



EVERLIGHT ELECTRONICS CO., LTD.

PART NO. : 93-21USOC/S530-A2

Device Number : DSE-931-060 REV. 1.0

**High Performance SMD LED with Reflector**

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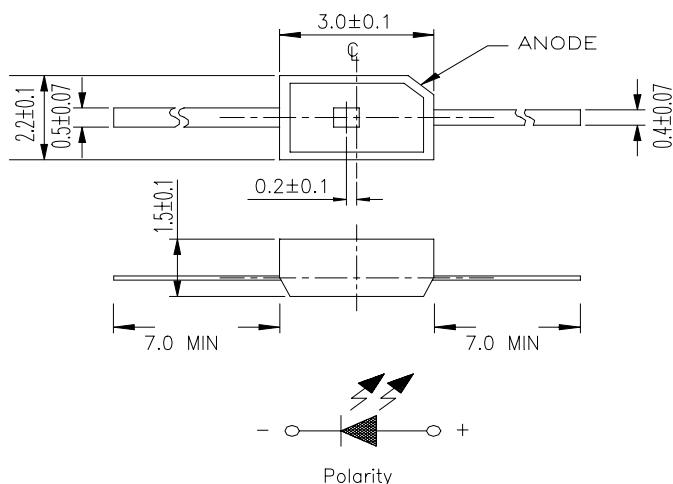
### Features :

- Package in 12mm tape on 7" diameter reels.
- Compatible with automatic placement equipment.
- Compatible with infrared and vapor phase reflow solder process.
- Eia std. package.
- IC compatible.

### Applications :

- Automotive: backlighting in dashboard and switch,
- Telecommunication: indicator and backlighting in telephone and fax.
- Indicator and backlight for audio and video equipment.
- Indicator and backlight for battery driven equipment.
- Small indicator for outdoor applications.
- Indicator and backlight in office equipment.
- Flat backlight for LED, switches 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	
93-21USOC/S530-A2	AlGaInP	Super Sunset Orange	Water Clear

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<http://www.everlight.com>



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■ **Absolute Maximum Ratings at 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 5second)	°C
Electrostatic Discharge	ESD	2000	V
Power Dissipation	P <sub>d</sub>	60	mW
Peak Forward Current(Duty 1/10 @ 1KHz)	I <sub>F</sub> (Peak)	160	mA

■ **Electronic Optical Characteristics :**

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Luminous intensity	I <sub>v</sub>	-----	3	-----	mcd	I <sub>F</sub> =2mA
		17	43	-----	mcd	I <sub>F</sub> =20mA
Viewing Angle	2 θ 1/2	-----	130	-----	deg	I <sub>F</sub> =20mA
Peak Wavelength	λ <sub>p</sub>	-----	621	-----	nm	I <sub>F</sub> =20mA
Dominant Wavelength	λ <sub>d</sub>	-----	615	-----	nm	I <sub>F</sub> =20mA
Spectrum Radiation Bandwidth	△ λ	-----	18	-----	nm	I <sub>F</sub> =20mA
Forward Voltage	V <sub>F</sub>	-----	2.0	2.4	V	I <sub>F</sub> =20mA
Reverse Current	I <sub>R</sub>	-----	-----	10	μ A	V <sub>R</sub> =5V



