



## 1.9mm Round Subminiature Infrared LED

MODEL NO : SIR91-21C

### ■ Features :

- Small double-end package
- Low forward voltage
- View angle 20°
- Peak wavelength  $\lambda_p=875\text{nm}$
- High reliability

### ■ Description :

- SIR91-21C is an infrared emitting diode in miniature SMD package which is molded in a water clear plastic with spherical top view lens. The spectrally device is matched with silicon photodiode and phototransistor.

### ■ Applications :

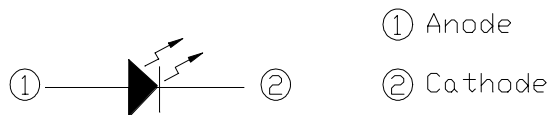
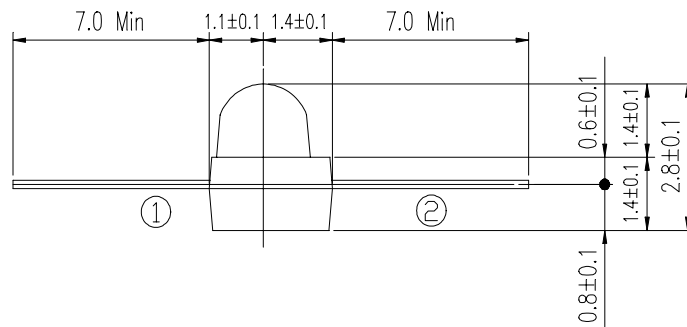
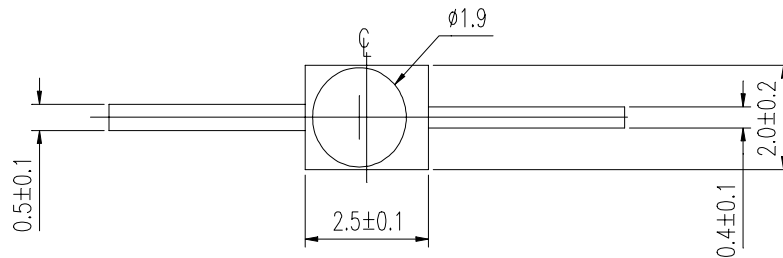
- Floppy disk drive
- Optoelectronic switch
- Smoke detector
- Camera
- VCR
- Video

PART NO.	CHIP	LENS COLOR
	MATERIAL	
SIR	GaAlAs	Water Clear

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### ■ Package Dimensions :



### ■ Notes :

1. All dimensions are in millimeter.
2. General Tolerance:  $\pm 0.1$ mm
3. Lens color : Water clear.
4. Above specification may be changed without notice. EVERLIGHT will reserve authority on material change for above specification.
5. These specification sheets include materials protected under copyright of EVERLIGHT corporation . Please don't reproduce or cause anyone to reproduce them without EVERLIGHT's consent.
6. When using this product , please observe the absolute maximum ratings and the instructions for use outlined in these specification sheets. EVERLIGHT assumes no responsibility for any damage resulting from use of the product which does not comply with the absolute maximum ratings and the instructions included in these specification sheets.



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### ■ Absolute Maximum Ratings at Ta = 25°C

Parameter	Symbol	Rating	Unit	Notice
Continuous Forward Current	$I_F$	65	mA	
Peak Forward Current Pulse width=100 $\mu$ s,Duty cycle=1%	$I_{FP}$	1.0	A	
Reverse Voltage	$V_R$	5	V	
Operating Temperature	Topr	-25 ~ +85	°C	
Storage Temperature	Tstg	-40 ~ +85	°C	
Soldering Temperature	Tsol	260	°C	
Power Dissipation at(or below) 25°C Free Air Temperature	Pd	130	mW	

