



Technical Data Sheet

Right Angle Lens Chip LEDs with Bi-Color(Multi-Color)

12-22SURSUGC/S530-A3/A4/TR8

Features

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



Descriptions

- The 12-22 SMD 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 applications. 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.

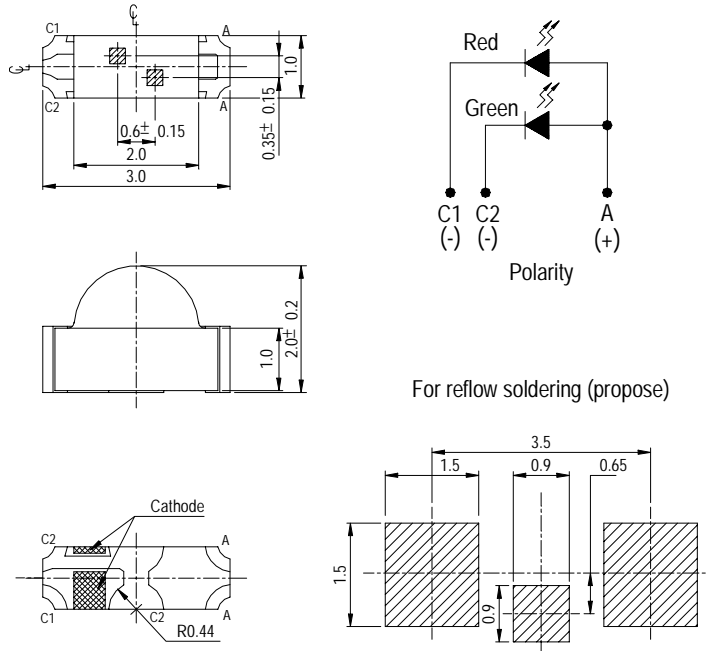
Device Selection Guide

| Chip | | | Lens Color |
|------|----------|---------------|-------------|
| Type | Material | Emitted Color | |
| SUR | AlGaInP | Hyper Red | Water Clear |
| SUG | InGaN | Super Green | |

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Package Outline Dimensions



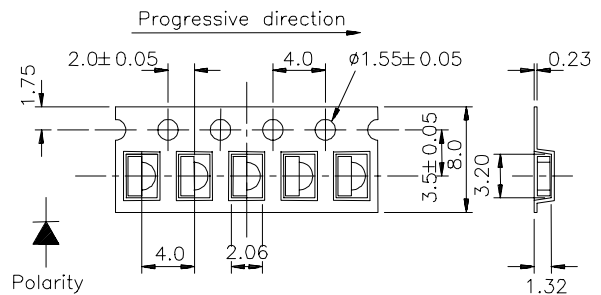
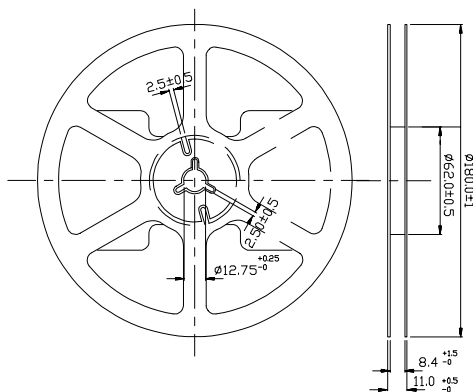
Notes: Tolerances Unless Dimension $\pm 0.1\text{mm}$, Angle $\pm 0.5^\circ$,Unit = mm

Absolute Maximum Ratings (Ta=25°C)

| Parameter | Symbol | Rating | Unit |
|--|------------------|---------------------|------|
| Reverse Voltage | V _R | 5 | V |
| Forward Current | I _F | SUR:25 SUG:30 | mA |
| Operating Temperature | T _{opr} | -40 ~ +85 | °C |
| Storage Temperature | T _{stg} | -40~ +90 | °C |
| Soldering Temperature | T _{sol} | 260 (for 5 second) | °C |
| Electrostatic Discharge | ESD | SUR:2000 SUG:150 | V |
| Power Dissipation | P _d | SUR:60 SUG:110 | mW |
| Peak Forward Current (Duty 1/10 @1KHz) | I _F | SUR:160 SUG:100 | mA |

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Electro-Optical Characteristics (Ta=25°C)