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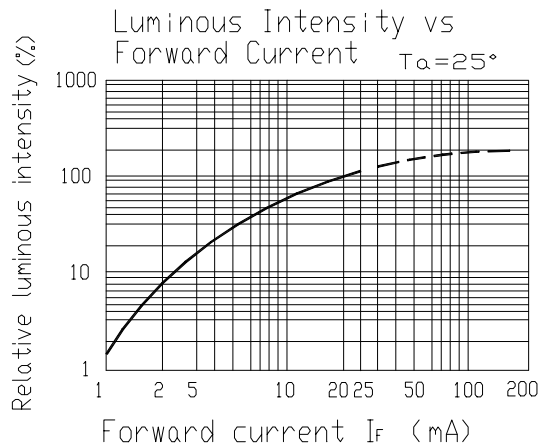
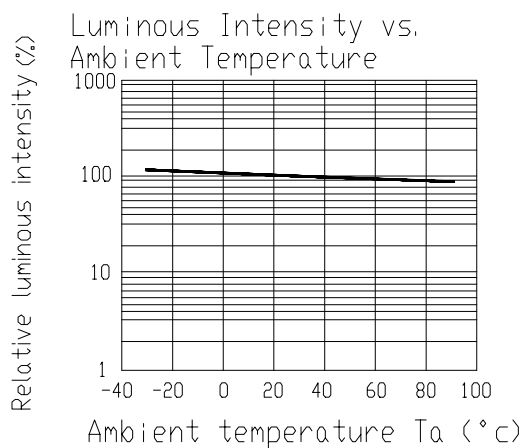
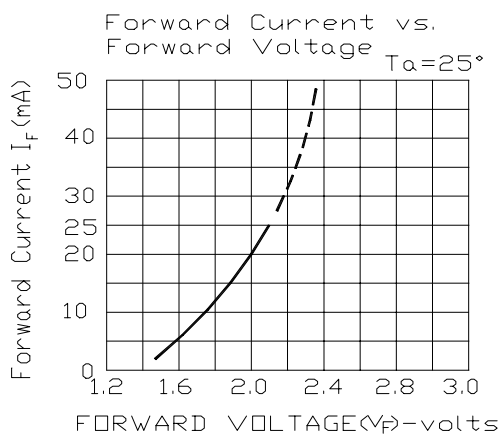
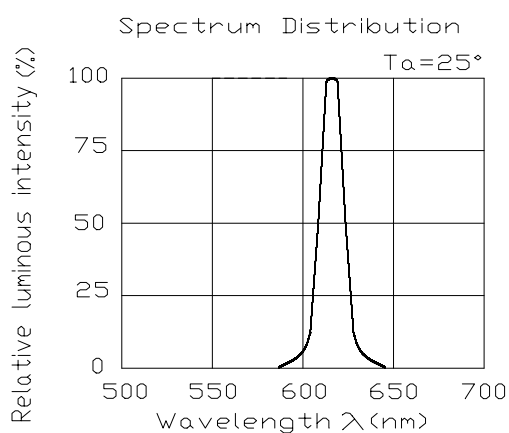
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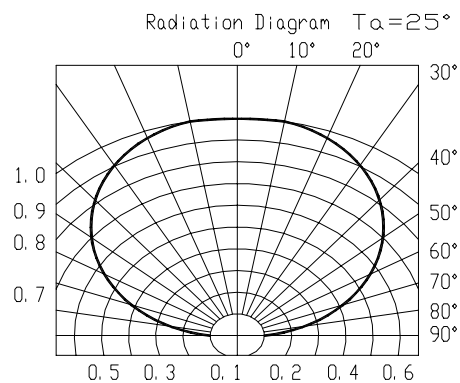
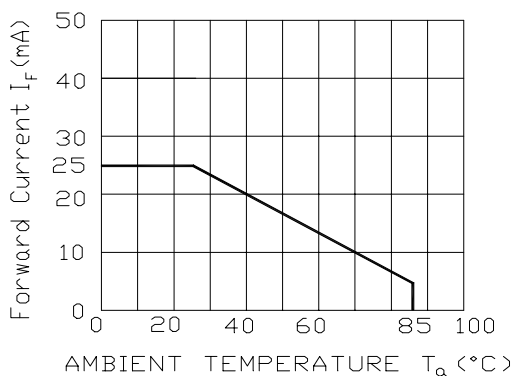
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### Typical Electro-Optical Characteristic Curves :



Forward Current Derating Curve





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■ Reliability test items and conditions :

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 ∫ 5 min L : -55°C 30min	50 CYCLES	76 PCS	0/1
3	Thermal Shock	H : +100°C 5min ∫ 10 sec L : -10°C 5min	50 CYCLES	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	I <sub>F</sub> = 20 mA	1000 HRS	76 PCS	0/1
7	High Temperature / High Humidity	85°C/85% RH	1000 HRS	76 PCS	0/1

Products evaluated according to the above standard reliability criteria.



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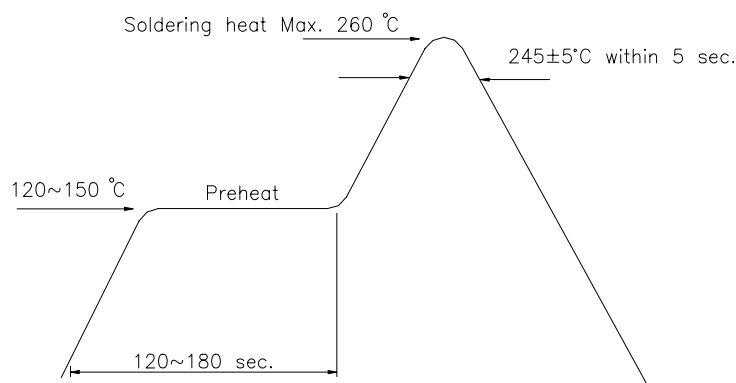
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### ■ Soldering heat reliability ( DIP ) :

Please refer to the following figure :

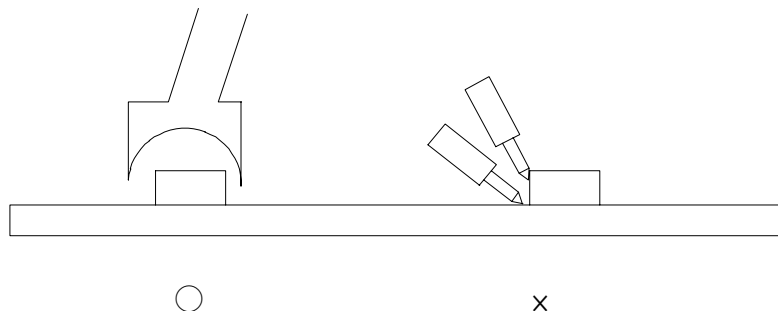


### ■ Soldering Iron :

Basic spec is  $\leq 5$  sec when  $260^{\circ}\text{C}$ . If temperature is higher, time should be shorter ( $+10^{\circ}\text{C} \rightarrow -1\text{sec}$ ). Power dissipation of Iron should be smaller than 15 W , and temperature should be controllable. Surface temperature of the device should be under  $230^{\circ}\text{C}$ .

### ■ Rework :

1. Customer must finish rework within 5 sec under  $260^{\circ}\text{C}$ .
2. The head of iron can not touch copper foil.
3. Twin-head type is preferred.





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■ Reflow Temp. / Time :

