



1.9mm Round Subminiature Axial Infrared LED

MODEL NO : HIR91-21C

■ Features :

- High radiant intensity
- Peak wavelength $\lambda_p=850\text{nm}$
- View angle 20°
- High reliability
- Small double-end package

■ Description :

- HIR91-21C is an infrared emitting diode in miniature SMD package witch is in a water clear plastic with spherical top view lens. The spectrally device is matched silicon with photodiode and phototransistor.

■ Applications :

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

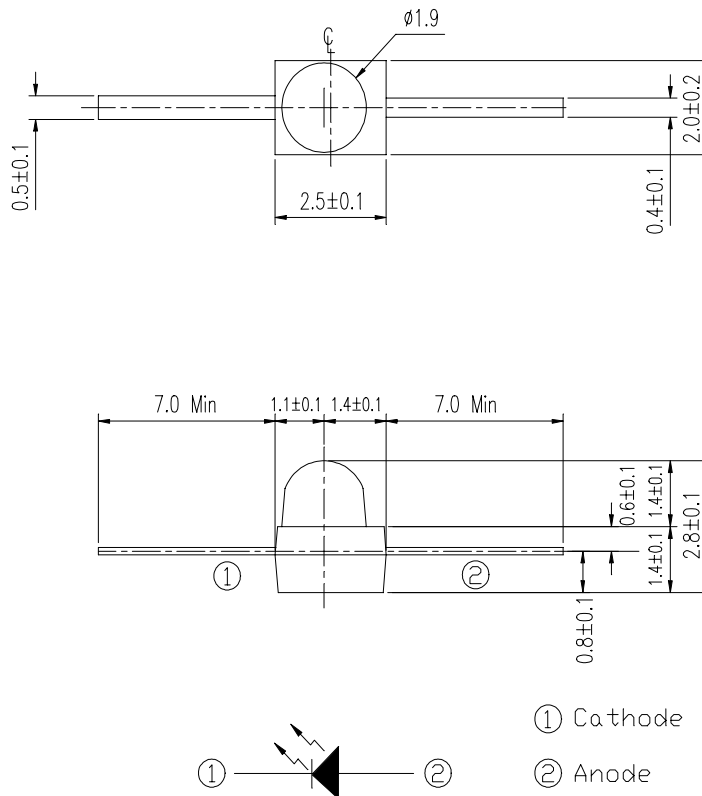
PART NO.	CHIP	LENS COLOR
	MATERIAL	
HIR	GaAlAs	Water Clear



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■ Package Dimensions :



■ Notes :

1. All dimensions are in millimeter.
2. General tolerance: ± 0.1 mm
3. Lead spacing is measured where the lead emerge from the package.
4. Lens color : Water Clear.
5. Above specification may be changed without notice. EVERLIGHT will reserve authority on material change for above specification.
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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 μ s,Duty cycle=1%	I_{FP}	1.0	A	
Reverse Voltage	V_R	5	V	
Operating Temperature	Topr	-25 to+85	°C	
Storage Temperature	Tstg	-40 to+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	Ee	5.0	10	---	mW/sr	$I_F=20\text{mA}$
		---	45	---		$I_F=100\text{mA}, t_p=100 \mu\text{s}, t_p/T=0.01$
		---	500	---		$I_F=1\text{A}, t_p=100 \mu\text{s}, t_p/T=0.01$
Peak Wavelength	λ_p	---	850	---	nm	$I_F=20\text{mA}$
Spectral Bandwidth	$\Delta \lambda$	---	45	---	nm	$I_F=20\text{mA}$
Forward Voltage	V_F	---	1.45	1.65	V	$I_F=20\text{mA}$
		---	1.80	2.40		$I_F=100\text{mA}, t_p=100 \mu\text{s}, t_p/T=0.01$
		---	4.10	5.25		$I_F=1\text{A}, t_p=100 \mu\text{s}, t_p/T=0.01$
Reverse Current	I_R	---	---	10	μA	$V_R=5\text{V}$
View Angle	$2\theta_{1/2}$	---	20	---	deg	$I_F=20\text{mA}$



