



Chip Infrared LED With Right Angle Lens

MODEL NO : IR12-21C/TR8

■ Features :

- Small double-end package
- Peak wavelength $\lambda_p=940\text{nm}$
- View angle 160°
- High reliability
- Low forward voltage

■ Description :

- IR12-21C/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 :

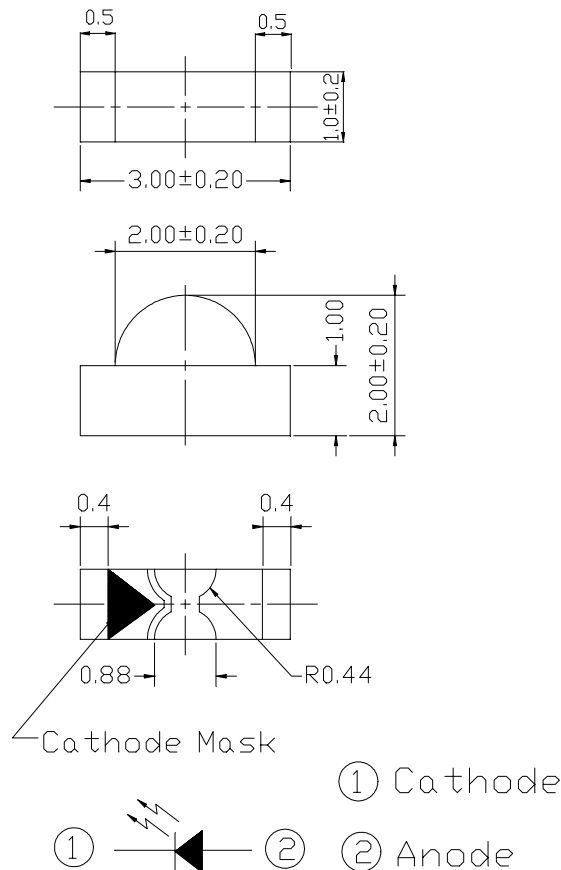
- PCB mounted infrared sensor
- Infrared emitting for miniature light barrier
- Floppy disk drive
- Smoke detector
- Optoelectronic switch

PART NO.	CHIP	LENS COLOR
	MATERIAL	
IR	GaAIAs	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.
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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 μ s, Duty cycle=1%	I_{FP}	1.0	A	
Reverse Voltage	V_R	5	V	
Operating Temperature	Topr	-40 ~ +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	0.5	0.8	----	mW/sr	$I_F=20\text{mA}$
		----	4.0	----		$I_F=100\text{mA}, t_p=100\ \mu\text{s}, t_p/T=0.01$
		----	40	----		$I_F=1\text{A}, t_p=100\ \mu\text{s}, t_p/T=0.01$
Peak Wavelength	λ_p	----	940	----	nm	$I_F=20\text{mA}$
Spectral Bandwidth	$\Delta\lambda$	----	45	----	nm	$I_F=20\text{mA}$
Forward Voltage	V_F	----	1.2	1.5	V	$I_F=20\text{mA}$
		----	1.4	1.85		$I_F=100\text{mA}, t_p=100\ \mu\text{s}, t_p/T=0.01$
		----	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	μA	$V_R=5\text{V}$
View Angle	$2\theta_{1/2}$	----	160	----	deg	$I_F=20\text{mA}$

■ To Distinguish Intensity:

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

Bin Number	F	G
Min	0.5	1.0
Max	1.5	2.5



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■ Typical Electrical/Optical/Characteristics Curves

