



1.9mm Round Subminiature Infrared LED

MODEL NO : IR91-21C/F7

■ Features :

- Small double-end package
- Peak wavelength $\lambda_p=940\text{nm}$
- View angle 25°
- High reliability
- Low forward voltage

■ Description :

- IR91-21C/F7 is an infrared emitting diode in miniature SMD package which is molded in a water clear plastic with spherical top view lens. The device is spectrally matched with silicon photodiode and phototransistor.

■ Applications :

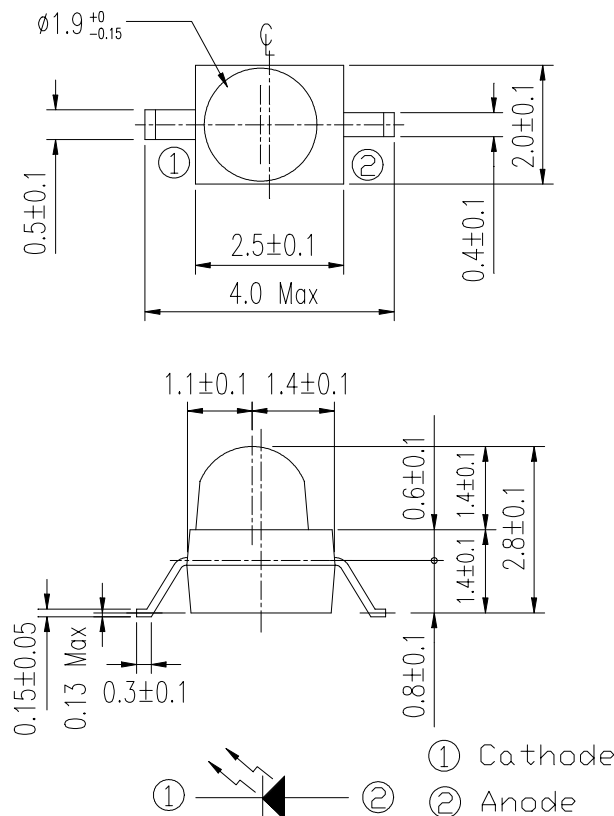
- PCB mounted infrared sensor
- Infrared emitting for miniature light barrier
- Floppy disk drive
- Smoke detector
- Optoelectronic switch

PART NO.	CHIP	LENS COLOR
	MATERIAL	
IR	GaAlAs	Water Clear

1.9mm Round Subminiature Infrared LED

MODEL NO : IR91-21C/F7

■ Package Dimensions :



■ Notes :

1. All dimensions are in millimeter.
2. General Tolerance: ± 0.1 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.



1.9mm Round Subminiature Infrared LED

MODEL NO : IR91-21C/F7

■ 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	3.0	5.0	----	mW/sr	$I_F=20\text{mA}$
		----	25	----		$I_F=100\text{mA}, t_p=100 \mu\text{s}, t_p/T=0.01$
		----	250	----		$I_F=1\text{A}, t_p=100 \mu\text{s}, t_p/T=0.01$
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	$2\theta_{1/2}$	----	25	----	deg	$I_F=20\text{mA}$