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■ Typical Electrical/Optical/Characteristics Curves

Fig. 1 Forward Current vs. Ambient Temperature

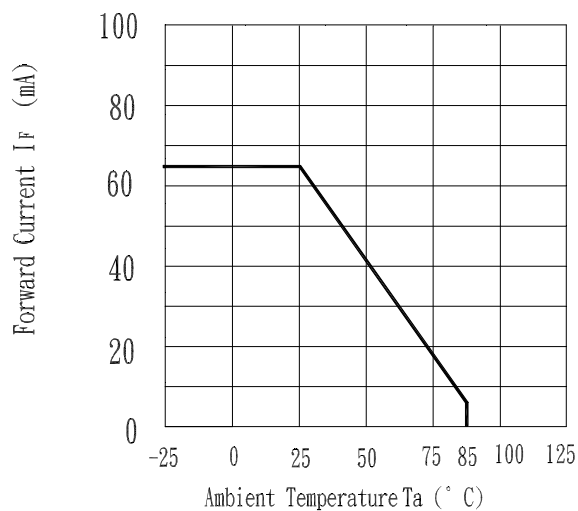


Fig. 2 Spectral Distribution

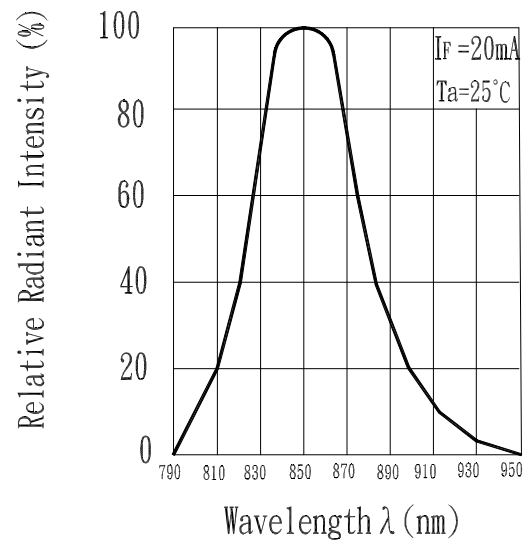


Fig. 3 Peak Emission Wavelength vs. Ambient Temperature

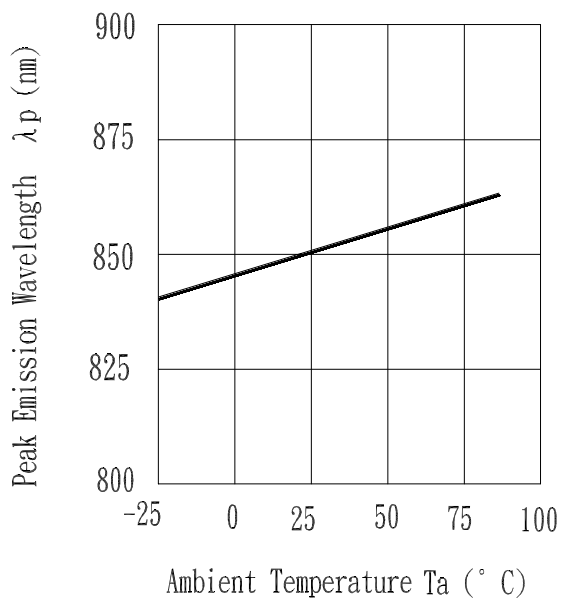
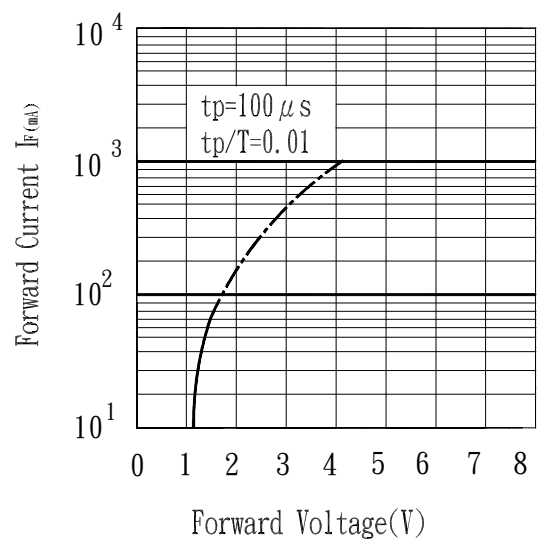