### ■ Electronic Optical Characteristics :

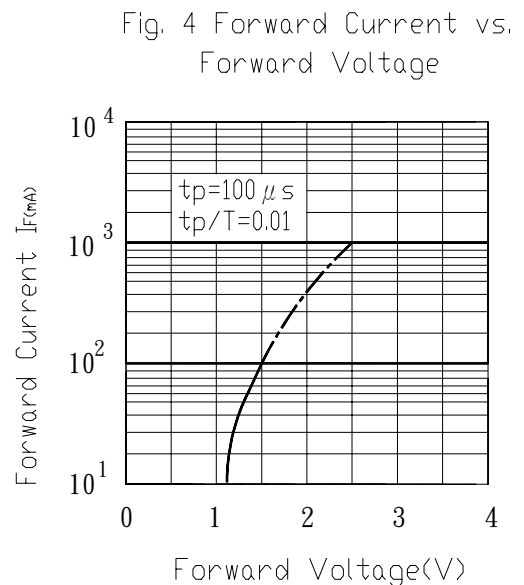
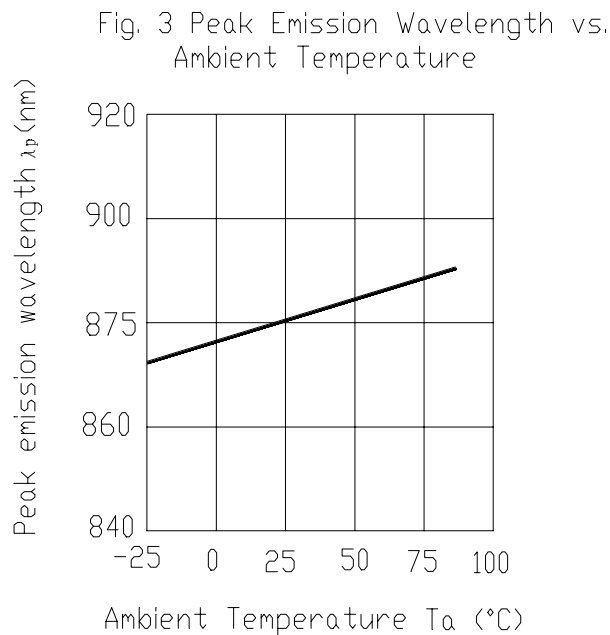
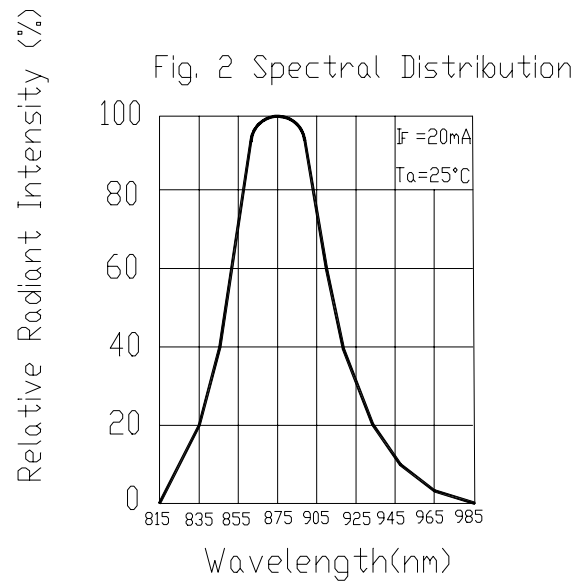
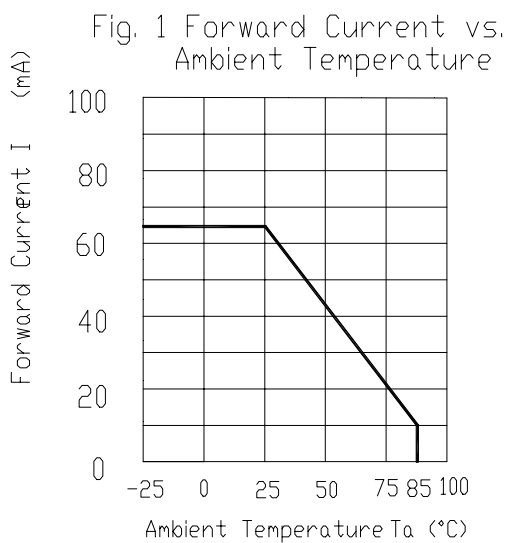
Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Radiant Intensity	$E_e$	3.0	6.0	----	mW/sr	$I_F=20\text{mA}$
		----	20	----		$I_F=100\text{mA}, t_p=100 \mu\text{s}, t_p/T=0.01$
		----	200	----		$I_F=1\text{A}, t_p=100 \mu\text{s}, t_p/T=0.01$
Peak Wavelength	$\lambda_p$	----	875	----	nm	$I_F=20\text{mA}$
Spectral Bandwidth	$\Delta \lambda$	----	80	----	nm	$I_F=20\text{mA}$
Forward Voltage	$V_F$	----	1.3	1.6	V	$I_F=20\text{mA}$
		----	1.4	1.8		$I_F=100\text{mA}, t_p=100 \mu\text{s}, t_p/T=0.01$
		----	2.6	4.0		$I_F=1\text{A}, t_p=100 \mu\text{s}, t_p/T=0.01$
Reverse Current	$I_R$	----		10	$\mu\text{A}$	$V_R=5\text{V}$
View Angle	$2\theta_{1/2}$	----	20	----	deg	$I_F=20\text{mA}$