Fig. 1 Forward Current vs. Ambient Temperature

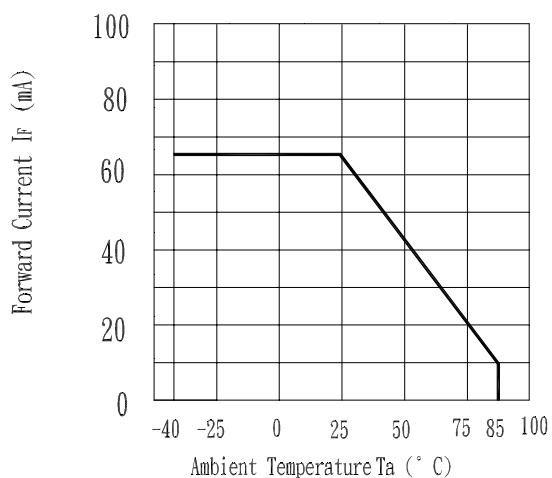


Fig. 2 Spectral Distribution

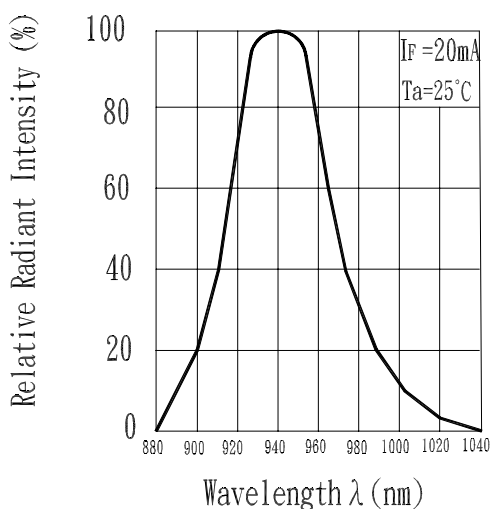


Fig. 3 Peak Emission Wavelength vs. Ambient Temperature

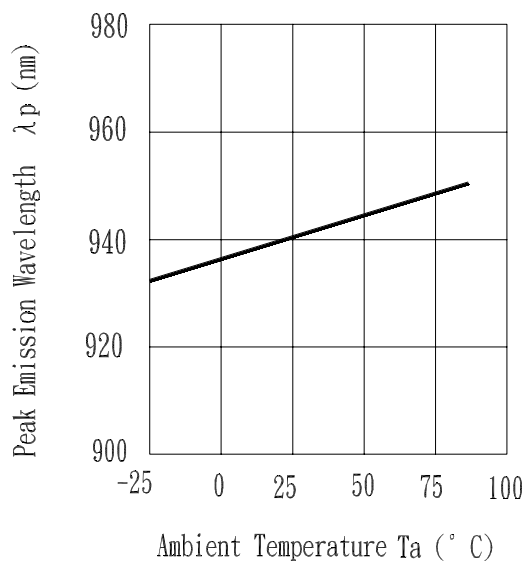
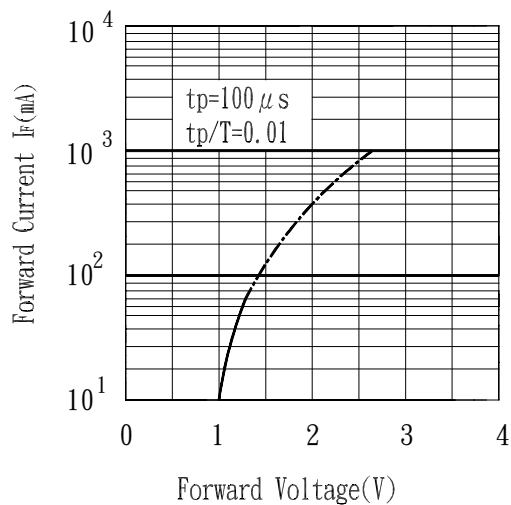


Fig. 4 Forward Current vs. Forward Voltage





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Fig. 5 Relative Intensity vs. Forward Current

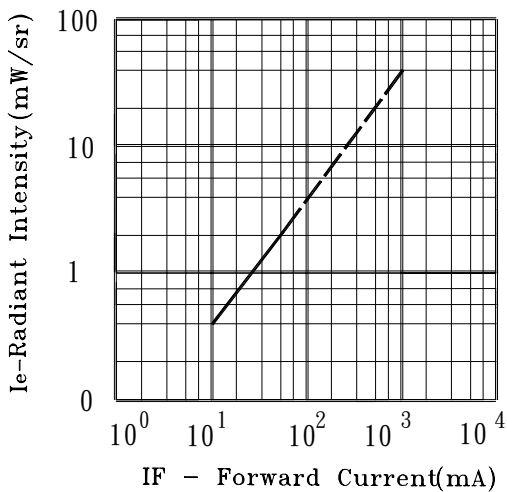


Fig. 6 Relative Radiant Intensity vs. Angular Displacement

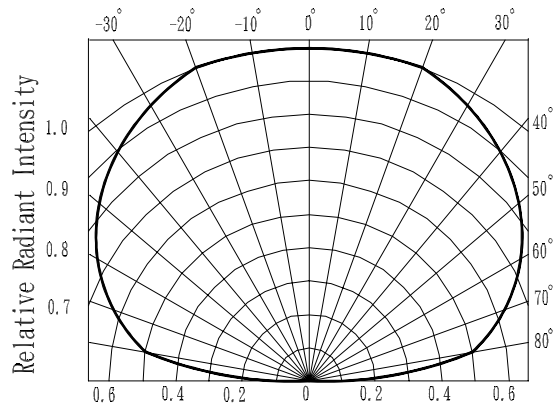


Fig. 7 Relative Intensity vs. Ambient Temperature (°C)