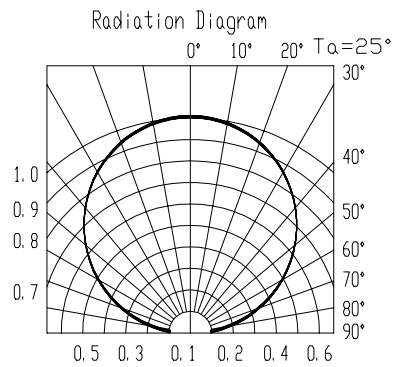
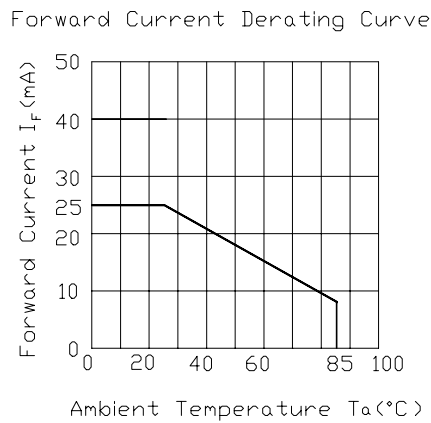
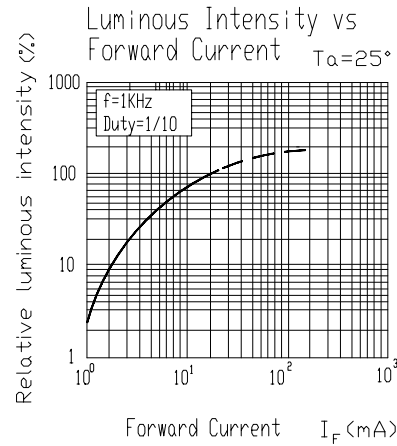
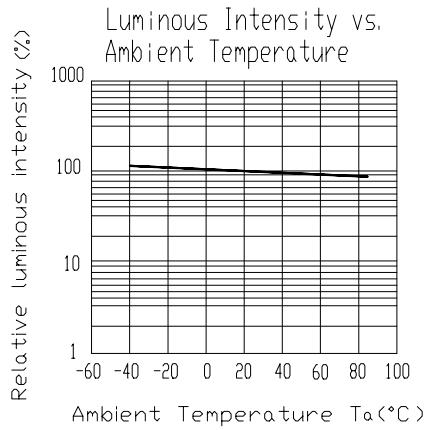
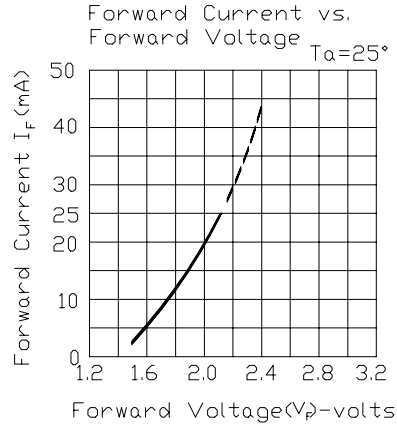
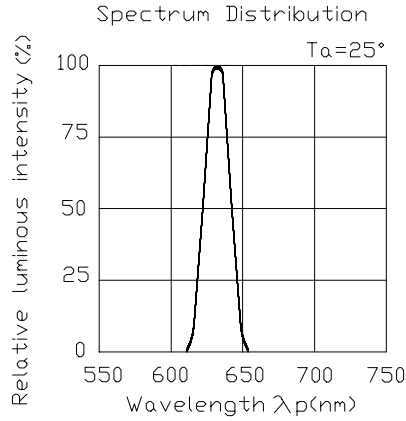
| Parameter | Symbol | Min. | Typ. | Max. | Unit | Condition |
|------------------------------|--------------------|-------|-------|-------|------|----------------------|
| Luminous Intensity | I _v SUR | 45 | 68 | ----- | mcd | I _F =20mA |
| | SUG | 100 | 210 | ----- | | |
| Viewing Angle | 2θ 1/2 | ----- | 120 | ----- | deg | I _F =20mA |
| Peak Wavelength | λ _p SUR | ----- | 632 | ----- | nm | I _F =20mA |
| | SUG | ----- | 518 | ----- | | |
| Dominant Wavelength | λ _d SUR | ----- | 624 | ----- | nm | I _F =20mA |
| | SUG | ----- | 525 | ----- | | |
| Spectrum Radiation Bandwidth | Δλ SUR | ----- | 20 | ----- | nm | I _F =20mA |
| | SUG | ----- | 35 | ----- | | |
| Forward Voltage | V _F SUR | ----- | 2.0 | 2.4 | V | I _F =20mA |
| | SUG | ----- | 3.5 | 4.3 | | |
| Reverse Current | I _R SUR | ----- | ----- | 10 | μA | V _R =5V |
| | SUG | ----- | ----- | 50 | | |

