



## Technical Data Sheet

### Chip LED with Right Angle Lens

**12-21CSUBC/S295/TR8**

#### Features

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

#### Descriptions

- The 12-21C 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

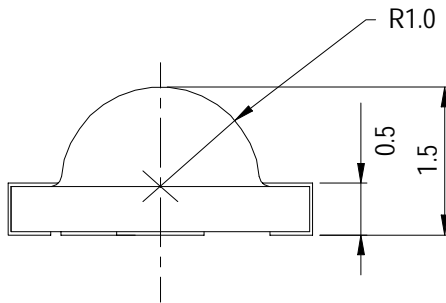
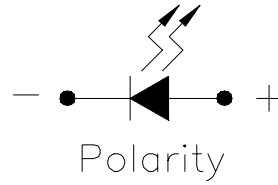
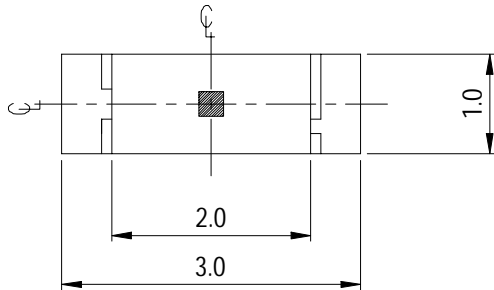
- Automotive: backlighting in dashboard and switch.
- Telecommunication: indicator and backlighting in telephone and fax.
- Flat backlight for LCD, switch and symbol.
- General use.



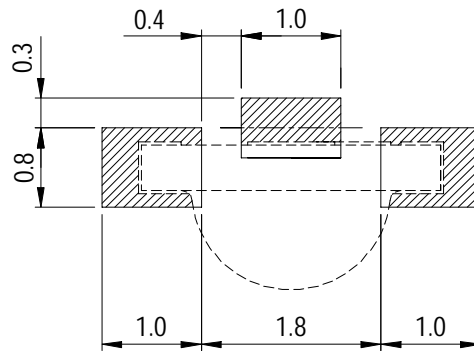
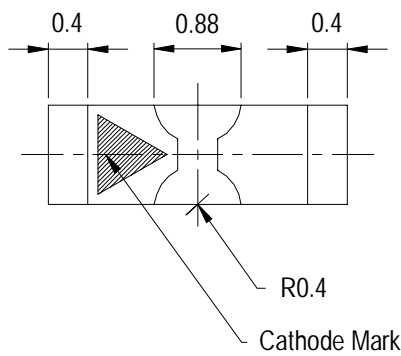
#### Device Selection Guide

Chip		Lens Color
Material	Emitted Color	
InGaN	Super Blue	Water Clear

**Package Outline Dimensions**



For reflow soldering (propose)



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

**Absolute Maximum Ratings (Ta=25°C)**

Parameter	Symbol	Rating	Unit
Reverse Voltage	V <sub>R</sub>	5	V
Forward Current	I <sub>F</sub>	25	mA
Operating Temperature	T <sub>opr</sub>	-40 ~ +85	°C
Storage Temperature	T <sub>stg</sub>	-40 ~ +90	°C
Soldering Temperature	T <sub>sol</sub>	260 (for 5 seconds)	°C
Electrostatic Discharge	ESD	150	V
Power Dissipation	P <sub>d</sub>	110	mW
Peak Forward Current (Duty 1/10 @1KHz)	I <sub>F</sub>	100	mA

**Electro-Optical Characteristics (Ta=25°C)**

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Luminous Intensity *1	I <sub>v</sub>	65	-----	175	mcd	I <sub>F</sub> =20mA
Viewing Angle	2θ 1/2	-----	100	-----	deg	I <sub>F</sub> =20mA
Peak Wavelength	λ <sub>p</sub>	-----	470	-----	nm	I <sub>F</sub> =20mA
Dominant Wavelength *2	λ <sub>d</sub>	467	-----	472	nm	I <sub>F</sub> =20mA
Spectrum Radiation Bandwidth	Δλ	-----	25	-----	nm	I <sub>F</sub> =20mA
Forward Voltage *3	V <sub>F</sub>	3.00	-----	3.60	V	I <sub>F</sub> =20mA
Reverse Current	I <sub>R</sub>	-----	-----	50	μA	V <sub>R</sub> =5V

