

Technical Data Sheet

1.8mm round Subminiature Chip LED

42-21USOC/S530-XX/TR8

Features

- Package in 12mm tape on 7" diameter reel.
- Compatible with automatic placement equipment.-
- Compatible with infrared and vapor phase reflow solder process.
- Mono-color type.

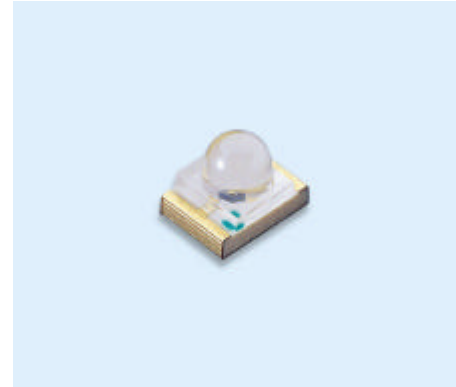
Descriptions

The 42-21 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

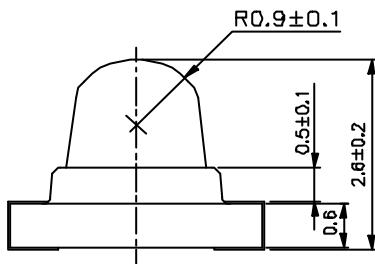
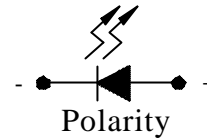
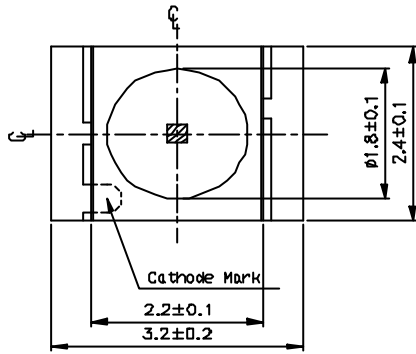
- Automotive: backlighting in dashboard and switch.
- Telecommunication: indicator and backlighting in telephone and fax.
- Flat backlight for LCD, switch and symbol.
- General use.



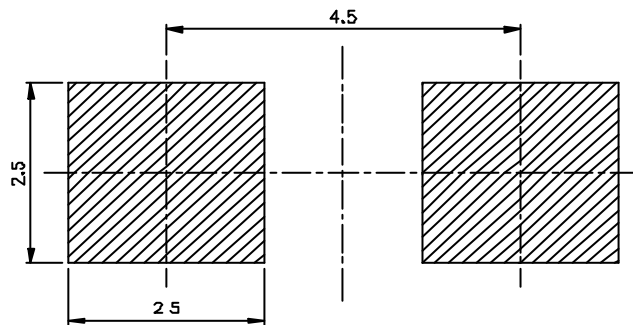
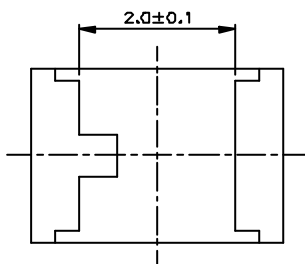
Device Selection Guide

| Chip | | Lens Color |
|----------|---------------------|-------------|
| Material | Emitted Color | |
| AlGaInP | Super Sunset Orange | Water Clear |

Package Outline Dimensions



For reflow soldering(Propose)



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

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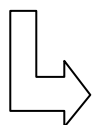
Absolute Maximum Ratings (Ta=25)

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

Electro-Optical Characteristics (Ta=25)

| Parameter | Symbol | *Chip Rank | Min. | Typ. | Max. | Unit | Condition |
|------------------------------|----------------|------------|-------|-------|-------|------|----------------------|
| Luminous Intensity | I _V | A2 | 103 | 257 | ----- | mcd | I _F =20mA |
| | | A3 | 240 | 366 | ----- | | |
| | | A4 | 342 | 445 | ----- | | |
| | | A5 | 411 | 582 | ----- | | |
| | | A6 | 513 | 736 | ----- | | |
| Viewing Angle | 2 1/2 | ----- | ----- | 30 | ----- | deg | I _F =20mA |
| Peak Wavelength | p | ----- | ----- | 621 | ----- | nm | I _F =20mA |
| Dominant Wavelength | d | ----- | ----- | 615 | ----- | nm | I _F =20mA |
| Spectrum Radiation Bandwidth | | ----- | ----- | 18 | ----- | nm | I _F =20mA |
| Forward Voltage | V _F | ----- | ----- | 2.0 | 2.4 | V | I _F =20mA |
| Reverse Current | I _R | ----- | ----- | ----- | 10 | μ A | V _R =5V |