Reel & Carrier Tape Dimensions
Loaded quantity per reel 2000 PCS/reel


Notes: Tolerances Unless Dimension ± 0.1mm , Angle± 0.5° ,Unit = mm

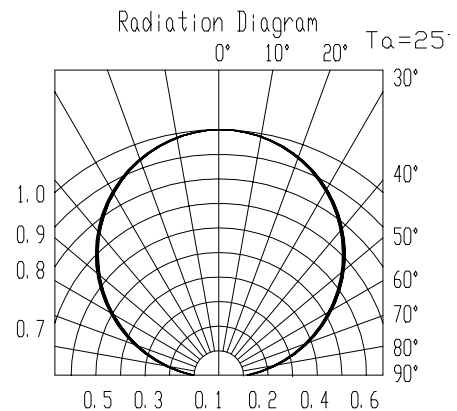
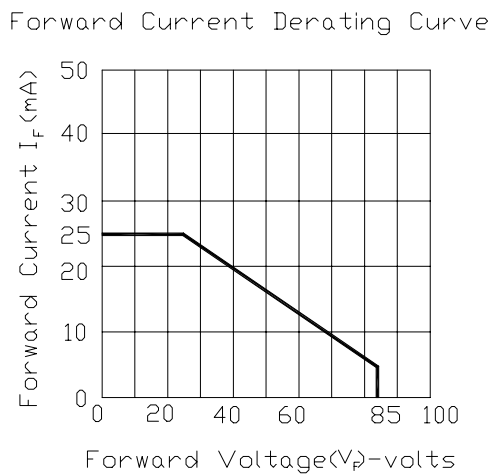
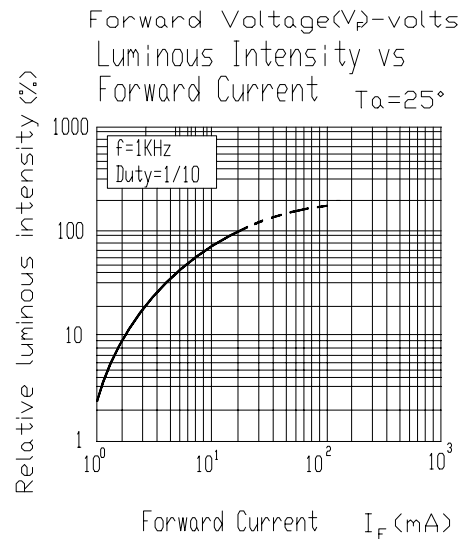
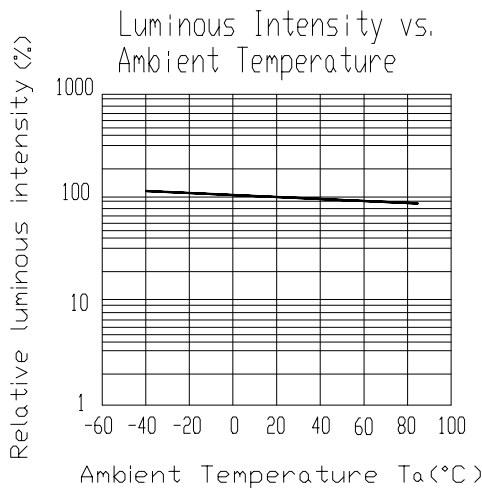
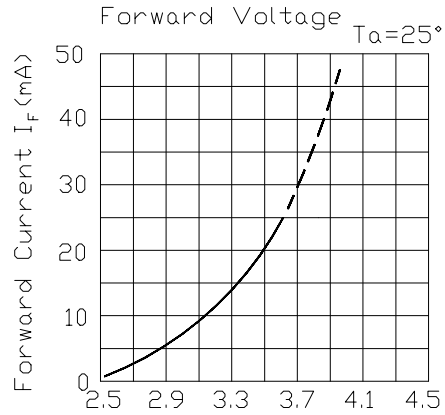
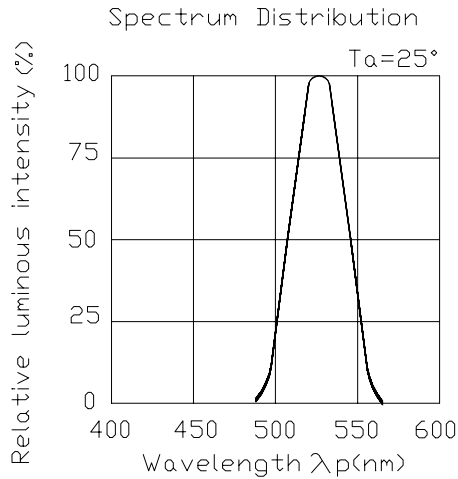
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Typical Electro-Optical Characteristics Curves
SUR



12-22SURSUGC/S530-A3/A4/TR8

Typical Electro-Optical Characteristics Curves
SUG



12-22SURSUGC/S530-A3/A4/TR8
Reliability Test Items And Conditions

The reliability of products shall be satisfied with items listed below.

