



MODEL NO: 42-21UBGC/TR8

Device Number : DSE-421-022 REV. 1.0

**1.8mm Round Subminiature LEDs**

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**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.

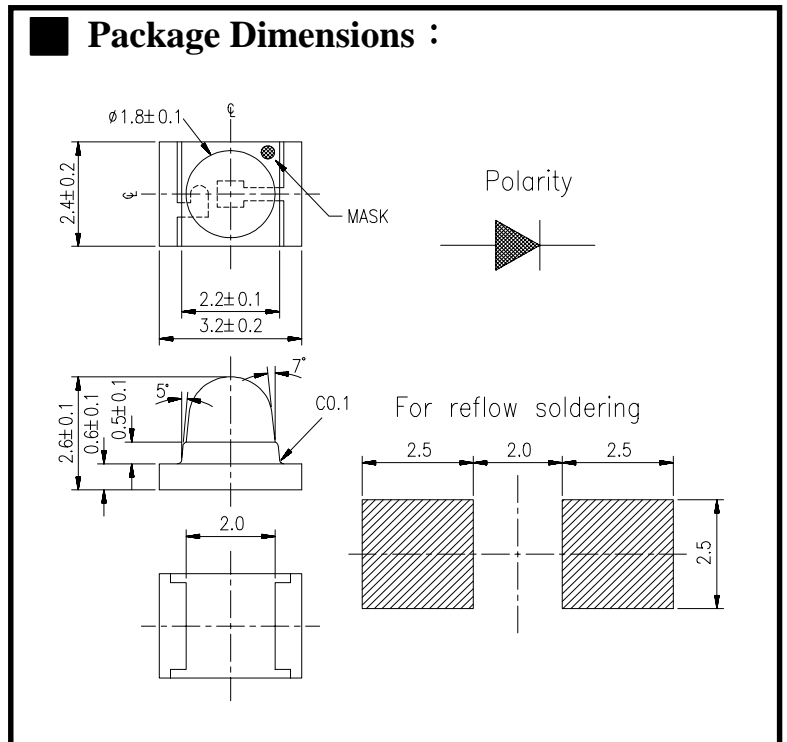
**Description :**

- The 42-21 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.

**Package Dimensions :**



**Notes :**

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

| PART NO       | CHIP                |                  | Lens Color  |
|---------------|---------------------|------------------|-------------|
|               | Material            | Emitted Color    |             |
| 42-21UBGC/TR8 | InGaN/SiC Substrate | Super Blue Green | Water Clear |

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

TEL: 886-2-2267-2000,2266-9936(22 Lines)

