



Chip Infrared LED with Right Angle Lens

MODEL NO : HIR12-21C/TR8

■ Features :

- High radiant intensity
- Peak wavelength $\lambda_p=850\text{nm}$
- View angle 145°
- High reliability
- Small double-end package

■ Description :

- HIR12-21C/TR8 is an infrared emitting diode in miniature SMD package molded in a water clear plastic with right angle lens .The spectrally device is matched silicon with photodiode and phototransistor.

■ Applications :

- PCB mounted infrared sensor
- Infrared source in tactile keyboard
- IR diode in low space application
- Infrared applied system
- Floppy disk drive

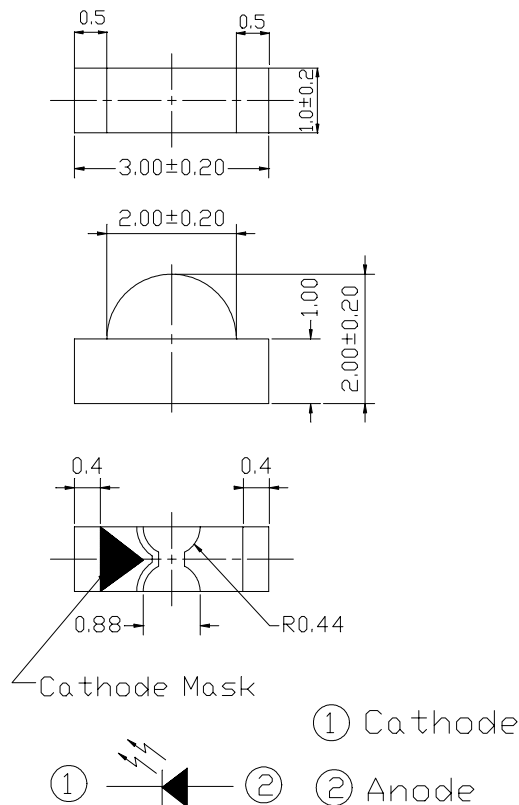
PART NO.	CHIP	LENS COLOR
	MATERIAL	
HIR	GaAlAs	Water Clear



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■ Package Dimensions :



■ Notes :

- 1.All dimensions are in millimeter.
- 2.General tolerance: $\pm 0.1\text{mm}$
- 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. EVERIGHT 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 T_A = 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	0.7	1.3	---	mW/sr	I _F =20mA
		---	7.0	---		I _F =100mA,tp=100 μ s, t _p /T=0.01
		---	65	---		I _F =1A,tp=100 μ s, t _p /T=0.01
Peak Wavelength	λ_p	---	850	---	nm	I _F =20mA
Spectral Bandwidth	$\Delta \lambda$	---	45	---	nm	I _F =20mA
Forward Voltage	V _F	---	1.45	1.65	V	I _F =20mA
		---	1.80	2.40		I _F =100mA,tp=100 μ s, t _p /T=0.01
		---	4.10	5.25		I _F =1A,tp=100 μ s, t _p /T=0.01
Reverse Current	I _R	---	---	10	μ A	V _R =5V
View Angle	2 Θ 1/2	---	145	---	deg	I _F =20mA

■ To Distinguish Intensity:

Condition:I_F=20mA

Bin Number	E	F	G
Min	0.70	0.95	1.20
Max	1.25	1.60	1.95



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■ Typical Electrical/Optical/Characteristics Curves