Confidence level : 90 %

LTPD : 10 %

| No. | Items | Test Condition | Test Hours/Cycles | Sample Size | Ac/Rc |
|-----|----------------------------------|--|-------------------|-------------|-------|
| 1 | Reflow | Temp. : 240°C ± 5°C Min. 5 sec. | 6 min. | 22 Pcs. | 0/1 |
| 2 | Temperature Cycle | H : +85°C 30min. ∫ 5 min. L : -55°C 30min. | 50 Cycles | 22 Pcs. | 0/1 |
| 3 | Thermal Shock | H : +100°C 5min. ∫ 10 sec. L : -10°C 5min. | 50 Cycles | 22 Pcs. | 0/1 |
| 4 | High Temperature Storage | Temp. : 100°C | 1000 Hrs. | 22 Pcs. | 0/1 |
| 5 | Low Temperature Storage | Temp. : -55°C | 1000 Hrs. | 22 Pcs. | 0/1 |
| 6 | DC Operating Life | I _F = 20 mA | 1000 Hrs. | 22 Pcs. | 0/1 |
| 7 | High Temperature / High Humidity | 85°C/R.H85% | 1000 Hrs. | 22 Pcs. | 0/1 |

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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 RH are : 5°C~35°C , RH60%.

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

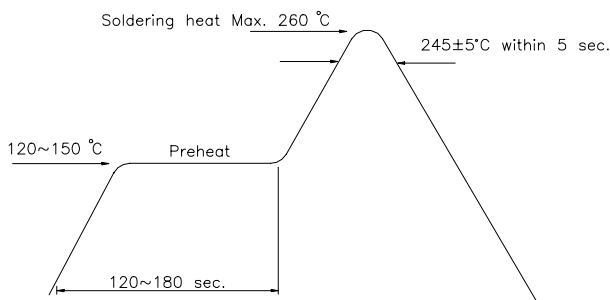
Otherwise, they should be kept in a damp proof box with descanting agent.

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

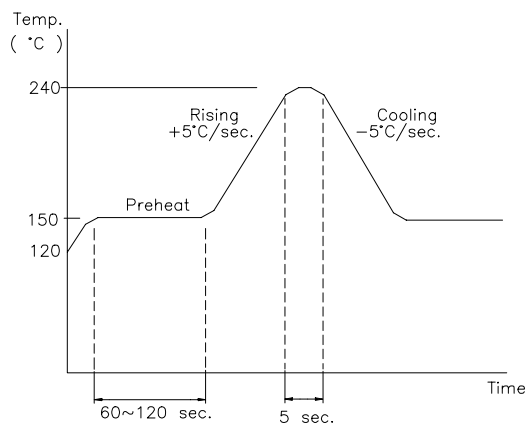
2.3 If opened more than one week in an atmosphere 5°C~35°C , RH 60% , they should be treated at 60°C± 5°C for 15hrs.

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.

Soldering heat



Reflow Temp / Time

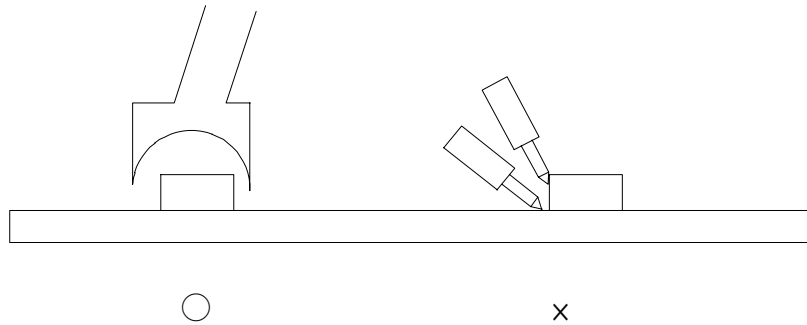


Soldering Iron

Basic spec is ≤ 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 .

12-22SURSUGC/S530-A3/A4/TR8**Rework**

1. Customer must finish rework within 5 sec under 245°C.
2. The head of iron can not touch copper foil.
3. Twin-head type is preferred.



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