**Notes:**

**\*1:Tolerance of Luminous Intensity ± 10%**



**\*2:Tolerance of Dominant Wavelength  $\pm$  1nm**

**\*3:Tolerance of Forward Voltage  $\pm$  0.1V**

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**12-21CSUBC/S295/TR8**

**Bin Rang Of Luminous Intensity**

Bin	Min	Max	Unit	Condition
1	65	90	mcd	If=20mA
2	90	125		
3	125	175		

**Bin Rang Of Dom. Wavelength**

Bin	Min	Max	Unit	Condition
1	467	472	nm	If=20mA

**Bin Rang Of Forward Voltage**

Bin	Min	Max	Unit	Condition
1	3.00	3.30	V	If=20mA
2	3.30	3.60		

**Notes:**

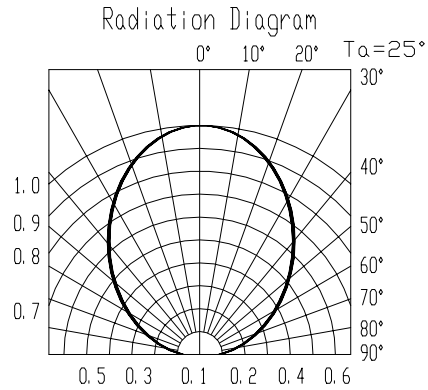
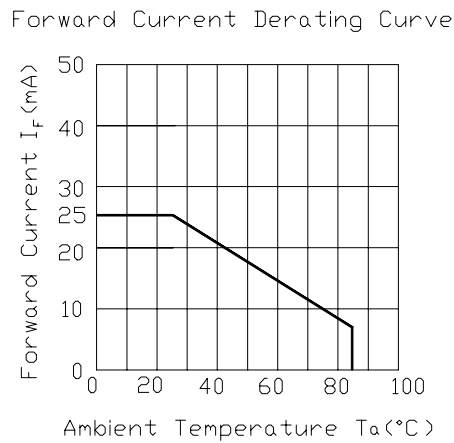
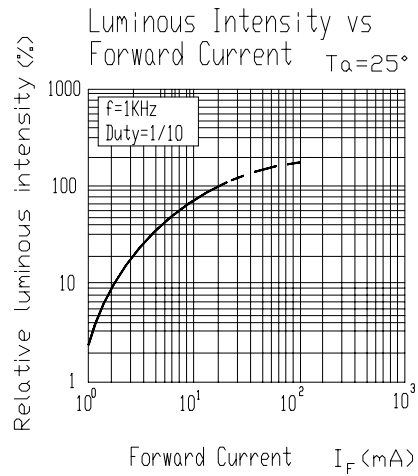
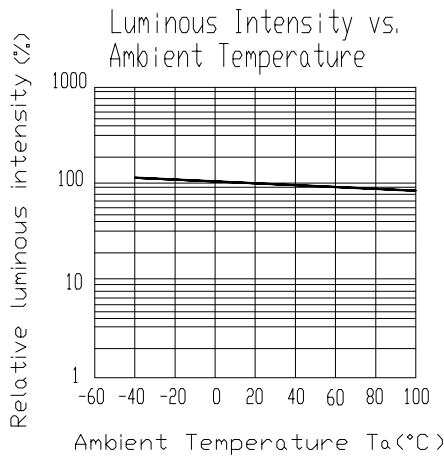
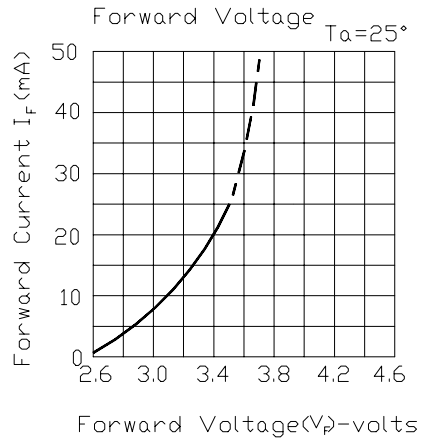
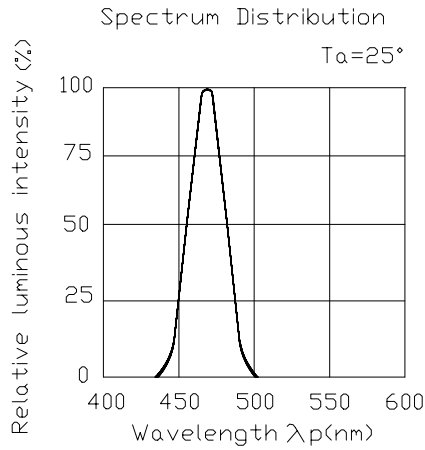
**\*1:Tolerance of Luminous Intensity  $\pm$  10%**

**\*2:Tolerance of Dominant Wavelength  $\pm$  1nm**

**\*3:Tolerance of Forward Voltage  $\pm$  0.1V**



**Typical Electro-Optical Characteristics Curves**



**12-21CSUBC/S295/TR8**

**Label explanation**

**CAT: Luminous Intensity (mcd)**

Everlight Electronics Co., Ltd.