FAX: 886-2-2267-6189

<http://www.everlight.com>



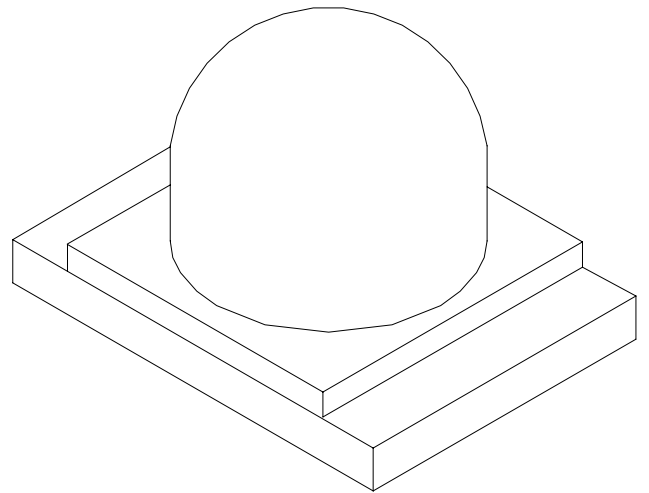
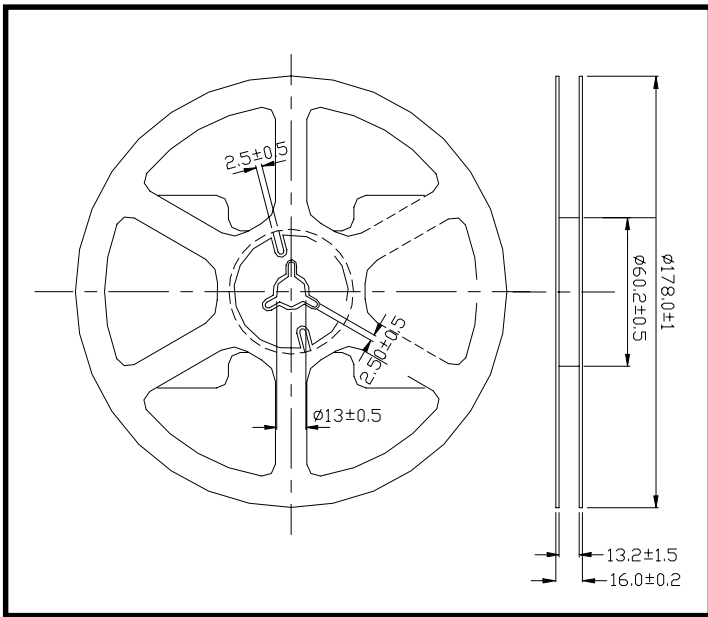
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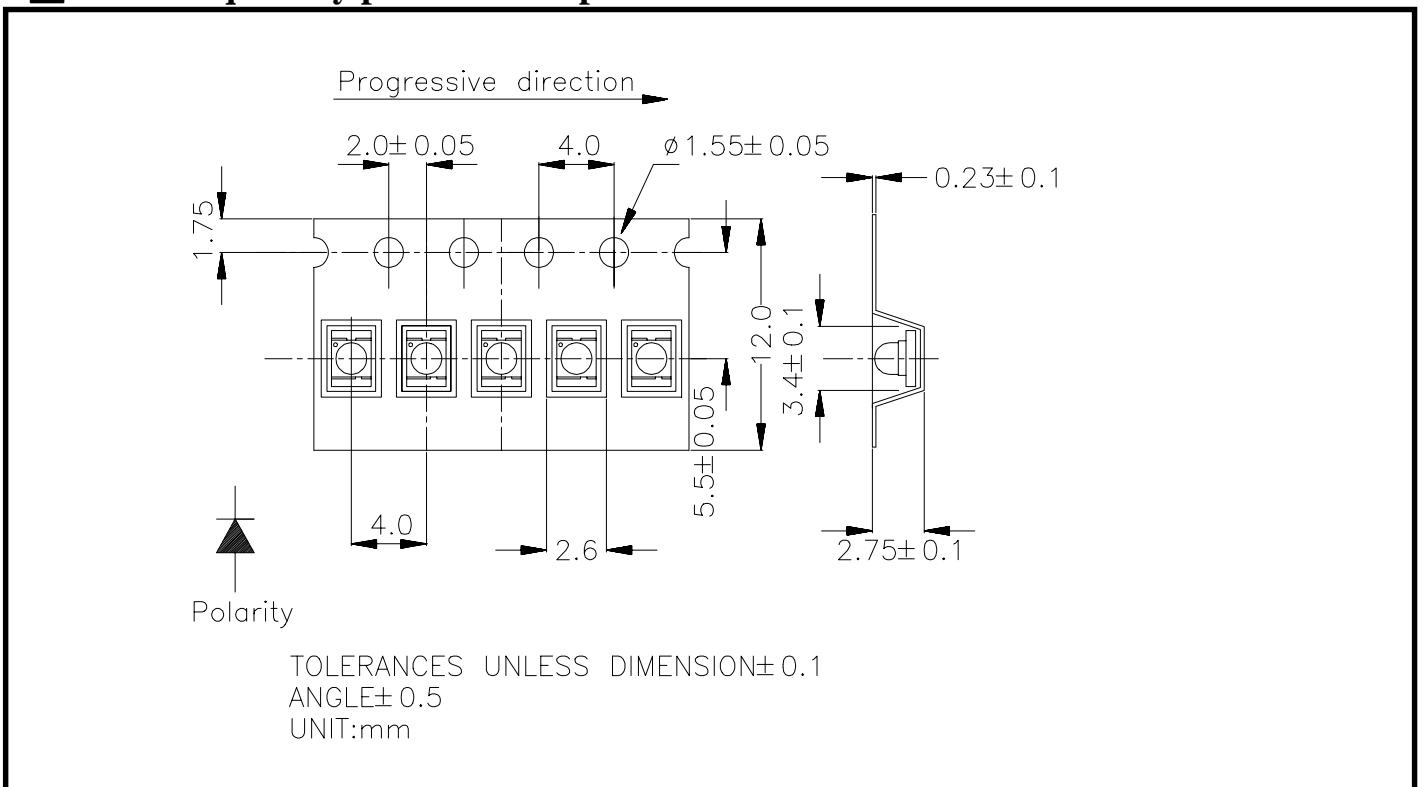
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■ **Package Dimensions :**



■ **Loaded quantity per reel 1000 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       | 30                 | mA   |
| Operating Temperature                  | Topr     | -40 ~ +85          | °C   |
| Storage Temperature                    | Tstg     | -40 ~ +90          | °C   |
| Soldering Temperature                  | Tsol     | 260 (for 5 second) | °C   |
| Electrostatic Discharge                | ESD      | 1000               | V    |
| Power Dissipation                      | Pd       | 120                | mW   |
| Peak Forward Current(Duty 1/10 @ 1KHZ) | If(Peak) | 100                | mA   |