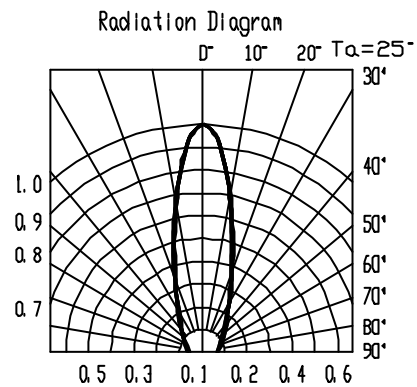
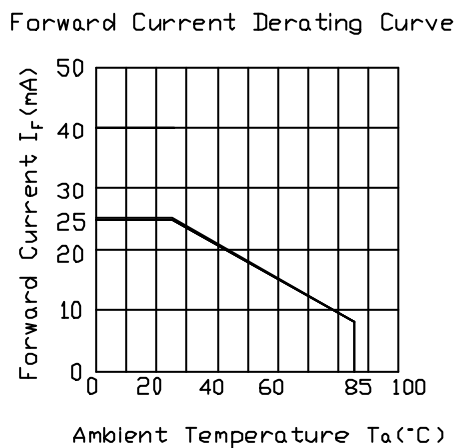
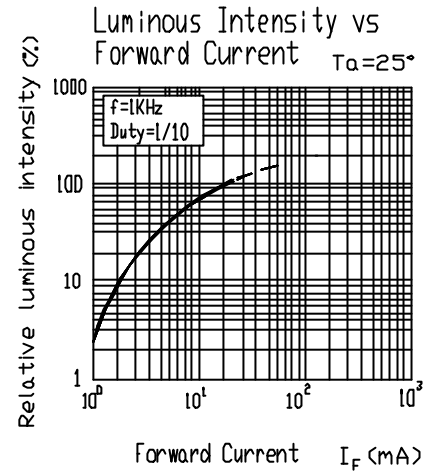
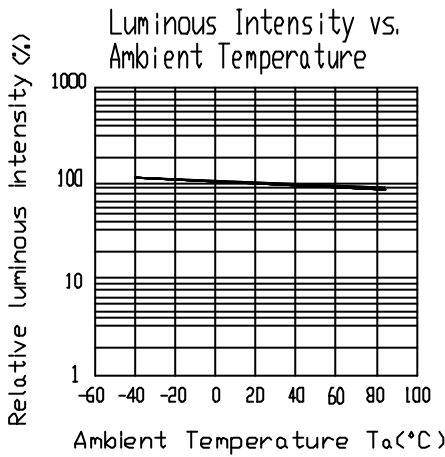
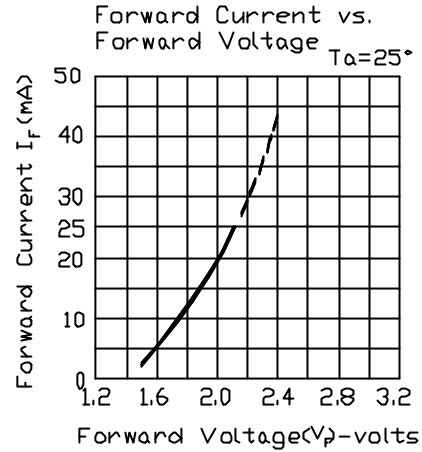
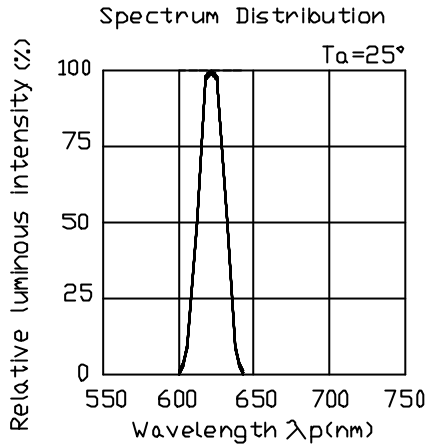
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Chip Rank

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Typical Electro-Optical Characteristics Curves