<http://www.>

Device No. : DSE-12C-001

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**EVERLIGHT**

CPN :  
P/N: XXXXXXXXXXXX

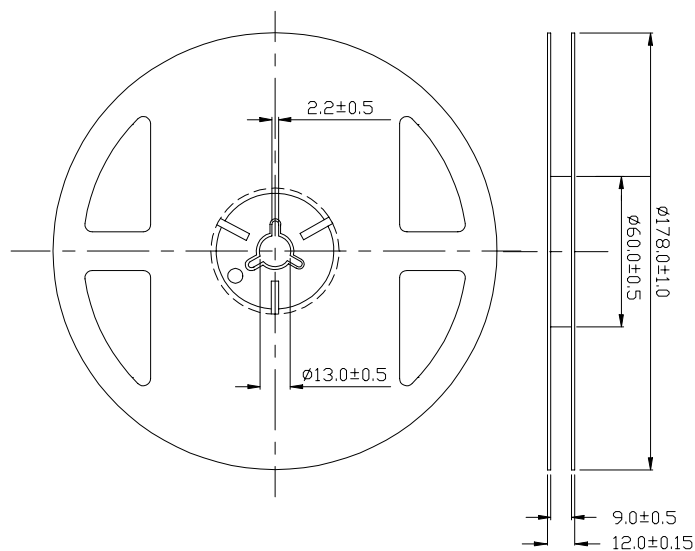
XX-XXXXXXX  
QTY: XXXX

CAT: Bin Iv  
HUE: Bin λ d  
DEF: Bin uv

**HUE: Dom. Wavelength (nm)**

**REF: Forward Voltage (V)**

**Reel Dimensions**

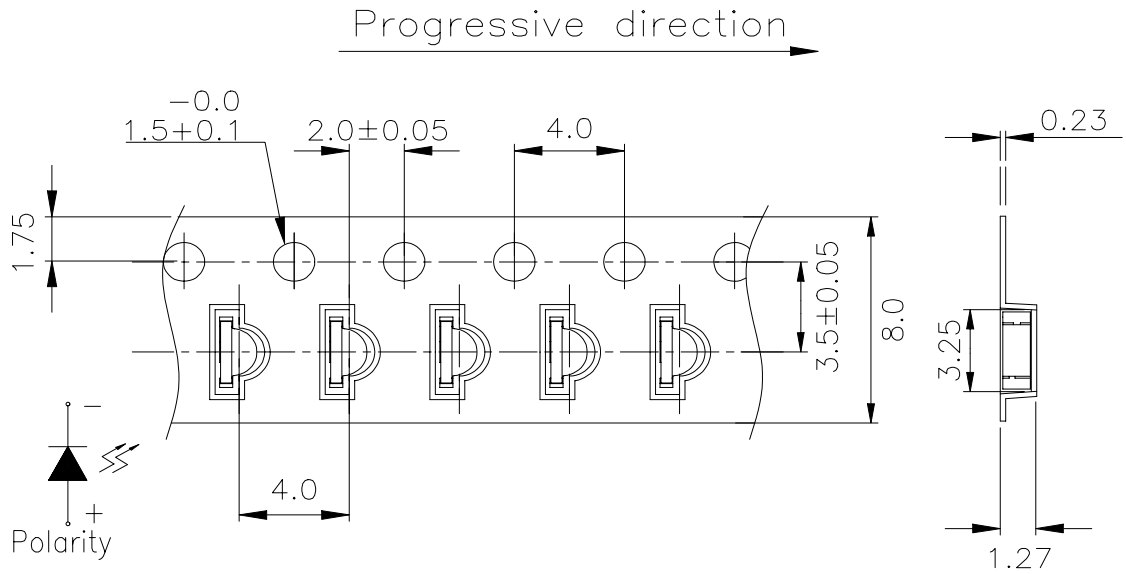


Taping Quantity: 3000pcs

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

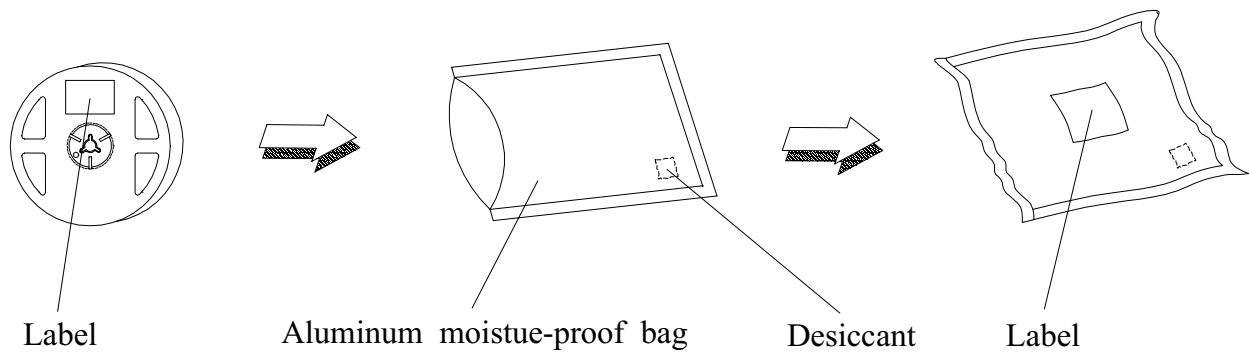
**12-21CSUBC/S295/TR8**

**Carrier Tape Dimensions**



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

### Moisture Resistant Packaging



## 12-21CSUBC/S295/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 : +100°C 15 min. ∫ 5 min. L : -40°C 15 min.	300 Cycles	22 Pcs.	0/1
3	Thermal Shock	H : +100°C 5 min. ∫ 10 sec. L : -10°C 5 min.	300 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 <sub>F</sub> = 20 mA	1000 Hrs.	22 Pcs.	0/1