■ **Electronic Optical Characteristics :**

| Parameter                    | Symbol | Min.  | Typ.  | Max.  | Unit | Condition |
|------------------------------|--------|-------|-------|-------|------|-----------|
| Luminous intensity           | Iv     | ----- | 36    | ----- | mcd  | If=2mA    |
|                              |        | 352   | 608   | ----- | mcd  | If=20mA   |
| Viewing Angle                | 2θ 1/2 | ----- | 30    | ----- | deg  | If=20mA   |
| Peak Wavelength              | λ p    | ----- | 502   | ----- | nm   | If=20mA   |
| Dominant Wavelength          | λ d    | ----- | 505   | ----- | nm   | If=20mA   |
| Spectrum Radiation Bandwidth | Δ λ    | ----- | 30    | ----- | nm   | If=20mA   |
| Forward Voltage              | Vf     | ----- | 3.5   | 4.0   | V    | If=20mA   |
| Reverse Current              | Ir     | ----- | ----- | 10    | μ A  | Vr=5V     |



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■ 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 mA                                    | 1000 HRS         | 76 Pcs      | 0/1   |
| 7  | High Temperature /<br>High Humidity | 85°C/85% RH                                   | 1000 HRS         | 76 Pcs      | 0/1   |

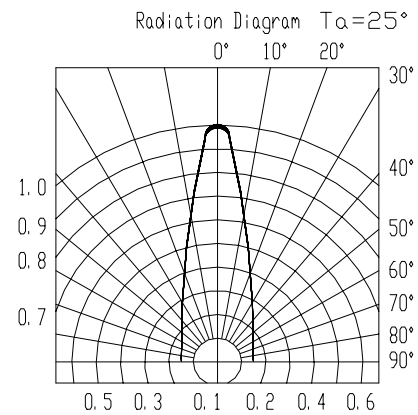
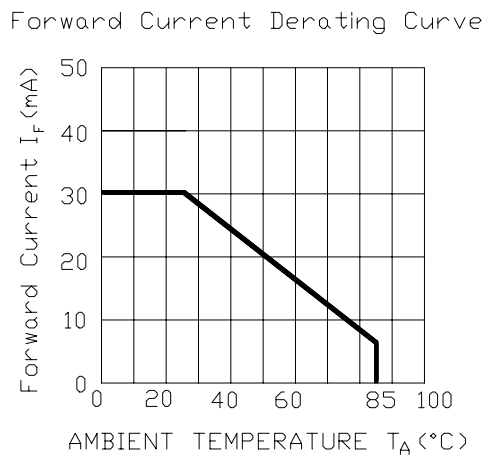
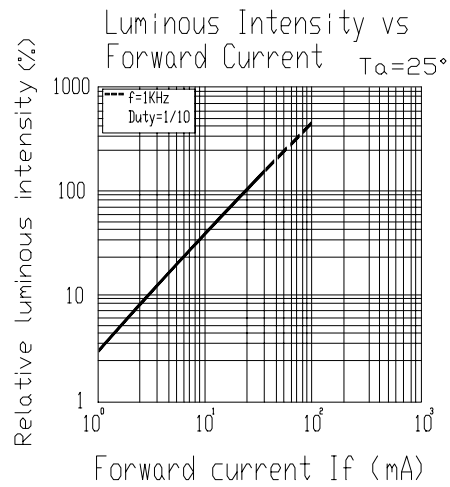
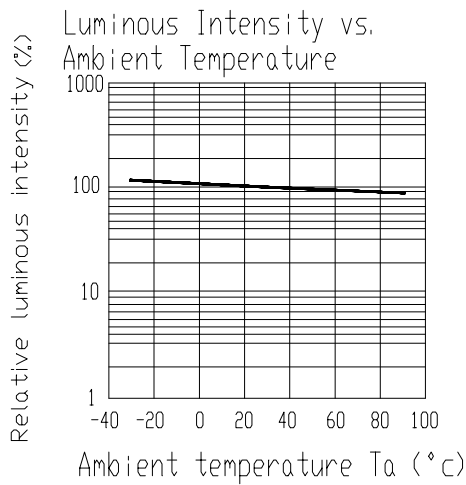
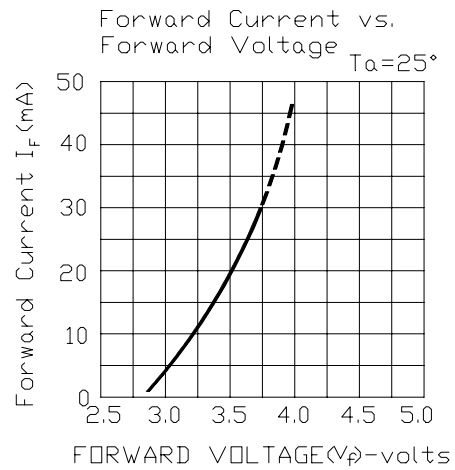
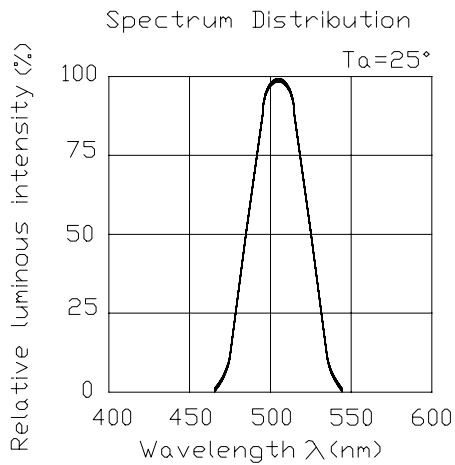


