



EVERLIGHT ELECTRONICS CO., LTD.

# DATA SHEET

MODEL NO : IR17-21C

DATE : JUL,06, 2000

DEPARTMENT : R&D 2

REVISION : 1.1

<b>RECEIVED</b>			
<input checked="" type="checkbox"/> MASS PRODUCTION			
<input type="checkbox"/> PRELIMINARY			
<input type="checkbox"/> CUSTOMER DESIGN			
DEVICE NUMBER : DIR-017-061			
PAGE :8			
CUSTOMER	DESIGNER	CHECKER	APPROVER

1.1	Amending Power Dissipation and Continuous Forward Current Adding package specification Adding reliability test item and Condition Adding test method for power	JUL,06, 2000
REV	DESCRIPTION	RELEASE DATE

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<http://www.everlight.com>



## 0805 Package Infrared Chip LED

MODEL NO : IR17-21C

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### ■ Features :

- Small double-end package
- Peak wavelength  $\lambda_p=940\text{nm}$
- View angle  $120^\circ$
- High reliability
- Low forward voltage

### ■ Description :

- IR17-21C is an Infrared Emitting Diode in miniature top view flat SMD package and it is molded in a water clear plastic. The device is spectrally matched with silicon photodiode and phototransistor.

### ■ Applications :

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

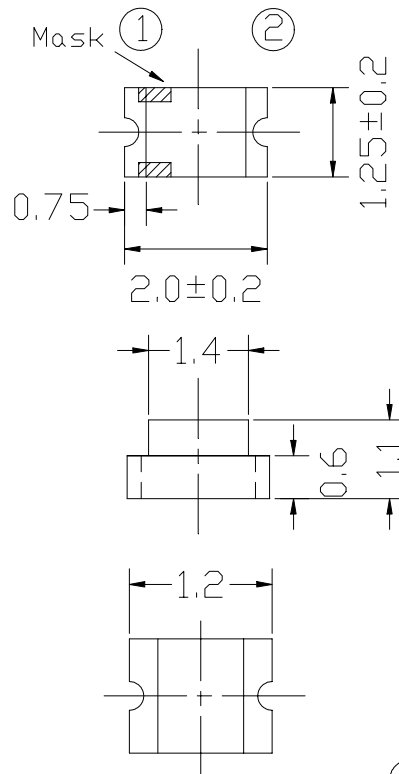
PART NO.	CHIP	LENS COLOR
	MATERIAL	
IR	GaAlAs	Water Clear

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### ■ Package Dimensions :



① Cathode

① ————▶ (②) (②) Anode

### ■ 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. 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	-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	$E_e$	0.2	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	$\lambda_p$	----	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	$\mu\text{A}$	$V_R=5\text{V}$
View Angle	$2\theta_{1/2}$	----	120	----	deg	$I_F=20\text{mA}$



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### ■ Typical Electrical/Optical/Characteristics Curves

