



EVERLIGHT ELECTRONICS CO., LTD.

DATA SHEET

MODEL NO	:	IR17-21C
DATE	:	JUL,06, 2000
DEPARTMENT	:	R&D 2
REVISION	:	1.1

RECEIVED			
☒ MASS PRODUCTION			
☐ PRELIMINARY			
☐ 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



0805 Package Infrared Chip LED

MODEL NO : IR17-21C

■ Features :

- Small double-end package
- Peak wavelength $\lambda_p=940\text{nm}$
- View angle 120°
- 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 :

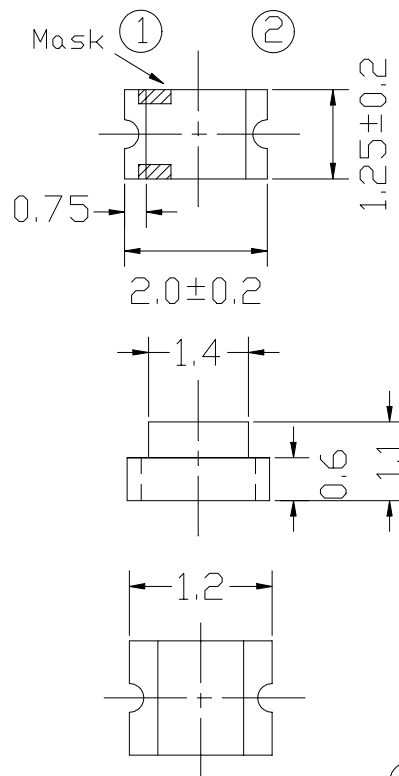
- PCB mounted infrared sensor
- Infrared emitting for miniature light barrier
- Floppy disk drive
- Smoke detector
- Optoelectronic switch

PART NO.	CHIP	LENS COLOR
	MATERIAL	
IR	GaAlAs	Water Clear

0805 Package Infrared Chip LED

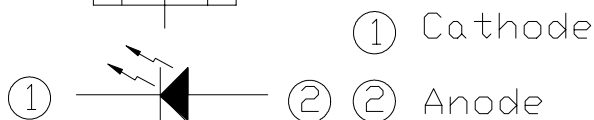
MODEL NO : IR17-21C

■ 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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**0805 Package Infrared Chip LED**MODEL NO : IR17-21C**■ 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	Ee	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	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	$2\theta_{1/2}$	----	120	----	deg	$I_F=20\text{mA}$



0805 Package Infrared Chip LED

MODEL NO : IR17-21C

Typical Electrical/Optical/Characteristics Curves

Fig. 1 Forward Current vs. Ambient Temperature

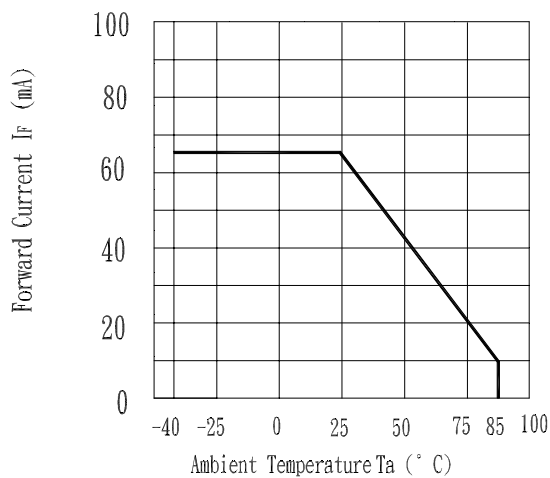


Fig. 2 Spectral Distribution

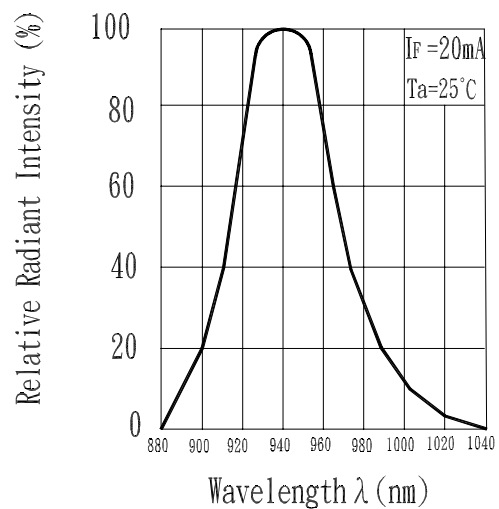


Fig. 3 Peak Emission Wavelength vs. Ambient Temperature

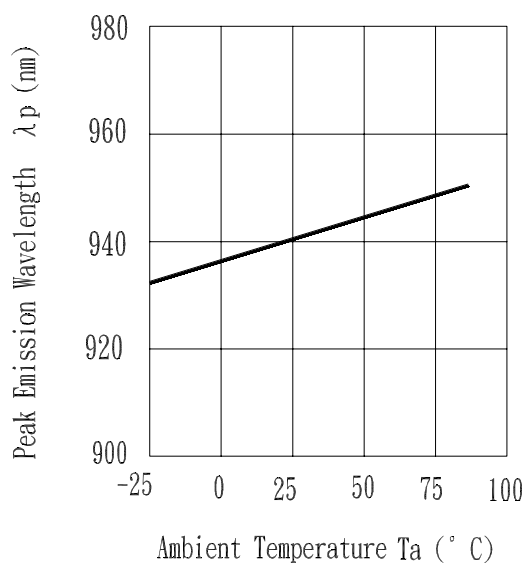
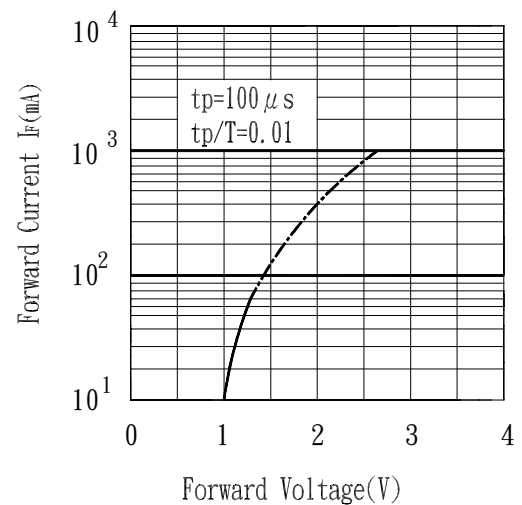