1.9mm Round Subminiature Infrared LED

MODEL NO : IR91-21C/F7

■ Typical Electrical/Optical/Characteristics Curves

Fig. 1 Forward Current vs. Ambient Temperature

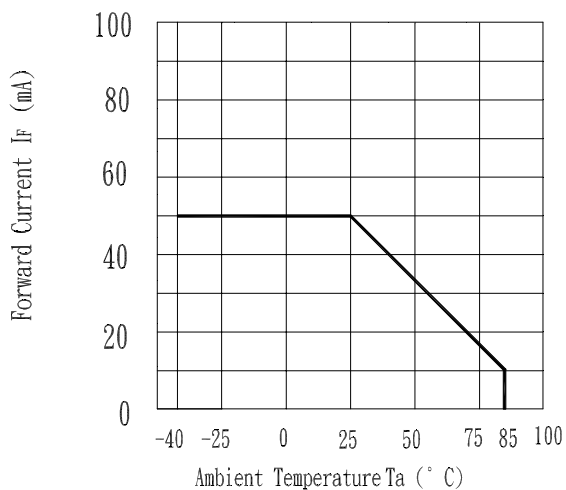


Fig. 2 Spectral Distribution

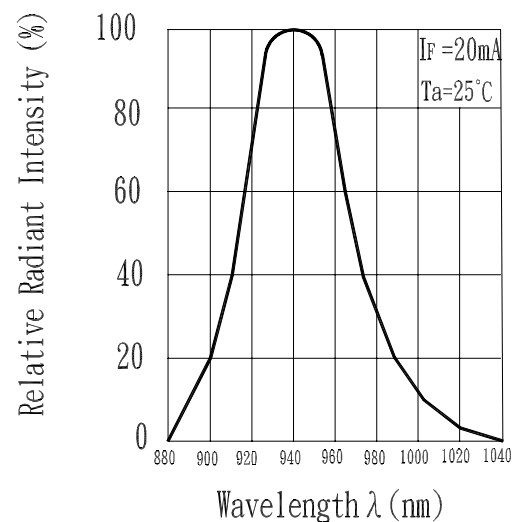


Fig. 3 Peak Emission Wavelength vs. Ambient Temperature

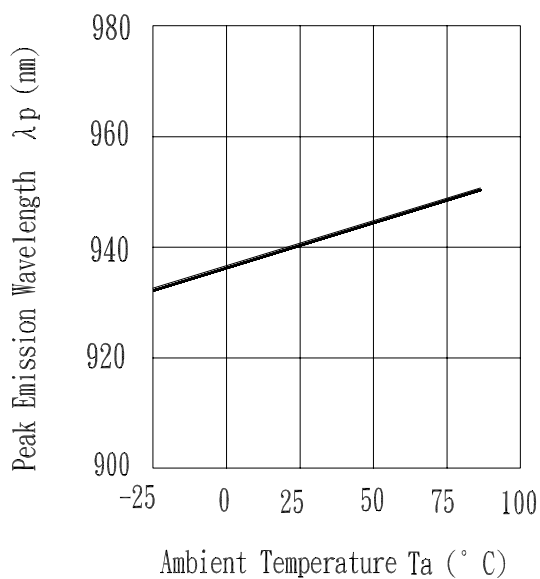
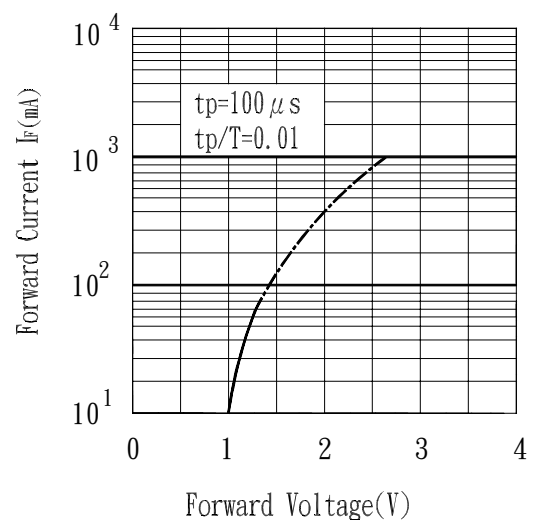


Fig. 4 Forward Current vs. Forward Voltage





EVERLIGHT ELECTRONICS CO., LTD.

DEVICE NUMBER : DIR-091-177 REV : 1.0
ECN : _____ PAGE : 5/8

1.9mm Round Subminiature Infrared LED

MODEL NO : IR91-21C/F7

■ Typical Electrical/Optical/Characteristics Curves

**1.9mm Round Subminiature Infrared LED**MODEL NO : IR91-21C/F7**■ 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	$I_F=20\text{mA}$	1000 hrs	22 pcs		0/1
7	High Temperature / High Humidity	85°C / 85% R.H.	1000 hrs	22 pcs		0/1