Fig. 1 Forward Current vs. Ambient Temperature

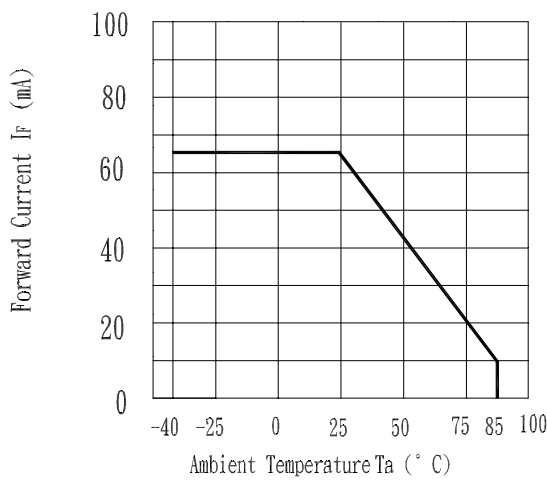


Fig. 2 Spectral Distribution

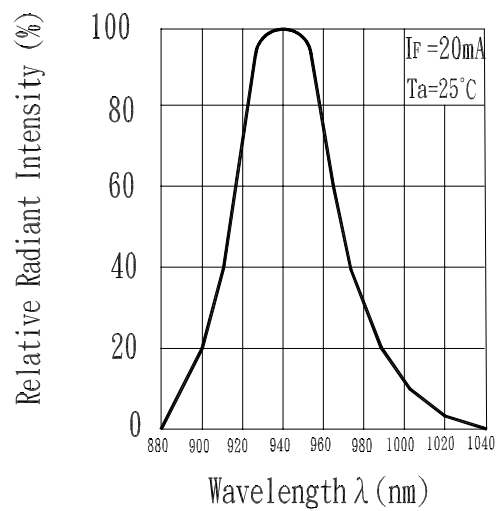


Fig. 3 Peak Emission Wavelength vs. Ambient Temperature

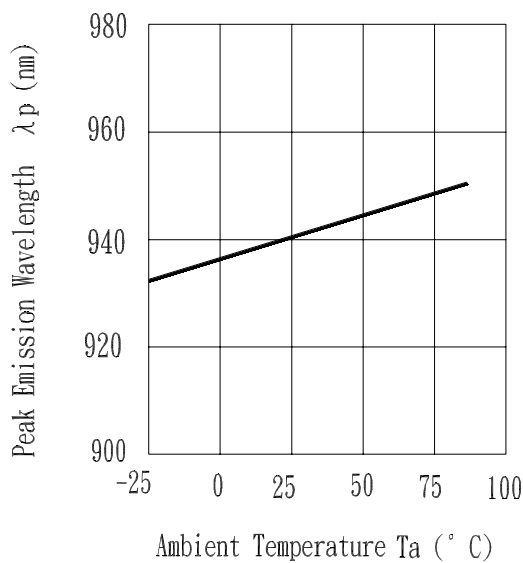
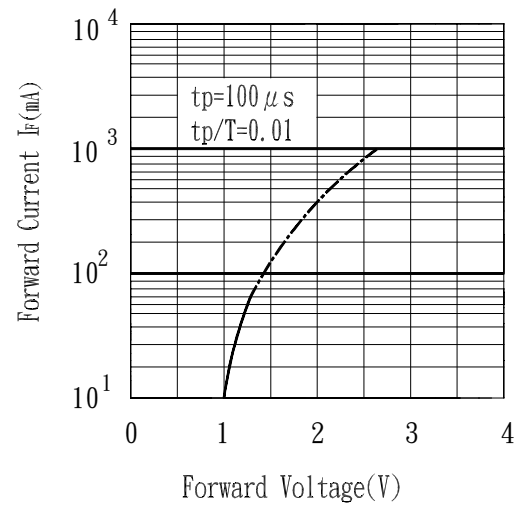


Fig. 4 Forward Current vs. Forward Voltage





### 0805 Package Infrared Chip LED

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#### ■ Typical Electrical/Optical/Characteristics Curves

Fig. 5 Relative Intensity vs. Forward Current

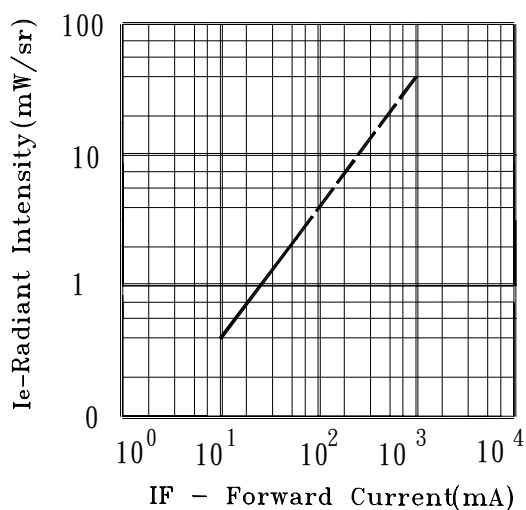


Fig. 6 Relative Radiant Intensity vs. Angular Displacement

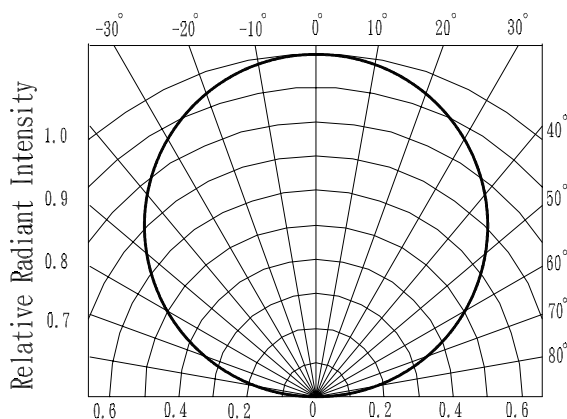


Fig. 7 Relative Intensity vs. Ambient Temperature (°C)

