



# EVERLIGHT ELECTRONICS CO.,LTD.

PART NO. : 93-21SRC/TR8

Device Number : DSE-931-061 REV. 1.0

## High Performance SMD LED with Reflector

ECN : Page: 1/7

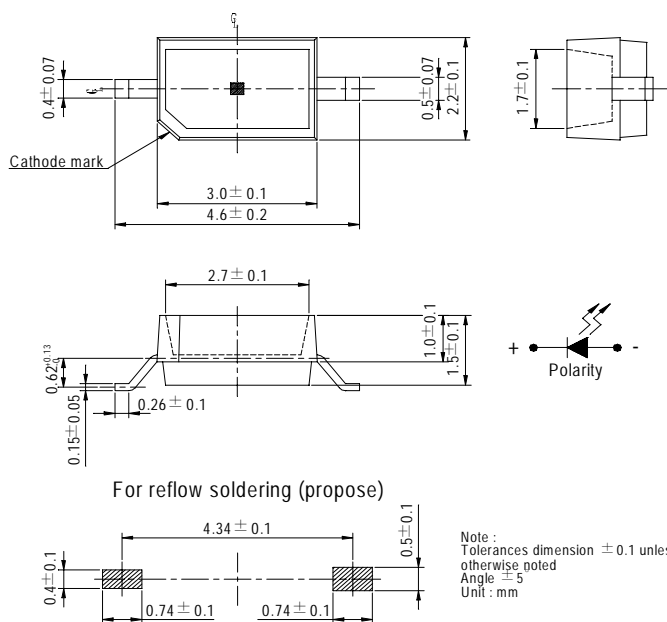
### Features :

- 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	
93-21SRC/TR8	GaAlAs	Super Red	Water Clear

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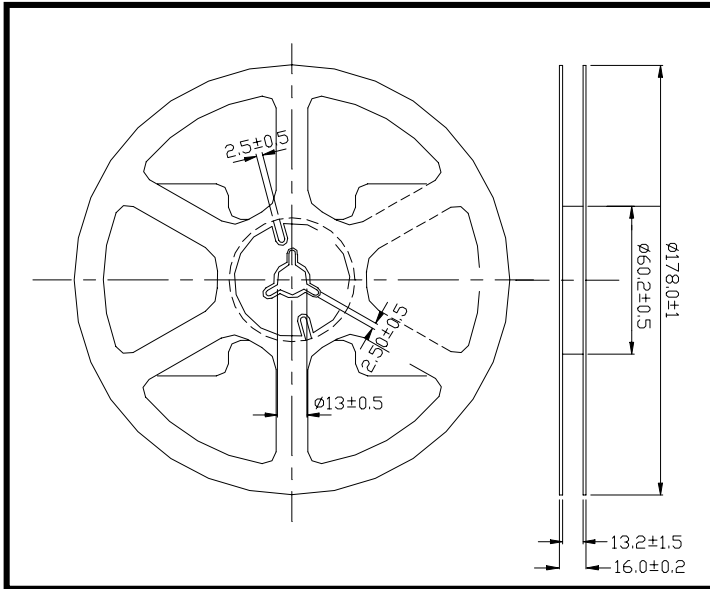
EVERLIGHT ELECTRONICS CO.,LTD.