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Label explanation

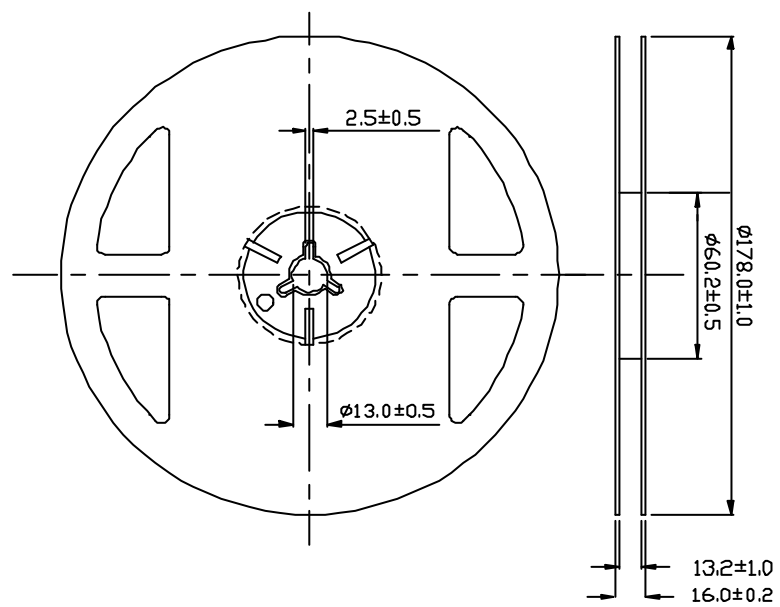
CAT: Luminous Intensity (mcd)

HUE: Dom. Wavelength (nm)

REF: Forward Voltage (V)



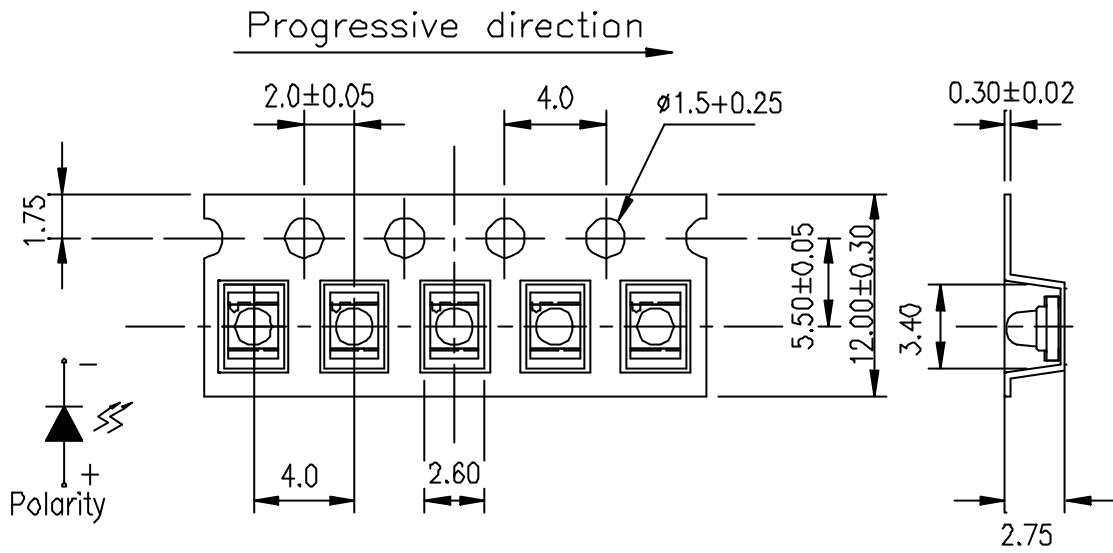
Reel Dimensions



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

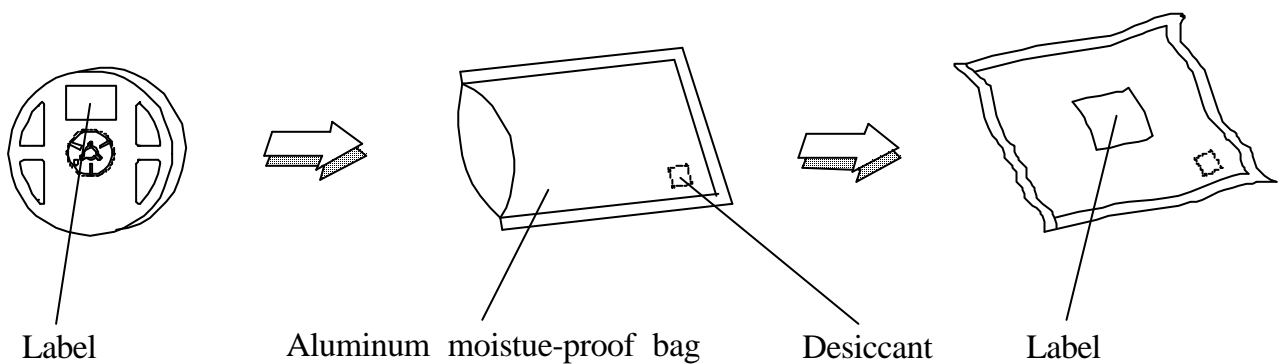
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Carrier Tape Dimensions: Loaded quantity 1000 PCS per reel