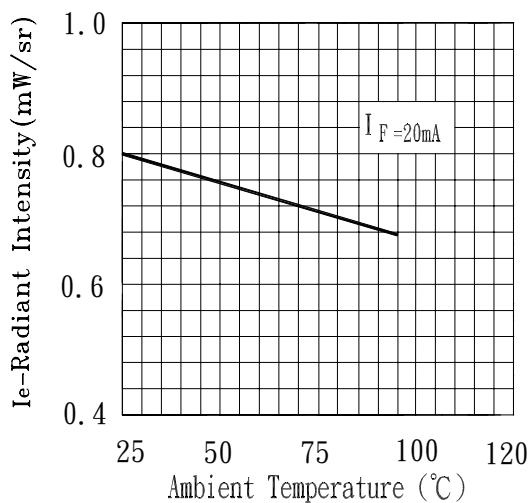
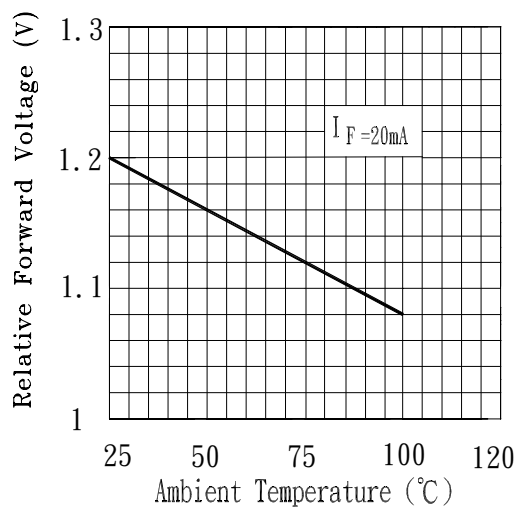


Fig. 8 Forward Current vs. Ambient Temperature (°C)





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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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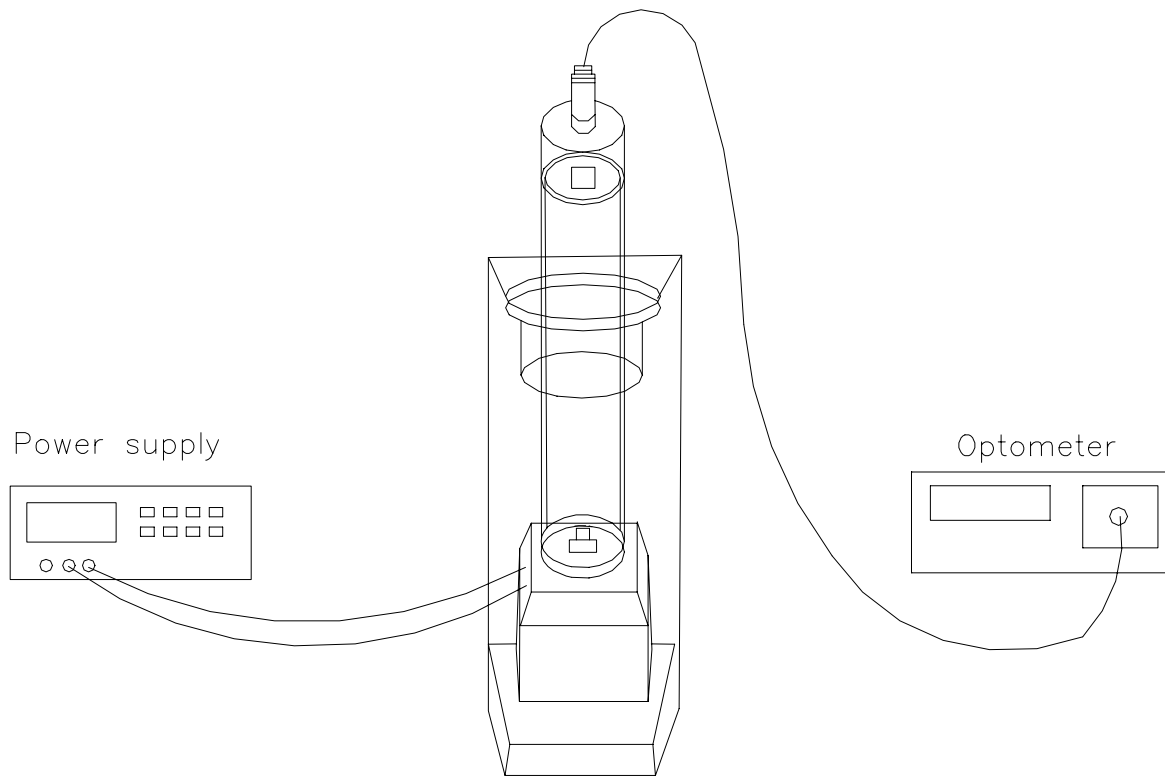
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### ■ Test Method For Power :

