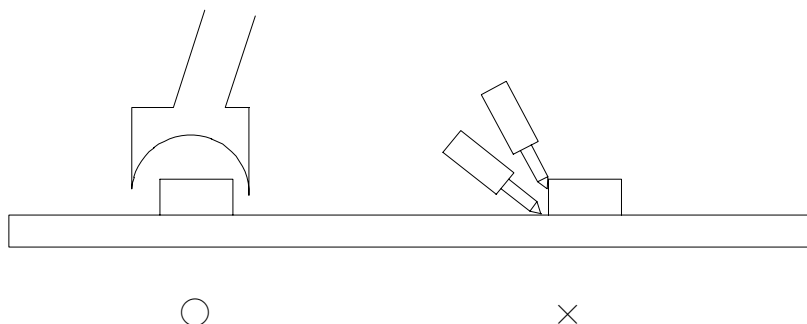


### ■ Soldering Iron

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. Copper foil can not be touched by the head of iron.
3. Twin-head type is preferred.







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■ Reflow Temp / Time :