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### ■ Typical Electrical/Optical/Characteristics Curves





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Fig. 5 Relative Intensity vs.  
Forward Current

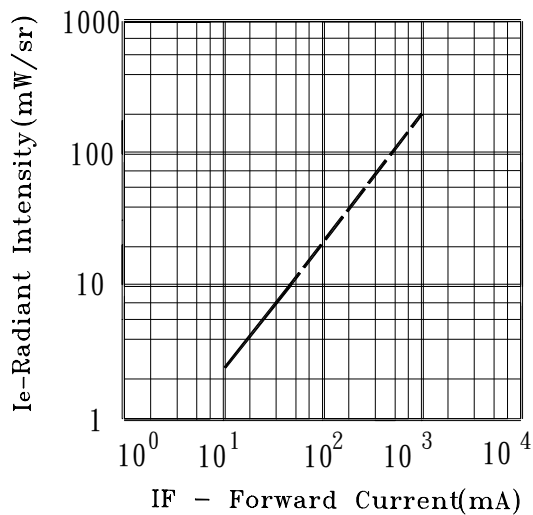


Fig. 6 Relative Radiant Intensity vs.  
Angular Displacement

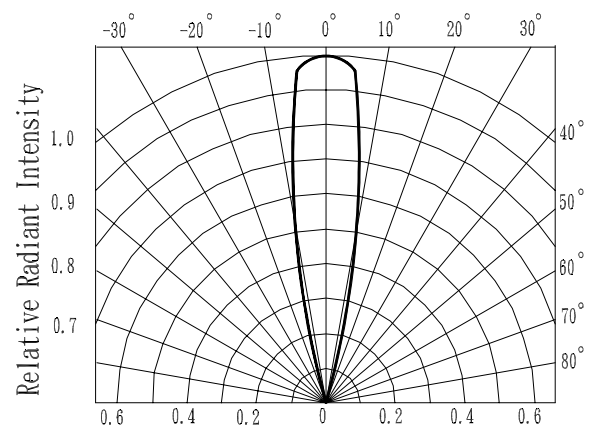


Fig. 7 Relative Intensity vs.  
Ambient Temperature (°C)

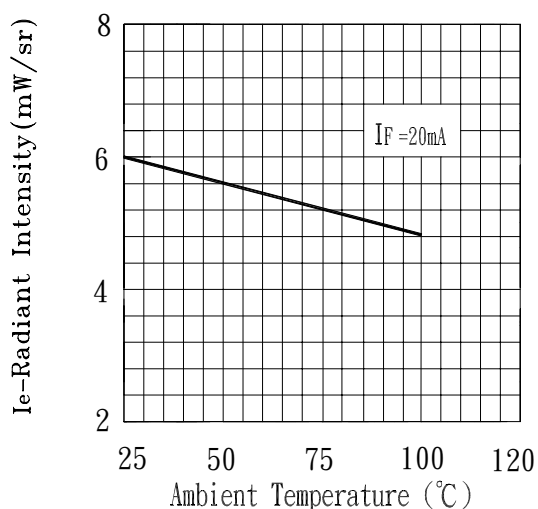
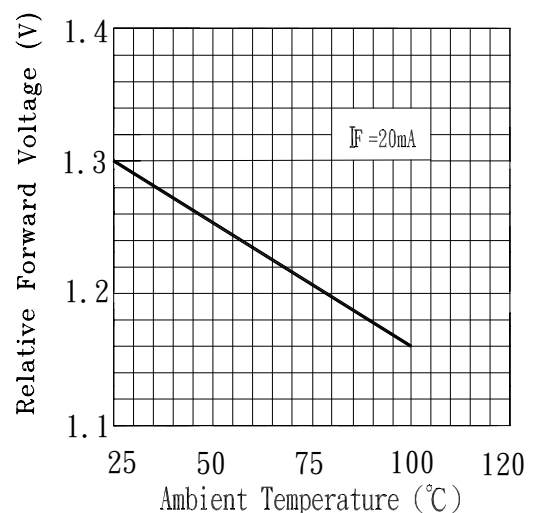