Fig. 4 Forward Current vs. Forward Voltage





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Fig. 5 Relative Intensity vs.
Forward Current

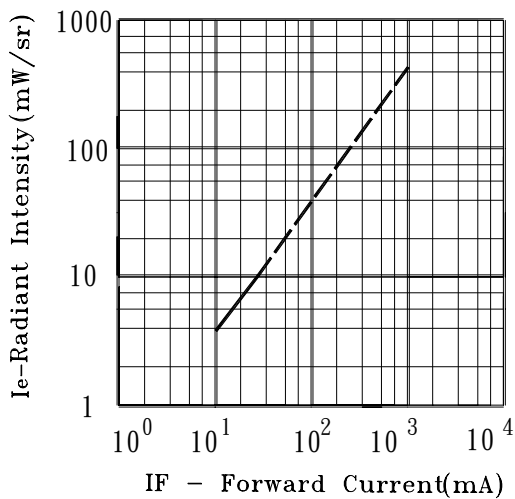


Fig. 6 Relative Radiant Intensity vs.
Angular Displacement

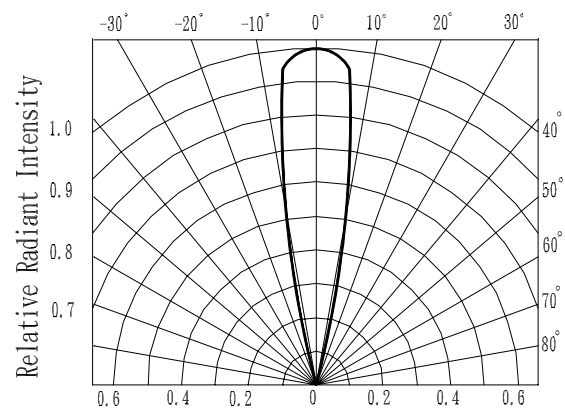


Fig. 7 Relative Intensity vs.
Ambient Temperature (°C)

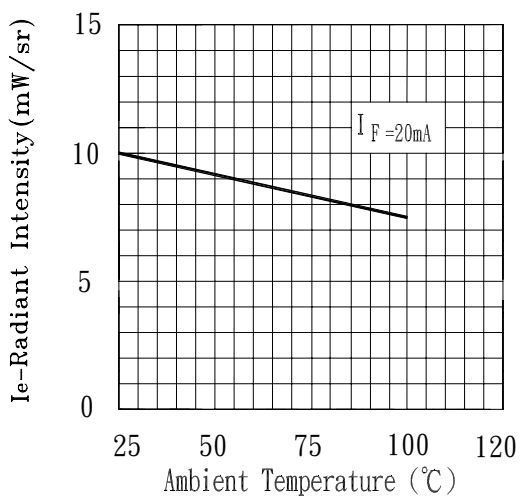
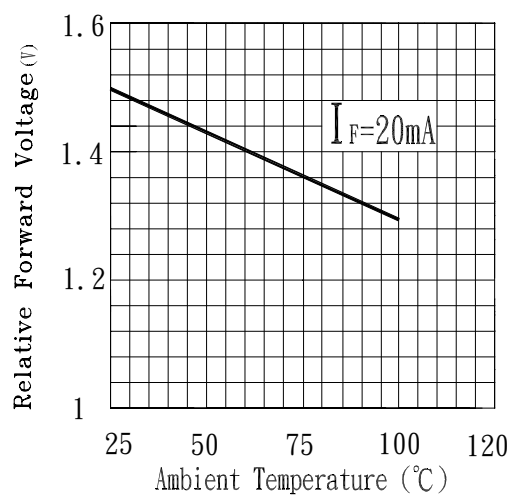


Fig. 8 Forward Voltage vs.
Ambient Temperature (°C)





EVERLIGHT ELECTRONICS CO., LTD.