Fig. 1 Forward Current vs. Ambient Temperature

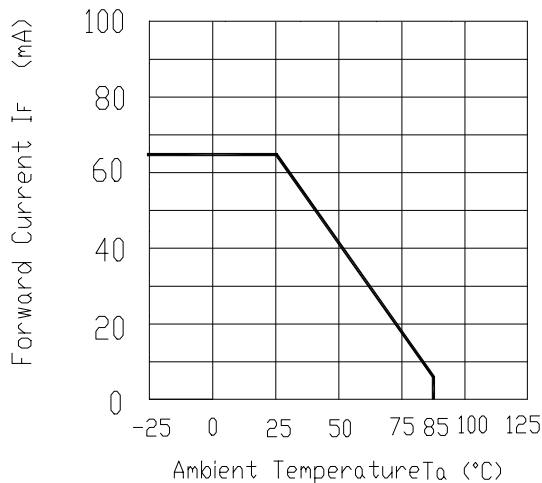


Fig. 2 Spectral Distribution

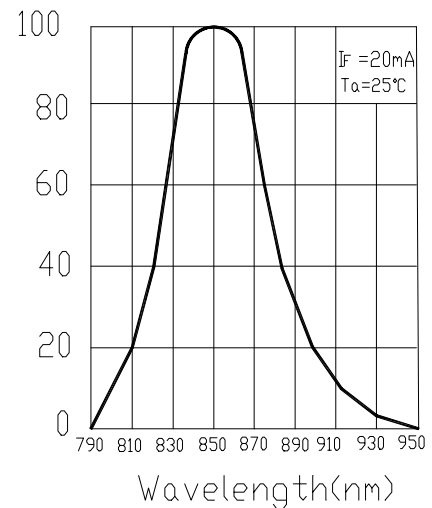


Fig. 3 Peak Emission Wavelength vs. Ambient Temperature

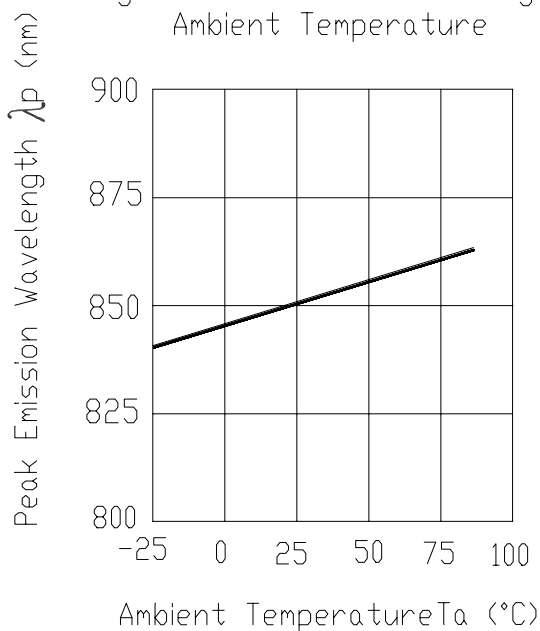
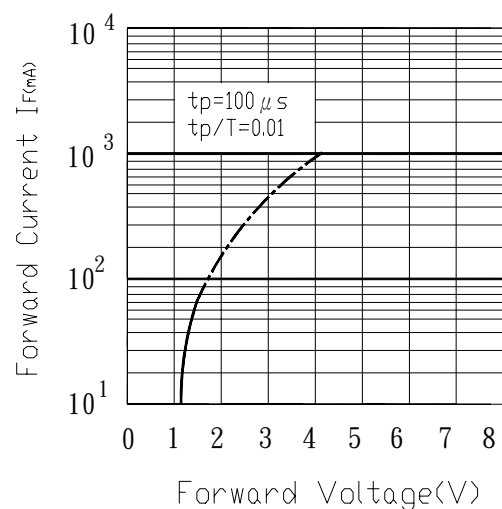


Fig. 4 Forward Current vs. Forward Voltage





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Fig. 5 Relative Intensity vs. Forward Current

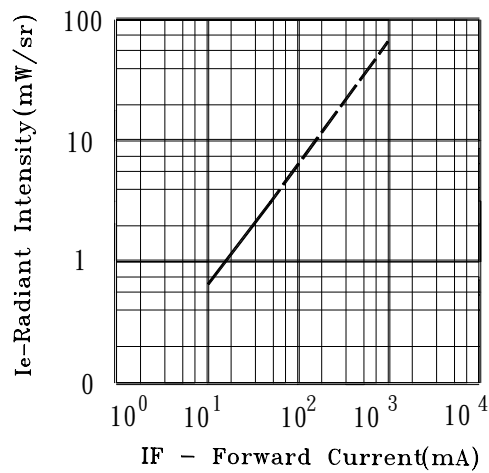


Fig. 6 Relative Radiant Intensity vs. Angular Displacement

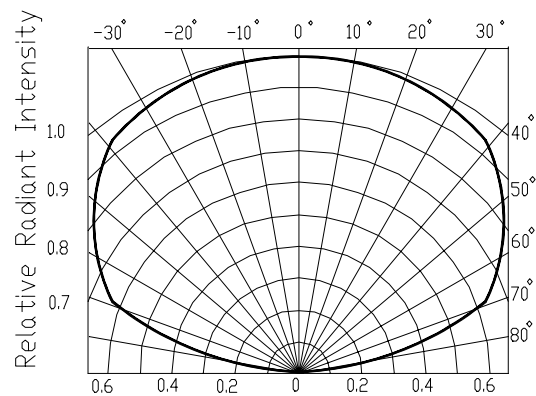


Fig. 7 Relative Intensity vs. Ambient Temperature (°C)

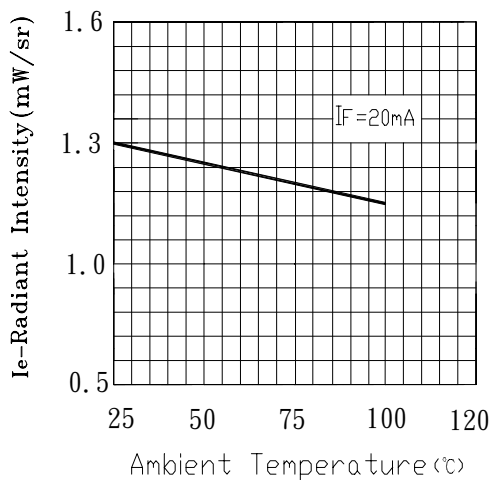
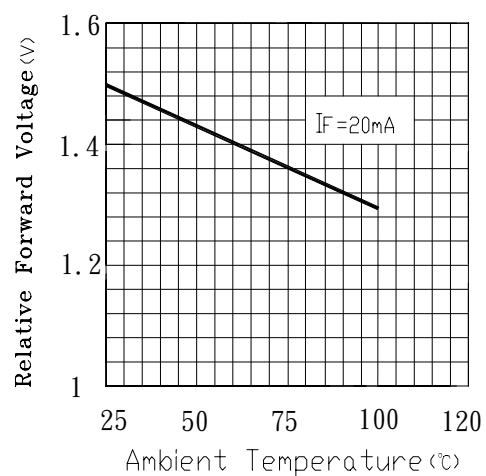


Fig. 8 Forward Voltage vs. Ambient Temperature (°C)





EVERLIGHT ELECTRONICS CO., LTD.