Fig. 8 Forward Current vs.  
Ambient Temperature (°C)



DEVICE NUMBER : DIS-091-008

REV : 1.3

ECN : \_\_\_\_\_

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### ■ Reliability Test Item And Condition

The reliability of products shall be satisfied with items listed below.

Confidence level:90%

LTPD:10%

NO.	Item	Test Conditions	Test Hours/ Cycles	Sample Size	Failure Judgement Criteria	Ac/Re
1	REFLOW	TEMP : 240°C ± 5 °C 5 secs	6 Mins	22 pcs	More than 90% of lead to be covered by soldering	0/1
2	Temperature Cycle	<div style="display: flex; flex-direction: column; align-items: center;"> <div>H : +85°C      30 mins</div> <div style="margin: 10px 0;">   </div> <div>5 mins</div> <div>L : -55°C      30 mins</div> </div>	50 cycles	22 pcs	$I_R \geq U \times 2$ $E_e \leq L \times 0.8$ $V_F \geq U \times 1.2$	0/1
3	Thermal Shock	<div style="display: flex; flex-direction: column; align-items: center;"> <div>H : +100°C      5 mins</div> <div style="margin: 10px 0;">   </div> <div>10 secs</div> <div>L : -10°C      5 mins</div> </div>	50 cycles	22 pcs	U :Upper specification limit L :Lower specification limit	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> =20mA	1000 hrs	22 pcs		0/1
7	High Temperature / High Humidity	85°C / 85% R.H.	1000 hrs	22 pcs		0/1



DEVICE NUMBER : DIS-091-008  
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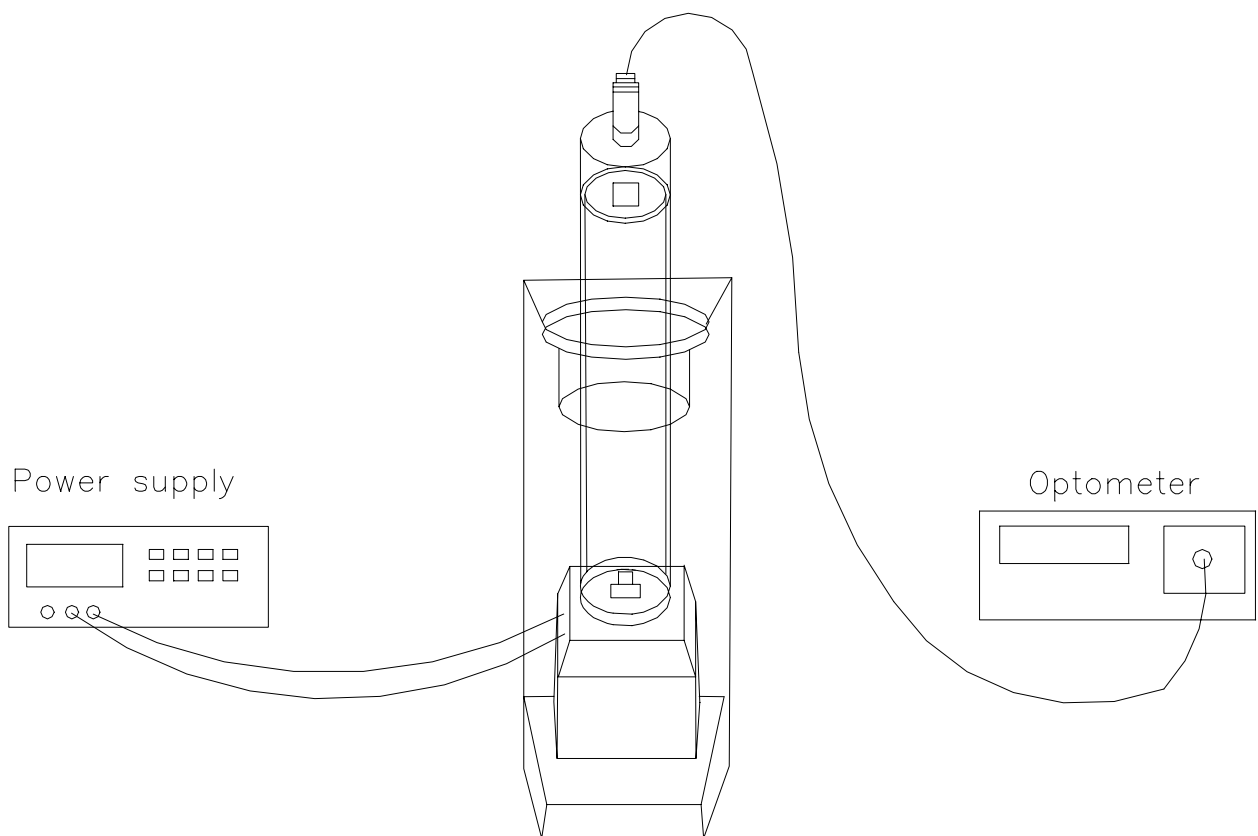
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### ■ Test Method For Power :