7	High Temperature / High Humidity	85°C/RH 85%	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

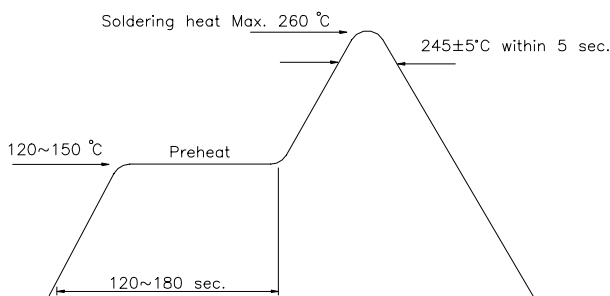
2.1 The operation of Temperature and RH are : 5°C~35°C, RH60%.

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

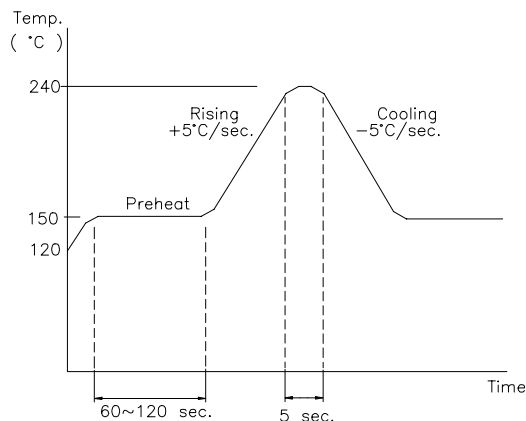
2.3 If opened more than one week in an atmosphere 5°C~35°C, RH 60%, they should be treated at 60°C± 5°C for 15hrs.

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

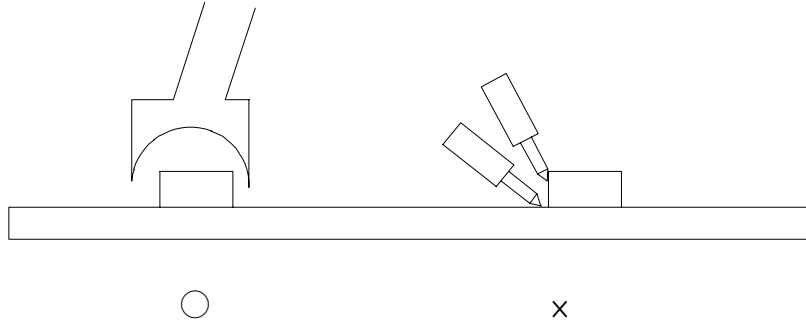


### Soldering Iron

Basic spec is  $\leq 5$  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 245°C.
2. The head of iron can not touch copper foil.
3. Twin-head type is preferred.

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