PART NO. : 93-21SRC/TR8

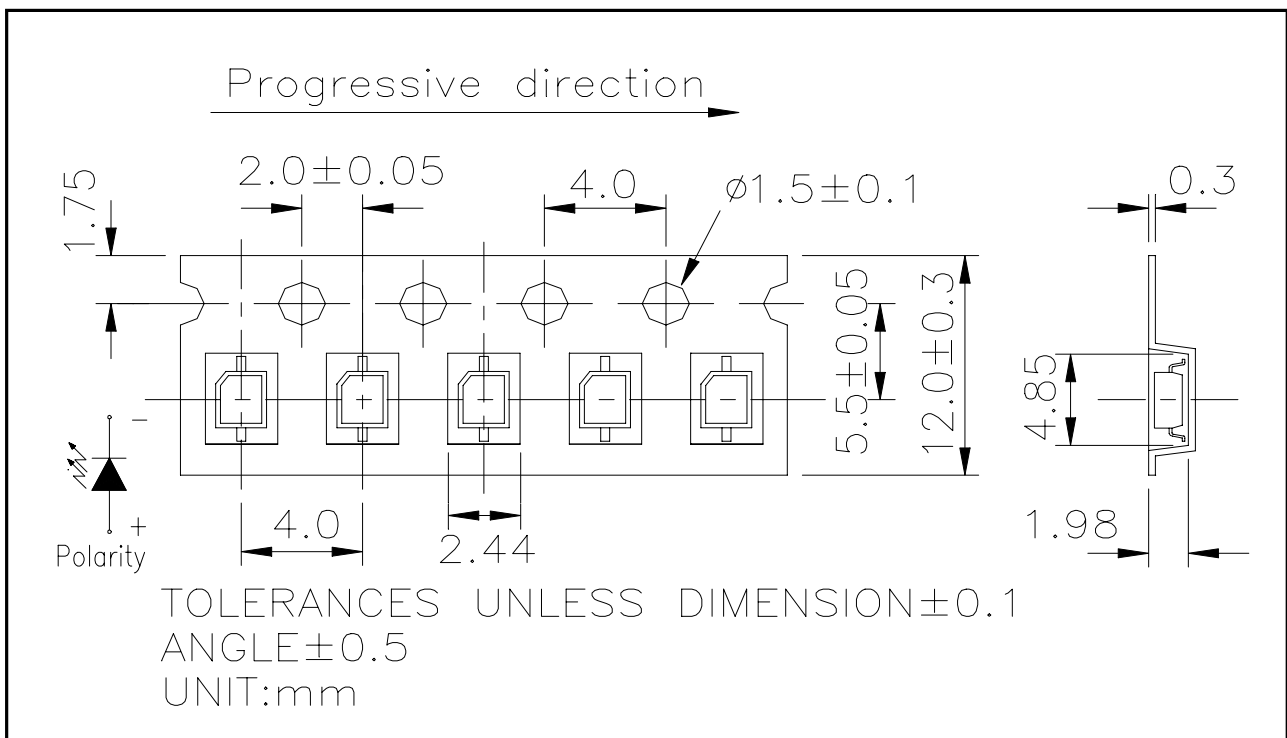
Device Number : DSE-931-061 REV. 1.0

**High Performance SMD LED with Reflector**

ECN : Page: 2/7



■ Loaded quantity per reel 2000 pcs/reel :





EVERLIGHT ELECTRONICS CO.,LTD.

PART NO. : 93-21SRC/TR8

Device Number : DSE-931-061 REV. 1.0

**High Performance SMD LED with Reflector**

ECN : Page: 3/7

■ **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>	40	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
Power Dissipation	P <sub>d</sub>	110	mW
Peak Forward Current(Duty 1/10 @ 1KHz)	I <sub>F</sub> (Peak.)	180	mA

■ **Electronic Optical Characteristics :**

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Luminous Intensity	I <sub>v</sub>	15	25	-----	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>	-----	660	-----	nm	I <sub>F</sub> =20mA
Dominant Wavelength	λ <sub>d</sub>	-----	643	-----	nm	I <sub>F</sub> =20mA
Spectrum Radiation Bandwidth	△ λ	-----	20	-----	nm	I <sub>F</sub> =20mA
Forward Voltage	V <sub>F</sub>	1.5	1.7	2.4	V	I <sub>F</sub> =20mA
Reverse Current	I <sub>R</sub>	-----	-----	10	μ A	V <sub>R</sub> =5V



EVERLIGHT ELECTRONICS CO.,LTD.

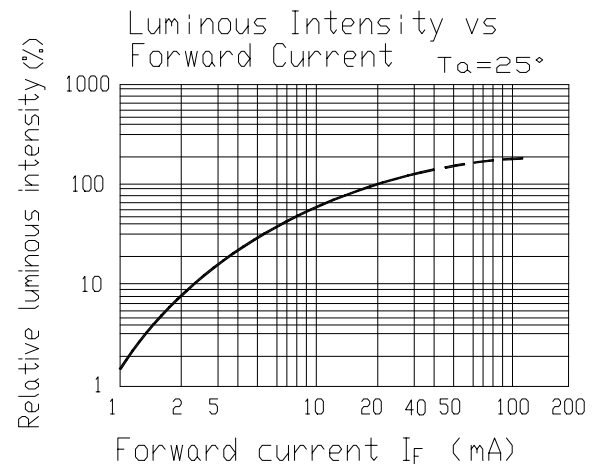
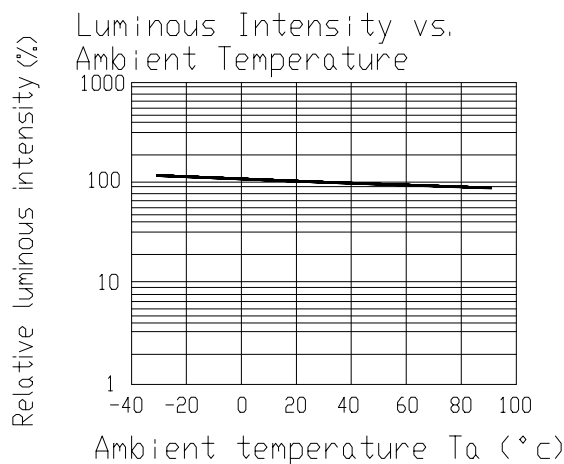
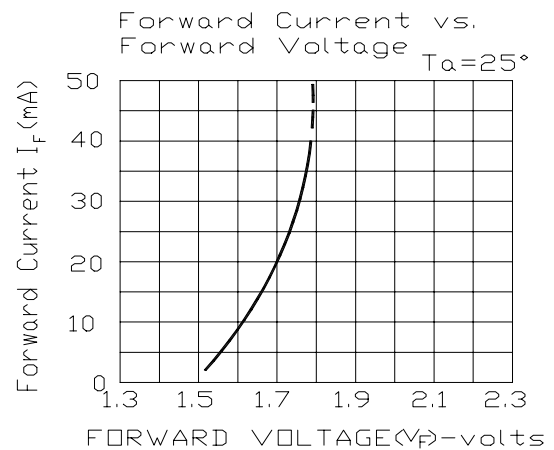
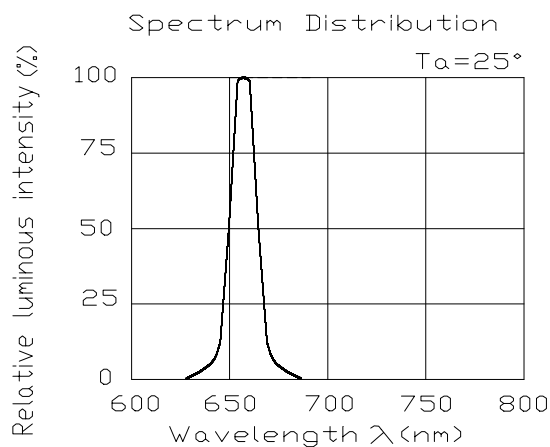
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Device Number : DSE-931-061 REV. 1.0