Condition :  $I_F=20$  mA

Test Item : Radiant Intensity

Unit : mW/sr



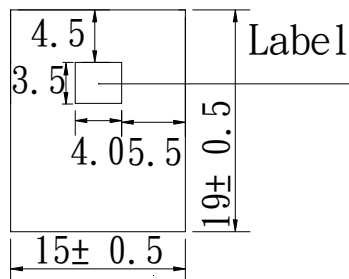


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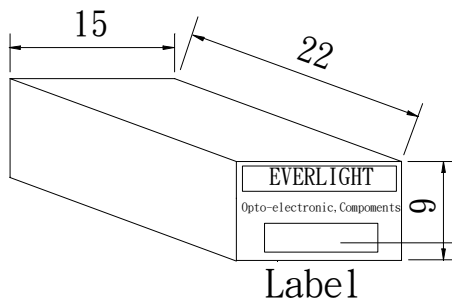
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### ■ Packing Specifications

#### 1. Bag



#### 2. Box



EVERLIGHT

CPN:

P/N:

SIR91-21C

QTY:

LOT NO:

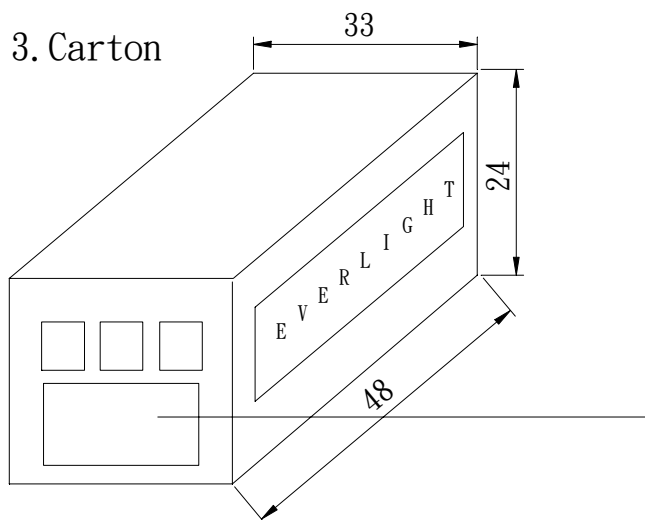
CAT:

HUE:

REF:

MADE IN TAIWAN

#### 3. Carton



Label

UNIT : cm

CPN : Customer's Production Number

P/N : Production Number

QTY : Packing Quantity

CAT : Ranks

HUE : Peak Wavelength

REF : Reference

LOT NO : Lot Number

MADE IN TAIWAN : Production place

### ■ Packing Quantity Specification

1.1000 Pcs/1Bag , 20 Bags/1Box

2.10Boxes/1Carton