DEVICE NUMBER : DIH-091-012

REV : 1.1

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	Solder Heat	TEMP : 260°C ± 5 °C	5 secs	22 pcs	$I_R \geq U \times 2$ $E_e \leq L \times 0.8$ $V_F \geq U \times 1.2$ U :Upper specification limit L :Lower specification limit	0/1
2	Temperature Cycle	H : +85°C 30 mins ↑ 5 mins ↓ L : -55°C 30 mins	50 cycles	22 pcs		0/1
3	Thermal Shock	H : +100°C 5 mins ↑ 10 secs ↓ L : -10°C 5 mins	50 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 _F =20mA	1000 hrs	22 pcs		0/1
7	High Temperature / High Humidity	85°C / 85% R.H.	1000 hrs	22 pcs		0/1



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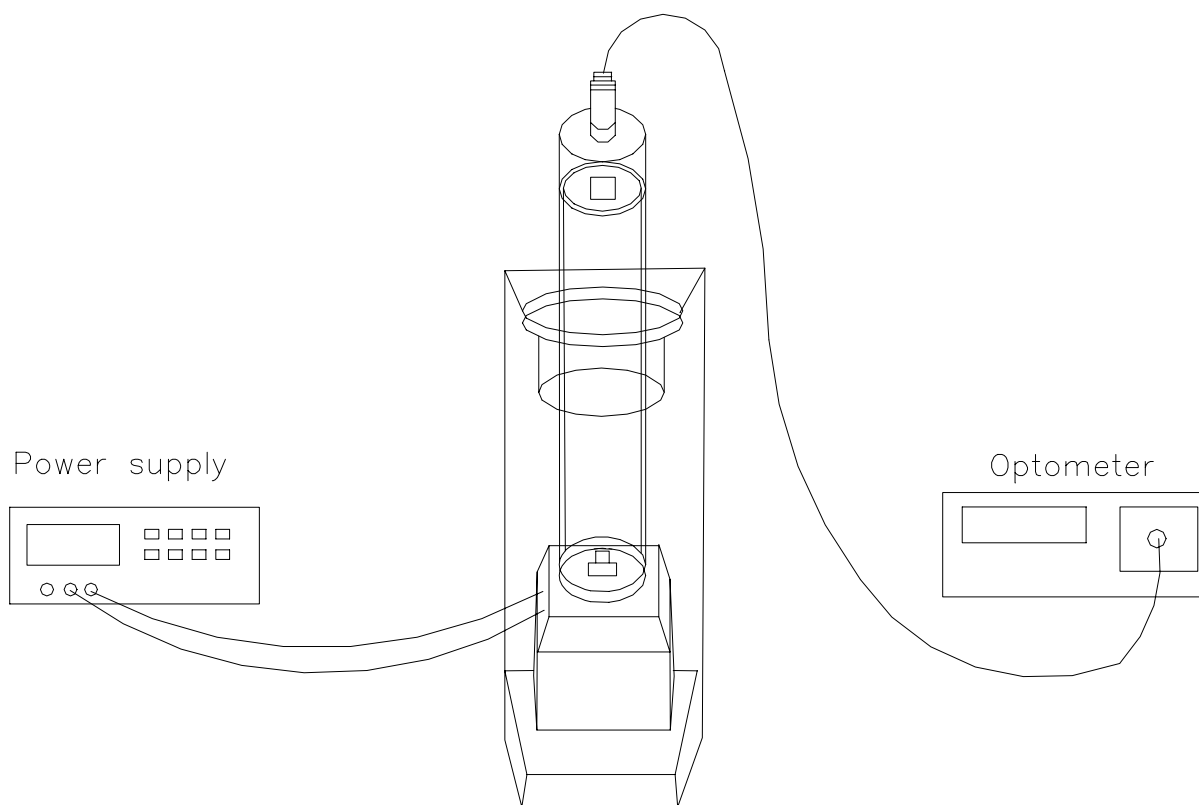
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■ Test Method For Power :