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**Typical Electro-Optical Characteristic Curves :**





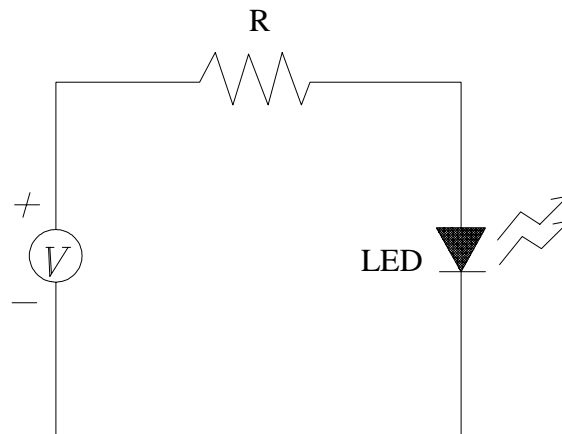
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■ **Test Circuit :**



■ **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 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.



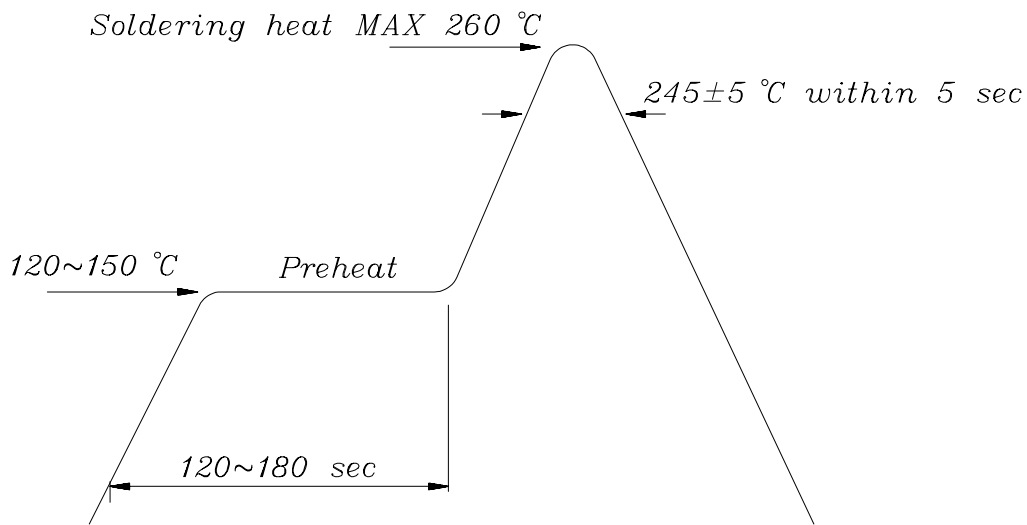
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■ **Soldering heat reliability ( DIP ) :**

Please refer to the following figure :

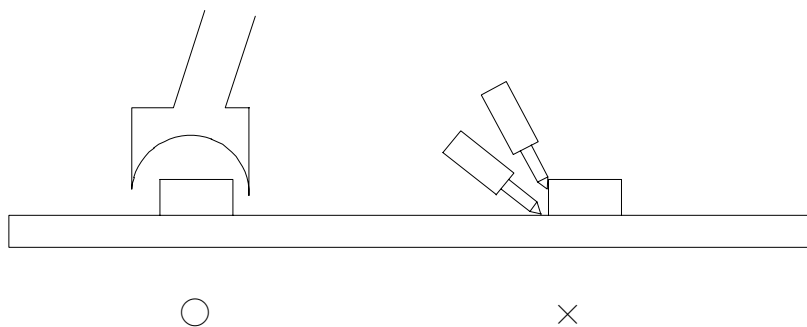


■ **Soldering Iron :**

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.





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■ Reflow Temp / Time :