1.9mm Round Subminiature Infrared LED

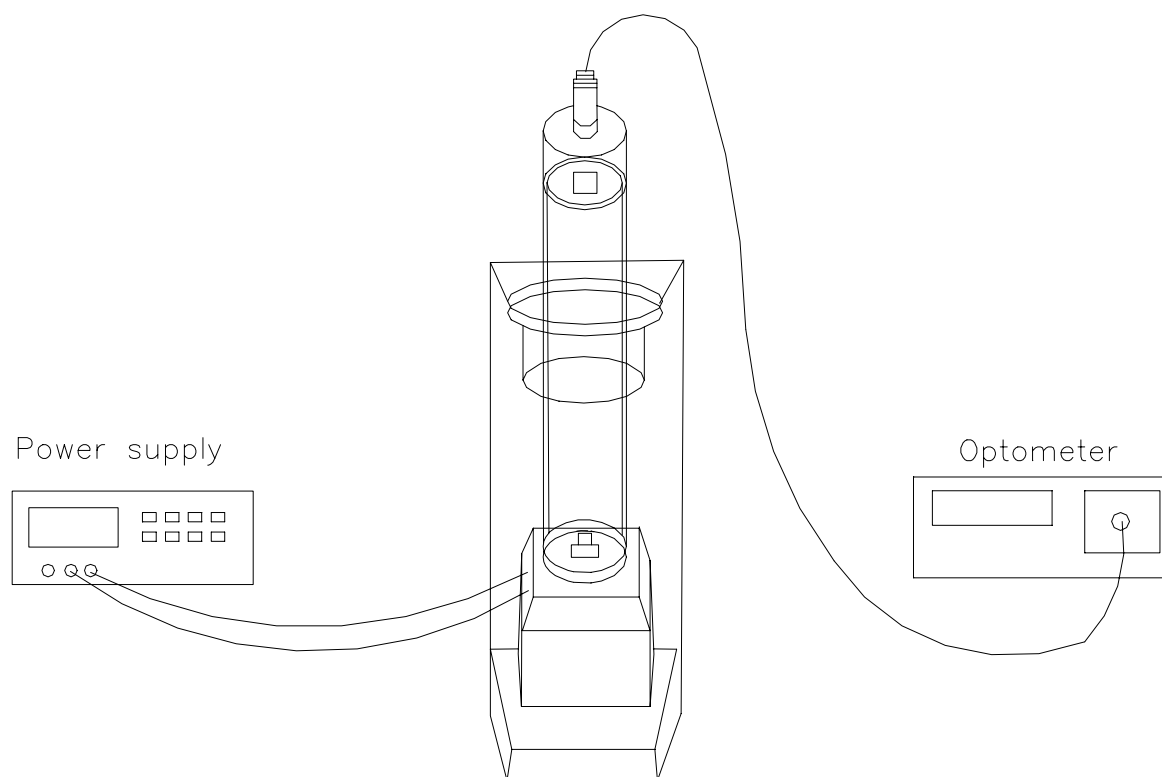
MODEL NO : IR91-21C/F7

■ Test Method For Power :

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

Test Item : Radiant Intensity

Unit : mW/sr

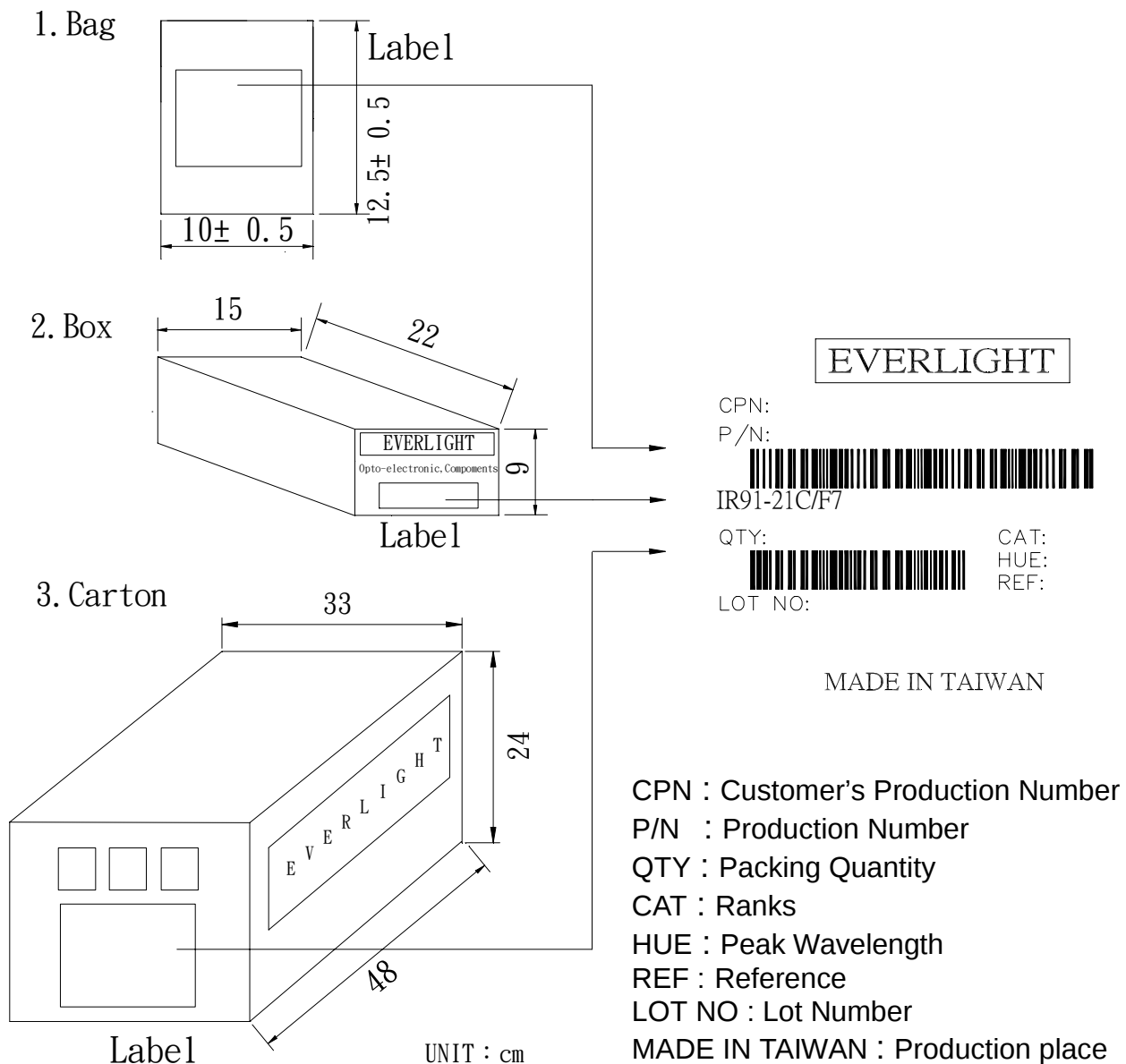




1.9mm Round Subminiature Infrared LED

MODEL NO : IR91-21C/F7

■ Packing Specifications



■ Packing Quantity Specification

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