Condition :  $I_F=20$  mA

Test Item : Radiant Intensity

Unit : mW/sr





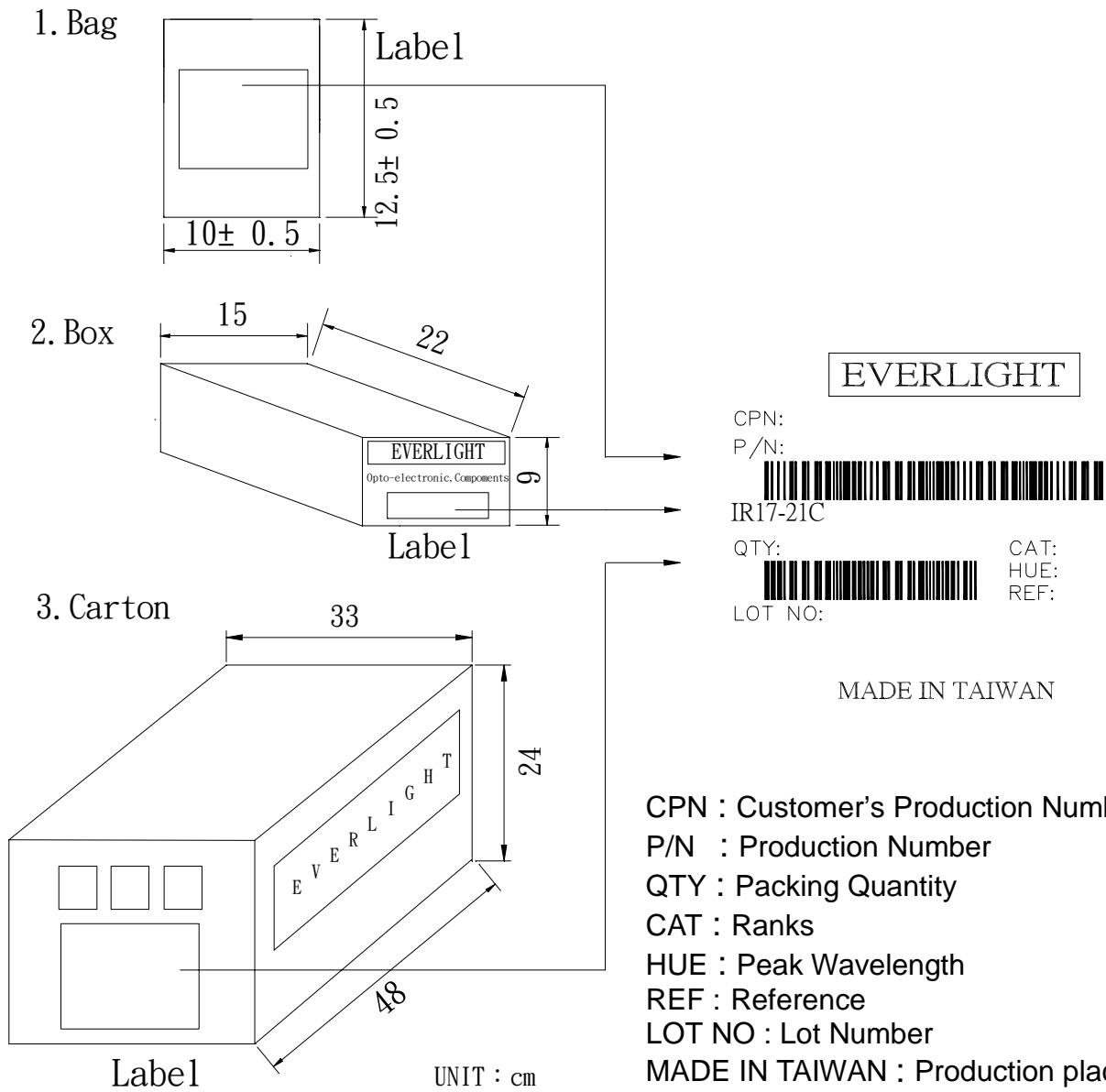


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### ■ Packing Specifications



### ■ Packing Quantity Specification

1. 1000 Pcs/1Bag , 40 Bags/1Box
2. 10 Boxes/1Carton