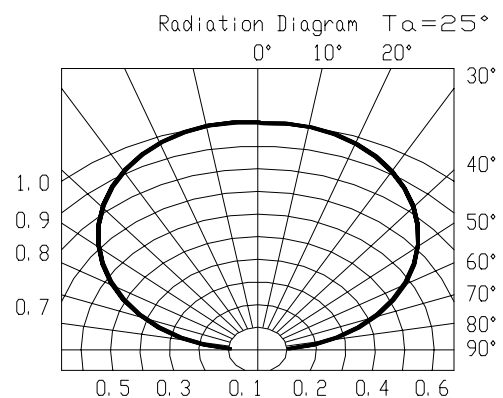
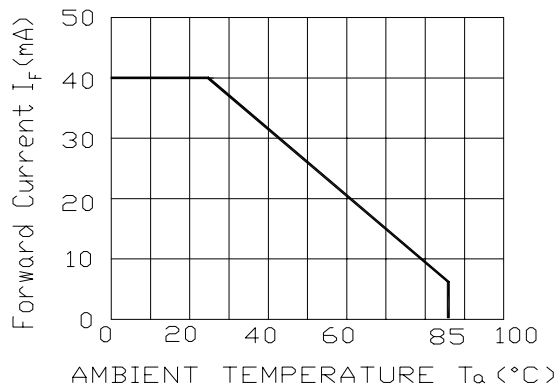
**High Performance SMD LED with Reflector**

ECN : Page: 4/7

## Typical Electro-Optical Characteristic Curves



Forward Current Derating Curve





EVERLIGHT ELECTRONICS CO.,LTD.

PART NO. : 93-21SRC/TR8

Device Number : DSE-931-061 REV. 1.0

*High Performance SMD LED with Reflector*

ECN : Page: 5/7

## 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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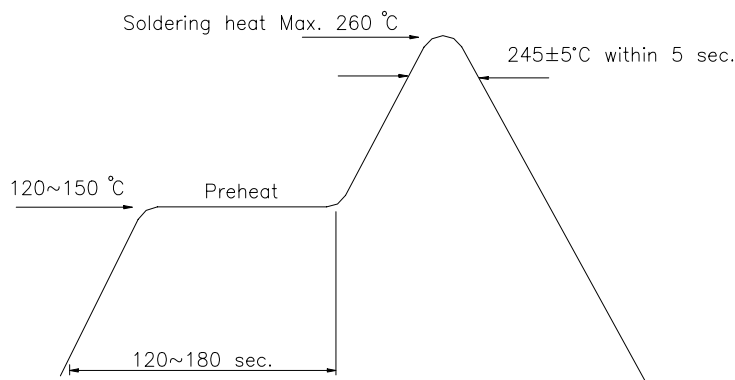
Device Number : DSE-931-061 REV. 1.0

**High Performance SMD LED with Reflector**

ECN : Page: 6/7

### ■ Soldering heat reliability ( DIP )

Please refer to the following figure :

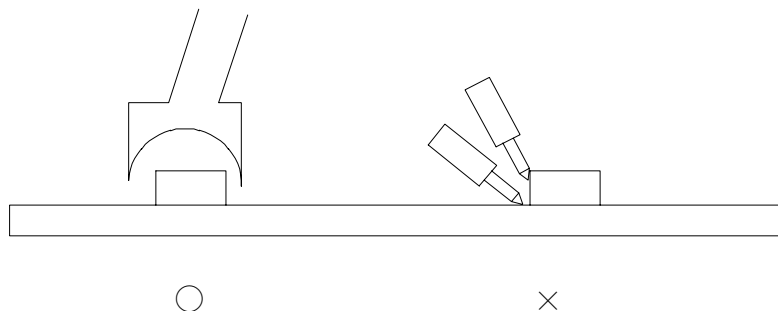


### ■ Soldering Iron

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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**High Performance SMD LED with Reflector**

ECN : Page: 7/7

■ Reflow Temp. / Time :