Note: The tolerances unless mentioned is $\pm 0.1\text{mm}$, Angle $\pm 0.5^\circ$,Unit = mm

Moisture Resistant Packaging



42-21USOC/S530-XX/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/Re |
|-----|----------------------------------|---|-------------------|-------------|-------|
| 1 | Reflow | Temp. : 240 ± 5 Min. 5 sec. | 6 min. | 22 Pcs. | 0/1 |
| 2 | Temperature Cycle | H : +100 15min. 5 min. L : -40 15min. | 300 Cycles | 22 Pcs. | 0/1 |
| 3 | Thermal Shock | H : +100 5min. 10 sec. L : -10 5min. | 300 Cycles | 22 Pcs. | 0/1 |
| 4 | High Temperature Storage | Temp. : 100 | 1000 Hrs. | 22 Pcs. | 0/1 |
| 5 | Low Temperature Storage | Temp. : -55 | 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 /R.H85% | 1000 Hrs. | 22 Pcs. | 0/1 |

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 ~35 , RH60%.

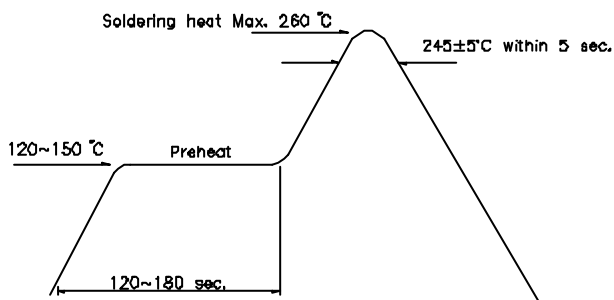
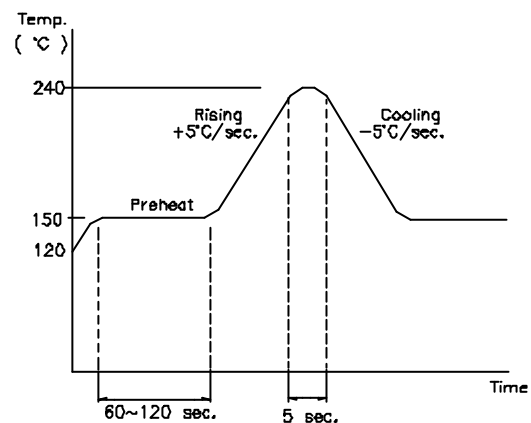
2.2 Once the package is opened, the products should be used within a week.

Otherwise, they should be kept in a damp proof box with desiccating 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 ~35 , RH 60%, they should be treated at 60 ± 5 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.

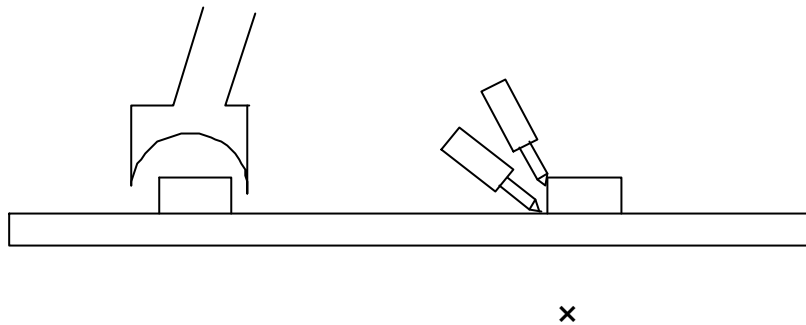
Soldering heat**Reflow Temp / Time****Soldering Iron**

Basic spec is 5 sec when 260 .If temperature is higher, time should be shorter (+10 -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 .

Rework

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

**EVERLIGHT ELECTRONICS CO., LTD.**

Office: No 25, Lane 76, Sec 3, Chung Yang Rd,
Tucheng, Taipei 236, Taiwan, R.O.C

Tel: 886-2-2267-2000, 2267-9936

Fax: 886-2267-6244, 2267-6189, 2267-6306

<http://www.everlight.com>