Fig. 4 Forward Current vs. Forward Voltage





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MODEL NO : IR17-21C

■ Typical Electrical/Optical/Characteristics Curves

Fig. 5 Relative Intensity vs.
Forward Current

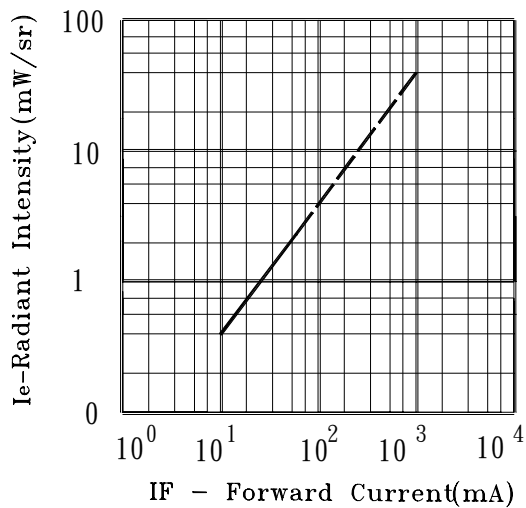


Fig. 6 Relative Radiant Intensity vs.
Angular Displacement

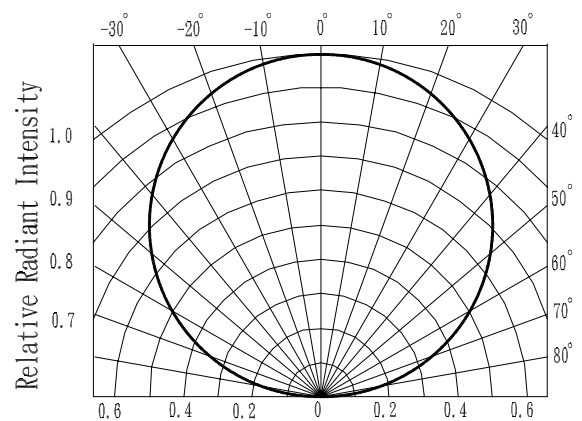


Fig. 7 Relative Intensity vs.
Ambient Temperature (°C)

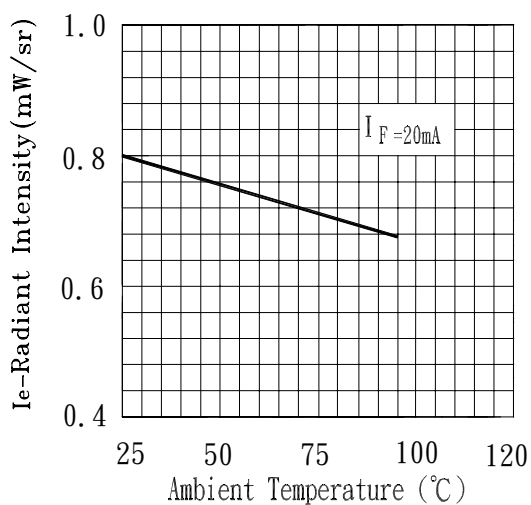
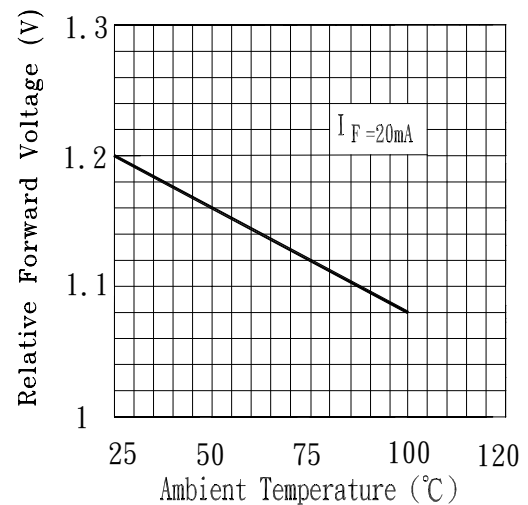


Fig. 8 Forward Current vs.
Ambient Temperature (°C)



**0805 Package Infrared Chip LED**MODEL NO : IR17-21C**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℃ ± 5 ℃ 5 secs	6 Mins	22 pcs	More than 90% of lead to be covered by soldering	0/1
2	Temperature Cycle	H : +85℃ 30 mins 5 mins L : -55℃ 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℃ 5 mins 10 secs L : -10℃ 5 mins	50 cycles	22 pcs	U :Upper specification limit L :Lower specification limit	0/1
4	High Temperature Storage	TEMP.: +100℃	1000 hrs	22 pcs		0/1
5	Low Temperature Storage	TEMP. : -55℃	1000 hrs	22 pcs		0/1
6	DC Operating Life	$I_F=20\text{mA}$	1000 hrs	22 pcs		0/1
7	High Temperature / High Humidity	85℃ / 85% R.H.	1000 hrs	22 pcs		0/1



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■ Test Method For Power :

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

Test Item : Radiant Intensity

Unit : mW/sr