Condition : $I_F=20\text{ mA}$

Test Item : Radiant Intensity

Unit : mW/sr

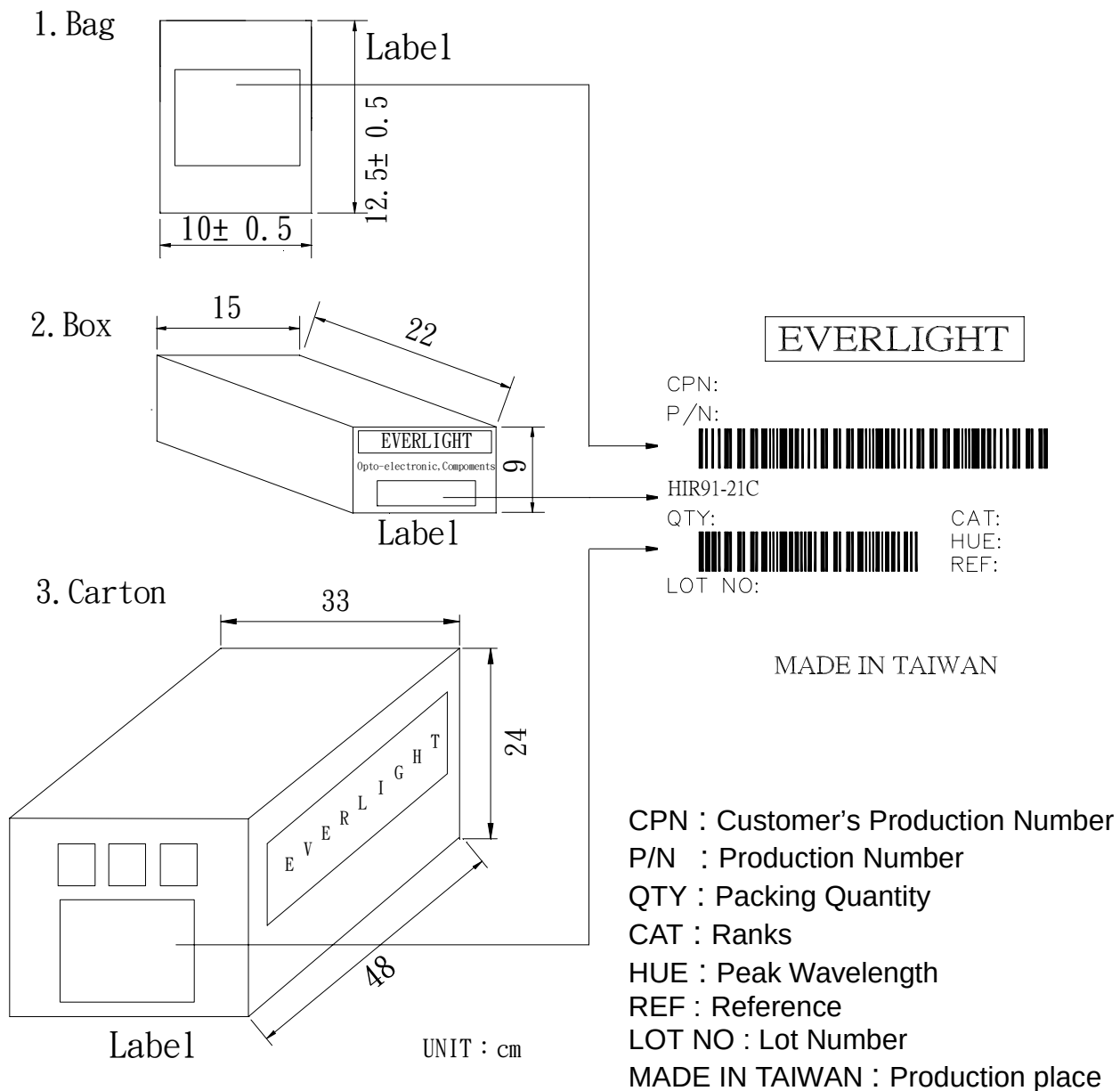




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■ Packing Specifications



■ Packing Quantity Specification

1. 1000 Pcs/1Bag , 20 Bags/1Box
2. 10 Boxes/1Carton