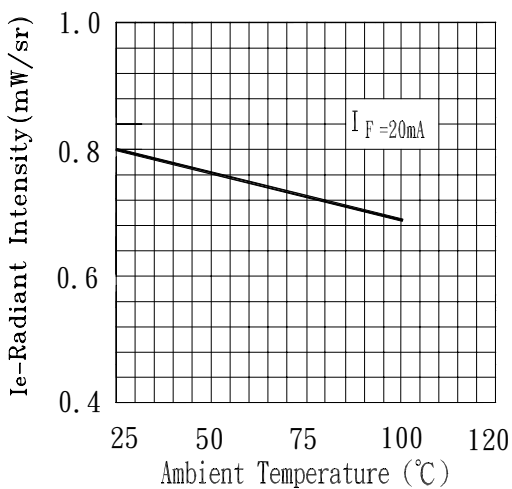
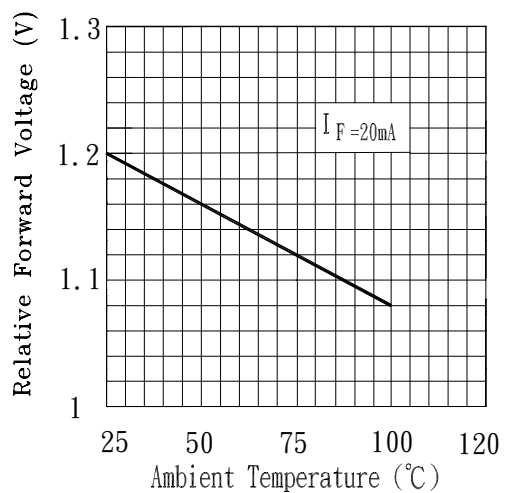


Fig. 8 Forward Current vs. Ambient Temperature (°C)





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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	H : +85°C 30 mins ↑ 5 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 ↑ 10 secs ↓ 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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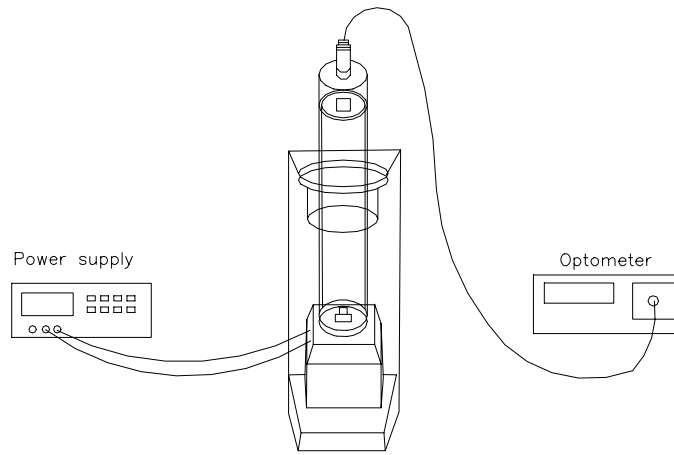
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■ Test Method For Power :

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

Test Item : Radiant Intensity

Unit : mW/sr

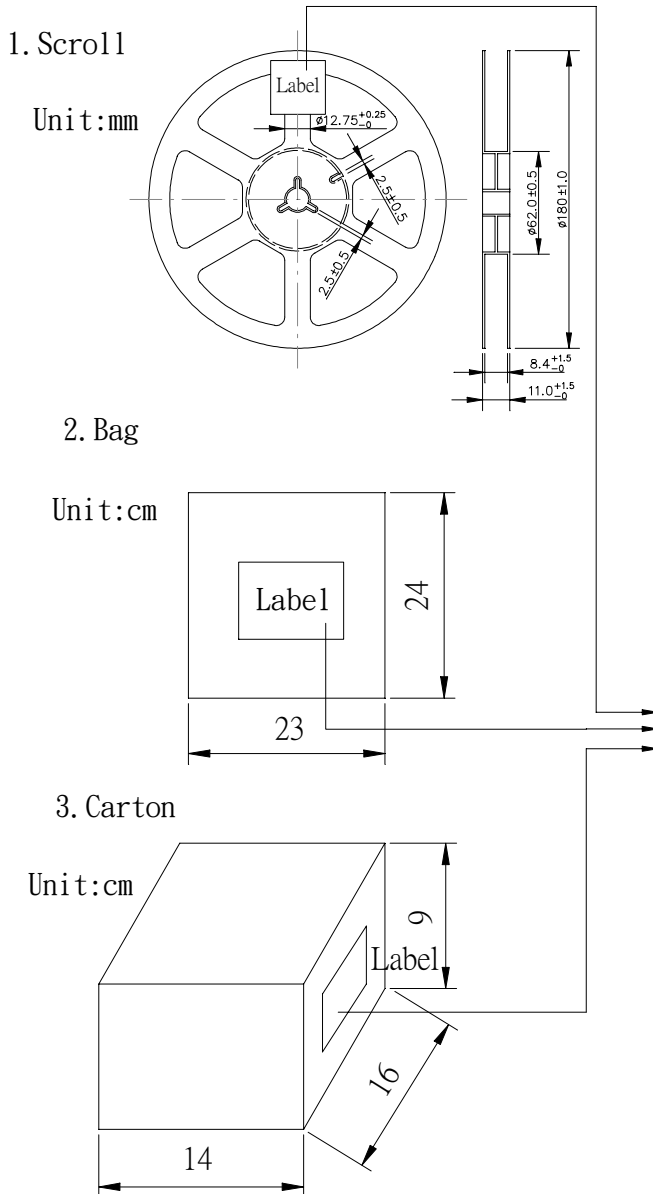


■ Taping Dimensions:

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■ Packing Specifications



CPN:

P/N:

IR12-21C/TR8

QTY:

CAT:

LOT NO:

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

2. 10Bags/1Carton