DEVICE NUMBER : DTH-012-023

REV : 1.0

ECN : _____

PAGE : 6/8

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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/ Cycle	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	H : +85°C 30 mins L : -55°C 30 mins	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	H : +100°C 5 mins L : -10°C 5 mins	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 _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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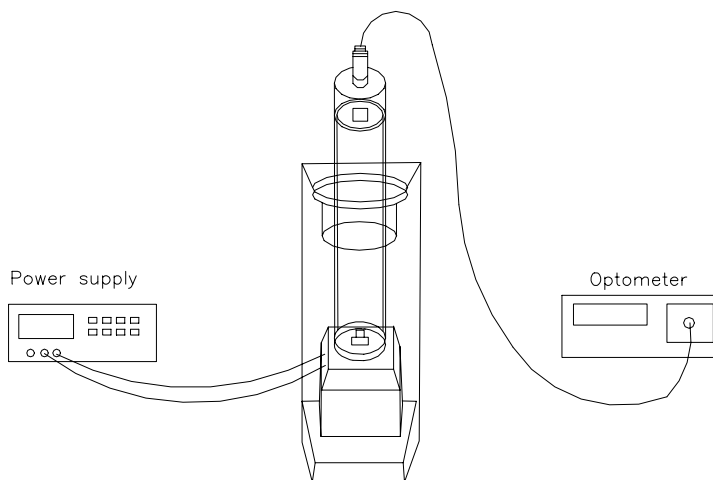
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■ Test Method For Power :

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

Test Item : Radiant Intensity

Unit : mW/sr



■ Taping Dimensions:

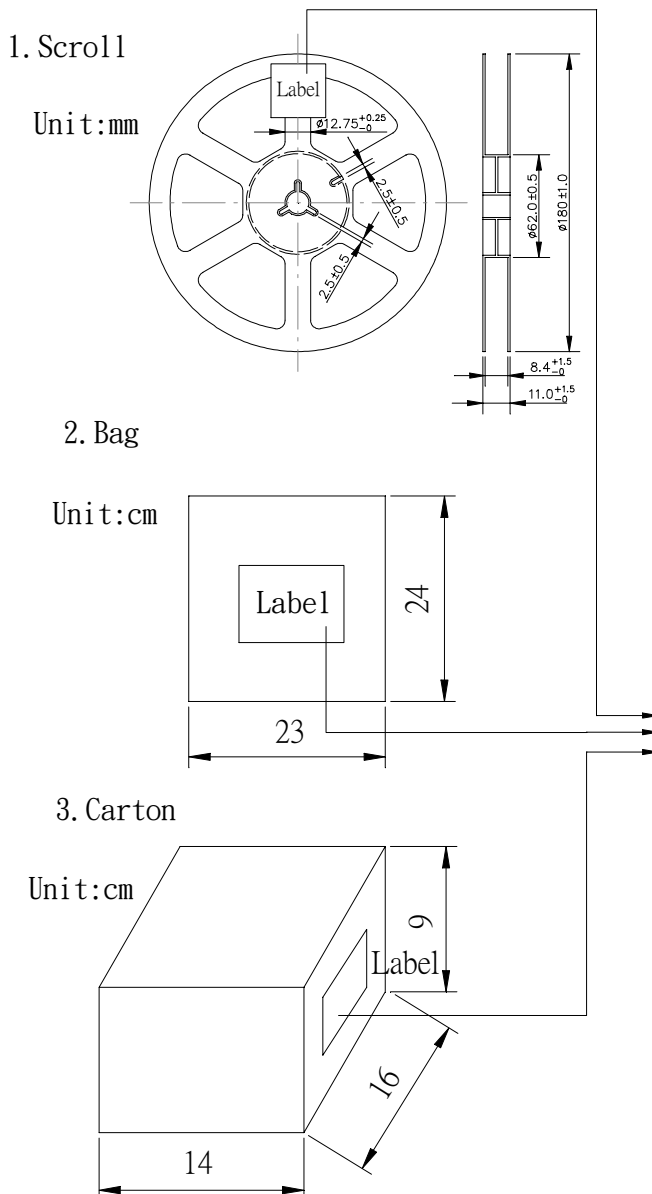


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MODEL NO : _____

■ Packing Specifications



EVERLIGHT

CPN:

P/N:



HIR12-21C/TR8

QTY:



LOT NO:

CAT:

HUE:

REF:

MADE IN TAIWAN

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. 2000 Pcs/1 Volume , 1 Volume/1Bag

2. 55 Bags/1Carton